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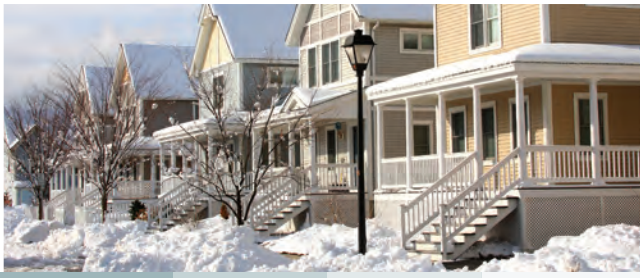
Energy Use Data Handbook

1990 to 2017



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Energy Use Data Handbook

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Canada

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Preface

This is the seventeenth edition of the *Energy Use Data Handbook, 1990 to 2017,* which fulfils part of the mandate of Natural Resources Canada's Office of Energy Efficiency (OEE) to strengthen and expand Canada's commitment to energy efficiency and to reduce greenhouse gas (GHG) emissions that contribute to climate change.

The main objective of the handbook is to provide a statistical overview of Canada's sectoral energy markets. The GHG emissions figures presented here are for analytical purposes. Readers should consult Environment 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 2017 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 2017,* 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.

For more information on this product or other services, contact

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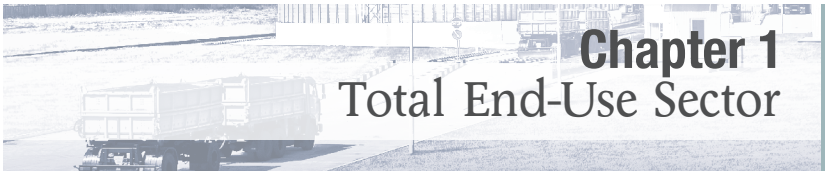
Table of Contents

Table of Contents

Table of Contents



Chapter 1
Total End-Use Sector

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 models and/or databases for each sector of the economy presented in this report (i.e. residential, commercial/institutional, industrial, transportation, agriculture 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.

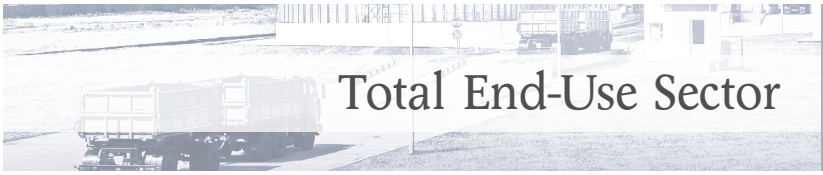
Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

1 Total End-Use Sector

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

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a,b,c]	**6,957.2**	**8,090.5**	**8,464.8**	**8,493.7**	**8,837.1**
Energy Use by Energy Source (PJ)					
Electricity	1,428.6	1,648.9	1,772.7	1,738.5	1,771.4
Natural Gas	1,777.6	2,140.8	2,077.5	2,205.7	2,478.4
Motor Gasoline[1]	1,176.5	1,329.1	1,429.8	1,520.1	1,505.4
Oil[2]	1,202.2	1,336.4	1,438.2	1,431.5	1,462.6
Aviation Gasoline	5.5	3.6	3.3	2.6	2.1
Aviation Turbo Fuel	181.9	236.5	254.7	226.4	230.1
Still Gas and Petroleum Coke	309.9	375.9	469.8	498.4	498.0
Wood Waste and Pulping Liquor	341.0	479.5	523.2	375.8	363.6
Other[3]	313.3	340.2	330.8	323.7	352.5
Residential Wood	220.6	199.7	164.8	171.0	173.0
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c,d]	**398.8**	**466.0**	**485.6**	**483.9**	**492.8**
GHG Emissions by Energy Source (Mt of CO_2e)					
Electricity	80.2	98.0	101.0	85.9	76.9
Natural Gas	91.2	109.9	108.0	117.3	133.0
Motor Gasoline[1]	81.6	93.5	99.7	103.9	102.4
Oil[2]	87.1	96.5	104.0	103.5	105.7
Aviation Gasoline	0.4	0.3	0.2	0.2	0.2
Aviation Turbo Fuel	12.6	16.3	17.6	15.6	15.9
Still Gas and Petroleum Coke	17.0	21.1	27.2	28.9	28.6
Wood Waste and Pulping Liquor	0.2	0.3	0.4	0.3	0.2
Other[3]	23.3	25.4	23.6	24.4	25.9
Residential Wood	5.18	4.69	3.87	4.02	4.06
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c,d]	**318.5**	**368.1**	**384.6**	**398.1**	**415.9**

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

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
8,806.7	**9,008.7**	**9,134.4**	**9,113.7**	**8,884.6**	**9,089.5**	**30.6%**
1,756.9	1,781.7	1,792.8	1,792.7	1,801.2	1,811.8	26.8%
2,456.6	2,621.4	2,759.5	2,725.6	2,582.2	2,742.0	54.3%
1,508.4	1,549.7	1,520.7	1,555.6	1,612.9	1,592.0	35.3%
1,420.2	1,425.0	1,411.4	1,382.9	1,297.5	1,309.3	8.9%
2.6	2.2	1.9	2.2	2.3	2.3	-59.1%
261.9	273.1	267.9	273.2	280.8	288.8	58.7%
494.8	473.3	468.4	477.3	471.5	482.6	55.7%
356.3	390.8	420.4	432.1	359.6	372.2	9.1%
373.8	317.6	318.5	300.6	304.6	317.2	1.2%
175.2	173.9	172.9	171.4	172.1	171.2	-22.4%
486.7	**494.2**	**492.7**	**494.0**	**479.8**	**488.6**	**22.5%**
69.9	71.0	66.8	69.0	63.6	61.6	-23.2%
132.0	140.5	147.7	146.0	138.7	147.8	62.1%
102.3	104.9	102.6	105.0	108.9	107.5	31.7%
102.7	102.9	101.9	99.9	93.7	94.6	8.6%
0.2	0.2	0.1	0.2	0.2	0.2	-59.1%
18.1	18.9	18.5	18.9	19.4	19.9	58.7%
30.2	29.1	28.6	29.4	29.2	30.0	76.3%
0.2	0.3	0.3	0.3	0.2	0.3	27.0%
27.0	22.4	22.2	21.3	21.9	22.7	-2.6%
4.11	4.08	4.06	4.02	4.04	4.02	-22.4%
416.8	**423.1**	**426.0**	**425.0**	**416.1**	**427.0**	**34.1%**

Sources:

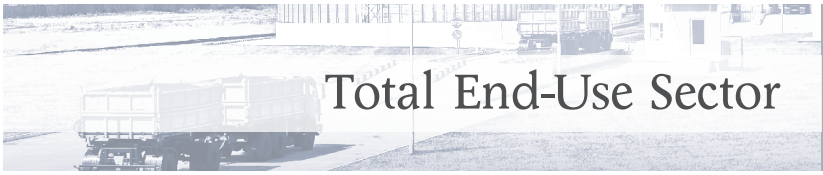
a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.
d) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

1 Total End-Use Sector

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

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a,b,e]	**6,957.2**	**8,090.5**	**8,464.8**	**8,493.7**	**8,837.1**
Residential (PJ)[a,b]	***1,424.6***	***1,491.2***	***1,496.5***	***1,489.8***	***1,575.8***
Space Heating	957.5	983.5	945.2	915.7	978.6
Water Heating	230.8	263.3	280.0	285.4	303.9
Appliances	176.8	176.1	181.7	197.5	201.8
Major Appliances	*148.5*	*131.4*	*124.6*	*121.5*	*121.4*
Other Appliances[1]	*28.3*	*44.6*	*57.1*	*76.0*	*80.4*
Lighting	49.5	55.1	57.3	59.8	60.2
Space Cooling	10.0	13.2	32.3	31.5	31.5
Commercial/Institutional (PJ)[a,c]	***745.6***	***931.9***	***957.3***	***937.7***	***983.8***
Space Heating	463.6	594.3	565.1	514.0	550.3
Water Heating	42.9	55.8	55.7	57.7	59.5
Auxiliary Equipment	49.8	73.2	94.8	121.3	124.0
Auxiliary Motors	48.7	50.8	47.0	45.5	48.8
Lighting	101.5	113.7	123.6	137.7	138.7
Space Cooling	30.3	37.2	62.9	54.0	55.0
Street Lighting[f]	8.9	6.9	8.3	7.5	7.6
Industrial (PJ)[a,e]	***2,710.0***	***3,166.9***	***3,303.1***	***3,206.3***	***3,390.9***
Mining, Quarrying, and Oil and Gas Extraction	345.9	505.8	658.3	975.5	1,112.6
Pulp and Paper	728.2	867.7	824.8	552.7	539.9
Iron and Steel	219.4	260.1	239.7	213.1	226.9
Smelting and Refining	183.3	231.3	261.1	238.4	248.3
Cement	59.3	67.1	72.3	59.4	58.0
Chemicals	223.2	260.3	236.1	248.4	271.3
Petroleum Refining	324.9	342.6	364.3	350.9	346.3
Other Manufacturing	551.1	563.6	546.7	472.0	488.8
Forestry	7.7	17.2	28.8	22.3	19.8
Construction	66.9	51.3	71.0	73.4	78.9

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



Total End-Use Sector

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
8,806.7	**9,008.7**	**9,134.4**	**9,113.7**	**8,884.6**	**9,089.5**	**30.6%**
1,508.4	***1,569.0***	***1,614.6***	***1,559.5***	***1,464.2***	***1,507.7***	***5.8%***
909.5	973.4	1,024.5	964.6	889.0	928.9	-3.0%
299.7	301.3	303.8	302.2	282.4	291.5	26.3%
204.2	209.9	206.4	207.3	202.3	205.6	16.3%
120.2	*121.6*	*118.4*	*117.6*	*113.5*	*114.1*	*-23.2%*
83.9	*88.3*	*88.1*	*89.8*	*88.8*	*91.5*	*223.6%*
59.7	59.7	57.1	56.2	53.5	53.6	8.2%
35.3	24.8	22.8	29.2	36.9	28.1	181.4%
947.2	***968.6***	***1,016.2***	***1,007.9***	***1,002.6***	***1,030.2***	***38.2%***
510.6	548.9	589.4	565.2	561.1	582.7	25.7%
58.8	58.7	58.7	58.9	58.7	58.4	36.1%
122.9	126.8	130.2	138.2	146.2	153.2	208.0%
48.2	46.7	46.2	42.6	39.0	39.2	-19.4%
138.7	136.4	138.9	141.5	133.9	138.9	36.9%
60.5	43.5	45.3	54.6	56.5	50.6	67.1%
7.5	7.6	7.6	7.0	7.1	7.0	-21.2%
3,443.2	***3,497.6***	***3,562.9***	***3,611.4***	***3,478.4***	***3,607.4***	***33.1%***
1,177.5	1,209.3	1,246.3	1,318.2	1,230.4	1,318.5	281.2%
524.9	560.7	573.9	585.2	537.8	549.2	-24.6%
231.1	214.8	231.0	218.1	221.2	227.2	3.6%
229.5	225.2	230.9	237.2	264.3	271.7	48.2%
57.0	54.9	57.1	56.6	57.7	63.1	6.4%
272.3	284.5	292.4	280.9	267.1	255.0	14.3%
348.6	327.8	329.5	323.1	322.7	322.2	-0.8%
501.3	521.9	506.8	475.5	447.3	464.2	-15.8%
19.0	19.1	18.4	23.2	23.5	24.6	218.3%
82.0	79.3	76.5	93.4	106.4	111.7	67.0%

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.
d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
e) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.
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..

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

	1990	2000	2005	2010	2011
Total Transportation (PJ)[a]	**1,877.9**	**2,265.9**	**2,480.0**	**2,613.5**	**2,615.1**
Passenger Transportation (PJ)[a,d]	***1,154.0***	***1,275.4***	***1,343.7***	***1,343.0***	***1,337.9***
Cars	705.5	625.5	619.4	597.6	579.6
Light Trucks	215.5	362.3	412.7	453.8	460.8
Motorcycles	2.4	2.5	3.3	5.3	5.4
Buses	46.0	50.3	55.5	60.1	62.6
Air	180.9	232.0	250.2	223.7	226.7
Rail	3.8	3.0	2.7	2.5	2.8
Freight Transportation (PJ)[a,d]	***670.5***	***908.9***	***1,036.8***	***1,166.7***	***1,171.0***
Light Trucks	97.6	145.8	161.1	178.9	180.0
Medium Trucks	120.6	157.1	208.4	312.8	305.8
Heavy Trucks	253.6	408.2	449.7	466.2	489.6
Air	6.5	8.1	7.9	5.3	5.5
Rail	85.7	81.5	81.7	81.3	91.6
Marine	106.5	108.2	128.1	122.3	98.5
Off-Road (PJ)[d]	***53.3***	***81.5***	***99.5***	***103.8***	***106.2***
Agriculture (PJ)[a]	**199.2**	**234.6**	**227.9**	**246.5**	**271.5**

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

Total End-Use Sector

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
2,640.5	**2,692.8**	**2,649.0**	**2,637.1**	**2,638.8**	**2,642.7**	**40.7%**
1,359.6	***1,391.6***	***1,352.2***	***1,385.6***	***1,424.1***	***1,405.9***	***21.8%***
566.8	564.2	535.2	537.2	536.1	509.7	-27.8%
469.0	489.9	488.8	515.4	550.9	558.4	159.1%
5.6	5.6	5.4	5.5	5.7	5.5	130.2%
57.4	60.8	57.0	55.6	52.3	45.4	-1.2%
258.4	269.0	263.8	269.8	277.1	284.9	57.5%
2.4	2.1	2.0	2.0	2.0	2.0	-46.5%
1,173.3	***1,191.4***	***1,184.7***	***1,136.6***	***1,096.9***	***1,117.1***	***66.6%***
185.1	193.2	193.1	202.3	216.3	219.1	124.6%
303.0	317.5	315.2	297.4	289.0	283.0	134.7%
490.5	494.5	496.9	469.1	439.4	451.4	78.0%
6.1	6.3	6.0	5.6	6.0	6.2	-5.5%
94.2	90.9	93.4	88.9	81.5	81.8	-4.6%
94.4	89.0	80.1	73.3	64.7	75.6	-29.0%
107.6	***109.7***	***112.1***	***114.9***	***117.8***	***119.7***	***124.5%***
267.3	**280.7**	**291.8**	**297.7**	**300.7**	**301.4**	**51.4%**

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.
d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
e) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.
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.

1 Total End-Use Sector

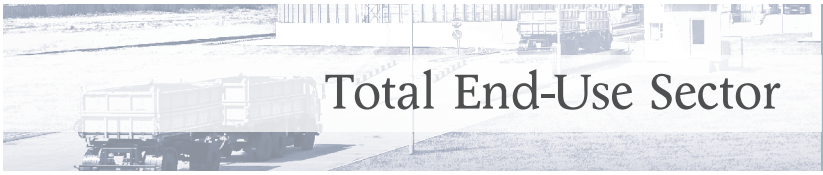
Canada's GHG Emissions by Sector, End Use and Subsector – Including Electricity-Related Emissions

	1990	2000	2005	2010	2011
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,d,e,f]	**398.8**	**466.0**	**485.6**	**483.9**	**492.8**
Residential (Mt of CO_2e)[a,b,e]	***72.7***	***77.1***	***77.1***	***71.9***	***72.4***
Space Heating	47.0	48.4	46.9	43.2	44.8
Water Heating	12.5	14.1	14.8	14.4	14.8
Appliances	9.9	10.4	10.3	9.8	8.8
Major Appliances	*8.3*	*7.8*	*7.1*	*6.0*	*5.3*
Other Appliances[1]	*1.6*	*2.7*	*3.3*	*3.8*	*3.5*
Lighting	2.8	3.3	3.3	3.0	2.6
Space Cooling	0.6	0.8	1.8	1.6	1.4
Commercial/Institutional (Mt of CO_2e)[a,c,e]	***40.9***	***51.7***	***52.0***	***47.5***	***47.5***
Space Heating	25.1	31.9	29.8	26.3	28.0
Water Heating	2.4	3.0	3.0	3.0	3.1
Auxiliary Equipment	2.8	4.3	5.4	6.1	5.6
Auxiliary Motors	2.7	3.0	2.7	2.2	2.1
Lighting	5.7	6.8	7.0	6.8	6.0
Space Cooling	1.7	2.2	3.6	2.7	2.4
Street Lighting[g]	0.5	0.4	0.5	0.4	0.3
Industrial (Mt of CO_2e)[a,e,f]	***140.6***	***161.6***	***166.9***	***166.6***	***173.9***
Mining, Quarrying, and Oil and Gas Extraction	22.4	32.8	41.8	62.3	70.5
Pulp and Paper	24.3	25.3	20.1	11.9	10.9
Iron and Steel	16.4	19.2	17.5	15.6	16.5
Smelting and Refining	10.9	14.0	15.3	12.5	11.9
Cement	4.5	5.4	6.1	4.9	4.8
Chemicals	10.8	13.6	12.0	11.9	12.7
Petroleum Refining	17.7	19.0	20.7	19.4	18.7
Other Manufacturing	28.7	27.6	26.5	21.6	21.3
Forestry	0.6	1.3	2.1	1.6	1.4
Construction	4.4	3.4	4.7	4.9	5.3

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, 1990–2017*, Ottawa, 2019.
b Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.



Total End-Use Sector

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
486.7	**494.2**	**492.7**	**494.0**	**479.8**	**488.6**	**22.5%**
66.4	***68.8***	***69.2***	***67.1***	***60.8***	***61.9***	***-14.9%***
40.2	42.8	44.4	41.7	37.5	38.8	-17.4%
14.2	14.2	14.1	14.0	12.8	13.2	5.5%
8.2	8.4	7.8	8.1	7.3	7.1	-28.2%
4.9	*4.9*	*4.5*	*4.6*	*4.1*	*4.0*	*-51.9%*
3.3	*3.5*	*3.3*	*3.5*	*3.1*	*3.1*	*95.9%*
2.4	2.4	2.1	2.2	1.9	1.8	-34.5%
1.4	1.0	0.8	1.1	1.3	1.0	70.4%
44.1	***45.1***	***46.1***	***45.8***	***44.2***	***45.0***	***9.9%***
25.8	27.4	29.1	27.7	27.4	28.4	13.0%
3.0	3.0	3.0	3.0	3.0	2.9	23.5%
5.1	5.3	5.1	5.6	5.5	5.6	99.2%
1.9	1.9	1.7	1.6	1.4	1.3	-51.2%
5.5	5.4	5.2	5.4	4.7	4.7	-17.1%
2.4	1.8	1.7	2.1	2.0	1.8	4.3%
0.3	0.3	0.3	0.3	0.3	0.2	-52.3%
176.3	***176.2***	***175.9***	***180.2***	***174.0***	***180.5***	***28.4%***
74.8	76.9	78.5	83.2	77.0	82.6	269.5%
9.9	10.4	9.9	10.1	9.5	9.5	-60.8%
16.6	14.7	15.8	14.9	15.4	15.8	-4.1%
10.3	10.1	9.5	10.2	10.7	10.8	-1.4%
4.4	4.2	4.4	4.3	4.3	4.6	4.3%
12.4	12.9	13.0	12.6	11.6	11.1	2.1%
19.7	18.6	18.7	18.5	18.6	18.6	5.0%
21.3	21.7	19.6	18.4	17.9	18.1	-36.9%
1.4	1.4	1.3	1.7	1.7	1.8	218.9%
5.5	5.3	5.1	6.4	7.3	7.7	76.0%

d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
e) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
f) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.
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.

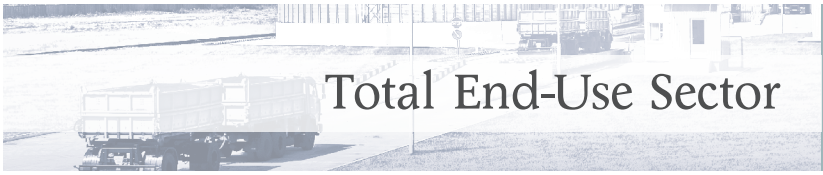
Canada's GHG Emissions by Sector, End Use and Subsector – Including Electricity-Related Emissions (cont.)

	1990	2000	2005	2010	2011
Total Transportation (Mt of CO_2e)[a,d,e]	**131.3**	**160.1**	**174.5**	**181.9**	**181.6**
Passenger Transportation (Mt of CO_2e)[a,d,e]	***79.7***	***89.4***	***93.4***	***91.7***	***91.0***
Cars	48.7	43.9	43.0	40.6	39.2
Light Trucks	14.9	25.6	28.9	30.9	31.2
Motorcycles	0.2	0.2	0.2	0.4	0.4
Buses	3.1	3.5	3.8	4.2	4.3
Air	12.5	16.0	17.3	15.5	15.7
Rail	0.3	0.2	0.2	0.2	0.2
Freight Transportation (Mt of CO_2e)[a,d,e]	***47.7***	***64.8***	***74.0***	***82.8***	***83.0***
Light Trucks	6.6	10.2	11.2	12.1	12.2
Medium Trucks	8.2	10.8	14.4	21.7	21.2
Heavy Trucks	17.9	29.0	32.0	33.2	34.9
Air	0.5	0.6	0.5	0.4	0.4
Rail	6.7	6.4	6.4	6.3	7.2
Marine	7.8	7.9	9.4	9.0	7.2
Off-Road (Mt of CO_2e)[d,e]	***3.9***	***5.9***	***7.1***	***7.4***	***7.5***
Agriculture (Mt of CO_2e)[a,e]	**13.2**	**15.6**	**15.1**	**16.1**	**17.4**

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, 1990–2017*, Ottawa, 2019.
b Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.



Total End-Use Sector

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
183.0	**186.3**	**183.0**	**182.0**	**181.7**	**182.1**	**38.7%**
92.2	***94.2***	***91.3***	***93.6***	***96.1***	***94.8***	***18.9%***
38.2	37.9	35.9	36.0	36.0	34.2	-29.8%
31.7	33.0	32.8	34.6	37.0	37.5	150.7%
0.4	0.4	0.4	0.4	0.4	0.4	126.5%
3.9	4.2	3.9	3.8	3.5	3.0	-5.3%
17.9	18.6	18.2	18.6	19.1	19.7	57.2%
0.2	0.2	0.2	0.2	0.2	0.2	-46.5%
83.1	***84.3***	***83.8***	***80.3***	***77.3***	***78.8***	***65.1%***
12.4	13.0	12.9	13.5	14.5	14.7	120.8%
21.0	22.0	21.9	20.6	20.0	19.6	139.5%
34.9	35.2	35.4	33.4	31.3	32.1	79.3%
0.4	0.4	0.4	0.4	0.4	0.4	-5.5%
7.4	7.1	7.3	6.9	6.4	6.4	-4.6%
6.9	6.5	5.9	5.4	4.7	5.5	-29.0%
7.6	***7.8***	***7.9***	***8.1***	***8.3***	***8.5***	***119.0%***
17.0	**17.8**	**18.6**	**19.0**	**19.1**	**19.2**	**45.5%**

d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
e) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
f) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.
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.

1 Total End-Use Sector

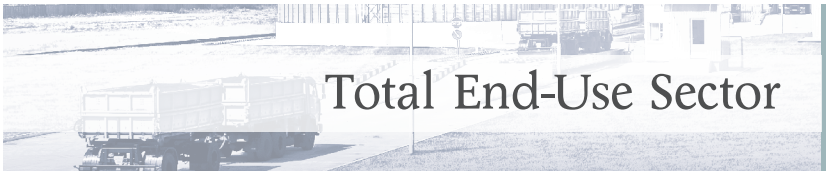
Canada's GHG Emissions by Sector, End Use and Subsector – Excluding Electricity-Related Emissions

	1990	2000	2005	2010	2011
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,d,e,f]	**318.5**	**368.1**	**384.6**	**398.1**	**415.9**
Residential (Mt of CO_2e)[a,b,e]	***46.5***	***47.5***	***46.1***	***43.3***	***46.4***
Space Heating	38.1	37.5	35.4	32.4	34.6
Water Heating	8.2	9.8	10.4	10.5	11.4
Appliances	0.2	0.2	0.3	0.3	0.4
Major Appliances	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*
Other Appliances[1]	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
Commercial/Institutional (Mt of CO_2e)[a,c,e]	***25.8***	***32.8***	***32.0***	***28.0***	***29.9***
Space Heating	23.2	29.5	28.4	24.3	26.0
Water Heating	2.3	2.8	2.9	2.9	3.0
Auxiliary Equipment	0.3	0.4	0.6	0.7	0.8
Auxiliary Motors	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.1	0.1	0.2	0.2	0.2
Street Lighting[g]	0.0	0.0	0.0	0.0	0.0
Industrial (Mt of CO_2e)[a,e,f]	***103.7***	***114.3***	***119.1***	***130.6***	***142.2***
Mining, Quarrying, and Oil and Gas Extraction	16.6	26.5	35.3	57.0	65.8
Pulp and Paper	14.5	11.8	8.1	4.8	5.1
Iron and Steel	14.8	17.2	15.4	14.0	15.1
Smelting and Refining	3.4	3.7	3.7	3.1	3.5
Cement	4.1	4.9	5.6	4.6	4.5
Chemicals	7.2	9.2	7.6	8.6	9.6
Petroleum Refining	16.5	17.8	19.6	18.4	17.8
Other Manufacturing	21.8	18.7	16.9	13.5	14.1
Forestry	0.6	1.3	2.1	1.6	1.4
Construction	4.4	3.4	4.7	4.9	5.3

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, 1990–2017*, Ottawa, 2019.
b Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.



Total End-Use Sector

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
416.8	**423.1**	**426.0**	**425.0**	**416.1**	**427.0**	**34.1%**
42.7	***44.2***	***46.0***	***43.5***	***39.6***	***41.3***	***-11.1%***
31.3	32.8	34.5	32.0	29.1	30.3	-20.4%
11.1	11.1	11.1	11.0	10.2	10.6	29.3%
0.4	0.4	0.4	0.4	0.4	0.4	102.7%
0.4	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*102.7%*
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	0.0	0.0	0.0	0.0	–
28.0	***29.0***	***30.7***	***29.4***	***29.2***	***30.3***	***17.5%***
24.2	25.2	26.9	25.5	25.3	26.4	13.7%
2.9	2.9	2.9	2.9	2.8	2.8	25.4%
0.7	0.8	0.8	0.9	0.9	0.9	227.3%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.2	0.1	0.1	0.2	0.2	0.2	182.4%
0.0	0.0	0.0	0.0	0.0	0.0	–
147.6	***147.4***	***149.1***	***152.7***	***147.8***	***155.4***	***49.9%***
70.0	72.3	74.2	78.7	72.8	78.6	374.9%
4.9	5.0	4.7	4.8	4.7	4.8	-66.8%
15.3	13.5	14.6	13.6	14.3	14.7	-0.5%
3.1	2.9	2.6	3.0	3.3	3.6	5.2%
4.1	3.9	4.1	4.0	4.1	4.4	7.3%
9.8	10.5	10.5	9.7	9.0	8.8	22.9%
19.0	17.9	18.0	17.7	17.9	18.0	8.6%
14.5	14.7	13.9	12.9	12.7	13.1	-39.7%
1.4	1.4	1.3	1.7	1.7	1.8	218.9%
5.5	5.3	5.1	6.4	7.3	7.7	76.0%

d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
e) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
f) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

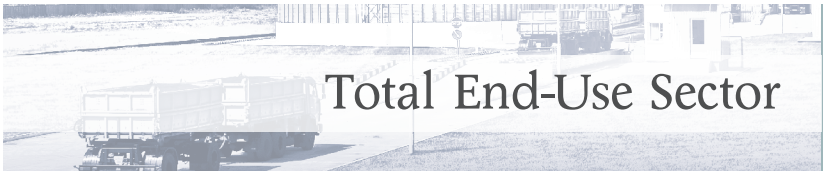
Canada's GHG Emissions by Sector, End Use and Subsector – Excluding Electricity-Related Emissions (cont.)

	1990	2000	2005	2010	2011
Total Transportation (Mt of CO_2e)[a,d,e]	**131.1**	**159.9**	**174.3**	**181.7**	**181.4**
Passenger Transportation (Mt of CO_2e)[a,d,e]	***79.6***	***89.2***	***93.2***	***91.5***	***90.9***
Cars	48.7	43.9	43.0	40.6	39.2
Light Trucks	14.9	25.6	28.9	30.9	31.2
Motorcycles	0.2	0.2	0.2	0.4	0.4
Buses	3.0	3.3	3.6	4.0	4.2
Air	12.5	16.0	17.3	15.5	15.7
Rail	0.3	0.2	0.2	0.2	0.2
Freight Transportation (Mt of CO_2e)[a,d,e]	***47.7***	***64.8***	***74.0***	***82.8***	***83.0***
Light Trucks	6.6	10.2	11.2	12.1	12.2
Medium Trucks	8.2	10.8	14.4	21.7	21.2
Heavy Trucks	17.9	29.0	32.0	33.2	34.9
Air	0.5	0.6	0.5	0.4	0.4
Rail	6.7	6.4	6.4	6.3	7.2
Marine	7.8	7.9	9.4	9.0	7.2
Off-Road (Mt of CO_2e)[d,e]	***3.9***	***5.9***	***7.1***	***7.4***	***7.5***
Agriculture (Mt of CO_2e)[a,e]	**11.4**	**13.5**	**13.0**	**14.4**	**16.0**

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, 1990–2017*, Ottawa, 2019.
d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
e) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.



Total End-Use Sector

1

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
182.8	**186.1**	**182.9**	**181.8**	**181.6**	**181.9**	**38.7%**
92.1	***94.0***	***91.2***	***93.4***	***96.0***	***94.7***	***19.0%***
38.2	37.9	35.9	36.0	36.0	34.2	-29.8%
31.7	33.0	32.8	34.6	37.0	37.5	150.7%
0.4	0.4	0.4	0.4	0.4	0.4	126.5%
3.8	4.0	3.8	3.7	3.4	2.8	-4.7%
17.9	18.6	18.2	18.6	19.1	19.7	57.2%
0.2	0.2	0.2	0.2	0.2	0.2	-46.5%
83.1	***84.3***	***83.8***	***80.3***	***77.3***	***78.8***	***65.1%***
12.4	13.0	12.9	13.5	14.5	14.7	120.8%
21.0	22.0	21.9	20.6	20.0	19.6	139.5%
34.9	35.2	35.4	33.4	31.3	32.1	79.3%
0.4	0.4	0.4	0.4	0.4	0.4	-5.5%
7.4	7.1	7.3	6.9	6.4	6.4	-4.6%
6.9	6.5	5.9	5.4	4.7	5.5	-29.0%
7.6	***7.8***	***7.9***	***8.1***	***8.3***	***8.5***	***119.0%***
15.6	**16.4**	**17.3**	**17.6**	**17.9**	**18.0**	**57.4%**

1 Total End-Use Sector

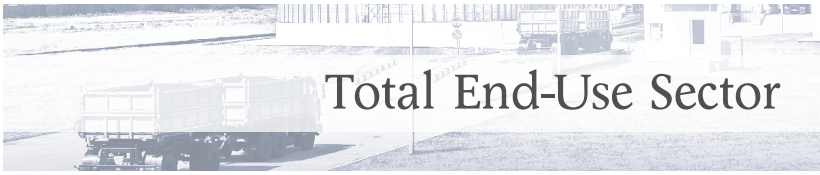
Commodity Prices and Background Indicators

	1990	2000	2005	2010	2011
Commodity Prices					
Crude Oil Prices					
Wellhead U.S. Average ($US/bbl.)[a]	20.03	26.72	50.28	74.71	95.73
Edmonton Par[1] ($/m^3)[b]	173.95	278.98	432.01	487.69	597.81
Brent Montreal[2] ($/m^3)[b]	187.35	280.95	433.55	532.13	707.18
Natural Gas Price at AECO-C Hub (intra-Alberta)[3] ($/GJ)[b]	***1.34***	***4.81***	***8.14***	***3.95***	***3.53***
Background Indicators					
Total GDP (million $2012)[c]	***1,014,321***	***1,360,463***	***1,542,101***	***1,626,420***	***1,679,460***
Industrial	312,055	412,731	447,535	419,128	438,387
Commercial/Institutional	618,085	823,302	962,295	1,076,955	1,105,961
Agriculture[d]	17,092	21,559	26,115	25,407	26,146
Electricity Generation	26,062	28,711	30,523	30,893	31,509
Multifactor Measure of Productivity (2012 = 100)[e]	***97.7***	***104.8***	***104.8***	***99.0***	***100.4***

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, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=f000000__3&f=a
b) Natural Resources Canada, Petroleum Resources Branch, Canadian Oil, Refining and Energy Security Division, Ottawa, 2019.
c) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)*, Table 36-10-0434-01, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University 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 36-10-0208-01, Ottawa, 2019.



Total End-Use Sector

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
94.52	95.99	87.39	44.39	38.29	48.05	139.9%
541.92	583.90	591.50	358.73	330.00	404.00	132.3%
721.42	720.49	713.61	455.78	393.00	467.00	149.3%
2.31	***3.02***	***4.17***	***2.12***	***1.64***	***2.25***	***67.9%***
1,710,431	***1,754,172***	***1,804,031***	***1,819,483***	***1,840,218***	***1,902,797***	***87.6%***
447,855	459,565	479,237	474,996	468,619	493,439	58.1%
1,126,960	1,152,136	1,179,705	1,196,301	1,219,230	1,251,595	102.5%
26,647	32,339	28,993	30,636	32,407	32,498	90.1%
30,627	30,948	31,884	32,202	32,876	34,066	30.7%
100.0	***100.9***	***102.5***	***101.5***	***101.4***	***103.3***	***5.8%***

Chapter 2
Residential Sector

The Data Situation

Aggregate data on residential energy use are reported by Statistics Canada in its *Report on Energy Supply and Demand in Canada* (RESD) (Cat. No. 57-003-X). The RESD presents energy balance sheets by compiling data on the production, trade, stocks and consumption for the various forms of energy, based on data from Statistics Canada surveys and administrative sources.

To provide more detailed data on residential energy use, 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 residential sector by allocating RESD energy use data to end uses at more detailed levels, based on annual stock characteristics and sales data, coupled with usage profiles and unit energy consumption. The detailed data are available at the provincial and national levels and cover four building types, five end uses, 10 vintage categories (house age categories) and six fuel types. In some cases, energy end-use data are further disaggregated by equipment type.

Data on 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 tables:

- Table 11-100228-01: 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
- Table 25-10-0061-01: Household energy consumption by type of dwelling
- Table 34-10-0126-01: CMHC housing starts, under construction and completions
- Publication 64-001-XWF: Units demolished by type of dwellings

2 Residential Sector

Data on household characteristics for the territories are estimated based mainly on Census data as the *Survey of Household Spending* does not cover the territories. Data on floor space are estimated based on housing stock numbers and data from Statistics Canada's *Building Permits Survey and the Survey of Household Energy Use.*

Detailed energy consumption information was sourced from various industry associations and external studies. These sources include 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.

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 Table 18-10-0001-01 for heating oil price and tables 25-10-0033-01 and 25-10-0059-01 for natural gas price. The residential price of electricity is a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities.*

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

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a,b]	**1,424.6**	**1,491.2**	**1,496.5**	**1,489.8**	**1,575.8**
Energy Use by Energy Source (PJ)[a,b]					
Electricity	467.4	497.6	543.6	578.4	598.7
Natural Gas	528.4	646.0	646.6	615.3	682.4
Heating Oil	186.4	135.9	127.0	107.6	103.1
Other[1]	21.9	12.0	14.5	17.5	18.7
Wood	220.6	199.7	164.8	171.0	173.0
Energy Use by End Use (PJ)[b]					
Space Heating	957.5	983.5	945.2	915.7	978.6
Water Heating	230.8	263.3	280.0	285.4	303.9
Appliances	176.8	176.1	181.7	197.5	201.8
Major Appliances	*148.5*	*131.4*	*124.6*	*121.5*	*121.4*
Other Appliances[2]	*28.3*	*44.6*	*57.1*	*76.0*	*80.4*
Lighting	49.5	55.1	57.3	59.8	60.2
Space Cooling	10.0	13.2	32.3	31.5	31.5
Activity					
Total Floor Space (million m^2)[b]	1,208.4	1,501.8	1,668.6	1,843.7	1,876.3
Total Households (thousands)[b,c]	9,895.2	11,651.6	12,586.8	13,377.5	13,551.5
Energy Intensity (GJ/m^2)[a,b]	**1.18**	**0.99**	**0.90**	**0.81**	**0.84**
Energy Intensity (GJ/household)[a,b,c]	**144.0**	**128.0**	**118.9**	**111.4**	**116.3**
Heating Degree-Day Index[b,d]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**
Cooling Degree-Day Index[b,e]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**

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, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Statistics Canada, *Survey of Household Spending, 1997–2017*, Ottawa, 2019.
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C, 1990–2017*, Ottawa.
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C, 1990–2017*, Ottawa.

Residential Sector

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1,508.4	**1,569.0**	**1,614.6**	**1,559.5**	**1,464.2**	**1,507.7**	**5.8%**
593.9	616.9	621.6	613.4	598.2	604.1	29.2%
632.3	685.6	732.2	689.7	612.6	659.2	24.7%
86.3	76.3	72.8	70.2	64.0	55.4	-70.3%
20.8	16.4	15.1	14.8	17.3	17.9	-18.4%
175.2	173.9	172.9	171.4	172.1	171.2	-22.4%
909.5	973.4	1,024.5	964.6	889.0	928.9	-3.0%
299.7	301.3	303.8	302.2	282.4	291.5	26.3%
204.2	209.9	206.4	207.3	202.3	205.6	16.3%
120.2	*121.6*	*118.4*	*117.6*	*113.5*	*114.1*	*-23.2%*
83.9	*88.3*	*88.1*	*89.8*	*88.8*	*91.5*	*223.6%*
59.7	59.7	57.1	56.2	53.5	53.6	8.2%
35.3	24.8	22.8	29.2	36.9	28.1	181.4%
1,908.8	1,941.6	1,973.4	2,005.6	2,039.6	2,107.0	74.4%
13,706.2	13,876.2	13,990.5	14,136.5	14,307.0	14,493.3	46.5%
0.79	**0.81**	**0.82**	**0.78**	**0.72**	**0.72**	**-39.3%**
110.1	**113.1**	**115.4**	**110.3**	**102.3**	**104.0**	**-27.7%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Single Detached Energy Use (PJ)[a,b]	**1,024.2**	**1,062.3**	**1,055.0**	**1,047.1**	**1,108.8**
Energy Use by Energy Source (PJ)[a,b]					
Electricity	304.7	325.0	354.5	375.4	390.6
Natural Gas	387.1	469.9	463.6	439.4	486.0
Heating Oil	131.6	96.0	92.8	81.4	78.8
Other[1]	16.0	9.1	10.8	13.0	13.8
Wood	184.7	162.3	133.3	138.0	139.6
Energy Use by End Use (PJ)[b]					
Space Heating	723.2	737.3	702.3	679.7	724.2
Water Heating	145.1	164.9	174.6	180.6	192.4
Appliances	110.8	108.3	110.4	119.0	121.3
Lighting	37.4	41.4	43.1	45.4	45.9
Space Cooling	7.6	10.5	24.6	22.5	25.0
Activity					
Total Floor Space (million m^2)[b]	804.7	1,006.2	1,117.1	1,220.4	1,238.5
Total Households (thousands)[b,c]	5,559.1	6,516.1	7,027.3	7,478.1	7,575.7
Energy Intensity (GJ/m^2)[a,b]	**1.27**	**1.06**	**0.94**	**0.86**	**0.90**
Energy Intensity (GJ/household)[a,b,c]	**184.2**	**163.0**	**150.1**	**140.0**	**146.4**
Heating Degree-Day Index[b,d]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**
Cooling Degree-Day Index[b,e]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Statistics Canada, *Survey of Household Spending,* 1997–2017, Ottawa, 2019.
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C*, 1990-2017, Ottawa.
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C*, 1990-2017, Ottawa.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1,058.3	**1,097.0**	**1,127.0**	**1,085.8**	**1,018.0**	**1,046.1**	**2.1%**
386.5	399.7	400.5	395.7	386.4	387.6	27.2%
449.4	487.0	520.4	487.5	431.8	465.5	20.2%
65.9	58.1	55.7	53.8	48.9	42.6	-67.7%
15.2	12.0	11.0	10.7	12.4	12.8	-20.2%
141.2	140.3	139.4	138.1	138.6	137.5	-25.5%
672.5	715.6	750.2	705.0	648.8	675.9	-6.5%
189.8	190.4	191.7	190.6	177.7	183.9	26.8%
122.5	125.8	123.3	123.9	120.8	122.5	10.6%
45.5	45.6	43.7	43.2	41.3	41.4	10.7%
27.9	19.6	18.1	23.2	29.5	22.3	193.8%
1,256.3	1,273.6	1,289.9	1,304.8	1,321.6	1,356.5	68.6%
7,659.6	7,753.1	7,814.3	7,895.0	7,989.1	8,092.9	45.6%
0.84	**0.86**	**0.87**	**0.83**	**0.77**	**0.77**	**-39.4%**
138.2	**141.5**	**144.2**	**137.5**	**127.4**	**129.3**	**-29.8%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Single Attached Energy Use (PJ)[a,b]	**117.1**	**135.2**	**144.0**	**145.8**	**154.3**
Energy Use by Energy Source (PJ)[a,b]					
Electricity	42.0	48.4	54.7	59.8	60.3
Natural Gas	48.1	63.8	68.3	66.2	74.4
Heating Oil	14.2	11.0	10.1	8.0	7.4
Other[1]	1.7	1.0	1.4	1.8	2.0
Wood	11.0	11.0	9.5	10.0	10.2
Energy Use by End Use (PJ)[b]					
Space Heating	71.6	80.2	81.4	79.8	86.7
Water Heating	22.9	29.3	32.3	32.9	35.4
Appliances	16.4	18.2	19.5	22.0	22.5
Lighting	4.6	5.6	6.0	6.2	6.2
Space Cooling	1.6	2.0	4.8	4.8	3.4
Activity					
Total Floor Space (million m^2)[b]	112.2	151.9	174.9	201.7	206.8
Total Households (thousands)[b,c]	922.9	1,211.0	1,363.2	1,499.1	1,527.8
Energy Intensity (GJ/m^2)[a,b]	**1.0**	**0.9**	**0.8**	**0.7**	**0.7**
Energy Intensity (GJ/household)[a,b,c]	**126.9**	**111.7**	**105.6**	**97.2**	**101.0**
Heating Degree-Day Index[b,d]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**
Cooling Degree-Day Index[b,e]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Statistics Canada, *Survey of Household Spending,* 1997–2017, Ottawa, 2019.
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C*, 1990-2017, Ottawa.
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C*, 1990-2017, Ottawa.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
148.1	**156.0**	**161.9**	**157.6**	**147.4**	**152.8**	**30.5%**
60.5	62.8	63.2	63.1	61.6	62.6	49.1%
68.7	75.5	81.4	77.6	68.9	73.8	53.4%
6.2	5.7	5.4	5.1	4.6	4.0	-72.0%
2.3	1.7	1.6	1.6	2.0	2.1	18.6%
10.4	10.3	10.3	10.2	10.3	10.3	-6.4%
80.1	88.1	94.2	88.9	81.2	86.0	20.1%
35.0	35.5	36.1	36.2	33.7	34.9	52.7%
22.9	23.6	23.2	23.6	22.9	23.5	43.3%
6.2	6.2	5.9	5.8	5.4	5.4	18.1%
3.9	2.7	2.4	3.1	4.1	3.0	82.0%
212.2	217.7	223.2	228.4	234.1	245.7	118.9%
1,554.6	1,580.6	1,602.9	1,627.9	1,656.5	1,686.7	82.8%
0.7	**0.7**	**0.7**	**0.7**	**0.6**	**0.6**	**-40.4%**
95.2	**98.7**	**101.0**	**96.8**	**89.0**	**90.6**	**-28.6%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Apartments Energy Use (PJ)[a,b]	**248.7**	**260.8**	**266.8**	**266.0**	**280.2**
Energy Use by Energy Source (PJ)[a,b]					
Electricity	111.3	115.0	124.7	133.4	137.5
Natural Gas	79.8	97.8	101.5	97.0	108.3
Heating Oil	35.5	25.6	21.2	15.6	14.1
Other[1]	3.4	1.5	2.0	2.4	2.6
Wood	18.6	20.8	17.4	17.6	17.7
Energy Use by End Use (PJ)[b]					
Space Heating	137.2	142.6	140.3	134.6	144.5
Water Heating	57.9	64.1	67.9	67.1	71.2
Appliances	46.0	46.2	48.5	53.0	54.3
Lighting	6.8	7.3	7.4	7.4	7.3
Space Cooling	0.7	0.6	2.7	3.9	2.9
Activity					
Total Floor Space (million m^2)[b]	271.8	322.4	353.9	397.1	406.1
Total Households (thousands)[b,c]	3,205.9	3,706.0	3,972.1	4,169.6	4,215.7
Energy Intensity (GJ/m^2)[a,b]	**0.92**	**0.81**	**0.75**	**0.67**	**0.69**
Energy Intensity (GJ/household)[a,b,c]	**77.6**	**70.4**	**67.2**	**63.8**	**66.5**
Heating Degree-Day Index[b,d]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**
Cooling Degree-Day Index[b,e]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Statistics Canada, *Survey of Household Spending,* 1997–2017, Ottawa, 2019.
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C*, 1990-2017, Ottawa.
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C*, 1990-2017, Ottawa.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
270.7	**284.1**	**293.8**	**285.6**	**270.2**	**278.4**	**12.0%**
137.0	143.9	147.5	144.5	140.3	143.7	29.1%
101.0	109.4	116.4	111.7	100.4	106.6	33.5%
11.9	10.7	10.0	9.5	9.0	7.3	-79.3%
3.0	2.4	2.2	2.2	2.7	2.7	-19.2%
17.9	17.7	17.7	17.7	17.9	18.0	-3.1%
134.9	147.1	157.0	149.1	139.0	145.6	6.1%
70.1	70.7	71.4	70.9	66.7	68.1	17.5%
55.2	56.8	56.4	56.3	55.1	56.0	21.7%
7.3	7.2	6.9	6.6	6.2	6.2	-8.5%
3.2	2.3	2.1	2.6	3.2	2.5	248.6%
415.1	424.8	434.5	446.2	457.6	477.9	75.8%
4,259.6	4,309.0	4,340.2	4,379.8	4,426.7	4,477.9	39.7%
0.65	**0.67**	**0.68**	**0.64**	**0.59**	**0.58**	**-36.3%**
63.6	**65.9**	**67.7**	**65.2**	**61.0**	**62.2**	**-19.8%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**

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

	1990	2000	2005	2010	2011
Total Mobile Homes Energy Use (PJ)[a,b]	**34.8**	**32.9**	**30.7**	**30.9**	**32.6**
Energy Use by Energy Source (PJ)[a,b]					
Electricity	9.4	9.2	9.6	9.8	10.2
Natural Gas	13.3	14.5	13.2	12.7	13.7
Heating Oil	5.0	3.3	2.9	2.7	2.8
Other[1]	0.7	0.3	0.3	0.3	0.3
Wood	6.3	5.5	4.7	5.4	5.5
Energy Use by End Use (PJ)[b]					
Space Heating	25.5	23.5	21.1	21.6	23.1
Water Heating	4.9	5.1	5.2	4.8	4.9
Appliances	3.6	3.4	3.4	3.6	3.7
Lighting	0.8	0.8	0.8	0.7	0.7
Space Cooling	0.0	0.1	0.2	0.2	0.2
Activity					
Total Floor Space (million m^2)[b]	19.6	21.3	22.8	24.6	24.8
Total Households (thousands)[b,c]	207.3	218.6	224.2	230.8	232.3
Energy Intensity (GJ/m^2)[a,b]	**1.77**	**1.55**	**1.35**	**1.26**	**1.31**
Energy Intensity (GJ/household)[a,b,c]	**167.6**	**150.3**	**136.9**	**134.0**	**140.3**
Heating Degree-Day Index[b,d]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**
Cooling Degree-Day Index[b,e]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Statistics Canada, *Survey of Household Spending*, 1997–2017, Ottawa, 2019.
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C*, 1990-2017, Ottawa.
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C*, 1990-2017, Ottawa.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
31.4	**31.8**	**31.9**	**30.5**	**28.6**	**30.4**	**-12.5%**
9.9	10.4	10.3	10.1	9.9	10.1	7.5%
13.1	13.6	14.0	12.9	11.6	13.2	-0.5%
2.3	1.9	1.8	1.8	1.6	1.5	-70.5%
0.3	0.3	0.3	0.3	0.2	0.3	-64.1%
5.7	5.6	5.6	5.4	5.4	5.4	-15.1%
22.1	22.5	23.0	21.6	20.1	21.4	-15.9%
4.8	4.7	4.6	4.5	4.2	4.6	-6.6%
3.6	3.7	3.5	3.6	3.6	3.6	0.0%
0.7	0.7	0.6	0.6	0.6	0.6	-24.5%
0.2	0.2	0.2	0.2	0.2	0.2	–
25.2	25.5	25.8	26.1	26.3	26.8	36.7%
232.5	233.6	233.1	233.7	234.7	235.8	13.7%
1.25	**1.25**	**1.24**	**1.17**	**1.09**	**1.14**	**-36.0%**
134.9	**136.1**	**137.0**	**130.3**	**122.0**	**129.0**	**-23.0%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**72.7**	**77.1**	**77.1**	**71.9**	**72.4**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	26.2	29.6	31.0	28.6	26.0
Natural Gas	26.7	32.4	32.3	30.5	33.8
Heating Oil	13.2	9.6	9.0	7.6	7.3
Other[1]	1.4	0.8	0.9	1.1	1.2
Wood	5.2	4.7	3.9	4.0	4.1
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	47.0	48.4	46.9	43.2	44.8
Water Heating	12.5	14.1	14.8	14.4	14.8
Appliances	9.9	10.4	10.3	9.8	8.8
Major Appliances	*8.3*	*7.8*	*7.1*	*6.0*	*5.3*
Other Appliances[2]	*1.6*	*2.7*	*3.3*	*3.8*	*3.5*
Lighting	2.8	3.3	3.3	3.0	2.6
Space Cooling	0.6	0.8	1.8	1.6	1.4
GHG Intensity (tonne/TJ)[a,b,c]	**51.1**	**51.7**	**51.5**	**48.2**	**45.9**
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**46.5**	**47.5**	**46.1**	**43.3**	**46.4**
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	38.1	37.5	35.4	32.4	34.6
Water Heating	8.2	9.8	10.4	10.5	11.4
Appliances	0.2	0.2	0.3	0.3	0.4
Major Appliances	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*
Other Appliances[2]	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonne/TJ)[a,b,c]	**32.6**	**31.9**	**30.8**	**29.1**	**29.4**

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
66.4	**68.8**	**69.2**	**67.1**	**60.8**	**61.9**	**-14.9%**
23.6	24.6	23.1	23.6	21.1	20.5	-21.8%
31.2	33.7	35.9	33.6	30.0	32.3	20.8%
6.1	5.4	5.2	5.0	4.5	3.9	-70.2%
1.3	1.0	0.9	0.9	1.1	1.1	-21.3%
4.1	4.1	4.1	4.0	4.0	4.0	-22.4%
40.2	42.8	44.4	41.7	37.5	38.8	-17.4%
14.2	14.2	14.1	14.0	12.8	13.2	5.5%
8.2	8.4	7.8	8.1	7.3	7.1	-28.2%
4.9	*4.9*	*4.5*	*4.6*	*4.1*	*4.0*	*-51.9%*
3.3	*3.5*	*3.3*	*3.5*	*3.1*	*3.1*	*95.9%*
2.4	2.4	2.1	2.2	1.9	1.8	-34.5%
1.4	1.0	0.8	1.1	1.3	1.0	70.4%
44.0	**43.9**	**42.8**	**43.0**	**41.5**	**41.0**	**-19.6%**
42.7	**44.2**	**46.0**	**43.5**	**39.6**	**41.3**	**-11.1%**
31.3	32.8	34.5	32.0	29.1	30.3	-20.4%
11.1	11.1	11.1	11.0	10.2	10.6	29.3%
0.4	0.4	0.4	0.4	0.4	0.4	102.7%
0.4	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*102.7%*
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	0.0	0.0	0.0	0.0	–
28.3	**28.2**	**28.5**	**27.9**	**27.1**	**27.4**	**-16.0%**

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Single Detached GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**51.4**	**54.1**	**53.8**	**50.2**	**50.8**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	17.1	19.3	20.2	18.5	17.0
Natural Gas	19.6	23.6	23.1	21.8	24.1
Heating Oil	9.3	6.8	6.6	5.8	5.6
Other[1]	1.0	0.6	0.7	0.8	0.9
Wood	4.3	3.8	3.1	3.2	3.3
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	34.8	35.8	34.4	31.9	33.0
Water Heating	7.8	8.8	9.2	9.1	9.4
Appliances	6.2	6.4	6.3	5.9	5.3
Lighting	2.1	2.5	2.5	2.2	2.0
Space Cooling	0.4	0.6	1.4	1.1	1.1
GHG Intensity (tonne/TJ)[a,b,c]	**50.1**	**50.9**	**51.0**	**47.9**	**45.8**
Total Single Detached GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**34.2**	**34.8**	**33.6**	**31.7**	**33.8**
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	28.9	28.4	26.8	24.7	26.3
Water Heating	5.3	6.2	6.6	6.8	7.3
Appliances	0.1	0.1	0.2	0.2	0.2
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonnes/TJ)[a,b,c]	**33.4**	**32.7**	**31.8**	**30.2**	**30.5**

1) "Other" includes coal and propane

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
46.5	**48.1**	**48.3**	**46.7**	**42.3**	**43.0**	**-16.3%**
15.4	15.9	14.9	15.2	13.6	13.2	-23.0%
22.2	23.9	25.5	23.7	21.1	22.8	16.5%
4.7	4.1	3.9	3.8	3.5	3.0	-67.6%
1.0	0.8	0.7	0.7	0.8	0.8	-23.2%
3.3	3.3	3.3	3.2	3.3	3.2	-25.5%
29.7	31.4	32.5	30.5	27.3	28.3	-18.8%
9.0	9.0	8.9	8.9	8.1	8.3	6.5%
4.9	5.1	4.6	4.8	4.3	4.2	-31.8%
1.8	1.8	1.6	1.7	1.5	1.4	-33.0%
1.1	0.8	0.7	0.9	1.0	0.8	77.8%
43.9	**43.8**	**42.9**	**43.0**	**41.5**	**41.1**	**-18.0%**
31.1	**32.1**	**33.4**	**31.4**	**28.6**	**29.8**	**-12.9%**
23.8	24.8	26.1	24.2	21.9	22.8	-20.9%
7.1	7.1	7.1	7.0	6.5	6.8	28.7%
0.2	0.2	0.2	0.2	0.2	0.2	91.8%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
29.4	**29.3**	**29.6**	**29.0**	**28.1**	**28.5**	**-14.7%**

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Single Attached GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**6.2**	**7.2**	**7.6**	**7.1**	**7.2**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	2.4	2.9	3.1	3.0	2.6
Natural Gas	2.4	3.2	3.4	3.3	3.7
Heating Oil	1.0	0.8	0.7	0.6	0.5
Other[1]	0.1	0.1	0.1	0.1	0.1
Wood	0.3	0.3	0.2	0.2	0.2
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	3.7	4.1	4.1	3.9	4.1
Water Heating	1.2	1.6	1.7	1.7	1.7
Appliances	0.9	1.1	1.1	1.1	1.0
Lighting	0.3	0.3	0.3	0.3	0.3
Space Cooling	0.1	0.1	0.3	0.2	0.1
GHG Intensity (tonne/TJ)[a,b,c]	**52.7**	**53.1**	**52.5**	**49.0**	**46.6**
Total Single Attached GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**3.8**	**4.3**	**4.4**	**4.2**	**4.6**
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	2.9	3.1	3.1	2.9	3.1
Water Heating	0.8	1.1	1.3	1.3	1.4
Appliances	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonne/TJ)[a,b,c]	**32.5**	**31.8**	**30.8**	**28.8**	**29.6**

1) "Other" includes coal and propane

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
6.6	**7.0**	**7.1**	**6.9**	**6.2**	**6.4**	**3.7%**
2.4	2.5	2.4	2.4	2.2	2.1	-9.8%
3.4	3.7	4.0	3.8	3.4	3.6	48.5%
0.4	0.4	0.4	0.4	0.3	0.3	-72.0%
0.1	0.1	0.1	0.1	0.1	0.1	15.0%
0.2	0.2	0.2	0.2	0.2	0.2	-6.4%
3.6	4.0	4.2	4.0	3.5	3.7	0.6%
1.7	1.7	1.7	1.7	1.6	1.6	30.6%
0.9	1.0	0.9	0.9	0.8	0.8	-11.3%
0.2	0.2	0.2	0.2	0.2	0.2	-28.5%
0.2	0.1	0.1	0.1	0.1	0.1	10.2%
44.7	**44.7**	**43.6**	**43.8**	**42.3**	**41.8**	**-20.5%**
4.2	**4.5**	**4.7**	**4.5**	**4.1**	**4.3**	**12.1%**
2.8	3.0	3.3	3.0	2.7	2.9	-2.2%
1.4	1.4	1.4	1.4	1.3	1.3	58.5%
0.0	0.0	0.1	0.1	0.0	0.0	119.0%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
28.5	**28.6**	**29.1**	**28.4**	**27.6**	**27.9**	**-14.1%**

2 Residential Sector

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

	1990	2000	2005	2010	2011
Total Apartments GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**13.4**	**14.1**	**14.2**	**13.1**	**12.9**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	6.2	6.8	7.1	6.6	6.0
Natural Gas	4.0	4.9	5.1	4.8	5.4
Heating Oil	2.5	1.8	1.5	1.1	1.0
Other[1]	0.2	0.1	0.1	0.2	0.2
Wood	0.4	0.5	0.4	0.4	0.4
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	7.3	7.4	7.3	6.5	6.7
Water Heating	3.2	3.5	3.6	3.4	3.4
Appliances	2.6	2.7	2.8	2.6	2.4
Lighting	0.4	0.4	0.4	0.4	0.3
Space Cooling	0.0	0.0	0.2	0.2	0.1
GHG Intensity (tonne/TJ)[a,b,c]	**54.1**	**54.2**	**53.3**	**49.1**	**46.1**
Total Apartments GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**7.2**	**7.3**	**7.1**	**6.5**	**6.9**
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	5.2	5.0	4.7	4.1	4.4
Water Heating	1.9	2.2	2.4	2.3	2.5
Appliances	0.0	0.1	0.1	0.1	0.1
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonne/TJ)[a,b,c]	**29.0**	**28.0**	**26.6**	**24.4**	**24.8**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
11.9	**12.4**	**12.5**	**12.2**	**11.1**	**11.2**	**-16.6%**
5.4	5.7	5.5	5.6	5.0	4.9	-21.8%
5.0	5.4	5.7	5.4	4.9	5.2	29.4%
0.8	0.8	0.7	0.7	0.6	0.5	-79.3%
0.2	0.1	0.1	0.1	0.2	0.2	-21.3%
0.4	0.4	0.4	0.4	0.4	0.4	-3.1%
6.0	6.5	6.7	6.4	5.8	6.0	-18.2%
3.3	3.3	3.3	3.2	3.0	3.0	-4.4%
2.2	2.3	2.1	2.2	2.0	1.9	-24.9%
0.3	0.3	0.3	0.3	0.2	0.2	-44.6%
0.1	0.1	0.1	0.1	0.1	0.1	111.0%
43.9	**43.8**	**42.4**	**42.8**	**41.0**	**40.3**	**-25.5%**
6.4	**6.7**	**7.0**	**6.7**	**6.1**	**6.3**	**-12.1%**
3.9	4.2	4.4	4.1	3.8	3.9	-25.4%
2.4	2.4	2.4	2.4	2.2	2.3	21.3%
0.1	0.1	0.1	0.1	0.1	0.1	127.5%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
23.8	**23.6**	**23.7**	**23.3**	**22.7**	**22.7**	**-21.5%**

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

	1990	2000	2005	2010	2011
Total Mobile Homes GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**1.8**	**1.7**	**1.5**	**1.5**	**1.5**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	0.5	0.5	0.5	0.5	0.4
Natural Gas	0.7	0.7	0.7	0.6	0.7
Heating Oil	0.4	0.2	0.2	0.2	0.2
Other[1]	0.0	0.0	0.0	0.0	0.0
Wood	0.1	0.1	0.1	0.1	0.1
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	1.2	1.1	1.0	1.0	1.0
Water Heating	0.3	0.3	0.3	0.2	0.2
Appliances	0.2	0.2	0.2	0.2	0.2
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonne/TJ)[a,b,c]	**50.5**	**50.7**	**50.4**	**47.2**	**45.4**
Total Mobile Homes GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**1.2**	**1.1**	**1.0**	**1.0**	**1.0**
GHG Emissions by End Use (Mt of CO_2e)[b,c]					
Space Heating	1.0	0.9	0.8	0.8	0.8
Water Heating	0.2	0.2	0.2	0.2	0.2
Appliances	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonne/TJ)[a,b,c]	**35.3**	**34.0**	**32.5**	**31.5**	**31.7**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1.4	**1.4**	**1.4**	**1.3**	**1.2**	**1.2**	**-29.2%**
0.4	0.4	0.4	0.4	0.3	0.3	-34.9%
0.7	0.7	0.7	0.6	0.6	0.7	-3.6%
0.2	0.1	0.1	0.1	0.1	0.1	-70.5%
0.0	0.0	0.0	0.0	0.0	0.0	-65.7%
0.1	0.1	0.1	0.1	0.1	0.1	-15.1%
1.0	1.0	1.0	0.9	0.8	0.9	-29.6%
0.2	0.2	0.2	0.2	0.2	0.2	-19.6%
0.1	0.2	0.1	0.1	0.1	0.1	-38.2%
0.0	0.0	0.0	0.0	0.0	0.0	-54.3%
0.0	0.0	0.0	0.0	0.0	0.0	–
43.6	**43.2**	**42.3**	**42.4**	**40.9**	**40.8**	**-19.1%**
1.0	**1.0**	**1.0**	**0.9**	**0.8**	**0.9**	**-26.8%**
0.8	0.8	0.8	0.7	0.7	0.7	-31.6%
0.2	0.2	0.2	0.2	0.2	0.2	-3.0%
0.0	0.0	0.0	0.0	0.0	0.0	63.0%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
31.0	**30.1**	**30.3**	**29.6**	**28.8**	**29.5**	**-16.3%**

2 Residential Sector

Residential Housing Stock and Floor Space

	1990	2000	2005	2010	2011
Total Housing Stock (thousands)[a]	**10,426**	**12,204**	**13,142**	**14,112**	**14,279**
Housing Stock by Building Type (thousands)					
Single Detached	5,855	6,869	7,392	7,839	7,909
Single Attached	970	1,278	1,436	1,610	1,640
Apartments	3,379	3,824	4,067	4,401	4,465
Mobile Homes	222	234	247	262	264
Housing Stock by Vintage (thousands)					
Before 1946	2,142	1,917	1,814	1,717	1,698
1946–1960	1,471	1,349	1,291	1,236	1,225
1961–1977	3,082	2,892	2,801	2,713	2,696
1978–1983	1,786	1,691	1,646	1,602	1,593
1984–1995	1,945	3,282	3,226	3,172	3,161
1996–2000[1]	0	1,072	1,065	1,057	1,056
2001–2005[2]	0	0	1,299	1,297	1,297
2006–2010[3]	0	0	0	1,318	1,318
2011–2015[4]	0	0	0	0	235
2016–2017[5]	0	0	0	0	0
Total Floor Space (million m^2)[a]	**1,208**	**1,502**	**1,669**	**1,844**	**1,876**
Floor Space by Building Type (million m^2)					
Single Detached	805	1006	1,117	1,220	1,239
Single Attached	112	152	175	202	207
Apartments	272	322	354	397	406
Mobile Homes	20	21	23	25	25

1) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 1996 to 2017.
2) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2001 to 2017.
3) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2006 to 2017.
4) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2011 to 2017.
5) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2016 to 2017.

Source:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
14,447	**14,622**	**14,791**	**14,971**	**15,158**	**15,545**	**49.1%**
7,977	8,044	8,106	8,161	8,227	8,379	43.1%
1,672	1,705	1,738	1,770	1,803	1,872	93.1%
4,532	4,604	4,676	4,768	4,854	5,016	48.5%
266	268	271	272	274	278	25.3%
1,679	1,661	1,643	1,625	1,608	1,594	-25.6%
1,215	1,204	1,193	1,183	1,173	1,164	-20.8%
2,679	2,662	2,646	2,629	2,612	2,599	-15.7%
1,584	1,576	1,567	1,559	1,550	1,544	-13.6%
3,150	3,139	3,128	3,117	3,107	3,098	59.3%
1,054	1,053	1,051	1,050	1,048	1,047	344.5%
1,296	1,296	1,295	1,295	1,294	1,294	501.0%
1,318	1,318	1,318	1,318	1,318	1,318	370.7%
472	713	949	1,196	1,196	1,196	409.1%
0	0	0	0	253	691	173.7%
1,909	**1,942**	**1,973**	**2,006**	**2,040**	**2,107**	**74.4%**
1,256	1,274	1,290	1,305	1,322	1,357	68.6%
212	218	223	228	234	246	118.9%
415	425	435	446	458	478	75.8%
25	25	26	26	26	27	36.7%

Residential Housing Stock and Floor Space (cont.)

	1990	2000	2005	2010	2011
Floor Space by Vintage (million m²)					
Before 1946	234	223	219	215	214
1946–1960	145	140	138	136	136
1961–1977	333	324	320	316	315
1978–1983	232	220	215	211	211
1984–1995	264	447	440	432	431
1996–2000[1]	0	148	146	145	145
2001–2005[2]	0	0	190	190	189
2006–2010[3]	0	0	0	198	198
2011–2015[4]	0	0	0	0	37
2016–2017[5]	0	0	0	0	0
Average Size of Housing Unit (m²/house)[a]	**116**	**123**	**127**	**131**	**131**
Average Size by Building Type (m²/house)					
Single Detached	137	146	151	156	157
Single Attached	116	119	122	125	126
Apartments	80	84	87	90	91
Mobile Homes	88	91	92	94	94
Average Size by Vintage (m²/house)					
Before 1946	109	116	121	125	126
1946–1960	98	104	107	110	111
1961–1977	108	112	114	116	117
1978–1983	130	130	131	132	132
1984–1995	136	136	136	136	136
1996–2000[1]	0	138	138	138	138
2001–2005[2]	0	0	146	146	146
2006–2010[3]	0	0	0	151	151
2011–2015[4]	0	0	0	0	159
2016–2017[5]	0	0	0	0	0

1) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 1996 to 2017.
2) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2001 to 2017.
3) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2006 to 2017.
4) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2011 to 2017.
5) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 2016 to 2017.

Source:
a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
213	212	211	210	207	206	-12.2%
135	135	134	134	133	132	-8.9%
314	312	311	310	308	306	-8.0%
210	210	209	209	208	207	-11.1%
429	428	426	425	424	422	60.0%
145	145	145	144	144	144	358.4%
189	189	189	189	189	189	488.2%
198	198	198	198	198	198	363.4%
75	113	149	186	186	186	400.0%
0	0	0	0	42	116	175.2%
132	**133**	**133**	**134**	**135**	**136**	**16.9%**
157	158	159	160	161	162	17.8%
127	128	128	129	130	131	13.4%
92	92	93	94	94	95	18.4%
95	95	95	96	96	96	9.1%
127	127	128	129	129	129	18.0%
111	112	113	113	113	113	15.0%
117	117	118	118	118	118	9.1%
133	133	133	134	134	134	2.9%
136	136	136	136	136	136	0.4%
138	138	138	138	138	138	3.1%
146	146	146	146	146	146	-2.1%
151	151	151	151	151	151	-1.6%
159	158	157	156	156	156	-1.8%
0	0	0	0	167	168	0.5%

2 Residential Sector

Residential Space Heating Energy Use by Energy Source and Building Type

	1990	2000	2005	2010	2011
Total Space Heating Energy Use (PJ)[a]	**957.5**	**983.5**	**945.2**	**915.7**	**978.6**
Energy Use by Energy Source (PJ)[a]					
Electricity	158.6	184.1	201.2	219.3	235.7
Natural Gas	395.6	476.4	460.0	423.9	471.1
Heating Oil	166.4	117.4	110.3	91.5	87.8
Other[1]	18.2	11.3	13.4	15.8	16.9
Wood	218.7	194.3	160.2	165.1	167.0
Energy Use by Building Type (PJ)[a]					
Single Detached	723.2	737.3	702.3	679.7	724.2
Single Attached	71.6	80.2	81.4	79.8	86.7
Apartments	137.2	142.6	140.3	134.6	144.5
Mobile Homes	25.5	23.5	21.1	21.6	23.1
Activity					
Total Floor Space (million m^2)[a]	1,208	1,502	1,669	1,844	1,876
Energy Intensity (GJ/m^2)[a]	**0.79**	**0.65**	**0.57**	**0.50**	**0.52**
Heat Gains (PJ)[a]	**89.8**	**96.0**	**95.2**	**98.0**	**105.2**
Heating Degree-Day Index[a,b]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**

1) "Other" includes coal and propane.

Sources:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

b) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C*, 1990-2017, Ottawa.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
909.5	**973.4**	**1024.5**	**964.6**	**889.0**	**928.9**	**-3.0%**
224.4	251.5	264.8	251.9	237.5	249.3	57.2%
425.5	474.2	515.6	472.5	414.2	450.3	13.8%
72.6	64.9	63.0	61.1	55.7	47.8	-71.3%
18.6	14.8	13.7	13.4	15.6	16.2	-11.3%
168.4	167.9	167.3	165.6	166.1	165.4	-24.4%
672.5	715.6	750.2	705.0	648.8	675.9	-6.5%
80.1	88.1	94.2	88.9	81.2	86.0	20.1%
134.9	147.1	157.0	149.1	139.0	145.6	6.1%
22.1	22.5	23.0	21.6	20.1	21.4	-15.9%
1,909	1,942	1,973	2,006	2,040	2,107	74.4%
0.48	**0.50**	**0.52**	**0.48**	**0.44**	**0.44**	**-44.4%**
98.4	**110.8**	**114.8**	**107.3**	**100.4**	**105.1**	**17.1%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**

Residential Space Heating System Stock Share

	1990	2000	2005	2010
Heating System Stock Share by System Type (%)[a]				
Heating Oil – Normal Efficiency	14.0	3.7	1.0	0.3
Heating Oil – Medium Efficiency	0.3	6.3	7.3	7.2
Heating Oil – High Efficiency	0.0	0.0	0.0	0.0
Natural Gas – Normal Efficiency	39.0	22.5	13.1	4.6
Natural Gas – Medium Efficiency	2.1	15.3	19.9	20.8
Natural Gas – High Efficiency	2.9	8.9	14.8	21.5
Electric	28.1	27.8	27.9	29.3
Heat Pump	2.3	3.4	4.0	4.5
Other[1]	0.8	1.1	1.0	1.0
Wood	1.7	2.2	2.1	1.9
Dual Systems				
Wood/Electric	5.1	4.9	4.9	4.8
Wood/Heating Oil	2.4	2.3	2.3	2.3
Natural Gas/Electric	0.3	0.4	0.5	0.5
Heating Oil/Electric	0.8	1.1	1.2	1.3

1) "Other" includes coal and propane.

Source:
a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

2011	2012	2013	2014	2015	2016	2017
0.3	0.2	0.2	0.1	0.1	0.0	0.0
7.3	7.4	7.4	7.5	7.4	7.5	7.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.4	2.2	1.3	0.7	0.4	0.2	0.1
20.4	19.9	19.3	18.5	17.6	16.5	15.2
22.9	24.3	25.8	27.3	28.7	30.1	31.7
29.5	29.6	29.5	29.3	29.1	28.9	28.7
4.7	4.8	4.9	4.9	5.0	5.1	5.1
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
4.8	4.8	4.8	4.7	4.7	4.7	4.6
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
1.3	1.3	1.3	1.3	1.3	1.3	1.3

Residential Lighting and Space Cooling Details

	1990	2000	2005	2010	2011
Total Lighting Energy Use[1] (PJ)[a]	**49.5**	**55.1**	**57.3**	**59.8**	**60.2**
Activity					
Total Households (thousands)[a]	9,895	11,652	12,587	13,378	13,551
Energy Intensity (GJ/Household)[a]	**5.0**	**4.7**	**4.6**	**4.5**	**4.4**
Heat Loss (PJ)[a]	**20.8**	**24.1**	**24.0**	**23.9**	**25.2**
Total Space Cooling Energy Use[1] (PJ)[a]	**10.0**	**13.2**	**32.3**	**31.5**	**31.5**
Energy Use by Cooling System Type (PJ)[a]					
Room	2.6	2.2	5.2	5.0	4.5
Central	7.4	11.0	27.2	26.5	27.0
Activity					
Cooled Floor Space (million m^2)[a]	268	500	675	807	854
Energy Intensity (MJ/m^2)[a]	**37.2**	**26.4**	**47.9**	**39.0**	**36.9**
Cooling Degree-Day Index[a,b]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**
Total Cooling System Stock (thousands)[a]	**2,438**	**4,030**	**5,572**	**6,804**	**6,964**
System Stock by Type (thousands)[a]					
Room	1,067	1,425	1,992	2,431	2,396
Central	1,371	2,605	3,580	4,374	4,568
New Unit Efficiency[a]					
Room (EER)	7.1	9.4	9.4	12.0	12.0
Central (SEER)	9.1	10.3	10.3	13.0	13.0
Stock Efficiency[a]					
Room (EER)	6.8	8.3	9.1	10.4	10.6
Central (SEER)	8.6	9.6	10.0	11.1	11.2

1) Lighting and space cooling consume only electricity.

Sources:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

b Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C*, 1990-2017, Ottawa.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
59.7	**59.7**	**57.1**	**56.2**	**53.5**	**53.6**	**8.2%**
13,706	13,876	13,991	14,137	14,307	14,493	46.5%
4.4	**4.3**	**4.1**	**4.0**	**3.7**	**3.7**	**-26.1%**
23.2	**25.6**	**25.8**	**23.7**	**21.9**	**22.5**	**8.1%**
35.3	**24.8**	**22.8**	**29.2**	**36.9**	**28.1**	**181.4%**
5.1	3.6	3.4	4.0	4.5	3.8	48.4%
30.2	21.2	19.4	25.2	32.4	24.2	227.9%
875	906	931	953	986	1,016	279.1%
40.3	**27.4**	**24.5**	**30.6**	**37.4**	**27.6**	**-25.8%**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**
7,089	**7,271**	**7,413**	**7,567**	**7,729**	**7,878**	**223.1%**
2,412	2,422	2,412	2,425	2,426	2,428	127.5%
4,677	4,849	5,001	5,142	5,304	5,450	297.4%
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	42.2%
10.8	11.0	11.2	11.3	11.4	11.5	68.0%
11.4	11.6	11.7	11.9	12.1	12.3	42.4%

Residential Appliance Details

	1990	2000	2005	2010	2011
Total Appliance Energy Use (PJ)[a]	**176.8**	**176.1**	**181.7**	**197.5**	**201.8**
Energy Use by Energy Source (PJ)[a]					
Electricity	173.0	171.5	176.2	190.6	194.0
Natural Gas	3.8	4.5	5.5	6.9	7.8
Energy Use by Appliance Type (PJ)[a]					
Refrigerator	58.2	43.8	36.1	32.9	32.2
Freezer	23.5	15.7	12.1	10.3	10.2
Dishwasher[1]	4.7	4.5	4.2	3.5	3.3
Clothes Washer[1]	3.5	4.4	4.4	3.4	3.2
Clothes Dryer	31.2	32.5	34.6	36.9	37.5
Range	27.3	30.6	33.2	34.4	35.0
Other Appliances[2]	28.3	44.6	57.1	76.0	80.4
Activity					
Total Households (thousands)[a,b]	9,895	11,652	12,587	13,378	13,551
Energy Intensity (GJ/household)[a,b]	**17.9**	**15.1**	**14.4**	**14.8**	**14.9**
Heat Loss by Appliance Type (PJ)[a]					
Refrigerator	24.6	19.3	15.3	13.2	13.5
Freezer	10.0	7.0	5.1	4.2	4.4
Dishwasher[1]	0.7	0.7	0.6	0.5	0.5
Clothes Washer[1]	0.8	1.1	1.0	0.8	0.8
Clothes Dryer	3.7	4.0	4.1	4.1	4.4
Range	9.6	11.2	11.6	11.4	12.2
Other Appliances[2]	12.0	19.6	24.1	30.3	33.6
Appliances per Household by Appliance Type[a,b]					
Refrigerator	1.18	1.23	1.26	1.26	1.27
Freezer	0.57	0.58	0.55	0.54	0.54
Dishwasher	0.42	0.52	0.57	0.60	0.60
Clothes Washer	0.74	0.81	0.82	0.81	0.81
Clothes Dryer	0.72	0.81	0.83	0.84	0.84
Range	0.98	0.99	0.99	1.00	1.00
Other Appliances[2]	10.12	12.77	15.26	16.18	16.33

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
204.2	**209.9**	**206.4**	**207.3**	**202.3**	**205.6**	**16.3%**
196.4	201.9	198.2	199.0	194.6	197.6	14.2%
7.7	8.0	8.2	8.3	7.7	8.0	110.0%
31.6	31.6	30.4	29.8	28.4	28.7	-50.8%
10.1	10.3	10.1	10.1	9.9	10.0	-57.5%
3.1	3.0	2.8	2.7	2.5	2.5	-46.7%
3.0	2.9	2.6	2.4	2.1	1.9	-44.9%
37.8	38.9	38.4	38.7	38.0	38.1	22.3%
34.6	34.9	34.1	33.9	32.5	32.8	20.1%
83.9	88.3	88.1	89.8	88.8	91.5	223.6%
13,706	13,876	13,991	14,137	14,307	14,493	46.5%
14.9	**15.1**	**14.8**	**14.7**	**14.1**	**14.2**	**-20.6%**
12.3	13.6	13.8	12.6	11.7	12.1	-50.9%
4.0	4.5	4.7	4.4	4.1	4.3	-57.2%
0.4	0.4	0.4	0.4	0.3	0.3	-47.0%
0.7	0.7	0.7	0.6	0.5	0.5	-44.7%
4.1	4.7	4.9	4.6	4.4	4.5	22.7%
11.2	12.4	12.8	11.9	11.1	11.5	19.4%
32.5	37.8	39.8	38.1	36.5	38.7	223.0%
1.27	1.27	1.27	1.27	1.27	1.27	7.5%
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	43.4%
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	16.5%
1.00	1.00	1.00	1.00	1.00	1.00	1.9%
16.44	16.49	16.52	16.58	16.59	16.65	64.5%

Sources:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

b) Statistics Canada, *Survey of Household Spending*, 1997–2017, Ottawa, 2019.

Residential Appliance Unit Energy Consumption (UEC)

	1990	2000	2005	2010	2011
UEC[1] for New Electric Appliances (kWh/year)[a]					
Refrigerator	956	640	469	425	421
Freezer	714	391	386	365	390
Dishwasher[2]	277	172	107	84	80
Clothes Washer[2]	134	113	65	35	34
Clothes Dryer	1,103	910	904	928	933
Range	772	760	573	522	526
UEC[1] for New Natural Gas Appliances (kWh/year)[b]					
Clothes Dryer	925	880	880	880	880
Range	1,357	1,226	1,226	1,226	1,226
UEC[1] for Stock of Electric Appliances (kWh/year)[b]					
Refrigerator	1,504	958	689	549	527
Freezer	1,272	733	522	400	387
Dishwasher[2]	338	233	178	122	113
Clothes Washer[2]	145	145	128	89	82
Clothes Dryer	1,294	1,073	992	925	918
Range	803	781	747	664	648
UEC[1] for Stock of Natural Gas Appliances (kWh/year)[b]					
Clothes Dryer	1,480	888	880	880	880
Range	1,519	1,305	1,251	1,230	1,228

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 Manufactuers, Canada, 2019.
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
416	421	411	388	396	478	-50.0%
362	376	355	313	328	295	-58.6%
75	74	73	72	72	72	-74.1%
36	37	35	32	31	25	-81.4%
929	926	924	923	923	922	-16.4%
525	539	546	551	556	554	-28.2%
880	880	880	880	880	880	-4.9%
1,226	1,226	1,226	1,226	1,226	1,226	-9.7%
511	498	485	471	459	454	-69.8%
381	378	376	374	372	369	-71.0%
105	99	94	89	85	82	-75.7%
76	70	64	59	53	48	-67.1%
915	915	916	917	918	918	-29.1%
632	618	606	595	585	579	-27.9%
880	880	880	880	880	880	-40.5%
1,227	1,226	1,226	1,226	1,226	1,226	-19.3%

Residential Water Heating Energy Use and Water Heater Stock Share

	1990	2000	2005	2010	2011
Total Water Heating Energy Use (PJ)[a]	**230.8**	**263.3**	**280.0**	**285.4**	**303.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	76.3	73.7	76.5	77.2	77.4
Natural Gas	129.0	165.1	181.1	184.5	203.5
Heating Oil	20.0	18.4	16.7	16.1	15.3
Other[1]	3.7	0.7	1.1	1.6	1.8
Wood	1.9	5.4	4.6	5.9	6.0
Activity					
Total Households (thousands)[a,b]	9,895	11,652	12,587	13,378	13,551
Energy Intensity (GJ/household)[a,b]	**23.3**	**22.6**	**22.2**	**21.3**	**22.4**
Water Heater Stock Market Shares (%)[a]					
Electricity	52.5	47.4	45.6	44.7	44.6
Natural Gas	41.5	46.6	48.9	49.9	50.1
Heating Oil	5.1	5.0	4.5	4.2	4.1
Other[1]	0.6	0.3	0.4	0.4	0.4
Wood	0.2	0.6	0.7	0.7	0.7
Heat Loss (PJ)[a]	**7.5**	**9.1**	**9.3**	**9.7**	**10.8**

1) "Other" includes coal and propane.

Sources:
a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2019.
b) Statistics Canada, *Survey of Household Spending*, 1997–2017, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
299.7	**301.3**	**303.8**	**302.2**	**282.4**	**291.5**	**26.3%**
78.2	78.9	78.6	77.0	75.6	75.6	-1.0%
199.0	203.4	208.4	208.9	190.7	200.9	55.7%
13.6	11.4	9.8	9.1	8.4	7.6	-61.9%
2.2	1.5	1.3	1.3	1.7	1.7	-53.7%
6.8	6.0	5.6	5.8	6.0	5.8	207.1%
13,706	13,876	13,991	14,137	14,307	14,493	46.5%
21.9	**21.7**	**21.7**	**21.4**	**19.7**	**20.1**	**-13.8%**
44.5	44.2	44.1	43.9	43.8	43.6	–
50.2	50.6	50.8	51.0	51.1	51.4	–
4.1	4.0	3.9	3.9	3.9	3.8	–
0.4	0.4	0.5	0.5	0.5	0.5	–
0.7	0.7	0.8	0.8	0.8	0.8	–
10.0	**11.1**	**11.9**	**11.0**	**9.9**	**10.7**	**42.8%**

2 Residential Sector

Residential Energy Prices and Background Indicators

	1990	2000	2005	2010	2011
Energy Prices by Energy Source (incl. taxes)					
Natural Gas (cents/m^3)[a,d]	19.1	31.9	51.3	44.5	43.2
Heating Oil (cents/litre)[f,d,e]	35.6	53.6	78.3	90.2	112.6
Electricity (cents/kWh)[b,d]	6.2	7.9	9.2	9.8	10.6
Background Indicators					
Consumer Price Index (2012 = 100)[c]					
Natural Gas	48.0	80.1	128.6	111.8	108.3
Fuel Oil and Other Fuels	30.1	45.4	66.3	76.3	95.3
Electricity	57.9	73.3	85.5	91.8	98.8
Real Personal Disposable Income per Household ($2012)[c,g]	***65,094***	***63,466***	***65,198***	***72,473***	***72,062***
Total Population (thousands)[f]	***27,691***	***30,686***	***32,244***	***34,005***	***34,339***

Sources:

a) Statistics Canada, Natural Gas, Monthly Sales, Table 25-10-0033-01. Natural gas prices for 2016 and 2017 are calculated using *Canadian Monthly Natural Gas Distribution, Canada and Provinces*, Table 25-10-0059-01, Ottawa, 2019.
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, 2017.
c) Statistics Canada, *Consumer Price Index annual*, Table 18-10-0005-01, Ottawa, 2019.
d) Statistics Canada, *Report on Energy Supply and Demand in Canada*, 1990–2017, Ottawa, 2019.
e) Statistics Canada, *Estimates of Population, by Age Group and Sex for July 1, Canada, Provinces and Territories*, Table 17-10-0005-01, Ottawa, 2019.
f) Statistics Canada, *Monthly Average Retail Prices for Gasoline and Fuel Oil, by Geography*, Table 18-10-0001-01, Ottawa, 2019.
g) Statistics Canada, *Current and Capital Accounts – Households, quarterly*, Table 36-10-0112-01, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
39.9	40.8	45.7	41.7	35.1	33.6	75.9%
118.1	118.6	124.8	103.7	87.8	98.3	176.1%
10.7	11.0	11.2	11.8	12.8	12.3	98.9%
100.0	102.4	114.7	104.5	88.1	84.4	–
100.0	100.4	105.7	87.8	74.3	83.2	–
100.0	102.5	104.9	110.2	119.6	115.1	–
73,051	***74,762***	***75,152***	***76,833***	***75,044***	***76,604***	***17.7%***
34,714	***35,083***	***35,437***	***35,703***	***36,109***	***36,540***	***32.0%***

Chapter 3
Commercial and 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* (RESD) (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 RESD 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. Also, CEUM used the *Survey of Commercial and Institutional Energy Use: Establishments 2009* (SCIEU) as source data for energy intensities. The latest 2011 SCIEU was undertaken by Statistics Canada on behalf of the OEE to collect data for the reference year 2009.

New information about air conditioners in the SCIEU was used to update the penetration rate for air conditioners.

Furthermore, to be able to consider new technologies and specialization of building use, a survey was conducted on Natural Resources Canada's behalf in 2018-2019. The data were collected to strengthen and expand Canada's knowledge of energy end uses in the commercial/institutional building sector to better understand its performance in energy efficiency and energy intensity. The survey results were integrated into the model to produce the 2017 data and resulted in changes in the energy breakdown, mainly by end use.

Commercial and Institutional Sector

3

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

The commercial/institutional prices 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 Table 25-10-0033-01 for 1990–2015 and Table 25-10-0059-01 and for 2016 and 2017. The commercial/institutional price of electricity is a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities.*

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 reader should be cautious when comparing data in this edition of the handbook with data in on-line RESD tables.

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

3 Commercial and Institutional Sector

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

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a]	**745.6**	**931.9**	**957.3**	**937.7**	**983.8**
Energy Use by Energy Source (PJ)[a]					
Electricity	268.6	318.1	350.4	393.3	404.9
Natural Gas	387.1	504.1	504.9	480.2	505.4
Light Fuel Oil and Kerosene	62.0	55.7	44.7	19.7	22.7
Heavy Fuel Oil	11.4	18.0	24.7	8.0	10.8
Steam	0.2	0.3	2.6	0.0	0.0
Other[1]	16.3	35.9	30.2	36.5	40.0
Energy Use by End Use (PJ)[b]					
Space Heating	463.6	594.3	565.1	514.0	550.3
Water Heating	42.9	55.8	55.7	57.7	59.5
Auxiliary Equipment	49.8	73.2	94.8	121.3	124.0
Auxiliary Motors	48.7	50.8	47.0	45.5	48.8
Lighting	101.5	113.7	123.6	137.7	138.7
Space Cooling	30.3	37.2	62.9	54.0	55.0
Street Lighting[f]	8.9	6.9	8.3	7.5	7.6

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.
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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
947.2	**968.6**	**1,016.2**	**1,007.9**	**1,002.6**	**1,030.2**	**38.2%**
404.8	401.7	412.9	426.6	424.5	429.7	59.9%
466.1	493.1	528.3	507.0	510.2	531.3	37.2%
18.3	32.0	34.6	33.6	26.2	26.4	-57.4%
12.0	3.6	3.8	2.8	1.5	1.0	-91.1%
0.0	0.3	0.5	2.3	2.0	1.4	622.0%
45.9	37.9	36.0	35.8	38.2	40.4	148.3%
510.6	548.9	589.4	565.2	561.1	582.7	25.7%
58.8	58.7	58.7	58.9	58.7	58.4	36.1%
122.9	126.8	130.2	138.2	146.2	153.2	208.0%
48.2	46.7	46.2	42.6	39.0	39.2	-19.4%
138.7	136.4	138.9	141.5	133.9	138.9	36.9%
60.5	43.5	45.3	54.6	56.5	50.6	67.1%
7.5	7.6	7.6	7.0	7.1	7.0	-21.2%

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

	1990	2000	2005	2010	2011
Energy Use by Activity Type[2] (PJ)[b]					
Wholesale Trade	51.8	59.2	56.9	53.2	55.3
Retail Trade	124.4	152.3	158.6	155.5	162.2
Transportation and Warehousing	44.8	46.8	41.3	37.3	38.9
Information and Cultural Industries	14.0	19.6	19.8	19.8	20.6
Offices[3]	232.1	309.7	332.1	327.6	344.3
Educational Services	94.6	119.1	120.8	117.0	123.3
Health Care and Social Assistance	88.4	109.8	111.0	111.6	117.8
Arts, Entertainment and Recreation	16.3	23.1	22.9	23.3	24.4
Accommodation and Food Services	54.0	66.5	68.0	69.1	72.9
Other Services	16.3	18.8	17.8	15.8	16.4
Activity					
Total Floor Space (million m^2)[c]	509.9	601.1	654.2	713.9	721.6
Energy Intensity[2] (GJ/m^2)[a,c]	**1.44**	**1.54**	**1.45**	**1.30**	**1.35**
Heating Degree-Day Index[b,d]	**0.92**	**0.96**	**0.92**	**0.87**	**0.90**
Cooling Degree-Day Index[b,e]	**1.05**	**0.91**	**1.79**	**1.59**	**1.51**

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*, 1990–2017, Ottawa, 2019.
b) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.
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*, 1990–2017, Ottawa.
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C*, 1990–2017, 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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
52.7	52.8	55.3	53.9	53.3	54.2	4.6%
155.9	156.5	163.8	160.3	158.3	161.6	29.9%
36.6	37.0	38.7	37.3	36.7	37.4	-16.4%
19.9	19.7	20.7	20.4	20.3	20.8	48.5%
329.8	343.9	357.5	354.1	350.1	361.3	55.7%
119.4	120.3	127.0	127.0	127.9	131.2	38.7%
116.0	121.1	130.4	132.1	133.1	137.8	55.8%
23.5	23.8	25.0	24.7	24.4	24.9	52.4%
70.3	70.6	74.1	75.7	76.2	78.6	45.5%
15.5	15.4	16.0	15.5	15.2	15.4	-5.5%
732.1	739.0	743.3	747.5	750.1	754.3	47.9%
1.28	**1.30**	**1.36**	**1.34**	**1.33**	**1.36**	**-6.1%**
0.84	**0.93**	**0.98**	**0.92**	**0.89**	**0.92**	**–**
1.70	**1.18**	**1.11**	**1.37**	**1.79**	**1.37**	**–**

3 Commercial and Institutional Sector

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

	1990	2000	2005	2010	2011
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,d]	**40.9**	**51.7**	**52.0**	**47.5**	**47.5**
GHG Emissions by Energy Source (Mt of CO_2e)[a,d]					
Electricity	15.1	18.9	20.0	19.4	17.6
Natural Gas	19.6	25.3	25.2	23.8	25.1
Light Fuel Oil and Kerosene	4.4	3.9	3.2	1.4	1.6
Heavy Fuel Oil	0.8	1.3	1.8	0.6	0.8
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	1.0	2.2	1.8	2.2	2.4
GHG Emissions by End Use (Mt of CO_2e)[b,d]					
Space Heating	25.1	31.9	29.8	26.3	28.0
Water Heating	2.4	3.0	3.0	3.0	3.1
Auxiliary Equipment	2.8	4.3	5.4	6.1	5.6
Auxiliary Motors	2.7	3.0	2.7	2.2	2.1
Lighting	5.7	6.8	7.0	6.8	6.0
Space Cooling	1.7	2.2	3.6	2.7	2.4
Street Lighting[c]	0.5	0.4	0.5	0.4	0.3
GHG Emissions by Activity Type[2] (Mt of CO_2e)[b,d]					
Wholesale Trade	2.8	3.2	3.1	2.7	2.7
Retail Trade	6.8	8.4	8.6	7.8	7.8
Transportation and Warehousing	2.4	2.6	2.2	1.9	1.9
Information and Cultural Industries	0.8	1.1	1.1	1.0	1.0
Offices[3]	12.7	17.1	18.0	16.6	16.6
Educational Services	5.2	6.6	6.6	5.9	6.0
Health Care and Social Assistance	4.9	6.2	6.1	5.7	5.8
Arts, Entertainment and Recreation	0.9	1.3	1.3	1.2	1.2
Accommodation and Food Services	3.0	3.7	3.7	3.5	3.5
Other Services	0.9	1.0	1.0	0.8	0.8
GHG Intensity (tonne/TJ)[a,d]	**54.9**	**55.4**	**54.3**	**50.6**	**48.3**

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
44.1	**45.1**	**46.1**	**45.8**	**44.2**	**45.0**	**9.9%**
16.1	16.0	15.4	16.4	15.0	14.6	-3.2%
23.0	24.2	25.9	24.7	25.0	26.0	32.6%
1.3	2.2	2.4	2.3	1.8	1.8	-58.3%
0.9	0.3	0.3	0.2	0.1	0.1	-91.1%
0.0	0.0	0.0	0.0	0.0	0.0	–
2.8	2.3	2.2	2.2	2.3	2.5	147.0%
25.8	27.4	29.1	27.7	27.4	28.4	13.0%
3.0	3.0	3.0	3.0	3.0	2.9	23.5%
5.1	5.3	5.1	5.6	5.5	5.6	99.2%
1.9	1.9	1.7	1.6	1.4	1.3	-51.2%
5.5	5.4	5.2	5.4	4.7	4.7	-17.1%
2.4	1.8	1.7	2.1	2.0	1.8	4.3%
0.3	0.3	0.3	0.3	0.3	0.2	-52.3%
2.5	2.5	2.5	2.5	2.4	2.4	-15.5%
7.2	7.3	7.4	7.3	7.0	7.1	4.3%
1.7	1.7	1.8	1.7	1.7	1.7	-31.4%
0.9	0.9	0.9	0.9	0.9	0.9	18.1%
15.3	15.9	16.1	15.9	15.2	15.5	21.9%
5.6	5.6	5.8	5.8	5.7	5.8	10.5%
5.5	5.7	6.0	6.1	6.0	6.1	25.0%
1.1	1.1	1.1	1.1	1.1	1.1	21.2%
3.3	3.3	3.4	3.5	3.4	3.5	18.4%
0.7	0.7	0.7	0.7	0.7	0.7	-25.3%
46.5	**46.5**	**45.4**	**45.4**	**44.1**	**43.6**	**-20.5%**

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.
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 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

3 Commercial and Institutional Sector

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

	1990	2000	2005	2010	2011
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,d]	**25.8**	**32.8**	**32.0**	**28.0**	**29.9**
GHG Emissions by End Use (Mt of CO_2e)[b,d]					
Space Heating	23.2	29.5	28.4	24.3	26.0
Water Heating	2.3	2.8	2.9	2.9	3.0
Auxiliary Equipment	0.3	0.4	0.6	0.7	0.8
Auxiliary Motors	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.1	0.1	0.2	0.2	0.2
Street Lighting[c]	0.0	0.0	0.0	0.0	0.0
GHG Emissions by Activity Type[1] (Mt of CO_2e)[b,d]					
Wholesale Trade	1.8	2.1	1.9	1.6	1.7
Retail Trade	4.3	5.3	5.3	4.6	4.9
Transportation and Warehousing	1.7	1.8	1.5	1.3	1.3
Information and Cultural Industries	0.5	0.7	0.7	0.6	0.6
Offices[2]	7.9	10.6	10.8	9.5	10.2
Educational Services	3.4	4.3	4.1	3.6	3.8
Health Care and Social Assistance	3.2	4.0	3.8	3.5	3.8
Arts, Entertainment and Recreation	0.6	0.8	0.8	0.7	0.8
Accommodation and Food Services	1.9	2.4	2.4	2.2	2.3
Other Services	0.6	0.7	0.6	0.5	0.5
GHG Intensity (tonne/TJ)[a,d]	**34.6**	**35.2**	**33.5**	**29.9**	**30.4**

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, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2019.
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 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
28.0	**29.0**	**30.7**	**29.4**	**29.2**	**30.3**	**17.5%**
24.2	25.2	26.9	25.5	25.3	26.4	13.7%
2.9	2.9	2.9	2.9	2.8	2.8	25.4%
0.7	0.8	0.8	0.9	0.9	0.9	227.3%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.2	0.1	0.1	0.2	0.2	0.2	182.4%
0.0	0.0	0.0	0.0	0.0	0.0	–
1.6	1.6	1.7	1.6	1.6	1.7	-9.1%
4.6	4.7	5.0	4.7	4.7	4.8	13.1%
1.2	1.2	1.3	1.2	1.2	1.3	-25.5%
0.6	0.6	0.6	0.6	0.6	0.6	26.2%
9.5	9.9	10.3	9.7	9.6	10.0	27.3%
3.6	3.7	3.9	3.8	3.8	4.0	16.8%
3.6	3.8	4.2	4.1	4.1	4.3	34.2%
0.7	0.7	0.8	0.7	0.7	0.8	30.5%
2.2	2.3	2.4	2.4	2.4	2.5	28.7%
0.5	0.5	0.5	0.5	0.5	0.5	-20.3%
29.5	**30.0**	**30.3**	**29.1**	**29.1**	**29.5**	**-15.0%**

3 Commercial and Institutional Sector

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

	1990	2000	2005	2010	2011
Total Energy Use for Wholesale Trade (PJ)[a]	**51.8**	**59.2**	**56.9**	**53.2**	**55.3**
Energy Use by Energy Source (PJ)[a]					
Electricity	17.6	18.9	19.6	21.3	21.8
Natural Gas	29.0	34.8	32.1	28.7	30.0
Light Fuel Oil and Kerosene	3.5	2.3	2.1	0.7	0.8
Heavy Fuel Oil	0.6	0.9	1.2	0.4	0.5
Steam	0.0	0.0	0.2	0.0	0.0
Other[1]	1.1	2.3	1.7	2.1	2.3
Activity					
Floor Space (million m^2)[b]	38.61	41.05	42.78	45.23	45.34
Energy Intensity (GJ/m^2)[a,b]	**1.34**	**1.44**	**1.33**	**1.18**	**1.22**
Total Energy Use for Retail Trade (PJ)[a]	**124.4**	**152.3**	**158.6**	**155.5**	**162.2**
Energy Use by Energy Source (PJ)[a]					
Electricity	44.7	51.9	57.8	65.0	66.6
Natural Gas	67.4	84.4	85.3	81.0	85.1
Light Fuel Oil and Kerosene	8.2	8.1	6.9	2.3	2.6
Heavy Fuel Oil	1.5	2.3	3.4	1.2	1.4
Steam	0.0	0.0	0.4	0.0	0.0
Other[1]	2.5	5.8	4.7	6.0	6.5
Activity					
Floor Space (million m^2)[b]	80.84	92.95	104.12	115.46	116.22
Energy Intensity (GJ/m^2)[a,b]	**1.54**	**1.64**	**1.52**	**1.35**	**1.40**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
52.7	**52.8**	**55.3**	**53.9**	**53.3**	**54.2**	**4.6%**
21.6	20.7	21.2	21.6	21.2	21.1	20.2%
27.3	28.8	30.8	29.2	29.1	30.0	3.6%
0.5	1.1	1.1	1.1	0.8	0.8	-76.5%
0.8	0.2	0.2	0.1	0.1	0.1	-91.1%
0.0	0.0	0.0	0.0	0.0	0.0	–
2.6	2.1	2.0	1.9	2.1	2.1	102.1%
45.52	45.49	45.41	45.21	45.05	45.09	16.8%
1.16	**1.16**	**1.22**	**1.19**	**1.18**	**1.20**	**-10.4%**
155.9	**156.5**	**163.8**	**160.3**	**158.3**	**161.6**	**29.9%**
66.4	63.8	65.4	66.7	65.6	66.0	47.5%
78.1	82.6	88.1	83.9	83.5	86.4	28.1%
1.6	3.5	3.9	3.7	2.8	2.8	-66.1%
2.2	0.5	0.7	0.5	0.2	0.2	-88.4%
0.0	0.0	0.0	0.0	0.0	0.0	–
7.5	6.0	5.7	5.6	6.1	6.3	157.9%
117.52	118.14	118.35	118.13	117.84	118.38	46.4%
1.33	**1.32**	**1.38**	**1.36**	**1.34**	**1.37**	**-11.3%**

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

	1990	2000	2005	2010	2011
Total Energy Use for Transportation and Warehousing (PJ)[a]	**44.8**	**46.8**	**41.3**	**37.3**	**38.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	13.6	13.1	12.1	12.9	13.4
Natural Gas	25.7	27.3	24.5	21.9	22.8
Light Fuel Oil and Kerosene	3.9	3.6	2.2	0.6	0.7
Heavy Fuel Oil	0.7	1.0	1.0	0.4	0.5
Steam	0.0	0.0	0.2	0.0	0.0
Other[1]	0.9	1.8	1.2	1.5	1.6
Activity					
Floor Space (million m^2)[b]	33.92	33.72	33.26	33.74	33.69
Energy Intensity (GJ/m^2)[a,b]	**1.32**	**1.39**	**1.24**	**1.11**	**1.16**
Total Energy Use for Information and Cultural Industries (PJ)[a]	**14.0**	**19.6**	**19.8**	**19.8**	**20.6**
Energy Use by Energy Source (PJ)[a]					
Electricity	4.8	6.4	7.0	8.1	8.2
Natural Gas	7.1	10.9	10.5	10.3	10.9
Light Fuel Oil and Kerosene	1.5	1.3	1.2	0.4	0.5
Heavy Fuel Oil	0.3	0.2	0.4	0.1	0.1
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.3	0.8	0.7	0.9	0.9
Activity					
Floor Space (million m^2)[b]	8.97	11.83	12.93	14.15	14.29
Energy Intensity (GJ/m^2)[a,b]	**1.56**	**1.66**	**1.54**	**1.40**	**1.44**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
36.6	**37.0**	**38.7**	**37.3**	**36.7**	**37.4**	**-16.4%**
13.0	12.6	12.9	13.0	12.6	12.5	-8.0%
20.7	21.8	23.1	21.7	21.8	22.6	-12.1%
0.5	0.9	1.1	1.0	0.8	0.7	-81.4%
0.6	0.1	0.2	0.1	0.1	0.0	-93.1%
0.0	0.0	0.0	0.0	0.0	0.0	–
1.9	1.5	1.4	1.4	1.5	1.6	83.7%
33.61	33.43	33.28	33.06	32.91	32.84	-3.2%
1.09	**1.11**	**1.16**	**1.13**	**1.11**	**1.14**	**-13.7%**
19.9	**19.7**	**20.7**	**20.4**	**20.3**	**20.8**	**48.5%**
8.4	7.8	8.0	8.2	8.2	8.3	70.3%
9.9	10.3	11.1	10.7	10.7	11.1	56.5%
0.4	0.7	0.7	0.7	0.5	0.5	-64.6%
0.1	0.0	0.0	0.0	0.0	0.0	-98.2%
0.0	0.0	0.0	0.0	0.0	0.0	–
1.1	0.9	0.8	0.8	0.9	0.9	213.0%
14.50	14.55	14.56	14.58	14.61	14.63	63.2%
1.37	**1.35**	**1.42**	**1.40**	**1.39**	**1.42**	**-9.0%**

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

	1990	2000	2005	2010	2011
Total Energy Use for Offices[2] (PJ)[a]	**232.1**	**309.7**	**332.1**	**327.6**	**344.3**
Energy Use by Energy Source (PJ)[a]					
Electricity	86.6	110.1	125.8	143.4	148.1
Natural Gas	118.8	166.5	175.1	163.9	172.0
Light Fuel Oil and Kerosene	18.5	16.0	12.7	8.1	9.5
Heavy Fuel Oil	3.4	6.4	8.9	2.6	4.1
Steam	0.1	0.3	1.1	0.0	0.0
Other[1]	4.7	10.4	8.5	9.7	10.6
Activity					
Floor Space (million m^2)[b]	193.95	243.07	267.84	294.44	297.65
Energy Intensity (GJ/m^2)[a,b]	**1.20**	**1.27**	**1.24**	**1.11**	**1.16**
Total Energy Use for Educational Services (PJ)[a]	**94.6**	**119.1**	**120.8**	**117.0**	**123.3**
Energy Use by Energy Source (PJ)[a]					
Electricity	32.1	38.9	42.8	47.6	49.2
Natural Gas	49.4	63.9	63.7	61.2	65.0
Light Fuel Oil and Kerosene	9.3	8.8	6.2	2.1	2.4
Heavy Fuel Oil	1.7	2.3	3.5	1.1	1.3
Steam	0.0	0.0	0.3	0.0	0.0
Other[1]	2.0	5.2	4.2	5.0	5.4
Activity					
Floor Space (million m^2)[b]	68.14	79.14	86.05	92.73	94.42
Energy Intensity (GJ/m^2)[a,b]	**1.39**	**1.50**	**1.40**	**1.26**	**1.31**

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, 1990–2017*, Ottawa, 2019.
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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
329.8	**343.9**	**357.5**	**354.1**	**350.1**	**361.3**	**55.7%**
146.0	151.8	154.9	160.4	158.1	162.0	87.0%
159.2	166.5	177.9	168.3	169.5	176.8	48.7%
8.4	12.7	12.8	12.4	9.5	9.7	-47.7%
3.5	1.9	1.5	1.1	0.7	0.4	-88.7%
0.0	0.3	0.5	2.3	2.0	1.4	–
12.7	10.7	9.9	9.5	10.3	11.0	134.8%
302.35	304.65	305.68	306.74	307.38	308.64	59.1%
1.09	**1.13**	**1.17**	**1.15**	**1.14**	**1.17**	**-2.2%**
119.4	**120.3**	**127.0**	**127.0**	**127.9**	**131.2**	**38.7%**
49.7	47.9	49.6	51.8	52.9	52.3	62.7%
60.0	63.7	68.3	66.3	67.2	70.5	42.7%
1.6	3.2	3.7	3.6	2.5	2.7	-70.7%
1.9	0.4	0.6	0.4	0.2	0.1	-91.3%
0.0	0.0	0.0	0.0	0.0	0.0	–
6.2	5.0	4.8	4.9	5.2	5.6	172.4%
96.15	97.07	98.02	99.38	100.63	101.25	48.6%
1.24	**1.24**	**1.30**	**1.28**	**1.27**	**1.30**	**-6.7%**

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

	1990	2000	2005	2010	2011
Total Energy Use for Health Care and Social Assistance (PJ)[a]	**88.4**	**109.8**	**111.0**	**111.6**	**117.8**
Energy Use by Energy Source (PJ)[a]					
Electricity	30.7	36.7	39.6	44.6	46.0
Natural Gas	43.9	55.9	56.0	56.0	59.2
Light Fuel Oil and Kerosene	9.2	9.2	6.9	3.2	3.6
Heavy Fuel Oil	1.7	2.8	3.5	1.5	1.9
Steam	0.0	0.0	0.3	0.0	0.0
Other[1]	2.8	5.1	4.8	6.3	7.1
Activity					
Floor Space (million m^2)[b]	38.16	44.10	47.42	52.36	53.41
Energy Intensity (GJ/m^2)[a,b]	**2.32**	**2.49**	**2.34**	**2.13**	**2.21**
Total Energy Use for Arts, Entertainment and Recreation (PJ)[a]	**16.3**	**23.1**	**22.9**	**23.3**	**24.4**
Energy Use by Energy Source (PJ)[a]					
Electricity	5.7	7.7	8.0	9.5	9.7
Natural Gas	8.3	12.8	11.9	12.2	13.0
Light Fuel Oil and Kerosene	1.7	1.4	1.5	0.4	0.5
Heavy Fuel Oil	0.3	0.3	0.5	0.1	0.1
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.3	0.9	0.9	1.1	1.1
Activity					
Floor Space (million m^2)[b]	10.40	13.73	14.92	16.72	17.00
Energy Intensity (GJ/m^2)[a,b]	**1.57**	**1.68**	**1.54**	**1.39**	**1.43**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
116.0	**121.1**	**130.4**	**132.1**	**133.1**	**137.8**	**55.8%**
48.1	47.4	50.2	52.7	53.8	54.9	78.5%
55.1	60.8	66.4	65.5	66.3	69.5	58.4%
3.2	5.8	6.7	6.6	5.7	5.7	-38.3%
1.9	0.4	0.5	0.3	0.2	0.1	-91.3%
0.0	0.0	0.0	0.0	0.0	0.0	–
7.8	6.7	6.6	6.9	7.2	7.6	165.7%
55.12	57.72	59.72	60.72	61.70	62.80	64.6%
2.11	**2.10**	**2.18**	**2.17**	**2.16**	**2.19**	**-5.3%**
23.5	**23.8**	**25.0**	**24.7**	**24.4**	**24.9**	**52.4%**
9.8	9.4	9.6	9.9	9.8	9.9	72.5%
11.9	12.5	13.5	13.0	13.0	13.5	61.5%
0.4	0.8	0.8	0.8	0.5	0.5	-68.5%
0.2	0.0	0.0	0.0	0.0	0.0	-96.9%
0.0	0.0	0.0	0.0	0.0	0.0	–
1.3	1.1	1.0	1.0	1.0	1.1	226.0%
17.29	17.59	17.71	17.78	17.71	17.84	71.5%
1.36	**1.35**	**1.41**	**1.39**	**1.38**	**1.40**	**-11.1%**

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

	1990	2000	2005	2010	2011
Total Energy Use for Accommodation and Food Services (PJ)[a]	**54.0**	**66.5**	**68.0**	**69.1**	**72.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	18.2	21.3	23.2	27.2	27.9
Natural Gas	29.2	36.7	35.5	36.3	38.5
Light Fuel Oil and Kerosene	4.5	4.4	4.5	1.6	1.9
Heavy Fuel Oil	0.8	1.4	1.9	0.5	0.8
Steam	0.0	0.0	0.1	0.0	0.0
Other[1]	1.4	2.7	2.7	3.5	3.7
Activity					
Floor Space (million m^2)[b]	24.40	28.26	31.41	35.71	36.26
Energy Intensity (GJ/m^2)[a,b]	**2.21**	**2.35**	**2.16**	**1.93**	**2.01**
Total Energy Use for Other Services (PJ)[a]	**16.3**	**18.8**	**17.8**	**15.8**	**16.4**
Energy Use by Energy Source (PJ)[a]					
Electricity	5.6	6.1	6.2	6.3	6.5
Natural Gas	8.2	10.8	10.1	8.6	8.9
Light Fuel Oil and Kerosene	1.8	0.6	0.5	0.2	0.3
Heavy Fuel Oil	0.3	0.3	0.4	0.1	0.1
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.3	1.0	0.6	0.6	0.6
Activity					
Floor Space (million m^2)[b]	12.54	13.25	13.47	13.38	13.34
Energy Intensity (GJ/m^2)[a,b]	**1.30**	**1.42**	**1.32**	**1.18**	**1.23**

1) "Other" includes coal and propane.

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.

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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
70.3	**70.6**	**74.1**	**75.7**	**76.2**	**78.6**	**45.5%**
28.0	26.7	27.3	29.1	29.2	29.8	63.5%
35.7	37.4	40.1	39.9	40.8	42.4	45.2%
1.7	3.1	3.4	3.4	2.8	2.8	-38.2%
0.6	0.1	0.1	0.1	0.1	0.0	-96.8%
0.0	0.0	0.0	0.0	0.0	0.0	–
4.2	3.4	3.2	3.2	3.4	3.7	173.1%
36.73	37.28	37.59	39.02	39.49	40.15	64.5%
1.91	**1.89**	**1.97**	**1.94**	**1.93**	**1.96**	**-11.6%**
15.5	**15.4**	**16.0**	**15.5**	**15.2**	**15.4**	**-5.5%**
6.3	6.1	6.1	6.2	6.1	6.0	7.9%
8.1	8.5	9.0	8.5	8.4	8.6	4.3%
0.2	0.3	0.4	0.3	0.2	0.2	-87.8%
0.2	0.0	0.0	0.0	0.0	0.0	-98.9%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.7	0.6	0.5	0.5	0.6	0.6	59.7%
1.16	1.18	1.23	1.21	1.20	1.22	-6.2%
1.16	**1.18**	**1.23**	**1.21**	**1.20**	**1.22**	**-6.2%**

3 Commercial and Institutional Sector

Commercial/Institutional Energy Prices and Background Indicators

	1990	2000	2005	2010	2011
Energy Prices by Energy Source (incl. taxes)					
Natural Gas (cents/m^3)[a,d]	15.3	26.4	43.4	37.8	33.3
Light Fuel Oil (cents/litre)[e]	25.8	40.1	61.9	70.5	94.1
Heavy Fuel Oil (cents/litre)[e]	14.1	28.5	38.2	54.7	71.9
Electricity (40 kW/10,000 kWh)[1] (cents/kWh)[b,d]	7.6	8.6	10.1	10.8	12.4
Electricity (500 kW/100,000 kWh)[1] (cents/kWh)[b,d]	8.1	9.3	11.5	12.2	13.2
Background Indicators					
Commercial/Institutional Floor Space (million m^2)[c]	509.9	601.1	654.2	713.9	721.6
Commercial/Institutional Employees (thousands)[f]	8,708	10,207	11,369	12,481	12,629
Employees (per thousand m^2)[c,f]	17.1	17.0	17.4	17.5	17.5
Commercial/Institutional GDP (million $ 2012)[g]	618,085	823,302	962,295	1,076,955	1,105,961

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

Sources:

a) Statistics Canada, Natural Gas, Monthly Sales, Table 25-10-0033-01. Natural gas prices for 2016 and 2017 are calculated using *Canadian Monthly Natural Gas Distribution, Canada and Provinces*, Table 25-10-0059-01, Ottawa, 2019.
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, 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) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
e) Natural Resources Canada, Petroleum Resources Branch, Canadian Oil, Refining and Energy Security Division, Ottawa, 2019.
f) Statistics Canada, *Labour Force Survey*, Table 14-10-0023-01, and *Employment by Industry, annual*, Table 14-10-0202-01, Ottawa, 2019.
g) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)*, Table 36-10-0434-03, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University and Natural Resources Canada.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
30.2	30.3	35.0	33.4	25.6	24.9	62.5%
96.4	98.5	99.3	75.6	65.0	77.8	202.0%
76.7	74.2	72.2	62.1	53.4	46.1	227.9%
12.3	12.8	13.0	13.6	14.8	14.4	90.5%
14.0	15.4	15.0	14.0	16.3	17.1	110.4%
732.1	739.0	743.3	747.5	750.1	754.3	47.9%
12,763	12,953	13,064	13,215	13,399	13,660	56.9%
17.4	17.5	17.6	17.7	17.9	18.1	6.0%
1,126,960	1,152,136	1,179,705	1,196,301	1,219,230	1,251,595	102.5%

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

To provide more detail about the industrial end-use energy trends over time, the Office of Energy Efficiency (OEE) developed the Industrial End-Use Model (IEUM). The detailed energy use data in the IEUM are taken from the ICE survey for 1990 and from 1995 and beyond. Data for 1991 to1994 are from the Canadian Energy and Emissions Data Centre (CEEDC). The OEE also updates its energy end-use database by including energy consumption data from the Annual Census of Mines and other industry associations.

Statistics Canada provides 2019 data for gross domestic product at basic prices in Table 36-10-0434-03. Data prior to 1997 were estimated by the CEEDC.

[1] 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.

4 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 Table 25-10-0033-01 for 1990 to 2015 and Table 25-10-0059-01 for 2016 and 2017. Electricity prices are a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities.*

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

4 Industrial Sector

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

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a,d]	**2,710.0**	**3,166.9**	**3,303.1**	**3,206.3**	**3,390.9**
Energy Use by Energy Source (PJ)[a,d]					
Electricity	658.4	795.5	838.3	729.0	729.7
Natural Gas	837.2	961.0	904.3	1,081.9	1,255.4
Diesel Fuel Oil, Light Fuel Oil and Kerosene	127.7	141.1	169.7	207.8	224.3
Heavy Fuel Oil	201.1	143.4	134.5	65.0	49.4
Still Gas and Petroleum Coke	309.9	375.9	469.8	498.4	498.0
LPG and Gas Plant NGL	26.0	39.3	45.7	59.0	63.7
Coal	49.4	57.8	52.8	54.2	56.3
Coke and Coke Oven Gas	131.3	136.7	125.5	109.8	120.4
Wood Waste and Pulping Liquor	341.0	479.5	523.2	375.8	363.6
Other[1]	27.9	36.7	39.3	25.3	30.0
Activity					
GDP (million $2012)[b,d]	312,055	412,731	447,535	419,128	438,387
Energy Intensity (MJ/$2012 – GDP)[a,b,d]	**8.7**	**7.7**	**7.4**	**7.6**	**7.7**

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)*, Table 36-10-0434-03, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University and Natural Resources Canada.
d) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
3,443.2	**3,497.6**	**3,562.9**	**3,611.4**	**3,478.4**	**3,607.4**	**33.1%**
720.8	722.7	720.3	713.2	740.3	739.0	12.2%
1,319.0	1,402.7	1,456.2	1,486.0	1,414.0	1,508.2	80.1%
222.5	224.5	209.6	239.3	234.5	243.3	90.6%
48.2	42.1	40.4	35.5	33.7	27.2	-86.5%
494.8	473.3	468.4	477.3	471.5	482.6	55.7%
76.7	65.8	62.3	59.5	56.7	62.0	138.3%
54.0	46.6	43.7	45.0	38.9	41.8	-15.4%
120.0	99.1	104.0	95.1	101.8	102.1	-22.2%
356.3	390.8	420.4	432.1	359.6	372.2	9.1%
31.0	30.0	37.5	28.4	27.3	28.8	3.3%
447,855	459,565	479,237	474,996	468,619	493,439	58.1%
7.7	**7.6**	**7.4**	**7.6**	**7.4**	**7.3**	**-15.8%**

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

	1990	2000	2005	2010	2011
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,c,d]	**140.6**	**161.6**	**166.9**	**166.6**	**173.9**
GHG Emissions by Energy Source (Mt of CO_2e)[a,c,d]					
Electricity	37.0	47.3	47.8	36.0	31.7
Natural Gas	43.6	50.7	49.4	61.5	72.3
Diesel Fuel Oil, Light Fuel Oil and Kerosene	9.3	10.3	12.5	15.3	16.5
Heavy Fuel Oil	15.0	10.7	10.1	4.9	3.7
Still Gas and Petroleum Coke	17.0	21.1	27.2	28.9	28.6
LPG and Gas Plant NGL	1.6	2.4	2.8	3.6	3.9
Coal	4.5	5.4	4.8	5.0	5.2
Coke and Coke Oven Gas	12.2	13.1	11.7	10.5	11.4
Wood Waste and Pulping Liquor	0.2	0.3	0.4	0.3	0.2
Other[1]	0.1	0.3	0.3	0.7	0.4
GHG Intensity (tonne/TJ)[a,c,d]	**51.9**	**51.0**	**50.5**	**52.0**	**51.3**
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,c,d]	**103.7**	**114.3**	**119.1**	**130.6**	**142.2**
GHG Intensity (tonne/TJ)[a,c,d]	**38.3**	**36.1**	**36.1**	**40.7**	**41.9**

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
d) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
176.3	**176.2**	**175.9**	**180.2**	**174.0**	**180.5**	**28.4%**
28.7	28.8	26.8	27.5	26.1	25.1	-32.1%
75.9	80.6	83.9	85.7	81.5	87.5	100.5%
16.4	16.6	15.4	17.6	17.3	17.9	92.1%
3.6	3.1	3.0	2.7	2.5	2.0	-86.5%
30.2	29.1	28.6	29.4	29.2	30.0	76.3%
4.7	4.0	3.8	3.6	3.5	3.8	138.3%
4.9	4.3	4.0	4.1	3.5	3.8	-16.5%
11.3	9.1	9.8	8.9	9.8	9.8	-19.5%
0.2	0.3	0.3	0.3	0.2	0.3	27.0%
0.4	0.3	0.3	0.3	0.3	0.3	164.0%
51.2	**50.4**	**49.4**	**49.9**	**50.0**	**50.0**	**-3.6%**
147.6	**147.4**	**149.1**	**152.7**	**147.8**	**155.4**	**49.9%**
42.9	**42.1**	**41.8**	**42.3**	**42.5**	**43.1**	**12.6%**

4 Industrial Sector

Industrial Secondary Energy Use (Final Demand) by Industry

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a,c]	**2,710.0**	**3,166.9**	**3,303.1**	**3,206.3**	**3,390.9**
Energy Use by Industry (PJ)[a,c]					
Copper, Nickel, Lead and Zinc Mines	36.6	23.1	24.4	25.6	26.7
Iron Mines	39.7	34.7	32.2	42.8	35.0
Gold and Silver Mines	13.2	12.8	13.0	14.6	16.2
Other Metal Mines	9.1	5.0	6.6	5.7	6.5
Salt Mines	2.9	2.6	2.5	2.3	2.2
Potash Mines	27.4	29.7	28.6	23.2	38.7
Other Non-Metal Mines	8.0	7.8	9.2	9.5	9.2
Upstream Mining	209.0	390.1	541.8	851.9	978.1
Fruit and Vegetable Industries	9.2	12.1	14.5	14.5	14.4
Dairy Products Industry	11.8	12.2	10.7	10.5	10.6
Meat Products Industries	12.6	18.0	18.4	24.8	25.7
Bakery Products Industries	9.2	6.8	9.6	9.8	9.2
Beverage Industries (excluding breweries)	3.3	6.1	6.5	7.3	6.3
Breweries Industries	7.8	5.7	5.2	3.6	3.3
Tobacco Products Industries	1.3	1.0	0.8	0.4	0.4
Textile Mills	13.9	9.9	7.7	4.1	3.8
Textile Products Mills	6.8	4.0	3.5	2.5	2.4
Clothing Industries	6.0	5.1	2.2	1.4	1.5
Leather and Allied Products Industries	1.4	1.1	0.3	0.3	0.3
Wood Products Industries	44.5	62.7	50.8	62.3	64.4
Pulp Mills	300.2	381.6	346.8	235.5	235.5
Paper Mills (except newsprint)	99.8	117.1	120.9	86.9	89.6
Newsprint Mills	247.6	274.7	213.7	119.3	103.1
Paperboard Mills	62.6	71.1	65.2	47.2	51.1
Other Pulp and Paper Manufacturing	17.9	23.2	78.2	63.8	60.7
Converted Paper Products Industry	11.2	12.4	20.1	18.4	16.3
Printing and Related Support Activities	10.9	9.7	8.9	11.4	10.8
Petroleum Refining	324.9	342.6	364.3	350.9	346.3

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.

c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
3,443.2	**3,497.6**	**3,562.9**	**3,611.4**	**3,478.4**	**3,607.4**	**33.1%**
30.0	31.0	31.9	32.3	36.2	36.5	-0.2%
38.1	37.3	38.3	34.0	35.1	32.9	-17.3%
18.3	23.5	26.6	26.9	28.4	30.0	127.5%
7.3	7.8	9.5	6.9	5.7	5.6	-38.1%
2.2	2.3	2.6	2.4	2.7	3.1	5.0%
35.8	31.3	31.0	33.0	31.8	41.0	49.5%
8.8	8.4	8.5	8.6	7.5	10.3	29.7%
1,037.0	1,067.7	1,098.1	1,174.1	1,083.0	1,159.2	454.6%
14.7	12.9	14.2	13.1	12.5	12.5	36.4%
10.1	11.0	11.5	11.7	11.1	11.1	-5.6%
27.9	26.6	22.1	19.3	19.3	19.3	53.0%
10.9	10.8	9.1	8.7	8.7	8.7	-4.8%
6.1	6.2	7.3	6.3	7.2	7.2	115.7%
3.3	3.3	3.3	3.2	3.5	3.5	-55.1%
0.3	0.4	0.4	0.3	0.3	0.3	-76.2%
4.1	4.2	3.1	2.9	2.8	2.8	-79.6%
2.4	2.9	2.9	2.6	2.4	2.4	-65.2%
1.7	1.7	1.4	1.3	1.1	1.1	-81.2%
0.2	0.3	0.3	0.3	0.3	0.3	-78.7%
65.1	58.9	61.1	62.6	60.5	60.5	36.0%
230.3	235.8	268.5	318.6	324.0	329.1	9.6%
92.7	69.7	90.5	80.7	74.0	75.7	-24.2%
94.3	117.4	91.3	82.7	80.0	81.8	-67.0%
46.1	40.7	36.1	34.6	31.1	31.3	-50.0%
61.5	97.1	87.5	68.7	28.6	31.3	74.4%
15.6	18.0	18.1	13.8	15.5	15.5	38.8%
10.2	10.7	7.2	5.4	5.0	5.0	-54.0%
348.6	327.8	329.5	323.1	322.7	322.2	-0.8%

Industrial Secondary Energy Use by Industry (cont.)

	1990	2000	2005	2010	2011
Petrochemical Industry	32.3	42.3	63.3	44.1	56.7
Industrial Gas Industry	5.9	8.5	8.4	18.8	17.7
Alkali and chlorine manufacturing	30.4	29.9	17.1	2.8	3.1
All other basic inorganic chemical manufacturing	28.6	33.0	37.7	28.2	30.5
Chemical fertilizer (except potash) manufacturing	31.9	63.5	54.3	53.7	58.8
Other Chemical Manufacturing	94.0	82.9	55.4	100.7	104.5
Resin and Synthetic Rubber Industries	48.3	39.6	24.8	49.7	57.3
Motor Vehicle Plastic Parts Manufacturing	2.8	4.4	4.7	4.0	4.3
Rubber Products Industries	9.7	11.3	10.4	9.0	8.8
Cement Industry	59.3	67.1	72.3	59.4	58.0
Iron and Steel	219.4	260.1	239.7	213.1	226.9
Primary Production of Alumina and Aluminum	109.8	149.9	187.3	175.4	187.3
Other Non-Ferrous Smelting and Refining	73.5	81.4	73.8	63.0	61.0
Fabricated Metal Products Industries	37.4	33.4	40.8	36.7	39.0
Machinery Industries	12.2	13.9	18.0	17.5	18.8
Computer and Electronic Products Industries	4.6	6.6	5.6	6.1	6.4
Electrical Equipment and Components Industries	8.6	7.0	7.3	5.5	5.3
Motor Vehicle Industry	18.7	27.9	22.6	16.0	17.0
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	3.1	3.7	3.5	1.9	2.4
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.3	0.5	0.6	0.4	0.4
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	2.1	2.2	1.4	0.7	1.1
Motor Vehicle Brake System Manufacturing	1.8	2.6	1.2	0.4	0.4
Motor Vehicle Transmission and Power Train Parts Manufacturing	3.0	2.7	3.7	2.3	1.8

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
52.9	59.7	62.8	49.7	48.0	47.8	48.0%
25.8	25.7	36.0	36.6	22.4	22.4	277.6%
3.0	3.1	3.1	2.8	2.8	2.8	-90.8%
30.7	29.3	32.8	31.6	32.1	32.1	12.2%
59.2	68.8	64.4	66.1	71.9	71.9	125.3%
100.8	97.9	93.3	94.2	89.9	78.0	-17.1%
53.2	54.1	45.2	44.3	44.0	44.0	-8.9%
3.6	3.4	3.8	4.5	4.6	4.6	64.4%
8.7	8.1	8.3	6.9	6.7	6.7	-30.2%
57.0	54.9	57.1	56.6	57.7	63.1	6.4%
231.1	214.8	231.0	218.1	221.2	227.2	3.6%
175.9	179.4	187.9	190.1	206.0	210.4	91.6%
53.7	45.9	43.0	47.1	58.3	61.3	-16.6%
40.5	39.4	33.8	30.6	27.8	27.8	-25.8%
21.6	22.3	23.1	21.7	20.5	20.5	67.2%
7.1	6.4	6.4	6.0	6.0	6.0	29.3%
5.7	6.6	7.1	6.0	5.8	5.8	-33.1%
16.3	16.6	16.7	16.2	15.6	15.6	-16.4%
2.4	1.9	2.4	2.3	2.1	2.1	-32.7%
0.4	0.3	0.3	0.4	0.3	0.3	6.9%
1.1	1.0	1.3	1.0	0.9	0.9	-58.9%
0.4	0.3	0.4	0.4	0.5	0.5	-70.9%
3.6	1.9	2.1	2.5	2.4	2.4	-18.7%

Industrial Secondary Energy Use by Industry (cont.)

	1990	2000	2005	2010	2011
Motor Vehicle Seating and Interior Trim Manufacturing	1.2	1.9	1.9	1.7	1.6
Motor Vehicle Metal Stamping	3.3	3.8	3.8	3.2	3.0
Other Motor Vehicle Parts Manufacturing	3.3	3.9	5.1	3.7	2.9
Furniture and Related Products Industries	6.8	10.0	11.6	10.4	10.5
Miscellaneous Manufacturing	4.7	5.0	6.1	8.0	8.0
Other Manufacturing n.e.c.	229.4	216.4	214.1	123.5	130.3
Construction	66.9	51.3	71.0	73.4	78.9
Forestry	7.7	17.2	28.8	22.3	19.8
Activity					
GDP (million $2012)[b]	312,055	412,731	447,535	419,128	438,387
Energy Intensity (MJ/$2012 – GDP)[a,b,c]	**8.7**	**7.7**	**7.4**	**7.6**	**7.7**

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)*, Table 36-10-0434-03, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University and Natural Resources Canada.
c) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1.4	1.4	1.6	1.4	1.2	1.2	0.4%
3.2	3.0	2.7	2.5	2.6	2.6	-20.1%
2.9	2.8	2.9	2.9	3.5	3.5	7.9%
9.8	10.1	8.8	8.5	8.6	8.6	26.6%
7.3	7.6	6.6	6.9	6.9	6.9	45.3%
139.4	166.6	171.6	158.9	137.0	153.9	-32.9%
82.0	79.3	76.5	93.4	106.4	111.7	67.0%
19.0	19.1	18.4	23.2	23.5	24.6	218.3%
447,855	459,565	479,237	474,996	468,619	493,439	58.1%
7.7	**7.6**	**7.4**	**7.6**	**7.4**	**7.3**	**-15.8%**

4 Industrial Sector

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

	1990	2000	2005	2010	2011
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**140.6**	**161.6**	**166.9**	**166.6**	**173.9**
GHG Emissions by Industry (Mt of CO_2e)[a,b,c]					
Copper, Nickel, Lead and Zinc Mines	2.3	1.5	1.6	1.5	1.5
Iron Mines	3.0	2.6	2.3	3.0	2.3
Gold and Silver Mines	0.8	0.8	0.8	0.8	0.9
Other Metal Mines	0.6	0.3	0.4	0.3	0.4
Salt Mines	0.2	0.2	0.2	0.1	0.1
Potash Mines	1.8	2.0	1.9	1.4	2.4
Other Non-Metal Mines	0.5	0.5	0.7	0.7	0.6
Upstream Mining	13.1	24.9	34.1	54.2	62.2
Fruit and Vegetable Industries	0.5	0.7	0.8	0.8	0.8
Dairy Products Industry	0.6	0.7	0.6	0.5	0.5
Meat Products Industries	0.7	1.0	1.0	1.2	1.2
Bakery Products Industries	0.5	0.4	0.5	0.5	0.4
Beverage Industries (excluding breweries)	0.2	0.3	0.4	0.4	0.3
Breweries Industries	0.4	0.3	0.3	0.2	0.2
Tobacco Products Industries	0.1	0.1	0.0	0.0	0.0
Textile Mills	0.7	0.5	0.4	0.2	0.2
Textile Products Mills	0.4	0.2	0.2	0.1	0.1
Clothing Industries	0.3	0.3	0.1	0.1	0.1
Leather and Allied Products Industries	0.1	0.1	0.0	0.0	0.0
Wood Products Industries	1.5	2.0	1.8	1.7	1.6
Pulp Mills	6.6	7.1	5.8	3.9	3.6
Paper Mills (except newsprint)	3.4	3.7	3.6	2.2	2.1
Newsprint Mills	11.3	11.0	8.3	3.7	3.0
Paperboard Mills	2.2	2.3	1.9	1.2	1.4
Other Pulp and Paper Manufacturing	0.8	1.3	0.6	0.9	0.7

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
c) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
176.3	**176.2**	**175.9**	**180.2**	**174.0**	**180.5**	**28.4%**
1.7	1.7	1.8	1.8	1.9	1.9	-17.9%
2.5	2.3	2.4	2.0	2.1	1.8	-39.2%
1.0	1.3	1.4	1.5	1.5	1.6	92.5%
0.4	0.4	0.5	0.4	0.3	0.3	-50.6%
0.1	0.1	0.2	0.1	0.2	0.2	-7.4%
2.2	1.8	1.8	1.9	1.8	2.4	31.9%
0.6	0.6	0.6	0.6	0.5	0.7	33.6%
66.3	68.5	69.9	74.9	68.8	73.8	462.7%
0.7	0.6	0.6	0.6	0.6	0.5	8.0%
0.5	0.5	0.5	0.5	0.5	0.5	-24.8%
1.3	1.3	1.0	0.9	0.9	0.9	26.5%
0.5	0.5	0.4	0.4	0.4	0.4	-21.8%
0.3	0.3	0.3	0.3	0.3	0.3	81.2%
0.2	0.2	0.2	0.1	0.2	0.2	-61.2%
0.0	0.0	0.0	0.0	0.0	0.0	-80.7%
0.2	0.2	0.1	0.1	0.1	0.1	-84.3%
0.1	0.1	0.1	0.1	0.1	0.1	-71.4%
0.1	0.1	0.1	0.1	0.1	0.1	-84.2%
0.0	0.0	0.0	0.0	0.0	0.0	-83.2%
1.6	1.6	1.5	1.2	1.2	1.2	-24.1%
3.4	3.5	3.8	4.5	4.3	4.3	-35.4%
1.8	1.8	2.0	1.8	1.6	1.5	-55.3%
2.7	3.0	2.4	2.2	2.1	2.1	-81.5%
1.3	1.2	0.9	0.9	0.8	0.8	-63.5%
0.7	0.9	0.8	0.6	0.6	0.9	1.2%

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

	1990	2000	2005	2010	2011
Converted Paper Products Industry	0.6	0.6	1.0	0.9	0.7
Printing and Related Support Activities	0.6	0.5	0.5	0.6	0.5
Petroleum Refining	17.7	19.0	20.7	19.4	18.7
Petrochemical Industry	1.7	2.1	2.8	2.0	2.6
Industrial Gas Industry	0.3	0.5	0.5	0.9	0.8
Alkali and chlorine manufacturing	1.6	1.7	1.0	0.1	0.1
All other basic inorganic chemical manufacturing	1.6	1.8	2.1	1.4	1.3
Chemical fertilizer (except potash) manufacturing	1.6	3.2	2.8	2.7	2.9
Other Chemical Manufacturing	4.0	4.3	3.0	4.7	4.9
Resin and Synthetic Rubber Industries	2.5	1.9	1.1	2.2	2.3
Motor Vehicle Plastic Parts Manufacturing	0.2	0.2	0.3	0.2	0.2
Rubber Products Industries	0.5	0.6	0.6	0.5	0.4
Cement Industry	4.5	5.4	6.1	4.9	4.8
Iron and Steel	16.4	19.2	17.5	15.6	16.5
Primary Production of Alumina and Aluminum	6.2	8.9	10.8	8.7	8.3
Other Non-Ferrous Smelting and Refining	4.7	5.2	4.6	3.8	3.6
Fabricated Metal Products Industries	2.0	1.8	2.2	1.8	1.9
Machinery Industries	0.7	0.7	1.0	0.9	0.9
Computer and Electronic Products Industries	0.3	0.4	0.3	0.3	0.3
Electrical Equipment and Components Industries	0.5	0.4	0.4	0.3	0.2
Motor Vehicle Industry	1.0	1.5	1.2	0.8	0.8
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	0.2	0.2	0.2	0.1	0.1

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

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
0.7	0.8	0.8	0.6	0.6	0.6	4.9%
0.5	0.5	0.3	0.2	0.2	0.2	-65.6%
19.7	18.6	18.7	18.5	18.6	18.6	5.0%
2.4	2.8	2.9	2.1	2.1	2.1	22.3%
1.2	1.2	1.6	1.7	0.9	0.9	179.5%
0.1	0.1	0.1	0.1	0.1	0.1	-93.9%
1.3	1.3	1.3	1.3	1.2	1.2	-24.8%
2.9	3.3	3.1	3.2	3.3	3.3	101.1%
4.5	4.2	4.0	4.3	4.0	3.5	-11.9%
2.1	2.2	1.7	1.7	1.6	1.5	-37.8%
0.2	0.2	0.2	0.2	0.2	0.2	24.3%
0.4	0.4	0.4	0.3	0.3	0.3	-47.6%
4.4	4.2	4.4	4.3	4.3	4.6	4.3%
16.6	14.7	15.8	14.9	15.4	15.8	-4.1%
7.2	7.4	7.3	7.6	7.7	7.6	22.6%
3.1	2.7	2.2	2.6	3.0	3.2	-32.9%
1.9	1.8	1.5	1.4	1.2	1.2	-38.2%
1.0	1.0	1.1	1.0	0.9	0.9	39.1%
0.3	0.3	0.3	0.3	0.2	0.2	-3.6%
0.3	0.3	0.3	0.3	0.2	0.2	-48.1%
0.7	0.7	0.7	0.7	0.7	0.7	-34.4%
0.1	0.1	0.1	0.1	0.1	0.1	-53.9%

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

	1990	2000	2005	2010	2011
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.0	0.0	0.0	0.0	0.0
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	0.1	0.1	0.1	0.0	0.1
Motor Vehicle Brake System Manufacturing	0.1	0.2	0.1	0.0	0.0
Motor Vehicle Transmission and Power Train Parts Manufacturing	0.2	0.2	0.2	0.1	0.1
Motor Vehicle Seating and Interior Trim Manufacturing	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Metal Stamping	0.2	0.2	0.2	0.2	0.1
Other Motor Vehicle Parts Manufacturing	0.2	0.2	0.3	0.2	0.1
Furniture and Related Products Industries	0.3	0.5	0.6	0.5	0.5
Miscellaneous Manufacturing	0.3	0.3	0.3	0.4	0.4
Other Manufacturing n.e.c.	12.3	10.5	9.9	5.8	6.2
Construction	4.4	3.4	4.7	4.9	5.3
Forestry	0.6	1.3	2.1	1.6	1.4
GHG Intensity (tonne/TJ)[a,b,c]	**51.9**	**51.0**	**50.5**	**52.0**	**51.3**

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
c) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
0.0	0.0	0.0	0.0	0.0	0.0	-19.0%
0.1	0.0	0.1	0.0	0.0	0.0	-67.2%
0.0	0.0	0.0	0.0	0.0	0.0	-77.8%
0.2	0.1	0.1	0.1	0.1	0.1	-60.9%
0.1	0.1	0.1	0.1	0.1	0.1	-21.3%
0.1	0.1	0.1	0.1	0.1	0.1	-39.8%
0.1	0.1	0.1	0.1	0.2	0.2	-20.1%
0.4	0.4	0.4	0.4	0.4	0.4	5.8%
0.3	0.3	0.3	0.3	0.3	0.3	19.9%
6.4	6.8	6.2	6.1	6.2	6.5	-46.9%
5.5	5.3	5.1	6.4	7.3	7.7	76.0%
1.4	1.4	1.3	1.7	1.7	1.8	218.9%
51.2	**50.4**	**49.4**	**49.9**	**50.0**	**50.0**	**-3.6%**

4 Industrial Sector

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

	1990	2000	2005	2010	2011
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**103.7**	**114.3**	**119.1**	**130.6**	**142.2**
GHG Emissions by Industry (Mt of CO_2e)[a,b,c]					
Copper, Nickel, Lead and Zinc Mines	1.1	0.7	0.8	0.9	0.9
Iron Mines	2.3	1.8	1.6	2.4	1.8
Gold and Silver Mines	0.4	0.4	0.3	0.4	0.5
Other Metal Mines	0.3	0.2	0.2	0.2	0.3
Salt Mines	0.2	0.1	0.1	0.1	0.1
Potash Mines	1.5	1.6	1.5	1.1	2.0
Other Non-Metal Mines	0.4	0.5	0.6	0.6	0.6
Upstream Mining	10.4	21.2	30.2	51.2	59.5
Fruit and Vegetable Industries	0.4	0.6	0.6	0.6	0.6
Dairy Products Industry	0.5	0.5	0.4	0.4	0.4
Meat Products Industries	0.5	0.7	0.7	0.9	0.9
Bakery Products Industries	0.4	0.3	0.3	0.3	0.3
Beverage Industries (excluding breweries)	0.1	0.3	0.3	0.3	0.2
Breweries Industries	0.3	0.2	0.2	0.1	0.1
Tobacco Products Industries	0.0	0.0	0.0	0.0	0.0
Textile Mills	0.5	0.3	0.2	0.1	0.1
Textile Products Mills	0.2	0.1	0.1	0.1	0.1
Clothing Industries	0.2	0.2	0.1	0.0	0.0
Leather and Allied Products Industries	0.0	0.0	0.0	0.0	0.0
Wood Products Industries	1.1	1.2	0.8	0.8	0.8
Pulp Mills	4.2	3.8	2.6	1.9	2.0
Paper Mills (except newsprint)	2.2	2.2	1.7	0.8	0.9
Newsprint Mills	5.5	3.7	2.1	0.7	0.6
Paperboard Mills	1.7	1.6	1.2	0.8	1.1
Other Pulp and Paper Manufacturing	0.8	0.6	0.6	0.6	0.5

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
c) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
147.6	**147.4**	**149.1**	**152.7**	**147.8**	**155.4**	**49.9%**
1.1	1.1	1.2	1.2	1.2	1.2	15.3%
1.9	1.7	1.8	1.5	1.6	1.3	-41.9%
0.6	0.8	0.9	0.9	0.9	1.0	176.2%
0.3	0.3	0.3	0.3	0.2	0.2	-43.5%
0.1	0.1	0.1	0.1	0.1	0.2	-6.6%
1.8	1.5	1.4	1.5	1.5	2.0	39.5%
0.6	0.6	0.6	0.6	0.5	0.7	63.7%
63.7	66.2	67.8	72.7	66.9	71.9	590.1%
0.6	0.5	0.4	0.4	0.4	0.4	-1.6%
0.3	0.4	0.4	0.4	0.4	0.4	-23.5%
1.0	0.9	0.7	0.6	0.6	0.6	37.5%
0.3	0.3	0.3	0.2	0.2	0.2	-41.1%
0.2	0.2	0.3	0.2	0.3	0.3	120.6%
0.1	0.1	0.1	0.1	0.1	0.1	-63.4%
0.0	0.0	0.0	0.0	0.0	0.0	-79.6%
0.1	0.1	0.1	0.1	0.1	0.1	-87.5%
0.1	0.1	0.1	0.1	0.1	0.1	-71.2%
0.0	0.0	0.0	0.0	0.0	0.0	-79.0%
0.0	0.0	0.0	0.0	0.0	0.0	-84.9%
1.0	1.0	1.0	0.7	0.7	0.7	-30.5%
2.0	2.0	2.2	2.5	2.6	2.6	-38.0%
0.8	0.9	0.8	0.7	0.6	0.6	-72.2%
0.7	0.6	0.5	0.5	0.5	0.5	-90.1%
1.0	1.0	0.7	0.7	0.6	0.6	-64.4%
0.5	0.6	0.5	0.4	0.4	0.5	-45.6%

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

	1990	2000	2005	2010	2011
Converted Paper Products Industry	0.4	0.4	0.6	0.6	0.5
Printing and Related Support Activities	0.3	0.3	0.2	0.2	0.2
Petroleum Refining	16.5	17.8	19.6	18.4	17.8
Petrochemical Industry	1.6	1.8	2.5	1.9	2.4
Industrial Gas Industry	0.0	0.1	0.0	0.4	0.4
Alkali and chlorine manufacturing	0.8	0.8	0.3	0.0	0.0
All other basic inorganic chemical manufacturing	0.4	0.3	0.5	0.3	0.3
Chemical fertilizer (except potash) manufacturing	1.4	2.9	2.4	2.4	2.6
Other Chemical Manufacturing	2.9	3.3	1.8	3.6	3.8
Resin and Synthetic Rubber Industries	2.1	1.3	0.5	1.7	1.8
Motor Vehicle Plastic Parts Manufacturing	0.1	0.1	0.1	0.1	0.1
Rubber Products Industries	0.3	0.4	0.3	0.3	0.3
Cement Industry	4.1	4.9	5.6	4.6	4.5
Iron and Steel	14.8	17.2	15.4	14.0	15.1
Primary Production of Alumina and Aluminum	0.5	0.9	1.2	0.7	1.0
Other Non-Ferrous Smelting and Refining	2.9	2.8	2.5	2.5	2.5
Fabricated Metal Products Industries	1.4	1.3	1.4	1.2	1.3
Machinery Industries	0.4	0.5	0.5	0.6	0.6
Computer and Electronic Products Industries	0.1	0.1	0.1	0.1	0.1
Electrical Equipment and Components Industries	0.3	0.2	0.2	0.1	0.1
Motor Vehicle Industry	0.7	1.1	0.8	0.5	0.6
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	0.1	0.1	0.1	0.0	0.0

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

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
0.4	0.5	0.5	0.4	0.4	0.4	-11.1%
0.2	0.3	0.2	0.1	0.1	0.1	-69.6%
19.0	17.9	18.0	17.7	17.9	18.0	8.6%
2.3	2.6	2.7	2.0	2.0	1.9	25.5%
1.0	1.0	1.2	1.2	0.5	0.5	–
0.0	0.0	0.0	0.0	0.0	0.0	-98.6%
0.3	0.5	0.5	0.4	0.3	0.3	-20.5%
2.6	3.1	2.9	2.9	3.1	3.1	118.1%
3.5	3.3	3.1	3.3	3.1	2.9	0.1%
1.6	1.6	1.3	1.2	1.1	1.1	-48.3%
0.1	0.1	0.1	0.1	0.1	0.1	24.3%
0.3	0.3	0.3	0.2	0.2	0.2	-46.5%
4.1	3.9	4.1	4.0	4.1	4.4	7.3%
15.3	13.5	14.6	13.6	14.3	14.7	-0.5%
1.0	1.0	1.2	1.3	1.3	1.4	162.2%
2.1	1.9	1.4	1.7	2.1	2.2	-23.5%
1.3	1.3	1.1	0.9	0.8	0.8	-42.1%
0.6	0.6	0.8	0.7	0.7	0.7	84.6%
0.1	0.1	0.1	0.1	0.1	0.1	89.8%
0.1	0.1	0.1	0.1	0.1	0.1	-58.9%
0.5	0.6	0.5	0.5	0.5	0.5	-34.4%
0.0	0.0	0.0	0.0	0.0	0.0	-67.2%

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

	1990	2000	2005	2010	2011
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.0	0.0	0.0	0.0	0.0
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	0.1	0.1	0.0	0.0	0.0
Motor Vehicle Brake System Manufacturing	0.1	0.1	0.0	0.0	0.0
Motor Vehicle Transmission and Power Train Parts Manufacturing	0.2	0.1	0.1	0.0	0.0
Motor Vehicle Seating and Interior Trim Manufacturing	0.0	0.1	0.1	0.0	0.0
Motor Vehicle Metal Stamping	0.1	0.1	0.1	0.1	0.1
Other Motor Vehicle Parts Manufacturing	0.1	0.1	0.2	0.1	0.1
Furniture and Related Products Industries	0.2	0.3	0.4	0.2	0.3
Miscellaneous Manufacturing	0.1	0.2	0.2	0.2	0.2
Other Manufacturing n.e.c.	10.3	7.3	7.1	3.8	4.4
Construction	4.4	3.4	4.7	4.9	5.3
Forestry	0.6	1.3	2.1	1.6	1.4
GHG Intensity (tonne/TJ)[a,b,c]	**38.3**	**36.1**	**36.1**	**40.7**	**41.9**

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Environment and Climate Change Canada, *National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
c) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	-69.2%
0.0	0.0	0.0	0.0	0.0	0.0	-80.8%
0.1	0.0	0.0	0.0	0.0	0.0	-78.2%
0.0	0.0	0.0	0.0	0.0	0.0	-20.3%
0.1	0.1	0.1	0.1	0.1	0.1	-33.9%
0.1	0.1	0.1	0.1	0.1	0.1	-19.2%
0.2	0.2	0.2	0.2	0.2	0.2	10.9%
0.2	0.2	0.2	0.2	0.2	0.2	49.4%
4.7	4.8	4.9	4.7	4.9	5.3	-48.4%
5.5	5.3	5.1	6.4	7.3	7.7	76.0%
1.4	1.4	1.3	1.7	1.7	1.8	218.9%
42.9	**42.1**	**41.8**	**42.3**	**42.5**	**43.1**	**12.6%**

4 Industrial Sector

Industrial Gross Domestic Product by Industry

	1990	2000	2005	2010	2011
Total Gross Domestic Product (million $2012)[a,b]	**312,055**	**412,731**	**447,535**	**419,128**	**438,387**
Gross Domestic Product by Industry (million $2012)[a,b]					
Copper, Nickel, Lead and Zinc Mines	7,676	7,208	6,716	5,270	6,841
Iron Mines	4,012	4,432	3,459	3,548	3,412
Gold and Silver Mines	6,561	6,125	4,688	3,359	3,170
Other Metal Mines	1,112	1,899	1,670	1,154	1,105
Salt Mines	303	420	663	525	658
Potash Mines	3,240	4,491	7,796	5,761	6,610
Other Non-Metal Mines	558	774	886	1,710	1,276
Upstream Mining	58,209	81,744	92,504	97,424	103,948
Fruit and Vegetable Industries	1,437	2,307	2,323	2,242	2,159
Dairy Products Industry	3,175	2,686	2,674	3,030	3,007
Meat Products Industries	3,704	4,553	5,305	5,900	5,859
Bakery Products Industries	2,367	3,056	3,314	3,756	3,433
Beverage Industries (excluding breweries)	1,302	1,672	2,064	2,311	2,239
Breweries Industries	3,630	3,434	3,668	3,158	3,136
Tobacco Products Industries	4,675	3,845	2,194	1,076	1,037
Textile Mills	1,668	1,920	1,300	714	727
Textile Products Mills	918	1,282	1,130	588	548
Clothing Industries	3,276	3,865	2,501	1,182	1,196
Leather and Allied Products Industries	643	473	196	138	150
Wood Products Industries	2,802	3,721	4,277	2,862	2,916
Pulp Mills	1,778	1,705	1,614	1,282	1,270
Paper Mills (except newsprint)	1,215	1,925	2,476	1,648	1,547
Newsprint Mills	2,496	3,164	2,709	1,682	1,588
Paperboard Mills	574	951	730	607	600
Other Pulp and Paper Manufacturing	2,894	3,741	4,026	3,006	2,915

Source:

a) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS), annual*, Table 36-10-0434-01, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University and Natural Resources Canada.

b) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
447,855	**459,565**	**479,237**	**474,996**	**468,619**	**493,439**	**58.1%**
6,732	7,238	7,256	7,631	7,674	6,803	-11.4%
3,559	3,972	4,436	4,902	5,013	5,192	29.4%
3,200	4,003	4,634	4,801	4,817	5,355	-18.4%
1,178	1,083	1,279	1,549	1,565	1,320	18.7%
558	602	659	672	641	774	155.6%
5,485	6,055	6,475	6,691	6,334	7,183	121.7%
1,205	1,168	1,433	1,370	1,350	2,101	276.2%
102,610	106,923	115,237	110,932	108,631	118,772	104.0%
2,197	2,266	2,438	2,379	2,525	2,604	81.2%
3,046	2,977	2,972	2,815	2,902	3,094	-2.6%
5,286	5,126	5,496	5,128	5,389	5,602	51.2%
3,319	3,449	3,470	3,645	3,959	4,237	79.0%
2,377	2,319	2,386	2,463	2,566	2,587	98.8%
3,191	2,929	2,982	3,194	3,209	3,317	-8.6%
1,040	910	916	957	989	957	-79.5%
719	648	652	735	707	759	-54.5%
572	516	519	585	563	604	-34.2%
1,122	1,059	1,118	1,091	998	1,054	-67.8%
134	127	134	131	119	126	-80.4%
3,020	3,286	3,231	3,333	3,544	3,490	24.6%
1,166	1,026	1,207	1,350	1,352	1,352	-24.0%
1,348	1,214	1,385	1,397	1,392	1,388	14.2%
1,358	1,209	1,467	1,387	1,323	1,214	-51.4%
515	474	592	636	635	701	22.1%
3,079	3,223	2,896	3,088	3,062	3,284	13.5%

Industrial Gross Domestic Product by Industry (cont.)

	1990	2000	2005	2010	2011
Converted Paper Products Industry	2,835	3,590	4,081	3,010	2,918
Printing and Related Support Activities	7,511	6,485	6,832	4,983	4,759
Petroleum Refining	8,718	10,023	10,789	10,014	9,458
Petrochemical Industry	1,660	2,201	1,289	1,265	1,334
Industrial Gas Industry	283	247	682	484	538
Alkali and chlorine manufacturing	393	383	502	210	211
All other basic inorganic chemical manufacturing	967	1,245	1,558	1,318	1,323
Chemical fertilizer (except potash) manufacturing	1,509	3,469	3,826	1,617	2,050
Other Chemical Manufacturing	1,867	2,444	1,851	1,751	1,950
Resin and Synthetic Rubber Industries	839	1,961	2,464	1,927	2,395
Motor Vehicle Plastic Parts Manufacturing	539	1,434	2,009	1,562	1,724
Rubber Products Industries	1,096	1,977	1,959	1,459	1,613
Cement Industry	887	1,027	1,413	1,034	1,054
Iron and Steel	3,440	4,108	3,532	2,555	2,853
Primary Production of Alumina and Aluminum	916	1,927	2,704	2,686	2,806
Other Non-Ferrous Smelting and Refining	2,142	4,209	4,867	3,087	3,369
Fabricated Metal Products Industries	9,193	16,066	15,660	12,949	14,004
Machinery Industries	8,121	14,240	14,673	12,151	14,546
Computer and Electronic Products Industries	3,860	14,951	9,711	7,762	7,656
Electrical Equipment and Components Industries	4,529	5,687	4,217	3,657	4,029
Motor Vehicle Industry	4,919	8,610	8,889	6,231	6,374
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	1,048	2,284	2,199	1,524	1,469
Motor Vehicle Electrical and Electronic Equipment Manufacturing	242	494	443	267	332
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	296	464	548	509	558
Motor Vehicle Brake System Manufacturing	396	686	584	287	325

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
3,079	3,223	2,896	3,088	3,062	3,284	15.8%
4,748	4,513	4,471	4,551	4,589	4,661	-37.9%
9,774	9,879	10,251	10,293	10,212	10,752	23.3%
1,229	1,292	1,337	1,216	1,270	1,358	-18.2%
557	452	501	634	662	509	79.8%
217	297	219	239	249	256	-34.9%
1,361	1,861	1,372	1,496	1,563	1,603	65.8%
1,880	1,786	2,016	1,831	2,143	2,136	41.5%
1,785	1,572	1,458	1,764	1,866	1,692	-9.4%
2,238	2,579	2,341	2,515	2,532	2,295	173.5%
1,774	1,851	1,895	1,978	2,057	2,149	299.1%
1,610	1,558	1,668	1,677	1,644	1,721	57.0%
1,013	1,023	1,145	1,098	970	823	-7.2%
2,889	2,731	2,851	2,722	2,827	2,853	-17.1%
2,682	2,516	2,820	2,718	2,892	2,839	209.9%
3,287	3,110	3,375	3,565	3,538	3,378	57.7%
15,052	15,434	15,368	14,819	13,813	14,605	58.9%
15,243	15,198	15,551	14,913	14,023	16,584	104.2%
6,724	6,126	6,222	5,987	6,076	6,503	68.5%
3,994	3,913	3,547	3,862	3,850	4,024	-11.2%
7,238	6,909	7,250	6,848	6,987	6,610	34.4%
1,653	1,597	1,777	1,810	1,906	1,877	79.1%
373	360	401	408	430	424	75.4%
628	607	675	688	724	714	141.1%
365	353	393	400	421	415	4.9%

Industrial Gross Domestic Product by Industry (cont.)

	1990	2000	2005	2010	2011
Motor Vehicle Transmission and Power Train Parts Manufacturing	663	1,468	1,067	525	549
Motor Vehicle Seating and Interior Trim Manufacturing	503	1,154	1,467	990	1,057
Motor Vehicle Metal Stamping	705	1,486	1,802	993	1,123
Other Motor Vehicle Parts Manufacturing	854	1,847	2,271	1,366	1,567
Furniture and Related Products Industries	3,918	7,281	6,550	4,440	4,273
Miscellaneous Manufacturing	3,014	5,000	5,443	4,653	4,924
Other Manufacturing n.e.c.	25,249	43,278	48,129	42,232	43,262
Construction	82,893	83,677	106,393	120,689	125,225
Forestry	5,826	5,938	6,251	5,011	5,416

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
618	597	664	677	712	702	5.9%
1,189	1,149	1,278	1,302	1,371	1,351	168.8%
1,263	1,220	1,358	1,383	1,456	1,435	103.5%
1,763	1,703	1,895	1,930	2,033	2,002	134.5%
4,278	4,412	4,332	4,597	4,860	5,105	30.3%
4,662	4,752	4,467	4,679	4,756	4,724	56.7%
44,432	45,010	48,238	49,203	50,257	52,801	109.1%
134,959	140,705	144,292	141,540	135,882	141,756	71.0%
5,281	5,479	5,643	5,704	5,727	5,632	-3.3%

4 Industrial Sector

Industrial Energy Intensity by Industry

	1990	2000	2005	2010	2011
Aggregate Energy Intensity[a,b,c]	**8.7**	**7.7**	**7.4**	**7.6**	**7.7**
Energy Intensity by Industry (MJ/$2012 – GDP) [a,b,c]					
Copper, Nickel, Lead and Zinc Mines	4.8	3.2	3.6	4.9	3.9
Iron Mines	9.9	7.8	9.3	12.1	10.3
Gold and Silver Mines	2.0	2.1	2.8	4.3	5.1
Other Metal Mines	8.2	2.6	3.9	4.9	5.9
Salt Mines	9.7	6.2	3.8	4.4	3.3
Potash Mines	8.5	6.6	3.7	4.0	5.9
Other Non-Metal Mines	14.2	10.1	10.4	5.6	7.2
Upstream Mining	3.6	4.8	5.9	8.7	9.4
Fruit and Vegetable Industries	6.4	5.2	6.3	6.5	6.7
Dairy Products Industry	3.7	4.5	4.0	3.5	3.5
Meat Products Industries	3.4	4.0	3.5	4.2	4.4
Bakery Products Industries	3.9	2.2	2.9	2.6	2.7
Beverage Industries (excluding breweries)	2.6	3.7	3.2	3.2	2.8
Breweries Industries	2.1	1.7	1.4	1.1	1.0
Tobacco Products Industries	0.3	0.3	0.4	0.4	0.3
Textile Mills	8.4	5.1	5.9	5.7	5.3
Textile Products Mills	7.4	3.1	3.1	4.2	4.4
Clothing Industries	1.8	1.3	0.9	1.2	1.3
Leather and Allied Products Industries	2.2	2.4	1.6	2.3	1.8
Wood Products Industries	15.9	16.8	11.9	21.8	22.1
Pulp Mills	168.9	223.8	214.9	183.7	185.4
Paper Mills (except newsprint)	82.1	60.8	48.8	52.7	57.9
Newsprint Mills	99.2	86.8	78.9	70.9	64.9
Paperboard Mills	109.1	74.8	89.3	77.8	85.2

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017* Ottawa, 2019.

b) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)*, Table 36-10-0434-03, Ottawa, 2019. Data prior to 1997 were estimated by The Canadian Energy and Emissions Data Centre of Simon Fraser University and Natural Resources Canada.

c) The Canadian Energy and Emissions Data Centre, Simon Fraser University, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
7.7	**7.6**	**7.4**	**7.6**	**7.4**	**7.3**	**-15.8%**
4.5	4.3	4.4	4.2	4.7	5.4	12.6%
10.7	9.4	8.6	6.9	7.0	6.3	-36.1%
5.7	5.9	5.7	5.6	5.9	5.6	178.8%
6.2	7.2	7.4	4.4	3.6	4.3	-47.8%
3.9	3.8	3.9	3.6	4.3	4.0	-58.9%
6.5	5.2	4.8	4.9	5.0	5.7	-32.6%
7.3	7.2	5.9	6.3	5.6	4.9	-65.5%
10.1	10.0	9.5	10.6	10.0	9.8	171.8%
6.7	5.7	5.8	5.5	5.0	4.8	-24.8%
3.3	3.7	3.9	4.2	3.8	3.6	-3.1%
5.3	5.2	4.0	3.8	3.6	3.4	1.2%
3.3	3.1	2.6	2.4	2.2	2.1	-46.8%
2.6	2.7	3.1	2.6	2.8	2.8	8.5%
1.0	1.1	1.1	1.0	1.1	1.1	-50.9%
0.3	0.4	0.4	0.3	0.3	0.3	16.2%
5.7	6.5	4.7	3.9	4.0	3.8	-55.1%
4.2	5.7	5.5	4.4	4.2	3.9	-47.1%
1.5	1.6	1.3	1.2	1.1	1.1	-41.4%
1.8	2.4	2.4	2.4	2.5	2.4	8.3%
21.5	17.9	18.9	18.8	17.1	17.3	9.2%
197.5	229.8	222.5	236.0	239.6	243.5	44.2%
68.8	57.4	65.4	57.8	53.2	54.5	-33.6%
69.5	97.1	62.3	59.6	60.5	67.4	-32.1%
89.5	85.9	60.9	54.4	49.0	44.6	-59.1%

Industrial Energy Intensity by Industry (cont.)

	1990	2000	2005	2010	2011
Other Pulp and Paper Manufacturing	6.2	6.2	19.4	21.2	20.8
Converted Paper Products Industry	3.9	3.5	4.9	6.1	5.6
Printing and Related Support Activities	1.4	1.5	1.3	2.3	2.3
Petroleum Refining	37.3	34.2	33.8	35.0	36.6
Petrochemical Industry	19.5	19.2	49.1	34.9	42.5
Industrial Gas Industry	20.9	34.6	12.2	38.8	32.9
Alkali and chlorine manufacturing	77.4	78.0	34.0	13.2	14.6
All other basic inorganic chemical manufacturing	29.6	26.5	24.2	21.4	23.0
Chemical fertilizer (except potash) manufacturing	21.2	18.3	14.2	33.2	28.7
Other Chemical Manufacturing	50.3	33.9	29.9	57.5	53.6
Resin and Synthetic Rubber Industries	57.6	20.2	10.0	25.8	23.9
Motor Vehicle Plastic Parts Manufacturing	5.2	3.1	2.4	2.6	2.5
Rubber Products Industries	8.8	5.7	5.3	6.2	5.5
Cement Industry	66.9	65.3	51.1	57.5	55.0
Iron and Steel	63.8	63.3	67.9	83.4	79.6
Primary Production of Alumina and Aluminum	119.9	77.8	69.3	65.3	66.8
Other Non-Ferrous Smelting and Refining	34.3	19.3	15.2	20.4	18.1
Fabricated Metal Products Industries	4.1	2.1	2.6	2.8	2.8
Machinery Industries	1.5	1.0	1.2	1.4	1.3
Computer and Electronic Products Industries	1.2	0.4	0.6	0.8	0.8
Electrical Equipment and Components Industries	1.9	1.2	1.7	1.5	1.3
Motor Vehicle Industry	3.8	3.2	2.5	2.6	2.7
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	3.0	1.6	1.6	1.3	1.7

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
20.0	30.1	30.2	22.2	9.4	9.5	53.7%
5.1	5.6	6.2	4.5	5.1	4.7	19.9%
2.2	2.4	1.6	1.2	1.1	1.1	-25.9%
35.7	33.2	32.1	31.4	31.6	30.0	-19.6%
43.1	46.2	47.0	40.9	37.8	35.2	80.9%
46.2	56.9	71.9	57.7	33.8	43.9	110.0%
13.9	10.5	14.1	11.6	11.2	11.0	-85.8%
22.6	15.8	23.9	21.1	20.6	20.0	-32.3%
31.5	38.5	31.9	36.1	33.6	33.7	59.2%
56.5	62.3	64.0	53.4	48.2	46.1	-8.4%
23.8	21.0	19.3	17.6	17.4	19.2	-66.7%
2.0	1.8	2.0	2.3	2.2	2.1	-58.8%
5.4	5.2	5.0	4.1	4.1	3.9	-55.6%
56.3	53.7	49.9	51.6	59.5	76.7	14.6%
80.0	78.7	81.0	80.1	78.2	79.6	24.9%
65.6	71.3	66.6	69.9	71.2	74.1	-38.2%
16.3	14.8	12.8	13.2	16.5	18.1	-47.1%
2.7	2.6	2.2	2.1	2.0	1.9	-53.3%
1.4	1.5	1.5	1.5	1.5	1.2	-18.1%
1.1	1.0	1.0	1.0	1.0	0.9	-23.2%
1.4	1.7	2.0	1.6	1.5	1.4	-24.8%
2.3	2.4	2.3	2.4	2.2	2.4	-37.8%
1.4	1.2	1.4	1.2	1.1	1.1	-62.4%

Industrial Energy Intensity by Industry (cont.)

	1990	2000	2005	2010	2011
Motor Vehicle Electrical and Electronic Equipment Manufacturing	1.1	1.0	1.4	1.7	1.1
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	7.2	4.7	2.5	1.4	2.1
Motor Vehicle Brake System Manufacturing	4.6	3.7	2.0	1.4	1.3
Motor Vehicle Transmission and Power Train Parts Manufacturing	4.5	1.9	3.5	4.5	3.3
Motor Vehicle Seating and Interior Trim Manufacturing	2.4	1.6	1.3	1.7	1.5
Motor Vehicle Metal Stamping	4.6	2.6	2.1	3.2	2.7
Other Motor Vehicle Parts Manufacturing	3.8	2.1	2.2	2.7	1.8
Furniture and Related Products Industries	1.7	1.4	1.8	2.3	2.5
Miscellaneous Manufacturing	1.6	1.0	1.1	1.7	1.6
Other Manufacturing n.e.c.	9.1	5.0	4.4	2.9	3.0
Construction	0.8	0.6	0.7	0.6	0.6
Forestry	1.3	2.9	4.6	4.5	3.7

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1.0	1.0	0.8	0.9	0.6	0.6	-39.1%
1.8	1.6	1.9	1.5	1.2	1.2	-82.9%
1.1	1.0	1.0	1.1	1.3	1.3	-72.2%
5.9	3.1	3.1	3.7	3.4	3.5	-23.2%
1.2	1.2	1.2	1.1	0.9	0.9	-62.6%
2.5	2.5	2.0	1.8	1.8	1.8	-60.7%
1.6	1.6	1.5	1.5	1.7	1.8	-54.0%
2.3	2.3	2.0	1.9	1.8	1.7	-2.8%
1.6	1.6	1.5	1.5	1.4	1.5	-7.3%
3.1	3.7	3.6	3.2	2.7	2.9	-67.9%
0.6	0.6	0.5	0.7	0.8	0.8	-2.3%
3.6	3.5	3.3	4.1	4.1	4.4	229.3%

4 Industrial Sector

Industrial Energy Prices and Background Indicators

	1990	2000	2005	2010	2011
Energy Prices by Energy Source (incl. taxes)					
Natural Gas (cents/m3)[a,e]	10.5	17.7	36.9	20.5	18.0
Light Fuel Oil (cents/litre)[f]	25.8	40.1	61.9	70.5	94.1
Heavy Fuel Oil (cents/litre)[f]	14.1	28.5	38.2	54.7	71.9
Electricity (1,000 kW/400,000 kWh)[1] (cents/kWh)[b,e]	5.6	6.9	8.1	9.1	9.6
Electricity (5,000 kW/3,060,000 kWh)[1] (cents/kWh)[b,e]	4.0	5.3	6.2	7.0	7.5
Background Indicators					
Industrial GDP (million $2012)[g]	312,055	412,731	447,535	419,128	438,387
Capacity Utilization Rate (%)[c]					
Mining, Quarrying, and Oil and Gas Extraction	79.8	85.0	85.1	75.8	79.8
Manufacturing	78.2	85.8	83.5	77.3	79.7
Pulp and Paper	*83.7*	*92.1*	*89.4*	*88.6*	*87.9*
Primary Metals[2]	*85.1*	*90.9*	*91.5*	*78.5*	*85.1*
Petroleum Refining	*87.5*	*92.7*	*88.3*	*83.8*	*79.5*
Chemicals	*86.6*	*80.1*	*80.2*	*75.3*	*75.8*
Forestry	78.3	83.8	92.7	79.0	88.1
Construction	96.2	86.4	91.7	84.4	84.1
Industrial Employees (thousands)[d]					
Mining, Quarrying, and Oil and Gas Extraction	192	159	213	252	272
Manufacturing	2,050	2,242	2,203	1,711	1,722
Pulp and Paper	*124*	*105*	*88*	*63*	*62*
Primary Metals[2]	*91*	*87*	*79*	*61*	*62*
Petroleum Refining	*19*	*15*	*16*	*18*	*19*
Chemicals	*96*	*96*	*93*	*79*	*81*
Forestry	73	86	70	51	48
Construction	816	807	1,022	1,242	1,295

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.

Sources:

a) Statistics Canada, *Natural Gas, Monthly Sales*, Table 25-10-0033-01. Natural gas price for 2016 and 2017 are calculated using *Canadian Monthly Natural Gas Distribution, Canada and Provinces*, Table 25-10-0059-01, Ottawa, 2019.
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, 2017.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
13.5	16.1	20.4	15.3	12.2	11.0	5.0%
96.4	98.5	99.3	75.6	65.0	77.8	202.0%
76.7	74.2	72.2	62.1	53.4	46.1	227.9%
10.0	11.1	10.5	9.9	11.0	11.4	102.9%
8.0	9.1	8.3	7.6	8.5	8.9	126.1%
447,855	459,565	479,237	474,996	468,619	493,439	58.1%
75.7	75.8	77.5	72.6	71.1	77.3	–
80.7	79.7	81.5	81.9	81.7	80.3	–
86.4	*88.5*	*88.9*	*90.1*	*87.6*	*88.3*	–
83.0	*83.2*	*81.3*	*73.7*	*77.6*	*80.6*	–
79.4	*79.0*	*83.0*	*85.0*	*82.9*	*89.0*	–
77.0	*77.2*	*77.8*	*83.8*	*86.3*	*85.1*	–
86.2	90.0	88.9	89.3	86.2	80.5	–
87.4	88.4	88.8	86.8	84.1	87.8	–
297	300	308	290	264	264	37.5%
1,747	1,723	1,711	1,712	1,695	1,725	-15.9%
58	*58*	*57*	*56*	*53*	*54*	*-56.3%*
61	*58*	*58*	*57*	*54*	*55*	*-39.6%*
19	*20*	*19*	*19*	*19*	*18*	*-7.0%*
85	*83*	*82*	*89*	*89*	*93*	*-3.7%*
51	50	49	49	48	48	-34.3%
1,323	1,370	1,372	1,371	1,385	1,409	72.8%

c) Statistics Canada, *Industrial Capacity Utilization Rates, by Industry*, Table 16-10-0109-01, Ottawa, 2019.
d) Statistics Canada, Labour Force Survey, Table 14-10-0023-01, and *Employment by Industry*, annual, Table 14-10-0202-01, Ottawa, 2019.
e) Statistics Canada, *Report on Energy Supply and Demand in Canada*, 1990–2017, Ottawa, 2019.
f) Natural Resources Canada, Petroleum Resources Branch, Pipelines, Gas and LNG Division, Ottawa, 2019.
g) Statistics Canada, Gross domestic product (GDP) at basic prices, *by North American Industry Classification System (NAICS)*, Table 36-10-0434-03, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University 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 here.

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 Statistics Canada's reports and updates from the Canadian Socio-Economic Information Management System. The reports used are *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). 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 were obtained mainly from R. L. Polk & Co. and DesRosiers Automotive Consultants Inc. Specifically, the data were extracted from two databases: Canadian Vehicles in Operation Census (CVIOC) and Trucking Industry Profile (TIP).

For years in which data from the CVIOC and/or the TIP were not available, other sources are used to develop historical car and truck stock data. These sources are *Road Motor Vehicles, Registrations* (Table 23-10-0219-01) and the *Canadian Vehicle Survey* (CVS) (Cat. No. 53-223-X) from Statistics Canada and the *Transportation Energy Data Book, Edition 25* from the U.S. Department of Energy. The bus stock information is further

disaggregated by bus industry based on reports and updates from Statistics Canada. These reports are *Passenger Bus and Urban Transit Statistics* (PBS) (Cat. No. 53-215-X) and *Service Bulletin: Surface and Marine Transport* (Cat. No. 50-002-X).

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

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

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

5 Transportation Sector

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

Light truck and medium truck tonne-kilometres are calculated using a TEUM assumption on load factor. However, heavy truck tonne-kilometres are calculated using data from the *Trucking in Canada: Trucking Commodity Origin and Destination Survey* and then 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 oil) are weighted averages of regional prices from Statistics Canada's Table 18-10-0001-01. Other transportation price indices are from Statistics Canada's Table 18-10-0005-01.

5 Transportation Sector

In Canada, the availability of biofuel data is limited (not reported). In the 2017 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 was no published data before 2005, even though ethanol might have been available at that time. Also, no data for ethanol was published for 2015, 2016 and 2017.

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

5 Transportation Sector

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

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a]	**1,877.9**	**2,265.9**	**2,480.0**	**2,613.5**	**2,615.1**
Passenger Transportation[b]	1,154.0	1,275.4	1,343.7	1,343.0	1,337.9
Freight Transportation[b]	670.5	908.9	1,036.8	1,166.7	1,171.0
Off-Road[1,b]	53.3	81.5	99.5	103.8	106.2
Energy Use by Energy Source (PJ)[a]					
Electricity	3.1	3.1	3.5	3.6	3.7
Natural Gas	1.7	2.4	1.9	1.9	1.6
Motor Gasoline	1,120.4	1,282.5	1,369.9	1,416.0	1,379.5
Diesel Fuel Oil	469.8	660.4	745.3	819.0	856.6
Ethanol	n.a.	n.a.	6.5	45.2	66.4
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	60.1	61.4	83.0	86.1	61.2
Aviation Gasoline	5.5	3.6	3.3	2.6	2.1
Aviation Turbo Fuel	181.9	236.5	254.7	226.4	230.1
Propane	35.4	16.1	11.9	12.7	13.8

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, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
2,640.5	**2,692.8**	**2,649.0**	**2,637.1**	**2,638.8**	**2,642.7**	**40.7%**
1,359.6	1,391.6	1,352.2	1,385.6	1,424.1	1,405.9	21.8%
1,173.3	1,191.4	1,184.7	1,136.6	1,096.9	1,117.1	66.6%
107.6	109.7	112.1	114.9	117.8	119.7	124.5%
3.7	4.1	2.9	3.0	3.8	4.4	40.6%
1.7	1.5	3.9	3.9	4.1	4.6	175.6%
1,381.6	1,424.4	1,396.8	1,499.3	1,553.5	1,536.7	37.2%
842.3	852.1	846.0	804.1	751.0	750.6	59.8%
69.4	64.2	68.2	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	–
62.8	59.4	50.8	40.8	31.3	43.3	-28.1%
2.6	2.2	1.9	2.2	2.3	2.3	-59.1%
261.9	273.1	267.9	273.2	280.8	288.8	58.7%
14.6	12.0	10.4	10.7	12.1	12.2	-65.4%

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

	1990	2000	2005	2010	2011
Energy Use by Transportation Mode (PJ)[b]					
Cars	705.5	625.5	619.4	597.6	579.6
Passenger Light Trucks	215.5	362.3	412.7	453.8	460.8
Freight Light Trucks	97.6	145.8	161.1	178.9	180.0
Medium Trucks	120.6	157.1	208.4	312.8	305.8
Heavy Trucks	253.6	408.2	449.7	466.2	489.6
Motorcycles	2.4	2.5	3.3	5.3	5.4
School Buses	13.5	14.7	13.1	15.5	16.3
Urban Transit	24.6	28.5	35.3	39.1	40.9
Inter-City Buses	7.9	7.1	7.1	5.5	5.4
Passenger Air	180.9	232.0	250.2	223.7	226.7
Freight Air	6.5	8.1	7.9	5.3	5.5
Passenger Rail	3.8	3.0	2.7	2.5	2.8
Freight Rail	85.7	81.5	81.7	81.3	91.6
Marine	106.5	108.2	128.1	122.3	98.5
Off-Road[1]	53.3	81.5	99.5	103.8	106.2
Activity					
Total Passenger-kilometres[2] (millions)[b]	488,494	610,337	661,860	724,951	737,548
Total Tonne-kilometres (millions)[b]	576,059	775,465	895,751	851,073	852,680
Passenger Transportation Energy Intensity[2] (MJ/Pkm)[b]	**2.28**	**2.05**	**1.98**	**1.82**	**1.78**
Freight Transportation Energy Intensity (MJ/Tkm)[b]	**1.16**	**1.17**	**1.16**	**1.37**	**1.37**

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, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
566.8	564.2	535.2	537.2	536.1	509.7	-27.8%
469.0	489.9	488.8	515.4	550.9	558.4	159.1%
185.1	193.2	193.1	202.3	216.3	219.1	124.6%
303.0	317.5	315.2	297.4	289.0	283.0	134.7%
490.5	494.5	496.9	469.1	439.4	451.4	78.0%
5.6	5.6	5.4	5.5	5.7	5.5	130.2%
14.4	13.1	12.5	12.3	13.5	7.6	-43.5%
37.7	41.7	38.4	38.2	34.5	34.6	40.5%
5.2	6.0	6.1	5.1	4.3	3.2	-59.3%
258.4	269.0	263.8	269.8	277.1	284.9	57.5%
6.1	6.3	6.0	5.6	6.0	6.2	-5.5%
2.4	2.1	2.0	2.0	2.0	2.0	-46.5%
94.2	90.9	93.4	88.9	81.5	81.8	-4.6%
94.4	89.0	80.1	73.3	64.7	75.6	-29.0%
107.6	109.7	112.1	114.9	117.8	119.7	124.5%
742,825	753,347	743,432	768,569	802,694	818,329	67.5%
886,453	917,441	963,496	970,834	977,675	1,034,797	79.6%
1.80	**1.82**	**1.79**	**1.78**	**1.74**	**1.69**	**-26.0%**
1.32	**1.30**	**1.23**	**1.17**	**1.12**	**1.08**	**-7.3%**

5 Transportation Sector

Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	2000	2005	2010	2011
Total GHG Emissions (Mt of CO_2e)[a,b,c]	**131.3**	**160.1**	**174.5**	**181.9**	**181.6**
Passenger Transportation[b,c]	79.7	89.4	93.4	91.7	91.0
Freight Transportation[b,c]	47.7	64.8	74.0	82.8	83.0
Off-Road[1,b,c]	3.9	5.9	7.1	7.4	7.5
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	77.5	90.2	95.4	96.6	93.7
Diesel Fuel Oil	33.9	47.5	53.6	58.9	61.6
Ethanol	n.a.	n.a.	0.5	3.1	4.5
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	4.5	4.6	6.2	6.5	4.6
Aviation Gasoline	0.4	0.3	0.2	0.2	0.2
Aviation Turbo Fuel	12.6	16.3	17.6	15.6	15.9
Propane	2.2	1.0	0.7	0.8	0.8

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, 1990–2017*, Ottawa, 2019.
b Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
183.0	**186.3**	**183.0**	**182.0**	**181.7**	**182.1**	**38.7%**
92.2	94.2	91.3	93.6	96.1	94.8	18.9%
83.1	84.3	83.8	80.3	77.3	78.8	65.1%
7.6	7.8	7.9	8.1	8.3	8.5	119.0%
0.1	0.2	0.1	0.1	0.1	0.1	-14.9%
0.1	0.1	0.2	0.2	0.2	0.2	166.8%
93.6	96.2	94.1	101.0	104.7	103.6	33.6%
60.6	61.3	60.9	57.9	54.0	54.0	59.4%
4.7	4.3	4.5	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	–
4.7	4.5	3.8	3.1	2.3	3.2	-28.1%
0.2	0.2	0.1	0.2	0.2	0.2	-59.1%
18.1	18.9	18.5	18.9	19.4	19.9	58.7%
0.9	0.7	0.6	0.7	0.7	0.7	-65.4%

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

	1990	2000	2005	2010	2011
GHG Emissions by Transportation Mode (Mt of CO_2e)[a,b,c]					
Cars	48.7	43.9	43.0	40.6	39.2
Passenger Light Trucks	14.9	25.6	28.9	30.9	31.2
Freight Light Trucks	6.6	10.2	11.2	12.1	12.2
Medium Trucks	8.2	10.8	14.4	21.7	21.2
Heavy Trucks	17.9	29.0	32.0	33.2	34.9
Motorcycles	0.2	0.2	0.2	0.4	0.4
School Buses	0.9	1.0	0.9	1.1	1.2
Urban Transit	1.7	2.0	2.4	2.7	2.8
Inter-City Buses	0.6	0.5	0.5	0.4	0.4
Passenger Air	12.5	16.0	17.3	15.5	15.7
Freight Air	0.5	0.6	0.5	0.4	0.4
Passenger Rail	0.3	0.2	0.2	0.2	0.2
Freight Rail	6.7	6.4	6.4	6.3	7.2
Marine	7.8	7.9	9.4	9.0	7.2
Off-Road[1]	3.9	5.9	7.1	7.4	7.5
GHG Intensity (tonne/TJ)[a,b,c]	**69.9**	**70.7**	**70.4**	**69.6**	**69.4**
GHG Emissions Related to Electricity (Mt of CO_2e)[a,c]	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
38.2	37.9	35.9	36.0	36.0	34.2	-29.8%
31.7	33.0	32.8	34.6	37.0	37.5	150.7%
12.4	13.0	12.9	13.5	14.5	14.7	120.8%
21.0	22.0	21.9	20.6	20.0	19.6	139.5%
34.9	35.2	35.4	33.4	31.3	32.1	79.3%
0.4	0.4	0.4	0.4	0.4	0.4	126.5%
1.0	0.9	0.9	0.8	0.9	0.5	-45.1%
2.6	2.8	2.6	2.6	2.3	2.3	34.0%
0.4	0.4	0.4	0.4	0.3	0.2	-59.2%
17.9	18.6	18.2	18.6	19.1	19.7	57.2%
0.4	0.4	0.4	0.4	0.4	0.4	-5.5%
0.2	0.2	0.2	0.2	0.2	0.2	-46.5%
7.4	7.1	7.3	6.9	6.4	6.4	-4.6%
6.9	6.5	5.9	5.4	4.7	5.5	-29.0%
7.6	7.8	7.9	8.1	8.3	8.5	119.0%
69.3	**69.2**	**69.1**	**69.0**	**68.9**	**68.9**	**-1.5%**
0.1	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**-14.9%**

5 Transportation Sector

Transportation Energy Prices and Background Indicators

	1990	2000	2005	2010	2011
Energy Prices by Energy Source (incl. taxes)					
Regular Unleaded Gasoline[1] (cents/litre)[a,d,e]	58.7	72.6	93.5	104.9	125.6
Diesel Fuel Oil[1] (cents/litre)[a,d,e]	51.4	67.8	92.8	101.0	123.3
Propane (cents/litre)[a,d,f]	26.6	43.0	58.0	67.9	71.2
Excise Tax (cents/litre)[b]					
Unleaded Gasoline	8.5	10.0	10.0	10.0	10.0
Leaded Gasoline	9.5	11.0	11.0	11.0	11.0
Diesel Fuel Oil	4.0	4.0	4.0	4.0	4.0
Background Indicators					
Consumer Price Index (2012 = 100)[c]					
Gasoline and Other Fuels[2]	45.4	56.8	72.7	81.3	97.5
Public Transportation	40.0	70.9	83.0	92.5	97.7
Inter-City Transportation	42.8	66.1	78.4	95.3	97.6
Local and Commuter	38.0	73.9	85.8	90.8	97.8
GDP at Factor Cost (million $2012)[c]					
Business Sector	798,169	1,115,987	1,268,953	1,318,148	1,366,819
Transportation	42,825	57,487	63,291	65,154	67,835
Real Personal Disposable Income per Household ($2012)[c]	***63,265***	***63,466***	***65,198***	***72,473***	***72,062***

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, *Monthly Average Retail Prices for Gasoline and Fuel Oil, by Geography*, Table 18-10-0001-01, Ottawa, 2019.
b) Canada Revenue Agency, *Current Rates of Excise Taxes - Revised*, Ottawa, 2008; https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/currate/current-rates-excise-taxes.html.
c) Statistics Canada, *Consumer Price Index*, Table 18-10-0005-01, Ottawa, 2019.
d) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
e) Statistics Canada, *Total Population, Census Divisions and Census Metropolitan Areas*, Tables 17-10-0017-01, 17-10-0037-01 and 17-10-0046-01, Ottawa, 2019.
f) Natural Resources Canada, Petroleum Resources Branch, Pipelines, Gas and LNG Division, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
128.5	127.5	127.8	107.8	101.5	113.2	92.9%
124.8	124.5	124.2	124.8	125.6	109.1	112.4%
71.4	71.6	80.1	73.8	73.1	74.8	181.1%
10.0	10.0	10.0	10.0	10.0	10.0	17.6%
11.0	11.0	11.0	11.0	11.0	11.0	15.8%
4.0	4.0	4.0	4.0	4.0	4.0	0.0%
100.0	100.6	100.8	84.1	79.1	88.4	94.9%
100.0	101.9	103.1	104.3	107.5	112.8	182.2%
100.0	102.2	104.8	106.8	108.4	110.1	157.4%
100.0	101.7	102.0	102.8	106.8	113.9	199.6%
1,395,048	1,437,192	1,483,443	1,496,942	1,512,423	1,570,927	96.8%
68,846	69,963	74,228	76,594	78,207	82,375	92.4%
73,051	***74,762***	***75,152***	***76,833***	***75,044***	***76,604***	***21.1%***

5 Transportation Sector

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

	1990	2000	2005	2010	2011
Passenger Transportation Energy Use (PJ)[a]	**1,154.0**	**1,275.4**	**1,343.7**	**1,343.0**	**1,337.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	3.1	3.1	3.5	3.6	3.7
Natural Gas	1.6	2.3	1.7	1.7	1.3
Motor Gasoline	902.4	971.5	1,011.1	1,007.7	980.9
Diesel Fuel Oil	47.2	59.0	65.4	68.0	71.5
Ethanol	n.a.	n.a.	4.8	32.6	47.3
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Aviation Gasoline	5.4	3.5	3.3	2.6	2.1
Aviation Turbo Fuel	175.5	228.4	246.9	221.1	224.6
Propane	18.8	7.6	7.0	5.8	6.5
Energy Use by Transportation Mode (PJ)[a]					
Cars	705.5	625.5	619.4	597.6	579.6
Light Trucks	215.5	362.3	412.7	453.8	460.8
Motorcycles	2.4	2.5	3.3	5.3	5.4
School Buses	13.5	14.7	13.1	15.5	16.3
Urban Transit	24.6	28.5	35.3	39.1	40.9
Inter-City Buses	7.9	7.1	7.1	5.5	5.4
Air	180.9	232.0	250.2	223.7	226.7
Rail	3.8	3.0	2.7	2.5	2.8
Activity					
Total Passenger-kilometres[1] (millions)[a,b,c]	488,494	610,337	661,860	724,951	737,548

1) Excludes non-commercial aviation.

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
b) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, 2003 (Cat. No. 51-206-X); and Statistics Canada, *Civil Aviation Operating Statistics*, Table 18-10-0005-01, Ottawa, 2019.
c) Statistics Canada, *Rail in Canada,* 1990–2009, Ottawa, 2011 (Cat. No. 52-216-X); and Tables 23-10-0053-01 and 23-10-0057-01, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1,359.6	**1,391.6**	**1,352.2**	**1,385.6**	**1,424.1**	**1,405.9**	**21.8%**
3.7	4.1	2.9	3.0	3.8	4.4	40.6%
1.4	1.2	3.5	3.5	3.6	4.2	159.9%
974.9	997.3	964.6	1,039.9	1,074.0	1,055.6	17.0%
65.5	69.2	64.9	64.2	59.6	50.8	7.7%
48.7	45.2	47.3	n.a.	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
2.6	2.2	1.9	2.2	2.3	2.2	-59.4%
255.8	266.8	261.9	267.6	274.9	282.7	61.1%
7.0	5.7	5.0	5.2	6.0	6.1	-67.4%
566.8	564.2	535.2	537.2	536.1	509.7	-27.8%
469.0	489.9	488.8	515.4	550.9	558.4	159.1%
5.6	5.6	5.4	5.5	5.7	5.5	130.2%
14.4	13.1	12.5	12.3	13.5	7.6	-43.5%
37.7	41.7	38.4	38.2	34.5	34.6	40.5%
5.2	6.0	6.1	5.1	4.3	3.2	-59.3%
258.4	269.0	263.8	269.8	277.1	284.9	57.5%
2.4	2.1	2.0	2.0	2.0	2.0	-46.5%
742,825	753,347	743,432	768,569	802,694	818,329	67.5%

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

	1990	2000	2005	2010	2011
Passenger-kilometres by Transportation Mode (millions)					
Cars[a]	308,490	311,440	321,053	322,014	314,622
Light Trucks[a]	74,426	143,361	169,711	195,226	200,392
Motorcycles[a]	1,588	1,649	2,775	3,036	3,092
School Buses[a]	15,061	23,892	26,695	36,293	36,637
Urban Transit[a]	12,918	14,592	20,675	23,507	26,613
Inter-City Buses[a]	7,906	8,974	9,497	7,185	7,682
Air[1,b]	66,776	104,882	109,975	136,286	147,107
Rail[c]	1,330	1,549	1,478	1,404	1,404
Energy Intensity[1] (MJ/Pkm)[a,b,c]	**2.28**	**2.05**	**1.98**	**1.82**	**1.78**

1) Excludes non-commercial aviation.

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
b) Statistics Canada, *Canadian Civil Aviation, 1990–2000, Ottawa, 2003* (Cat. No. 51-206-X); and Statistics Canada, *Civil Aviation Operating Statistics*, Table 18-10-0005-01, Ottawa, 2019.
c) Statistics Canada, *Rail in Canada, 1990–2009*, Ottawa, 2011 (Cat. No. 52-216-X); and Tables 23-10-0053-01 and 23-10-0057-01, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
310,628	311,178	296,281	299,890	301,303	288,392	-6.5%
204,687	215,861	216,358	230,435	248,629	254,934	242.5%
3,209	3,205	3,091	3,159	3,446	3,420	115.4%
34,728	32,357	29,582	28,467	30,189	31,385	108.4%
25,182	24,960	22,956	22,817	18,612	21,277	64.7%
6,690	8,163	6,729	6,350	5,846	6,325	-20.0%
156,327	156,257	167,108	176,101	193,259	211,067	216.1%
1,374	1,365	1,327	1,349	1,408	1,529	15.0%
1.80	**1.82**	**1.79**	**1.78**	**1.74**	**1.69**	**-26.0%**

5 Transportation Sector

Passenger Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	2000	2005	2010	2011
Passenger Transportation GHG Emissions (Mt of CO_2e)[b,c]	**79.7**	**89.4**	**93.4**	**91.7**	**91.0**
GHG Emissions by Energy Source (Mt of CO_2e)[b,c]					
Electricity	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	62.5	68.4	70.4	68.5	66.4
Diesel Fuel Oil	3.4	4.2	4.7	4.9	5.1
Ethanol	n.a.	n.a.	0.3	2.2	3.2
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Aviation Gasoline	0.4	0.3	0.2	0.2	0.2
Aviation Turbo Fuel	12.1	15.8	17.0	15.3	15.5
Propane	1.1	0.5	0.4	0.4	0.4
GHG Emissions by Transportation Mode (Mt of CO_2e)[b,c]					
Cars	48.7	43.9	43.0	40.6	39.2
Light Trucks	14.9	25.6	28.9	30.9	31.2
Motorcycles	0.2	0.2	0.2	0.4	0.4
School Buses	0.9	1.0	0.9	1.1	1.2
Urban Transit	1.7	2.0	2.4	2.7	2.8
Inter-City Buses	0.6	0.5	0.5	0.4	0.4
Air	12.5	16.0	17.3	15.5	15.7
Rail	0.3	0.2	0.2	0.2	0.2
GHG Intensity (tonne/TJ)[b,c]	**69.1**	**70.1**	**69.5**	**68.3**	**68.0**
GHG Emissions Related to Electricity (Mt of CO_2e)[a,c]	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
92.2	**94.2**	**91.3**	**93.6**	**96.1**	**94.8**	**18.9%**
0.1	0.2	0.1	0.1	0.1	0.1	-14.9%
0.1	0.1	0.2	0.2	0.2	0.2	151.6%
65.8	67.1	64.7	69.7	72.0	70.8	13.3%
4.7	4.9	4.6	4.6	4.3	3.6	7.9%
3.3	3.0	3.1	n.a.	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
0.2	0.2	0.1	0.2	0.2	0.2	-59.4%
17.7	18.4	18.1	18.5	19.0	19.5	61.1%
0.4	0.3	0.3	0.3	0.4	0.4	-67.4%
38.2	37.9	35.9	36.0	36.0	34.2	-29.8%
31.7	33.0	32.8	34.6	37.0	37.5	150.7%
0.4	0.4	0.4	0.4	0.4	0.4	126.5%
1.0	0.9	0.9	0.8	0.9	0.5	-45.1%
2.6	2.8	2.6	2.6	2.3	2.3	34.0%
0.4	0.4	0.4	0.4	0.3	0.2	-59.2%
17.9	18.6	18.2	18.6	19.1	19.7	57.2%
0.2	0.2	0.2	0.2	0.2	0.2	-46.5%
67.8	**67.7**	**67.5**	**67.5**	**67.5**	**67.4**	**-2.4%**
0.1	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**-14.9%**

5 Transportation Sector

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

	1990	2000	2005	2010	2011
Passenger Road Transportation Energy Use (PJ)[a]	**969.3**	**1,040.5**	**1,090.8**	**1,116.8**	**1,108.4**
Energy Use by Energy Source (PJ)[a]					
Electricity	3.1	3.1	3.5	3.6	3.7
Natural Gas	1.6	2.3	1.7	1.7	1.3
Motor Gasoline	902.4	971.5	1,011.1	1,007.7	980.9
Diesel Fuel Oil	43.4	56.0	62.7	65.5	68.7
Ethanol	n.a.	n.a.	4.8	32.6	47.3
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Propane	18.8	7.6	7.0	5.8	6.5
Activity					
Passenger-kilometres (millions)[a]	420,389	503,907	550,406	587,261	589,037
Energy Intensity (MJ/Pkm)[a]	**2.31**	**2.06**	**1.98**	**1.90**	**1.88**
Passenger Road Transportation GHG Emissions (Mt of CO_2e)[a,b]	**66.9**	**73.2**	**75.9**	**76.0**	**75.1**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b]					
Electricity	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	62.5	68.4	70.4	68.5	66.4
Diesel Fuel Oil	3.1	4.0	4.5	4.7	4.9
Ethanol	n.a.	n.a.	0.3	2.2	3.2
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Propane	1.1	0.5	0.4	0.4	0.4
GHG Intensity (tonne/TJ)[a,b]	**69.0**	**70.3**	**69.6**	**68.1**	**67.8**

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.

b Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1,098.8	**1,120.6**	**1,086.4**	**1,113.8**	**1,145.0**	**1,119.0**	**15.4%**
3.7	4.1	2.9	3.0	3.8	4.4	40.6%
1.4	1.2	3.5	3.5	3.6	4.2	159.9%
974.9	997.3	964.6	1,039.9	1,074.0	1,055.6	17.0%
63.1	67.1	62.9	62.2	57.5	48.8	12.3%
48.7	45.2	47.3	n.a.	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
7.0	5.7	5.0	5.2	6.0	6.1	-67.4%
585,124	595,724	574,997	591,119	608,027	605,733	44.1%
1.88	**1.88**	**1.89**	**1.88**	**1.88**	**1.85**	**-19.9%**
74.2	**75.5**	**72.9**	**74.8**	**76.8**	**75.0**	**12.0%**
0.1	0.2	0.1	0.1	0.1	0.1	-14.9%
0.1	0.1	0.2	0.2	0.2	0.2	151.6%
65.8	67.1	64.7	69.7	72.0	70.8	13.3%
4.5	4.8	4.5	4.4	4.1	3.5	13.1%
3.3	3.0	3.1	n.a.	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
0.4	0.3	0.3	0.3	0.4	0.4	-67.4%
67.5	**67.3**	**67.1**	**67.1**	**67.1**	**67.0**	**-2.9%**

Passenger Transportation Explanatory Variables

	1990	2000	2005	2010	2011
Light-Duty Vehicles					
Sales (thousands)					
Cars[1,a,d]	872	848	846	704	699
Light Trucks[1,a,d]	282	473	493	587	602
Motorcycles	n.a.	n.a.	n.a.	n.a.	n.a.
Stock (thousands)					
Cars[a,f]	11,100	10,684	11,125	12,061	11,914
Light Trucks[a,f]	2,761	4,514	5,458	6,758	7,003
Motorcycles[a,c]	306	311	444	616	631
Average Distance Travelled per Year (km)					
Cars[a]	17,903	18,425	18,231	16,855	16,670
Light Trucks[a]	17,383	18,632	18,220	16,906	16,744
Motorcycles[a]	4,723	4,815	4,925	4,575	4,548
On-Road Average Fuel Consumption (L/100 km)					
Cars[a,g]					
Motor Gasoline[2]	*10.1*	*9.1*	*8.8*	*8.5*	*8.5*
Diesel Fuel Oil[3]	*7.8*	*6.7*	*6.4*	*6.6*	*6.6*
Light Trucks[a,g]					
Motor Gasoline[2]	*12.9*	*12.3*	*11.9*	*11.5*	*11.5*
Diesel Fuel Oil[3]	*10.0*	*12.1*	*12.1*	*10.4*	*9.9*
Motorcycles[a,e]					
Motor Gasoline[2]	*4.7*	*4.7*	*4.3*	*5.4*	*5.4*

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, 2019.
c) Statistics Canada, *Road Motor Vehicle Registrations*, Ottawa, 1999 (Cat. No. 53-219-X); and Statistics Canada, *Motor Vehicle Registration, 2000–2017*, Table 23-10-0067-01, Ottawa, 2019.
d) IHS Markit, *New Vehicle Registrations*, 1990–2017, Toronto, 2019.
e) United States Department of Transportation, *National Transportation Statistics*, Table VM-1, 2019.
f) DesRosiers Automotive Consultants, *Canadian Vehicles in Operation Census, 1990–2017*, Richmond Hill (Toronto), 2019.
g) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2009*, Ottawa, 2010.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
748	765	757	721	659	622	-28.6%
608	653	719	794	858	921	226.8%
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
11,921	12,255	12,565	12,859	12,856	12,729	14.7%
7,168	7,668	8,164	8,755	9,274	9,743	252.9%
661	672	688	709	716	721	135.8%
16,447	16,024	14,879	14,714	14,785	14,291	-20.2%
16,704	16,464	15,494	15,387	15,668	15,288	-12.1%
4,505	4,424	4,170	4,136	4,199	4,091	-13.4%
8.5	*8.4*	*8.4*	*8.1*	*8.1*	*8.0*	*-21.0%*
6.7	*6.8*	*6.8*	*6.8*	*6.9*	*6.9*	*-11.9%*
11.5	*11.3*	*11.3*	*10.9*	*10.8*	*10.7*	*-16.7%*
9.4	*9.1*	*8.9*	*8.8*	*8.8*	*8.8*	*-11.7%*
5.4	*5.4*	*5.4*	*5.4*	*5.4*	*5.3*	*12.8%*

Passenger Transportation Explanatory Variables (cont.)

	1990	2000	2005	2010	2011
Lab-Tested New Vehicle Fuel Consumption[3] (L/100 km)[g]					
CAFC Standard Cars[4]	8.6	8.6	8.6	8.6	n.a.
CAFC Average Car Fleet[4]	8.2	7.8	7.4	6.8	n.a.
CAFC Standard Light Trucks[4]	11.8	11.4	11.2	10.0	n.a.
CAFC Average Light Truck Fleet[4]	11.4	11.1	10.6	8.5	n.a.
Buses					
Stock (thousands)[a,c]					
School Buses	44.7	47.0	46.9	50.0	49.8
Urban Transit	25.7	23.4	24.0	28.2	28.8
Inter-City Buses	6.6	6.9	8.0	8.1	8.0
Average Distance Travelled per Year (km)[a,b]					
School Buses	19,586	26,058	27,523	33,241	33,347
Urban Transit	47,874	55,666	73,704	68,438	75,220
Inter-City Buses	71,172	76,564	70,195	52,627	57,047

3) Includes Biodiesel.
4) Growth rate shown in the final column entitled "Total Growth 1990–2017" is for 1990 to 2010.

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
b) Statistics Canada, *Passenger Bus and Urban Transit Statistics, 1990–2000,* Ottawa, 2002 (Cat. No. 53-215-X); and Statistics Canada, *The Canadian Passenger Bus and Urban Transit Industries, 2001–2010*, Ottawa, 2013 (Cat. No. 50-002-X); and Tables 23-10-0084-01 and 23-10-0086-01, 2019.
c) Statistics Canada, *Road Motor Vehicle Registrations*, Ottawa, 1999 (Cat. No. 53-219-X); and Statistics Canada, *Motor Vehicle Registration*, *2000–2017*, Table 23-10-0067-01, Ottawa, 2019.
g) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2009*, Ottawa, 2010.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0 %
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-17.1 %
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-15.3 %
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-25.4 %
49.7	50.1	53.2	50.5	50.8	50.4	12.8%
29.5	29.0	28.2	31.0	29.1	29.2	13.6%
8.2	9.8	9.2	9.1	10.8	11.3	72.2%
31,365	29,006	24,943	25,319	26,684	27,952	42.7%
69,004	69,422	65,668	59,493	51,626	58,819	22.9%
48,114	49,394	43,294	41,195	32,185	33,060	-53.5%

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

	1990	2000	2005	2010	2011
Freight Transportation Energy Use (PJ)[a]	**670.5**	**908.9**	**1,036.8**	**1,166.7**	**1,171.0**
Energy Use by Energy Source (PJ)[a]					
Natural Gas	0.1	0.1	0.2	0.2	0.3
Motor Gasoline	164.6	229.4	259.8	307.6	297.3
Diesel Fuel Oil	422.6	601.4	679.9	751.1	785.1
Ethanol	n.a.	n.a.	1.2	9.6	14.3
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	60.1	61.4	83.0	86.1	61.2
Aviation Gasoline	0.1	0.0	0.0	0.0	0.0
Aviation Turbo Fuel	6.4	8.1	7.8	5.3	5.4
Propane	16.6	8.5	4.9	6.8	7.3
Energy Use by Transportation Mode (PJ)[a]					
Light Trucks	97.6	145.8	161.1	178.9	180.0
Medium Trucks	120.6	157.1	208.4	312.8	305.8
Heavy Trucks	253.6	408.2	449.7	466.2	489.6
Air	6.5	8.1	7.9	5.3	5.5
Rail	85.7	81.5	81.7	81.3	91.6
Marine	106.5	108.2	128.1	122.3	98.5
Activity					
Total Tonne-kilometres (millions)[a,b,c,d,e]	576,059	775,465	895,751	851,073	852,680
Tonne-kilometres by Transportation Mode (millions)					
Light Trucks[a]	10,442	17,540	20,782	24,399	24,829
Medium Trucks[a]	13,569	20,135	27,898	46,659	46,243
Heavy Trucks[b]	112,077	202,453	233,583	221,767	231,631
Air[c]	1,754	2,327	2,236	2,085	2,212
Rail[d]	248,348	322,511	352,140	341,325	352,091
Marine[e]	189,869	210,499	259,113	214,839	195,675
Energy Intensity (MJ/Tkm)[a]	**1.16**	**1.17**	**1.16**	**1.37**	**1.37**

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
b) Statistics Canada, *Trucking in Canada, 1990–2005*, Ottawa, 2007 (Cat. No. 53-222-X); and Table 23-10-0219-01, Ottawa, 2019.
c) Statistics Canada, *Canadian Civil Aviation*, 1990–2000, Ottawa, 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletin*, 2001–2011, Ottawa, 2012 (Cat. No. 51-004-X); and Table 23-10-0033-01, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
1,173.3	**1,191.4**	**1,184.7**	**1,136.6**	**1,096.9**	**1,117.1**	**66.6%**
0.3	0.3	0.4	0.4	0.4	0.4	633.0%
304.1	321.9	325.1	344.5	361.7	361.4	119.5%
776.8	782.9	781.1	739.9	691.4	699.8	65.6%
15.6	14.4	15.9	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	–
62.8	59.4	50.8	40.8	31.3	43.3	-28.1%
0.0	0.0	0.0	0.0	0.0	0.0	-37.3%
6.1	6.3	6.0	5.6	5.9	6.1	-5.1%
7.6	6.2	5.4	5.5	6.1	6.1	-63.2%
185.1	193.2	193.1	202.3	216.3	219.1	124.6%
303.0	317.5	315.2	297.4	289.0	283.0	134.7%
490.5	494.5	496.9	469.1	439.4	451.4	78.0%
6.1	6.3	6.0	5.6	6.0	6.2	-5.5%
94.2	90.9	93.4	88.9	81.5	81.8	-4.6%
94.4	89.0	80.1	73.3	64.7	75.6	-29.0%
886,453	917,441	963,496	970,834	977,675	1,034,797	79.6%
25,647	27,006	27,109	28,694	30,958	31,696	203.6%
46,574	49,562	50,048	48,010	47,516	47,281	248.5%
241,495	251,387	268,567	277,396	296,678	323,473	188.6%
2,283	2,273	2,376	2,284	2,548	3,149	79.6%
371,074	386,132	415,462	411,813	395,889	423,664	70.6%
199,380	201,080	199,935	202,637	204,085	205,533	8.2%
1.32	**1.30**	**1.23**	**1.17**	**1.12**	**1.08**	**-7.3%**

d) Statistics Canada, *Rail in Canada, 1990–2009*, Ottawa, 2011 (Cat. No. 52-216-X); and Tables 23-10-0053-01 and 23-10-0057-01, Ottawa, 2019.
e) Transport Canada, Surface and Marine Statistics and Forecasts Division, Ottawa, 2019.

Freight Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	2000	2005	2010	2011
Freight Transportation GHG Emissions (Mt of CO_2e)[a,b]	**47.7**	**64.8**	**74.0**	**82.8**	**83.0**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b]					
Natural Gas	0.0	0.0	0.0	0.0	0.0
Motor Gasoline	11.2	15.9	17.9	20.9	20.1
Diesel Fuel Oil	30.5	43.2	48.9	54.0	56.5
Ethanol	n.a.	n.a.	0.1	0.6	1.0
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	4.5	4.6	6.2	6.5	4.6
Aviation Gasoline	0.0	0.0	0.0	0.0	0.0
Aviation Turbo Fuel	0.4	0.6	0.5	0.4	0.4
Propane	1.0	0.5	0.3	0.4	0.4
GHG Emissions by Transportation Mode (Mt of CO_2e)[a,b]					
Light Trucks	6.6	10.2	11.2	12.1	12.2
Medium Trucks	8.2	10.8	14.4	21.7	21.2
Heavy Trucks	17.9	29.0	32.0	33.2	34.9
Air	0.5	0.6	0.5	0.4	0.4
Rail	6.7	6.4	6.4	6.3	7.2
Marine	7.8	7.9	9.4	9.0	7.2
GHG Intensity (tonne/TJ)[a,b]	**71.1**	**71.3**	**71.3**	**71.0**	**70.9**

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.

b) Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
83.1	**84.3**	**83.8**	**80.3**	**77.3**	**78.8**	**65.1%**
0.0	0.0	0.0	0.0	0.0	0.0	609.6%
20.5	21.7	21.9	23.2	24.3	24.3	117.0%
55.9	56.4	56.3	53.3	49.8	50.4	65.1%
1.0	1.0	1.1	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	–
4.7	4.5	3.8	3.1	2.3	3.2	-28.1%
0.0	0.0	0.0	0.0	0.0	0.0	-37.3%
0.4	0.4	0.4	0.4	0.4	0.4	-5.1%
0.5	0.4	0.3	0.3	0.4	0.4	-63.2%
12.4	13.0	12.9	13.5	14.5	14.7	120.8%
21.0	22.0	21.9	20.6	20.0	19.6	139.5%
34.9	35.2	35.4	33.4	31.3	32.1	79.3%
0.4	0.4	0.4	0.4	0.4	0.4	-5.5%
7.4	7.1	7.3	6.9	6.4	6.4	-4.6%
6.9	6.5	5.9	5.4	4.7	5.5	-29.0%
70.9	**70.8**	**70.7**	**70.6**	**70.4**	**70.5**	**-0.9%**

5 Transportation Sector

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

	1990	2000	2005	2010	2011
Freight Road Transportation Energy Use (PJ)[a]	**471.8**	**711.1**	**819.2**	**957.9**	**975.4**
Energy Use by Energy Source (PJ)[a]					
Natural Gas	0.1	0.1	0.2	0.2	0.3
Motor Gasoline	164.6	229.4	259.8	307.6	297.3
Diesel Fuel Oil	290.6	473.1	553.1	633.7	656.1
Ethanol	n.a.	n.a.	1.2	9.6	14.3
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Propane	16.6	8.5	4.9	6.8	7.3
Activity					
Tonne-kilometres (millions)[a, c]	136,088	240,128	282,262	292,824	302,702
Energy Intensity (MJ/Tkm)[a]	**3.47**	**2.96**	**2.90**	**3.27**	**3.22**
Freight Road Transportation GHG Emissions (Mt of CO_2e)[a,b]	**32.8**	**50.0**	**57.6**	**67.1**	**68.3**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b]					
Natural Gas	0.0	0.0	0.0	0.0	0.0
Motor Gasoline	11.2	15.9	17.9	20.9	20.1
Diesel Fuel Oil	20.5	33.6	39.3	45.1	46.7
Ethanol	n.a.	n.a.	0.1	0.6	1.0
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.
Propane	1.0	0.5	0.3	0.4	0.4
GHG Intensity (tonne/TJ)[a,b]	**69.4**	**70.3**	**70.3**	**70.0**	**70.0**

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
b) Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.
c) Statistics Canada, *Trucking in Canada, 1990–2005*, Ottawa, 2007 (Cat. No. 53-222-X); and Table 23-10-0219-01, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
978.5	**1,005.2**	**1,005.1**	**968.9**	**944.7**	**953.5**	**102.1%**
0.3	0.3	0.4	0.4	0.4	0.4	633.0%
304.1	321.9	325.1	344.5	361.7	361.4	119.5%
651.0	662.3	658.3	618.5	576.5	585.7	101.6%
15.6	14.4	15.9	n.a.	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
7.6	6.2	5.4	5.5	6.1	6.1	-63.2%
313,715	327,956	345,723	354,100	375,153	402,451	195.7%
3.12	**3.06**	**2.91**	**2.74**	**2.52**	**2.37**	**-31.7%**
68.4	**70.2**	**70.2**	**67.6**	**65.8**	**66.4**	**102.8%**
0.0	0.0	0.0	0.0	0.0	0.0	609.6%
20.5	21.7	21.9	23.2	24.3	24.3	117.0%
46.4	47.2	46.9	44.0	41.1	41.7	103.0%
1.0	1.0	1.1	n.a.	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
0.5	0.4	0.3	0.3	0.4	0.4	-63.2%
69.9	**69.9**	**69.8**	**69.8**	**69.6**	**69.7**	**0.3%**

Freight Transportation Explanatory Variables

	1990	2000	2005	2010	2011
Trucks					
Sales (thousands)					
Light Trucks[1,a,b]	102	159	163	196	201
Medium Trucks[1,a,b]	40	63	75	110	119
Heavy Trucks[1,a,b]	16	29	34	20	27
Stock (thousands)					
Light Trucks[a,c]	995	1,518	1,808	2,258	2,338
Medium Trucks[a,d]	572	672	887	1,405	1,432
Heavy Trucks[a,d]	297	301	359	396	415
Average Distance Travelled per Year (km)					
Light Trucks[a]	20,992	21,658	20,900	19,414	19,079
Medium Trucks[a,e]	21,566	24,978	25,175	26,353	25,634
Heavy Trucks[a, e]	52,400	93,281	93,720	91,582	92,806
On-Road Average Fuel Consumption (L/100 km)					
Light Trucks[a,f]					
Motor Gasoline[2]	*13.3*	*12.6*	*12.1*	*11.8*	*11.8*
Diesel Fuel Oil[3]	*10.1*	*12.3*	*12.4*	*11.0*	*10.5*
Medium Trucks[a, e]					
Motor Gasoline[2]	*27.1*	*25.6*	*25.3*	*23.2*	*23.1*
Diesel Fuel Oil[3]	*27.6*	*26.3*	*26.0*	*23.2*	*22.8*
Heavy Trucks[a, e]					
Diesel Fuel Oil[3]	*42.5*	*37.9*	*34.9*	*33.5*	*33.2*
Lab-Tested Light Truck Fuel Consumption[1] (L/100 km)[f]					
CAFC Standard Light Trucks[4]	11.8	11.4	11.2	10.0	n.a.
CAFC Average Light Truck Fleet[4]	11.4	11.1	10.6	8.5	n.a.

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 1990–2017" is for 1990 to 2010

Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2019.
b) IHS Markit, *New Vehicle Registrations, 1990–2017*, Toronto, 2019.
c) DesRosiers Automotive Consultants, *Canadian Vehicles in Operation Census, 1990–2017*, Richmond Hill (Toronto), 2019.
d) R.L. Polk & Co., *Truck Industry Profile, 1994–2002*, Southfield (Detroit), Michigan, 2004. Some data for 2003 to 2009 estimated by Natural Resources Canada. 2010-2017 data were based on Statistics Canada, Table 23-10-0067-01, Road *Motor Vehicle Registrations by Type of Vehicle*, Ottawa, 2019.
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.

2012	2013	2014	2015	2016	2017	Total Growth 1990–2017
203	217	240	265	285	305	200.8%
121	127	136	124	134	135	238.0%
33	30	30	30	24	27	67.6%
2,387	2,553	2,722	2,918	3,084	3,232	224.8%
1,450	1,513	1,603	1,621	1,640	1,674	192.6%
432	433	455	464	463	471	58.4%
19,298	19,005	17,888	17,663	18,034	17,619	-16.1%
25,498	26,003	24,778	23,509	22,999	22,420	4.0%
90,689	92,184	89,231	83,592	79,501	81,392	55.3%
11.7	*11.6*	*11.6*	*11.2*	*11.1*	*11.0*	*-17.5%*
10.0	*9.6*	*9.3*	*9.2*	*9.1*	*9.1*	*-10.4%*
22.8	*22.4*	*22.1*	*21.3*	*21.0*	*20.7*	*-23.6%*
22.4	*22.1*	*21.7*	*21.4*	*21.0*	*20.6*	*-25.1%*
32.7	*32.4*	*32.0*	*31.6*	*31.2*	*30.8*	*-27.6%*
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-15.3 %
n.a.	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* (RESD) (Cat. No. 57-003-X). The RESD does not provide energy use data for the electricity generated from wood and other non-specified fuel, hydro and nuclear categories. Electricity production data for these three energy sources are converted to energy use data by using energy content values of 10.500, 3.600 and 11.564 megajoules per kilowatt-hour, respectively.

Statistics Canada provides 2019 data for gross domestic product at basic prices in Table 36-10-0434-01 in. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre.

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

6 Electricity Generation Sector

Electricity Generation Energy Use and Generation by Energy Source

	1990	2000	2005	2010	2011
Total Energy Use (PJ)[a,b]	**3,002.5**	**3,662.8**	**3,979.1**	**3,801.2**	**3,865.1**
Energy Use by Energy Source (PJ)[a,b]					
Natural Gas	80.0	328.5	366.5	519.2	587.3
Diesel Fuel Oil, Light Fuel Oil and Kerosene	11.5	7.8	9.8	8.3	9.6
Heavy Fuel Oil	141.4	114.8	85.6	31.3	23.7
Coal	874.5	1,082.8	1,062.7	853.6	742.3
Hydro	1,058.3	1,277.3	1,296.1	1,253.2	1,339.5
Nuclear	795.2	794.1	1,004.1	989.0	1,021.0
Wood and Other	37.2	37.4	91.0	102.4	101.6
Petroleum Coke, Still Gas, Coke and Coke Oven Gas[1]	4.3	20.0	63.3	44.1	40.1
Total Electricity Generated (GWh)[a]	**467,596**	**585,797**	**604,370**	**579,366**	**608,180**
Electricity Generated by Energy Source (GWh)[a]					
Natural Gas	9,018	32,945	37,325	47,710	56,498
Diesel Fuel Oil, Light Fuel Oil and Kerosene	994	802	911	1,083	1,050
Heavy Fuel Oil	13,394	11,617	14,449	5,330	4,559
Coal	76,794	106,888	94,483	78,149	72,190
Hydro	293,985	354,812	360,026	348,110	372,077
Nuclear	68,761	68,674	86,830	85,527	88,291
Wood and Other	3,546	3,563	8,669	9,755	9,677
Petroleum Coke, Still Gas, Coke and Coke Oven Gas[1]	1,105	6,496	1,678	3,703	3,840
Activity					
GDP (million $2012)[c]	26,062	28,711	30,523	30,892	31,509
Production (GWh)[a]	467,596	585,797	604,370	579,366	608,180
Energy Intensity (GJ/$2012)[a,b,c]	**0.115**	**0.128**	**0.130**	**0.123**	**0.123**
Energy Intensity (GJ/GWh)[a,b]	**6,421**	**6,253**	**6,584**	**6,561**	**6,355**

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

Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Electricity Energy Use Model, Ottawa, 2019.
c) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)*, Table 36-10-0434-01, Ottawa, 2019. Data prior to 1997 were estimated by the Canadian Energy and Emissions Data Centre of Simon Fraser University and Natural Resources Canada.

2012	2013	2014	2015	2016	2017	Total Growth 1990-2017
3,912.2	**3,823.1**	**4,052.9**	**4,058.2**	**4,060.7**	**4,078.3**	**35.8%**
604.9	594.1	632.0	672.9	652.8	644.4	705.5%
10.6	9.7	11.5	13.4	13.7	13.4	16.6%
22.0	19.8	29.9	32.5	30.4	30.9	-78.2%
683.6	689.5	658.7	678.4	631.9	626.4	-28.4%
1,407.0	1,401.0	1,418.6	1,432.9	1,492.1	1,525.3	44.1%
1,034.9	952.6	1,170.4	1,110.7	1,103.4	1,103.1	38.7%
108.6	109.9	91.1	75.0	96.3	96.8	160.1%
40.6	46.4	40.8	42.4	40.1	38.1	790.3%
619,810	**609,783**	**631,821**	**634,089**	**643,900**	**643,264**	**37.6%**
57,241	54,525	60,873	65,326	60,898	55,433	514.7%
1,133	1,144	2,051	2,162	2,156	1,985	99.7%
4,642	4,878	1,680	1,956	1,421	1,003	-92.5%
62,766	63,792	62,741	62,953	59,836	55,923	-27.2%
390,837	389,174	394,055	398,024	414,460	423,683	44.1%
89,492	82,378	101,208	96,046	95,418	95,388	38.7%
10,341	10,468	8,674	7,146	9,176	9,220	160.1%
3,359	3,423	540	476	535	629	–
30,627	30,948	31,884	32,202	33,426	34,099	30.8%
619,810	609,783	631,821	634,089	643,900	643,264	37.6%
0.128	**0.124**	**0.127**	**0.126**	**0.121**	**0.120**	**3.8%**
6,312	**6,270**	**6,415**	**6,400**	**6,306**	**6,340**	**-1.3%**

6 Electricity Generation Sector

Electricity Generation GHG Emissions by Energy Source

	1990	2000	2005	2010	2011
Total GHG Emissions (Mt of CO_2e)[a,b,c]	**96.1**	**128.9**	**128.9**	**111.3**	**103.5**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Natural Gas	4.1	16.7	18.5	26.0	29.3
Diesel Fuel Oil, Light Fuel Oil and Kerosene	0.8	0.6	0.7	0.6	0.7
Heavy Fuel Oil	10.6	8.6	6.4	2.3	1.8
Coal	80.1	101.3	97.6	78.5	68.1
Hydro	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0
Wood and Other	0.0	0.0	0.1	0.1	0.1
Petroleum Coke, Still Gas, Coke and Coke Oven Gas[1]	0.4	1.7	5.5	3.9	3.5
GHG Intensity[2] (tonnes/TJ [electricity generated])[a,b,c]	**57.1**	**61.1**	**59.2**	**53.4**	**47.3**
GHG Intensity[3] (tonnes/TJ [energy used])[a,b,c]	**32.0**	**35.2**	**32.4**	**29.3**	**26.8**

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, 1990–2017*, Ottawa, 2019.
b) Natural Resources Canada, Electricity Energy Use Model, Ottawa, 2019.
c) Environment and Climate Change Canada, *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2019.

2012	2013	2014	2015	2016	2017	Total Growth 1990-2017
98.8	**99.1**	**98.5**	**102.6**	**96.7**	**95.2**	**-0.9%**
30.0	29.5	31.2	33.0	32.2	31.8	673.1%
0.8	0.7	0.8	1.0	1.0	1.0	15.5%
1.6	1.5	2.2	2.4	2.3	2.3	-78.2%
62.7	63.3	60.5	62.4	57.7	56.6	-29.3%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.1	0.1	0.1	0.1	0.1	0.1	–
3.6	4.1	3.6	3.7	3.5	3.3	–
44.3	**45.2**	**43.3**	**44.9**	**41.7**	**41.1**	**-28.0%**
25.3	**25.9**	**24.3**	**25.3**	**23.8**	**23.3**	**-27.1%**

Appendix A
Reconciliation of Data

Reconciliation of Data with Statistics Canada's *Report on Energy Supply and Demand in Canada* (RESD) – 2017 (petajoules)

	RESD Data	Residential Wood	Commercial & Public Admin. Diesel	Industrial, Commercial & Public Admin. Aviation Fuels	Industrial, Commercial & Public Admin. Motor Gasoline	LFO and Kerosene – Transport
Sector						
Residential	1,336	171				
Commercial/ Institutional	1,137		-60	-22	-24	0
Industrial	2,776			-1	-36	
Transportation	2,679		60	23	60	0
Agriculture	303					
Final Demand	**8,231**	**171**	**0**	**0**	**0**	**0**
Non-Energy	992					
Producer Consumption	1,479					
Net Supply	**10,701**	**171**	**0**	**0**	**0**	**0**
Fuel Conversion						
Electricity, Steam & Coal/Coke Input Fuels[1]	4,180					
Electricity, Steam & Coal/Coke Production[2]	-2,443					
Total Primary	**12,438**	**171**	**0**	**0**	**0**	**0**

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

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

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

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

Reconciliation of Data

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[3]	Data Presented in This Report
1					0	1,508
0					0	1,030
0		372	4	493	-1	3,607
-1	-179				0	2,643
0					-1	301
0	**-179**	**372**	**4**	**493**	**-1**	**9,089**
						992
	179			-493		1,165
0	**0**	**372**	**4**	**0**	**-1**	**11,246**
						4,180
						-2,443
0	**0**	**372**	**4**	**0**	**-1**	**12,983**

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

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

1) "Electricity, Steam and Coal/Coke Input Fuels" represents the amount of input energy from source fuels (coal, uranium, etc.) that is transformed to electricity, steam, coke and coke gas.
2) "Electricity, Steam and Coal/Coke Production" represents the amount of electricity, steam, coke and coke gas produced. The difference between these items is referred to as conversion losses.
3) 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 1990–2017*[2]

Introduction

In this handbook, *Energy Use Data Handbook 1990 to 2017* (EUDH), the data on greenhouse gas 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 1990–2017* (NIR-2017). 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-2017 emissions estimates for the five sectors covered in this handbook.

[2] 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-2017 differ in their definitions of residential emissions:

- EUDH residential emissions include end-use, electricity-related emissions, which are reported under power generation in NIR-2017.

Commercial/Institutional Sector

There is only one difference between EUDH and NIR-2017 definitions of commercial/institutional emissions:

- EUDH commercial/institutional emissions include end-use, electricity-related emissions but NIR-2017 includes them under power generation.

Industrial Sector

There are many differences between EUDH and NIR-2017 definitions in the industrial sector:

- NIR-2017 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-2017 reports this as consumption of fossil fuels.
- NIR-2017 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-2017 reports them under power generation.
  - NIR-2017 includes producers' consumption of non-fossil fuels in the fossil fuel categories. EUDH does not report this consumption.
  - NIR-2017 also reallocates estimates of emissions from upstream oil and gas flaring to fugitive emissions from the fossil fuel sector.

B Reconciliation of Definitions

Transportation Sector

EUDH and NIR-2017 differ in their definitions of transportation emissions:

- NIR-2017 reallocates industrial and agriculture diesel and agriculture motor gasoline to the transportation sector.
- NIR-2017 includes pipeline-related emissions in the transportation sector.
- NIR-2017 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-2017.

Electricity Generation Sector

There is only one difference between EUDH and NIR-2017 for the electricity generation sector:

- NIR-2017 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-2017 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.

C Glossary of Terms

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

Auxiliary Motors: Refers to devices used to transform electric power into mechanical energy in order to 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_2): A compound of carbon and oxygen formed whenever carbon is burned. Carbon dioxide (CO_2) is a colourless gas that absorbs infrared radiation, mostly at wavelengths between 12 and 18 microns. It behaves as a one-way filter, allowing incoming, visible light to pass through in one direction, while preventing outgoing infrared radiation from passing in the opposite direction. The one-way filtering effect of CO_2 causes an excess of the infrared radiation to be trapped in the atmosphere; thus it acts as a "greenhouse" and has the potential to increase the surface temperature of the planet (see Greenhouse Gas).

Glossary of Terms

C

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.

C Glossary of Terms

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 1×10^9 joules (see Petajoule).

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

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

Glossary of Terms

C

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 2012 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 2012 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.

C Glossary of Terms

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 1000 watt-hours. A kilowatt-hour can best be visualized as the amount of electricity consumed by ten 100-watt bulbs burning for an hour. One kilowatt-hour equals 3.6 million joules (see Watt).

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 1×10^6 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 1×10^{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.

C Glossary of Terms

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 1×10^{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.

Glossary of Terms

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

$2012	Constant 2012 dollars
bbl.	Barrel
CAFC	Company Average Fuel Consumption
CANSIM	Canadian Socio-Economic Information Management System
CEUM	Commercial/Institutional End-Use Model
CEEDC	Canadian Energy and Emissions Data Centre
ECCC	Environment and Climate Change Canada
EER	Energy Efficiency Ratio
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GJ	Gigajoule = 1×10^9 joules
GO	Gross Output
GWh	Gigawatt-hour = 1×10^9 Wh
km	Kilometre
kW	Kilowatt
kWh	Kilowatt-hour = 1×10^3 Wh
L	Litre
LPG	Liquefied Petroleum Gases
m^2	Square Metre
m^3	Cubic Metre
MJ	Megajoule = 1×10^6 joules
Mt of CO_2e	Megatonne of Carbon Dioxide Equivalent = 1×10^6 tonnes
NAICS	North American Industry Classification System
n.e.c.	Not Elsewhere Classified
NEUD	National Energy Use Database
NGL	Natural Gas Liquids
NRCan	Natural Resources Canada
OEE	Office of Energy Efficiency

List of Abbreviations

D

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