

Energy in Canada: A Statistical Overview

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This Policy Brief provides a statistical overview of the contribution of Canada's energy sector - electricity, gas, oil, and pipelines - to the country's economy. In 2019, the energy sector accounted for approximately 9.5% of Canada's GDP and 1.5% of its labour force. One reason for the sector's economic prominence is Canada's position as one of the world's leading energy-producing and exporting countries. Canada consistently ranks as a top 3 exporter of electricity and a world leader in the production of zero greenhouse gas emission electricity, ranked 3rd in hydroelectric production, 6th in nuclear production, and 9th in wind electricity production. It is the 4th largest producer and exporter of crude oil and is historically a top-five producer and exporter of natural gas (**Tables 1 and 2**).

ECONOMIC CONTRIBUTION

In 2019, Canada's energy sector¹ contributed \$187 billion (9.5%) towards Canada's GDP (**Tables 3 and 4**). The sector is concentrated in Alberta, Newfoundland and Labrador, and Saskatchewan, where it accounts for more than a fifth of each province's GDP. Oil and gas, including extraction and support activities, petroleum refining, pipeline transportation and natural gas distribution, account for 7.5% of national GDP. Oil and gas extraction occurs primarily in Alberta, with the province accounting for 74% of Canadian oil and gas extraction in 2019. Canada's petroleum refining industry is mainly concentrated in Alberta, Ontario, and Saskatchewan. These three provinces account for 82% of the petroleum refinery contribution to national GDP.

Electricity is the second largest energy sector, contributing 1.8% of Canada's GDP. Most of this contribution stems from activity in Quebec and Ontario. Since 2013, total electricity produced has ranged between 640 and 650 terawatt hours (**Table 5**). Hydroelectric generation accounts for 60% of Canada's total electricity production (**Figure 1**). Non-greenhouse gas emitting sources of generation account for 80% of total electricity produced, an increase of 4% since 2010, with the share of wind increasing by slightly less than 4% and the share of coal decreasing by 4%.

Coal and other metal ore mining account for 0.2% of national GDP. Most coal and other metal ore mining activity occurs in British Columbia and Saskatchewan (**Tables 3 and 4**).

¹ This Policy Brief uses Statistics Canada's definition of the energy sector, which includes oil and gas extraction, supporting services to oil and gas extraction, natural gas distribution, petroleum refineries, pipeline transportation, electric power generation, transmission and distribution, coal mining, and other metal ore mining.

EMPLOYMENT

In 2019, the energy sector employed 1.5% of Canada's labour force. This comprised 294,625 workers out of a total labour force of 19,442,005 (**Table 6**). The oil and gas sector employed 60% of the total jobs in Canada's energy sector, a decline of 2.6% points since 2010. The oil and gas sector is comprised of oil and gas extraction (25% of energy sector jobs), support activities for oil and gas extraction (23%), natural gas distribution (4.7%), pipeline transportation (4.3%), and petroleum refineries (3.4%) (**Figure 2**). Alberta is the largest employer of oil and gas workers in Canada, accounting for 78% of the sector's jobs, followed by Saskatchewan (7%), Ontario (5%), and British Columbia (4%) (**Figure 3**). The oil and gas sector has shed 23,900 jobs from the peak in 2013, a decline of 12%. All provinces, except for Prince Edward Island and Quebec, have seen the number of jobs in their oil and gas sector decline since 2013 (**Table 7**).

In 2019, the electric utility sector employed over 104,000 workers, or 35% of total energy sector workers, up 1.5% points from 2010 (**Table 6 and Figure 2**). Ontario and Quebec are the largest provincial employers of electric utility workers, accounting for 38% and 24% of Canada's electric utility workers respectively (**Table 8 and Figure 4**).

On an annual value-added per job basis, the energy sector performs well relative to the all-industry Canadian average. At \$636,336, the Canadian energy sector's GDP per job in 2019 was over half a million dollars higher than the national average of \$101,490 per job. Oil and gas extraction contributed the highest GDP per job at \$1.5 million per job, while petroleum refining and pipeline transportation each contributed just under \$1 million per job. Support activities for oil and gas extraction contributed the lowest GDP per job within the energy sector (\$175,665 per job) (**Table 9**).

CAPITAL INVESTMENT

The energy sector is notably capital intensive, with large scale projects often requiring billions of dollars of investment.² Total capital expenditures in Canada's energy sector amounted to \$77 billion in 2019, which was 37% lower than the decade's peak in 2014 (**Table 10 and Figure 5**).

In 2019, capital expenditures in oil and gas extraction were valued at \$33.2 billion, a significant decrease from \$76 billion in 2014 and a reduction of 23% from \$43 billion in 2010. Capital expenditures in support activities for mining and oil and gas extraction declined by 46% between 2010 and 2019. In contrast, capital expenditures in electric power generation and transmission and natural gas distribution increased by 23% and 85%, respectively, over the same period. The largest percentage increase in energy sector capital expenditures between 2010 and 2019 occurred in pipeline transportation, with an increase of 268%. In Alberta, capital expenditure in oil and gas and oil sands decreased by 12% to \$24.2 billion between 2018 and 2019.³

² <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2018/market-snapshot-how-are-energy-projects-financed.html>.

³ <https://www.aer.ca/providing-information/data-and-reports/statistical-reports/st98/prices-and-capital-expenditure/capital-expenditures>.

ENERGY EXPORTS

Canada is a world leader in the export of energy products. In 2018, it was the world's 3rd largest exporter of electricity generation, after being the largest electricity exporter in the previous two years. Canada is the world's 4th largest exporter of crude oil, a position it has held for the last five years. It is also the world's 7th largest exporter of natural gas, although its ranking has declined from a decade ago when it was ranked 3rd (**Table 1**).

Energy products have been Canada's largest domestic merchandise export in every year since 2010, except in 2016 when it was second to motor vehicles and parts. In 2019, the value of energy products exported was \$124 billion or 21% of domestic merchandise exports (**Table 11 and Figure 6**).

In 2019, total net exports (the value of exports minus the value of imports) of energy products totaled \$87 billion (**Table 12**). The United States is Canada's largest trading partner in energy products. Canada is a net exporter of energy products with the United States; the net value of merchandise traded in 2019 was \$86 billion. Canada's second largest trading partner is Saudi Arabi with which it is a net importer of energy products; the net value of merchandise traded between Canada and Saudi Arabi in 2019 was \$3 billion.

TAXES

The energy sector is an important contributor to government revenues through federal and provincial corporate income taxes, indirect sales and payroll taxes, Crown land sales, and Crown royalties. In 2018, the energy sector contributed \$14.9 billion to federal, provincial, and territorial government revenues (**Table 13**). This included contributions of \$8.2 billion in corporate income taxes and indirect taxes (7.1% of total corporate and indirect taxes paid to governments), \$2 billion through Crown land sales to acquire the resource use for specific properties, and \$4.8 billion in Crown royalties. The energy sector's contribution to general government revenues represented 1.6% of all general government revenue, although its share contribution declined from its 2010 share contribution of 3.1%.

In 2018, the utilities sector (electricity generation, transmission and distribution, and natural gas distribution) was the largest energy sector contributor of corporate and indirect taxes at \$2.5 billion. The utilities sector's contribution increased by 98% from \$1.3 billion between 2010 and 2018. Oil and gas extraction and supporting activities made the second largest contribution to corporate and indirect taxes at \$2.3 billion, although its contribution declined from \$3.1 billion in 2010.

GREENHOUSE GAS EMISSIONS

The Government of Canada has set a goal of achieving net-zero greenhouse gas (GHG) emissions by 2050. Net-zero GHG emissions refers to the balance between the amount of human-caused GHG emissions produced and the amount removed from the atmosphere through biological means such as reforestation and afforestation and through technological means such as carbon capture, sequestration, and storage. The net-zero target is achieved when these two amounts are equal and off-setting.⁴

⁴ See "Government of Canada charts course for clean growth by introducing bill to legislate net-zero emissions by 2050", at <https://www.canada.ca/en/environment-climate-change/news/2020/11/government-of-canada-charts-course-for-clean-growth-by-introducing-bill-to-legislate-net-zero-emissions-by-2050.html>.

In 2018, economy-wide emissions were 730 megatonnes of carbon dioxide equivalent (MTCO₂eq) (**Table 14**). The energy sector's (electricity, oil, and gas) share of national emissions was 35%, down 2% points since 2010 (**Figure 7**). The decline was driven by the 33% reduction in electricity sector emissions from 97 MTCO₂eq in 2010 to 64 MTCO₂eq in 2018.

The amount of electricity produced by zero-emission generation (renewable and nuclear generation) in Canada increased from 442 terawatt hours in 2010 to 512 terawatt hours in 2018 (**Table 5**). Over the same period, the amount of electricity produced from greenhouse gas emitting generation (coal, natural gas and oil) declined from 131 terawatt hours to 123 terawatt hours (**Table 5**). This contributed to a halving of emissions per terawatt hour of electricity produced (**Table 15**). Oil sands emissions per barrel decreased by 21% from 2010 to 2018 due to technological and operational efficiency improvements in the industry.⁵ Emissions intensity also declined in the natural gas industry (7.7%) and in the production of non-conventional crude oil (197%), but increased slightly (3%) in conventional light and heavy crude oil production (**Table 15**).

⁵The reasons behind this reduction are described in Canada's Energy Future 2020, Canadian Energy Regulator, page 78, accessed at <https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2020/index.html>.

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Table 1 | Canadian Energy Sector Global Rankings

Activity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Hydroelectric Electricity Production	3	3	3	2	2	2	2	2	3	3
Crude Oil Production	6	6	6	5	5	4	4	4	4	4
Natural Gas Production	3	3	5	5	5	5	5	4	4	6
Electricity Generation	7	6	6	6	6	6	6	6	6	6
Nuclear Electricity Production	7	7	7	6	6	6	6	6	6	6
Crude Oil Refinery Output	11	11	11	11	11	11	11	10	11	9
Wind Electricity Production	10	8	9	10	10	7	8	8	8	9
Crude Oil Refining Capacity	11	11	10	11	11	11	11	11	11	11
Renewable Electricity Production*	10	10	11	11	11	10	10	10	10	11
Natural Gas Exports	3	4	4	4	5	4	4	5	5	7
Electricity Exports	3	3	2	1	2	2	1	1	3	na
Crude Oil Exports	> 10	9	8	7	6	5	6	5	4	na

Source: bp Statistical Review of World Energy June 2020 (<https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>). Export data from IEA World Energy Statistics 2009 to 2020 (<https://www.iea.org/reports/key-world-energy-statistics-2020>).

Table 2 | Canadian Share of World Energy Production and Exports

Activity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Hydroelectric Electricity Production	10.2%	10.7%	10.4%	10.3%	9.8%	9.8%	9.6%	9.7%	9.3%	9.0%
Crude Oil Production	4.2%	4.4%	4.6%	4.9%	5.1%	5.1%	5.2%	5.6%	6.0%	6.1%
Natural Gas Production	4.8%	4.6%	4.5%	4.5%	4.6%	4.6%	4.9%	4.8%	4.6%	4.3%
Electricity Generation	2.8%	2.9%	2.8%	2.8%	2.7%	2.7%	2.7%	2.6%	2.4%	2.4%
Nuclear Electricity Production	3.3%	3.5%	3.8%	4.1%	4.2%	3.9%	3.9%	3.8%	3.7%	3.6%
Crude Oil Refinery Output	2.4%	2.2%	2.3%	2.2%	2.1%	2.1%	2.0%	2.1%	2.0%	2.2%
Wind Electricity Production	2.5%	2.3%	2.1%	1.8%	1.8%	3.2%	3.2%	2.8%	2.6%	2.4%
Crude Oil Refining Capacity	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Renewable Electricity Production*	2.5%	2.3%	2.2%	1.9%	1.8%	2.4%	2.5%	2.1%	1.9%	1.8%
Natural Gas Exports	8.9%	7.6%	6.9%	6.4%	6.7%	7.1%	7.0%	6.6%	5.9%	4.8%
Electricity Exports	11.1%	13.1%	14.9%	16.2%	14.0%	17.8%	18.2%	17.7%	12.9%	na
Crude Oil Exports	na	4.1%	4.5%	5.2%	5.5%	5.8%	5.8%	6.3%	6.8%	na

Source: bp Statistical Review of World Energy June 2020 (<https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>). Export data from IEA World Energy Statistics 2009 to 2020 (<https://www.iea.org/reports/key-world-energy-statistics-2020>).

*Renewable Energy Production is based on gross generation from renewable sources including wind, geothermal, solar, biomass and waste, and not accounting for cross-border electricity supply.

Table 3 | Energy Sector Contributions to GDP by Province and Territories (2019, Millions of Dollars)

Sector	AB	BC	MB	NB	NL	NS	NT/NU/YT	ON	PEI	QC	SK	Can
Oil and gas extraction	82,819	4,937	1,174	1	9,950	0	172	279	0	4	12,063	111,399
Support activities for oil and gas extraction	10,210	293	28	43	331	131	7	53	1	6	895	12,000
Petroleum refineries	4,222	282	0	508	26	0	0	2,704	0	968	1,179	9,888
Pipeline transportation	4,979	1,398	646	87	0	30	19	1,397	0	238	1,481	10,275
Natural gas distribution	1,312	757	124	26	0	29	2	2,122	0	426	275	5,074
Total Oil and Gas	103,541	7,667	1,972	666	10,308	191	199	6,555	1	1,643	15,892	148,635
Electric power generation, transmission & distribution	2,933	3,538	1,918	1,242	620	723	163	10,514	76	11,620	1,374	34,720
Coal mining and Other metal ore mining	341	2,703	0	0	0	2	0	74	0	195	810	4,126
Total Energy Sector	106,815	13,908	3,891	1,907	10,928	916	363	17,143	77	13,457	18,076	187,481
All Industries	334,471	252,064	63,279	30,721	31,803	37,808	10,163	747,589	6,077	377,811	81,384	1,973,170

Source: Statistics Canada. Table 36-10-0402-01 Gross domestic product (GDP) at basic prices, by industry, provinces, and territories (x 1,000,000), chained 2012 dollars.

Table 4 | Energy Sector Share of GDP by Province and Territories (2019)

Sector	AB	BC	MB	NB	NL	NS	NT/NU/YT	ON	PEI	QC	SK	Can
Oil and gas extraction	24.8%	2.0%	1.9%	0.0%	31.3%	0.0%	1.7%	0.0%	0.0%	0.0%	14.8%	5.6%
Support activities for oil and gas extraction	3.1%	0.1%	0.0%	0.1%	1.0%	0.3%	0.1%	0.0%	0.0%	0.0%	1.1%	0.6%
Petroleum refineries	1.3%	0.1%	0.0%	1.7%	0.1%	0.0%	0.0%	0.4%	0.0%	0.3%	1.4%	0.5%
Pipeline transportation	1.5%	0.6%	1.0%	0.3%	0.0%	0.1%	0.2%	0.2%	0.0%	0.1%	1.8%	0.5%
Natural gas distribution	0.4%	0.3%	0.2%	0.1%	0.0%	0.1%	0.0%	0.3%	0.0%	0.1%	0.3%	0.3%
Total Oil and Gas	31.0%	3.0%	3.1%	2.2%	32.4%	0.5%	2.0%	0.9%	0.0%	0.4%	19.5%	7.5%
Electric power generation, transmission & distribution	0.9%	1.4%	3.0%	4.0%	1.9%	1.9%	1.6%	1.4%	1.2%	3.1%	1.7%	1.8%
Coal mining and Other metal ore mining	0.1%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.0%	0.2%
Total Energy Sector	31.9%	5.5%	6.1%	6.2%	34.4%	2.4%	3.6%	2.3%	1.3%	3.6%	22.2%	9.5%
All Industries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Percentages calculated from Statistics Canada. Table 36-10-0402-01 Gross domestic product (GDP) at basic prices, by industry, provinces, and territories (x 1,000,000), chained 2012 dollars.

Table 5 | Electricity Production by Fuel Type (Terawatt Hours)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coal	69	63	61	62	62	58	59	56	51	50
Natural Gas	54	64	64	60	59	64	63	58	66	66
Oil	8	7	6	7	9	6	6	5	6	3
Hydro	348	372	376	387	379	378	382	391	382	385
Nuclear	86	88	89	98	101	96	96	96	95	95
Wind	8	12	14	18	21	26	30	30	32	34
Solar	0	0	1	1	2	3	3	3	3	3
Biofuels	9	9	9	10	12	8	10	10	9	8
Total Production	581	615	620	643	646	640	649	649	644	645

Source: Canadian Energy Regulator, Canada's Energy Future 2020, Figure R20.

Table 6 | National Employment in the Energy Sector (Number of Jobs)

Sector	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Oil and gas extraction	77,755	87,160	90,170	85,460	81,080	77,415	66,800	71,840	74,070	72,890
Support activities for oil and gas extraction	66,135	68,855	76,455	85,590	90,160	68,270	53,295	62,905	65,825	68,310
Petroleum refineries	10,815	10,540	9,720	7,405	7,205	7,465	7,360	7,460	9,065	10,035
Pipeline transportation	6,925	7,185	7,510	9,625	9,075	9,640	10,435	10,955	12,070	12,640
Natural gas distribution	18,185	16,975	16,415	13,460	13,525	13,760	13,500	12,095	13,210	13,765
Total Oil and Gas	179,815	190,715	200,270	201,540	201,045	176,550	151,390	165,255	174,240	177,640
Electric power generation, transmission and distribution	97,030	106,515	100,380	97,490	94,460	95,710	96,810	95,960	101,380	104,315
Coal mining and Other metal ore mining	9,225	10,035	10,180	13,825	12,435	10,265	11,215	10,940	11,865	12,670
Total Energy Sector	286,070	307,265	310,830	312,855	307,940	282,525	259,415	272,155	287,485	294,625
All Industries	17,299,985	17,572,655	17,759,995	17,994,075	18,092,385	18,249,525	18,436,475	18,789,140	19,036,405	19,442,005

Source: Statistics Canada. Table 36-10-0489-01.

Table 7 | Employment in Oil, Gas and Pipeline Sectors by Province and Territories (Number of Jobs)

Geography	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Alberta	135,950	148,295	155,275	157,540	156,870	137,105	114,760	127,310	137,505	138,260
British Columbia	8,975	7,655	7,810	7,780	8,515	7,940	7,285	7,655	7,320	7,370
Manitoba	1,780	1,815	2,205	2,615	2,615	2,190	1,820	1,880	2,185	2,360
New Brunswick	1,810	1,645	1,345	1,380	1,220	1,395	1,330	1,480	1,350	1,290
Newfoundland and Labrador	2,595	3,435	3,320	3,855	4,015	4,270	4,050	3,865	3,675	3,745
Nova Scotia	1,540	1,345	1,440	1,325	1,025	595	555	520	535	470
Ontario	10,700	10,050	10,565	8,915	8,450	8,185	8,050	8,035	7,755	8,750
Prince Edward Island	15	15	15	20	25	25	15	20	30	25
Quebec	3,575	3,110	2,945	3,210	3,130	3,050	2,935	2,855	2,475	3,560
Saskatchewan	12,680	13,135	15,115	14,750	15,055	11,670	10,465	11,530	11,290	11,675
Territories	195	215	235	150	125	125	125	105	120	135
All of Canada	179,815	190,715	200,270	201,540	201,045	176,550	151,390	165,255	174,240	177,640

Source: Statistics Canada. Table 36-10-0489-01.

Table 8 | Employment in Electric Power Generation, Transmission and Distribution by Province and Territories (Number of Jobs)

Geography	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Alberta	10,175	9,720	10,050	11,405	10,740	11,920	11,120	12,915	15,260	15,485
British Columbia	10,580	11,780	9,790	8,320	8,690	7,835	6,440	6,285	8,695	8,795
Manitoba	5,415	5,705	5,710	3,855	4,020	4,065	4,455	4,360	4,205	4,310
New Brunswick	2,580	2,370	2,680	2,775	2,945	2,455	2,425	2,515	2,405	2,585
Newfoundland and Labrador	2,370	2,385	2,535	2,395	2,140	2,300	2,300	2,255	2,740	2,985
Nova Scotia	1,795	1,770	1,750	1,820	1,730	1,695	1,835	1,770	2,040	1,980
Ontario	38,835	41,310	39,100	37,775	36,775	36,890	38,645	36,790	37,505	39,930
Prince Edward Island	215	195	195	155	140	145	145	170	155	175
Quebec	22,550	27,925	26,180	26,050	24,325	24,955	25,965	25,480	24,825	24,545
Saskatchewan	2,130	2,935	1,985	2,460	2,485	3,000	2,995	2,940	3,080	2,990
Territories	385	420	405	480	470	450	485	480	470	535
All of Canada	97,030	106,515	100,380	97,490	94,460	95,710	96,810	95,960	101,380	104,315

Source: Statistics Canada. Table 36-10-0489-01.

Table 9 | Gross Domestic Product Per Job by Sector (2019)

Sector	GDP (\$M)	Number of Jobs	GDP per Job (\$)
Oil and gas extraction	111,399	72,890	1,528,318
Support activities for oil and gas extraction	12,000	68,310	175,665
Petroleum refineries	9,888	10,035	985,331
Pipeline transportation	10,275	12,640	812,864
Natural gas distribution	5,074	13,765	368,580
Total Oil and Gas	148,635	177,640	836,719
Electric power generation, transmission & distribution	34,720	104,315	332,840
Coal mining and Other metal ore mining	4,126	12,670	325,620
Total Energy Sector	187,481	294,625	636,336
All Industries	1,973,170	19,442,005	101,490

Source: Statistics Canada. Tables 36-10-0434-06, 36-10-0489-01 and 36-10-0434-03.

Table 10 | Energy Sector Capital Expenditures (Millions of Dollars)

Sector	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Oil and gas extraction	42,965	52,168	58,780	65,074	76,070	51,065	37,605	40,248	37,052	33,274
Support activities for mining and oil and gas extraction	1,633	3,405	2,619	3,732	3,242	2,558	961	1,331	1,310	878
Petroleum and coal products manufacturing*	1,777	2,417	1,494	1,666	1,730	1,954	1,674	1,227	2,183	1,913
Pipeline transportation	2,534	2,804	4,779	8,213	8,668	8,452	7,508	7,809	8,132	9,315
Natural gas distribution	1,187	1,399	2,043	1,550	2,017	2,767	2,515	2,290	2,137	2,191
Total Oil and Gas	50,095	62,193	69,714	80,233	91,726	66,795	50,263	52,905	50,814	47,571
Electric power generation, transmission and distribution	18,018	19,191	19,919	24,302	25,528	23,944	23,509	23,865	21,557	22,144
Coal mining and Other Metal ore mining	6,201	9,080	12,105	9,843	5,682	5,111	5,343	5,786	7,702	7,394
Total Energy Sector	74,314	90,464	101,738	114,378	122,937	95,850	79,115	82,556	80,073	77,109
All Industry	481,451	531,416	575,793	590,577	627,512	553,093	459,322	522,569	551,823	553,324

Source: Statistics Canada. Table 34-10-0279-01 Historical (real time) releases of capital and repair expenditures, non-residential tangible assets, by industry, Canada (x 1,000,000). *Note, Statistics Canada does not separate coal products manufacturing from petroleum manufacturing in this data series.

Table 11 | Canadian International Merchandise Exports by Product (Billion Dollars)

Product	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Energy products	89	108	110	118	136	95	79	105	123	124
Motor vehicles and parts	55	57	66	66	72	84	92	87	83	86
Consumer goods	41	42	42	45	51	61	64	61	65	69
Metal and non-metallic mineral products	49	57	51	51	55	55	54	60	61	62
Forestry products and building and packaging materials	30	31	31	34	37	40	42	44	48	43
Farm, fishing and intermediate food products	24	28	31	33	36	39	38	39	40	38
Industrial machinery, equipment and parts	23	26	27	27	30	33	32	34	36	38
Basic and industrial chemical, plastic and rubber products	28	32	30	32	33	32	30	32	34	33
Special transactions trade	11	11	12	13	17	22	25	23	25	27
Electronic and electrical equipment and parts	20	20	20	20	21	24	24	25	26	27
Aircraft and other transportation equipment and parts	15	14	16	16	20	22	21	21	23	25
Metal ores and non-metallic minerals	14	19	18	17	17	18	15	17	20	22
Total	399	447	455	472	527	524	517	546	584	593

Source: Statistics Canada. Table 12-10-0130-01 Canadian international merchandise trade by country and by product section, customs-based, annual (x 1,000). Under the North American Product Classification System (NAPCS), Energy Products include crude oil and crude bitumen, natural gas, natural gas liquids and related products, coal, nuclear fuel and other energy products, electricity, and refined petroleum products.

Table 12 | Canadian Net Exports of Energy Products by Major Trading Partner (Billion Dollars)

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
United States	69.6	82.0	85.0	88.8	97.7	67.3	55.8	74.8	83.8	85.6
Japan	1.8	2.1	1.9	1.6	1.1	1.0	1.2	1.8	1.9	2.2
China	1.2	1.3	2.0	1.7	1.1	0.8	0.7	1.2	1.2	1.1
South Korea	0.9	1.6	1.1	1.2	0.7	0.7	0.9	0.9	1.2	1.0
Iraq	-1.9	-2.5	-3.9	-3.2	-1.9	0.0	0.0	-0.1	0.0	0.0
Norway	-2.4	-3.7	-3.2	-3.3	-1.4	-1.1	-1.0	-1.2	-1.0	-0.7
Algeria	-3.6	-5.5	-6.0	-3.3	-1.3	-0.9	-1.8	-0.8	-0.2	0.0
Saudi Arabia	-2.0	-2.6	-2.7	-2.7	-2.6	-1.9	-1.6	-2.5	-3.6	-3.1
Total Net Exports	50.5	59.0	63.3	71.3	90.5	62.0	51.2	71.8	84.5	87.1

Source: Statistics Canada. Table 12-10-0130-01 Canadian international merchandise trade by country and by product section, customs-based, annual (x 1,000). Positive values indicate countries with which Canada is a net exporter and negative values indicate countries with which Canada is a net importer of energy product.

Table 13 | Energy Sector Taxes, Crown Land Sales and Royalties (Millions of Dollars)

Sector	Government Revenue Source	2010	2011	2012	2013	2014	2015	2016	2017	2018
Oil and gas extraction and support activities	Indirect taxes	327	394	327	396	495	471	453	625	1,196
	Total federal tax	1,710	1,463	1,345	1,077	1,606	720	552	544	527
	Provincial income taxes	1,027	987	1,057	910	1,266	560	476	480	528
	Total Taxes	3,064	2,844	2,729	2,383	3,367	1,751	1,481	1,649	2,251
Mining and quarrying (except oil and gas)	Indirect taxes	133	178	161	146	84	99	79	85	103
	Total federal tax	644	678	277	179	149	124	141	145	190
	Provincial income taxes	497	571	252	163	115	124	112	255	220
	Total Taxes	1,274	1,427	690	488	348	347	332	485	513
Utilities	Indirect taxes	821	1,089	1,403	1,239	1,591	1,776	1,954	1,870	2,187
	Total federal tax	272	278	239	272	278	292	362	223	228
	Provincial income taxes	170	162	119	135	105	117	86	139	85
	Total Taxes	1,263	1,529	1,761	1,646	1,974	2,185	2,402	2,232	2,500
Petroleum and coal products manufacturing	Indirect taxes	378	363	445	408	251	265	254	214	238
	Total federal tax	272	278	239	272	278	292	362	223	228
	Provincial income taxes	344	389	506	634	760	380	408	453	756
	Total Taxes	994	1,030	1,190	1,314	1,289	937	1,024	890	1,222
Pipelines, warehousing and transportation support activities	Indirect taxes	327	343	293	321	358	395	361	438	468
	Total federal tax	331	390	492	570	712	757	511	677	727
	Provincial income taxes	256	279	338	356	400	485	368	417	478
	Total Taxes	914	1,012	1,123	1,247	1,470	1,637	1,240	1,532	1,673
Total Energy Sector	Taxes	7,509	7,842	7,493	7,078	8,448	6,857	6,479	6,788	8,159
	Crown Land Sales	3,958	5,012	2,677	1,601	1,094	1,663	976	809	1,913
	Royalties	8,336	10,607	8,468	9,744	10,644	3,691	3,215	4,241	4,796
	Total Revenue	19,803	23,461	18,638	18,423	20,186	12,211	10,670	11,838	14,868
Energy Sector Share of Total Taxes		10.7%	10.6%	9.8%	8.7%	9.6%	7.7%	6.6%	6.4%	7.1%
Energy Sector Share of General Government Revenues		3.1%	3.5%	2.7%	2.5%	2.6%	1.5%	1.3%	1.4%	1.6%

Source: Statistics Canada. Table: 33-10-0006-01 and Table 36-10-0450-01 Revenue, expenditure and budgetary balance - General governments, provincial and territorial economic accounts (x 1,000,000). Canadian Association of Petroleum Producers, Statistical Handbook, Table 1.1, Crown land sales Western Canada and Canada lands), Table 4.2, Net Cash Expenditures of the Petroleum Industry (Canada).

Table 14 | Greenhouse Gas Emissions by Economic Sector (Megatonnes of carbon dioxide equivalent)

Sector	2010	2011	2012	2013	2014	2015	2016	2017	2018
Oil and gas	159.0	165.0	176.1	184.8	191.4	190.6	186.5	188.0	193.2
Transportation	168.2	169.2	171.1	174.3	171.7	172.2	173.5	178.6	185.9
Buildings	81.7	87.2	85.4	86.2	88.9	85.7	81.7	85.4	92.5
Electricity	96.5	88.1	84.2	81.2	77.2	80.6	74.9	73.3	64.3
Heavy industry	75.5	82.0	81.3	79.1	80.3	78.7	76.6	75.8	78.3
Agriculture	67.8	68.5	70.0	72.6	70.9	71.2	71.8	71.2	73.1
Waste and others	41.9	42.6	42.0	42.8	40.9	41.4	41.1	41.5	42.2
All Sectors	690.6	702.6	710.1	721.0	721.3	720.4	706.1	713.8	729.5

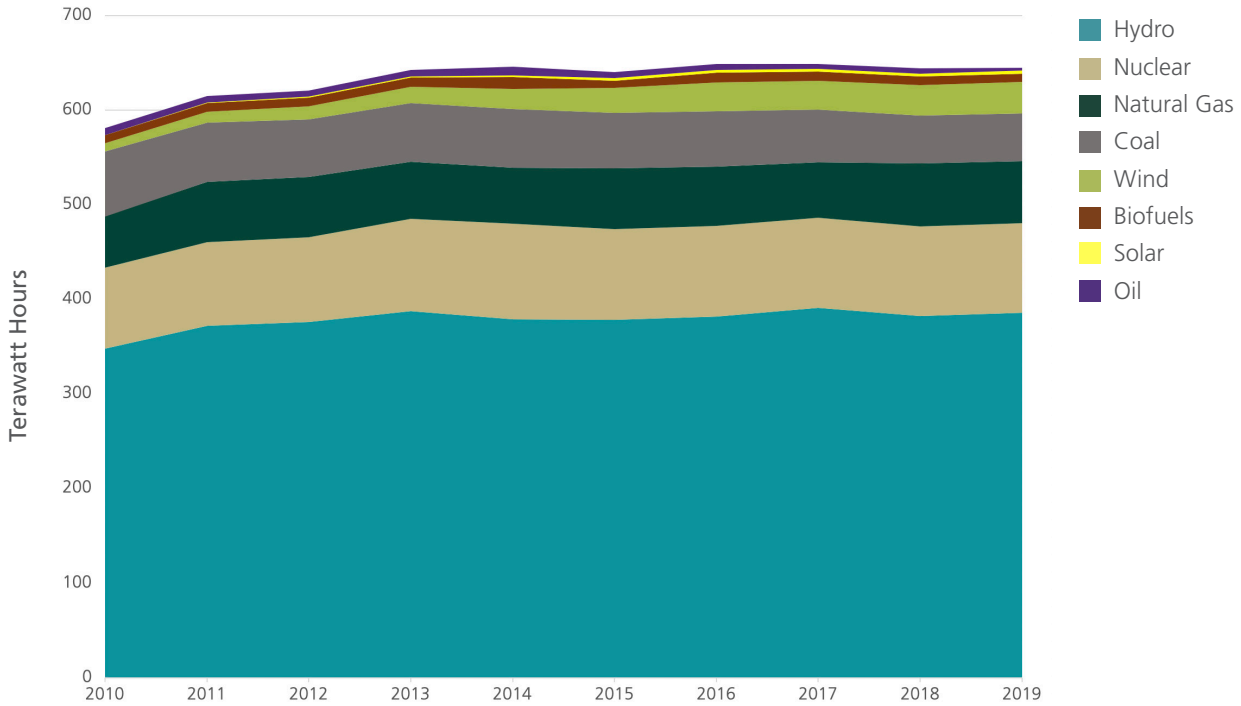
Source: Environment and Climate Change Canada (2020) National Inventory Report 1990-2018: Greenhouse Gas Sources and Sinks in Canada.

Table 15 | Emissions Intensity by Energy Product

Emissions per Output	2010	2011	2012	2013	2014	2015	2016	2017	2018
Electricity (MtCO ₂ eq/TWh)	96.5	88.1	84.2	81.2	77.2	80.6	74.9	73.3	64.3
Natural Gas (MtCO ₂ eq/Bcf/d)	3.3	3.5	3.7	3.7	3.6	3.3	3.2	3.1	3.1
Conventional Oil (MtCO ₂ eq/MMb/d)	21.9	22.7	23.3	23.2	24.5	26.7	24.5	24.0	22.5
Oil Sands (MtCO ₂ eq/MMb/d)	33.3	32.4	33.0	32.9	31.7	29.3	29.4	28.2	27.5
Other Oil (MtCO ₂ eq/MMb/d)	203.1	199.6	219.5	210.6	170.8	142.6	122.1	90.9	68.3

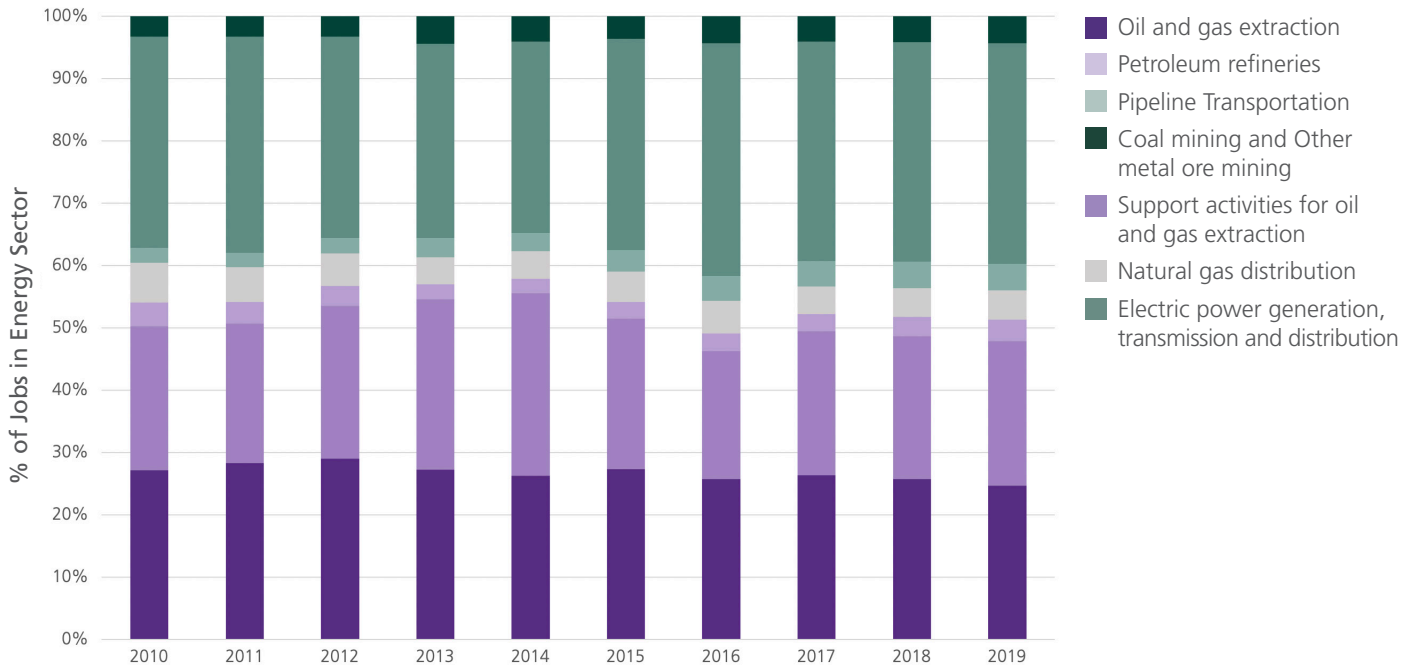
Source: Derived from emissions data obtained from Environment and Climate Change Canada (2020) National Inventory Report 1990-2018: Greenhouse Gas Sources and Sinks in Canada and production data, and production data from Canadian Energy Regulator, Canada's Energy Future 2020, R20.

Figure 1 | Electric Power Generation by Fuel Type



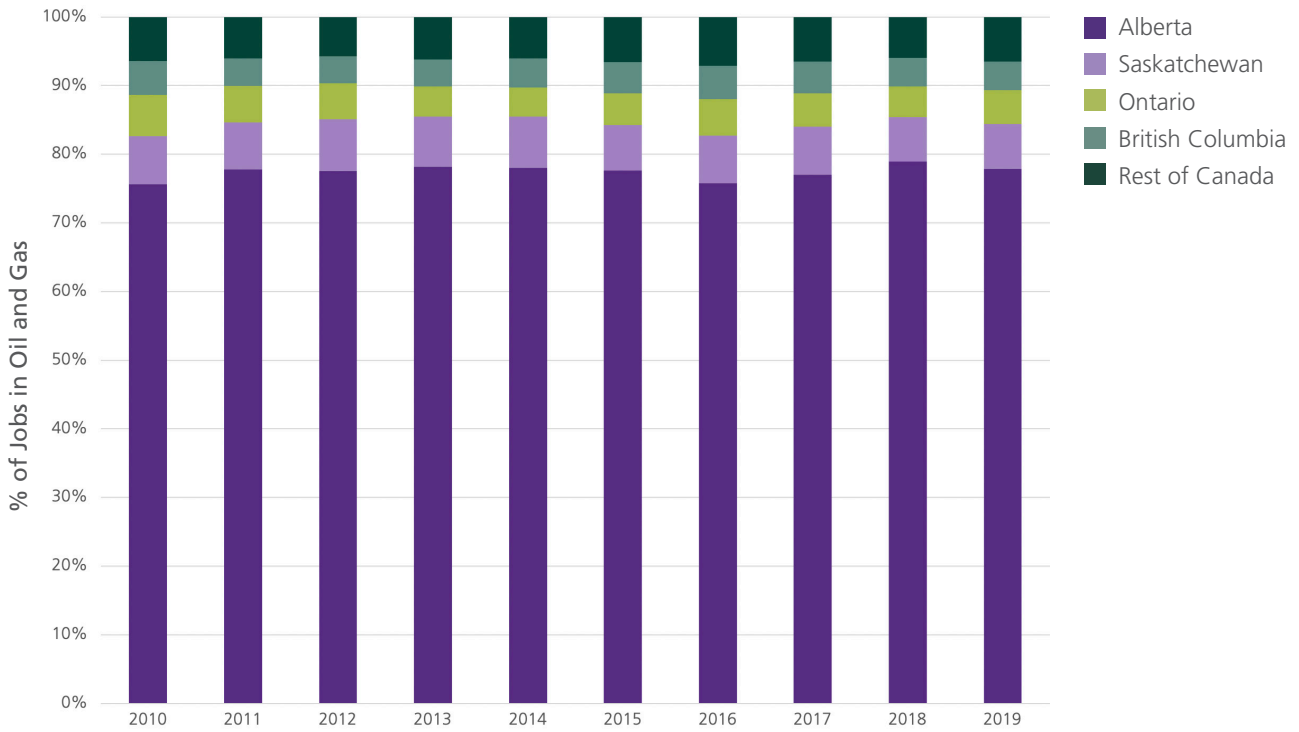
Source: Canadian Energy Regulator, Canada's Energy Future 2020.

Figure 2 | National Employment by Energy Sector (Percentage of Total)



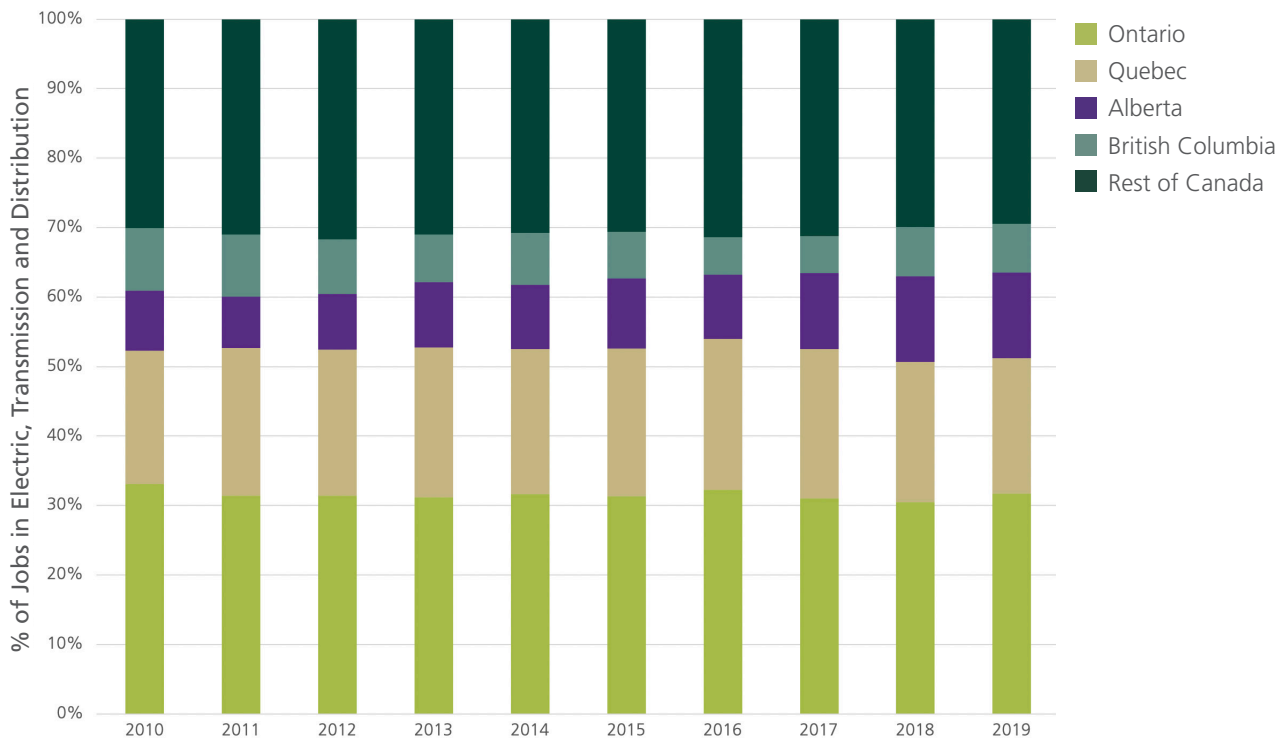
Source: Statistics Canada, Table 36-10-0489-01.

Figure 3 | Provincial Employment in Oil and Gas (Percentage of Total Sector Jobs)



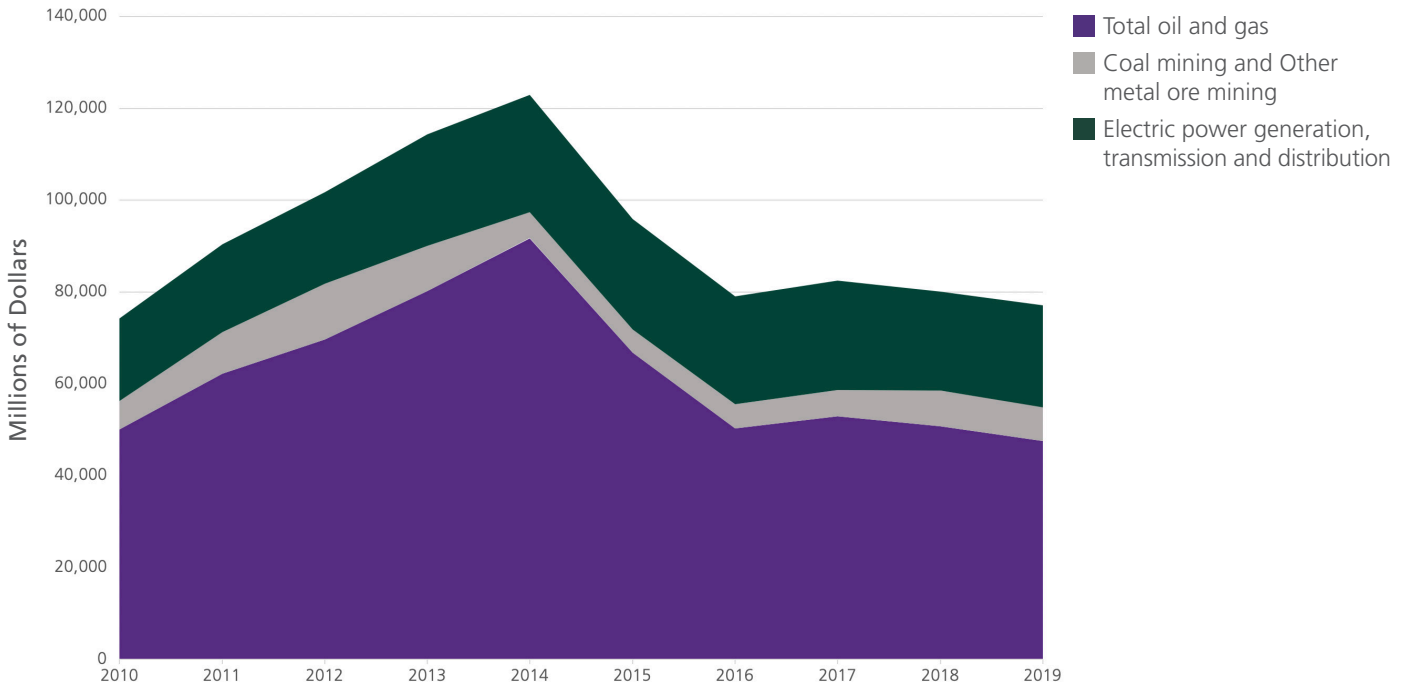
Source: Statistics Canada, Table 36-10-0489-01.

Figure 4 | Provincial Employment in Electric Power Generation, Transmission and Distribution (Percentage of Total Sector Jobs)



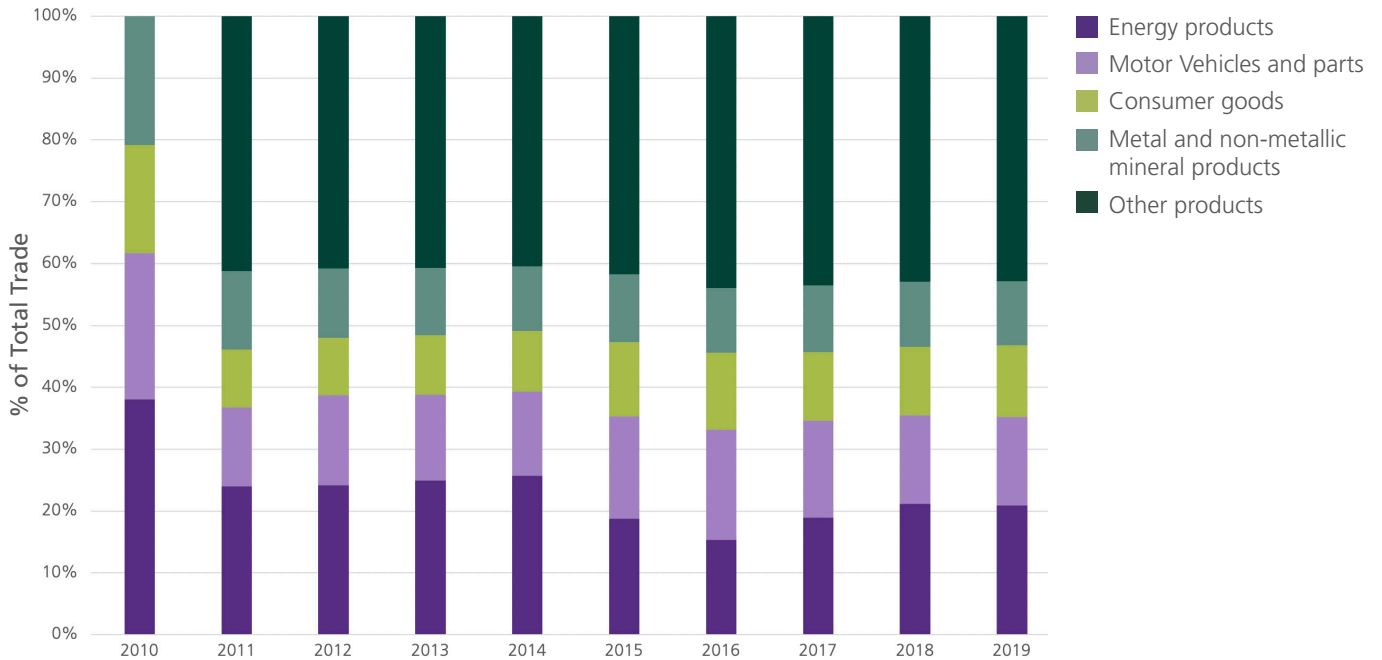
Source: Statistics Canada, Table 36-10-0489-01.

Figure 5 | Energy Sector Capital Expenditures



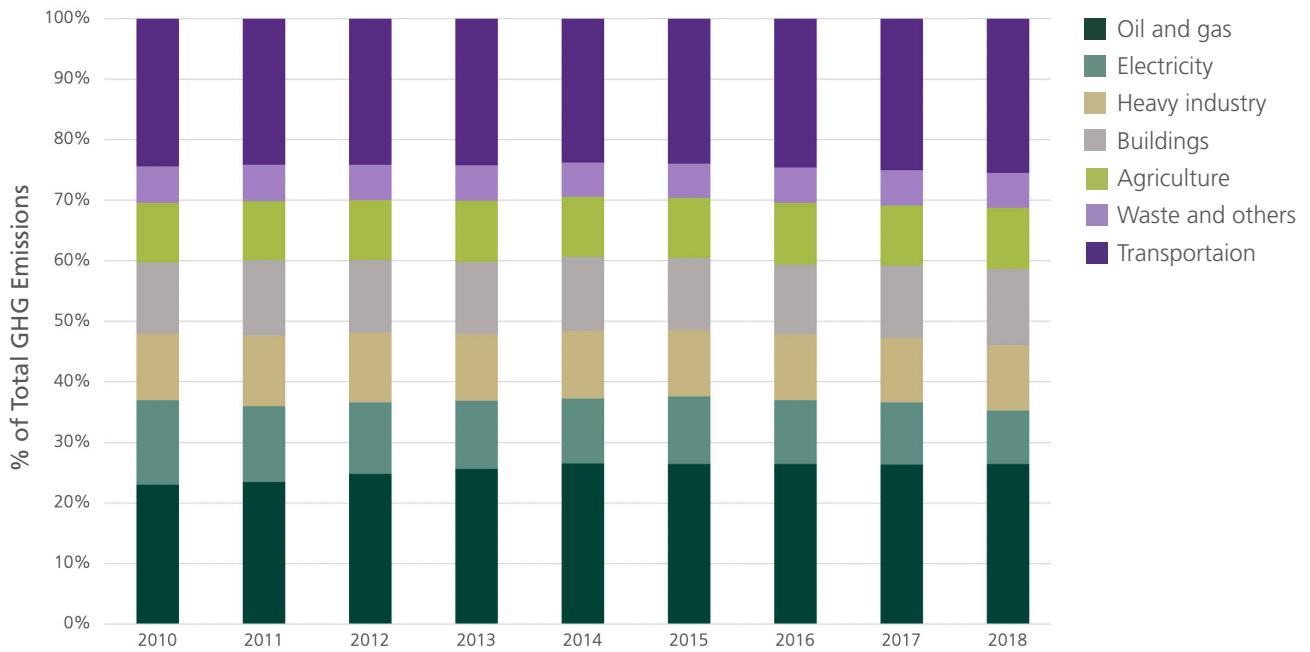
Source: Statistics Canada, Table 34-10-0279-01 Historical (real time) releases of capital and repair expenditures, non-residential tangible assets, by industry, Canada (x 1,000,000).

Figure 6 | Canadian International Merchandise Trade by Product (Percentage of Total Trade)



Source: Statistics Canada, Table 34-10-0279-01 Historical (real time) releases of capital and repair expenditures, non-residential tangible assets, by industry, Canada (x 1,000,000).

Figure 7 | Greenhouse Gas Emissions by Economic Sector (Percentage of Total Emissions)



Source: Environment and Climate Change Canada (2020) National Inventory Report 1990-2018: Greenhouse Gas Sources and Sinks in Canada.

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