



75 Facts About Canadian Oil and Gas: A Reference Guide

CEC Research Brief Eight

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A NOTE FROM THE AUTHORS

The following summary facts and data are drawn largely from 23 Fact Sheets and seven Research Briefs released in 2020 by the Canadian Energy Centre. For sources and methodology, as well as additional data and information, the 30 original reports are available at the research portal on the Canadian Energy Centre website at canadianenergycentre.ca.

Canadian Energy Centre



CANADA:

OIL AND GAS REVENUES TO GOVERNMENT

1.

Canada's energy industry **paid over \$672 billion** in federal, provincial and local taxes, royalties and fees since 2000. That is:

- More than the \$658 billion paid out in old age security benefits between 2004/05 and 2018/19
- More than the \$663 billion in Employment Insurance benefits paid out between 1987/88 and 2018/19

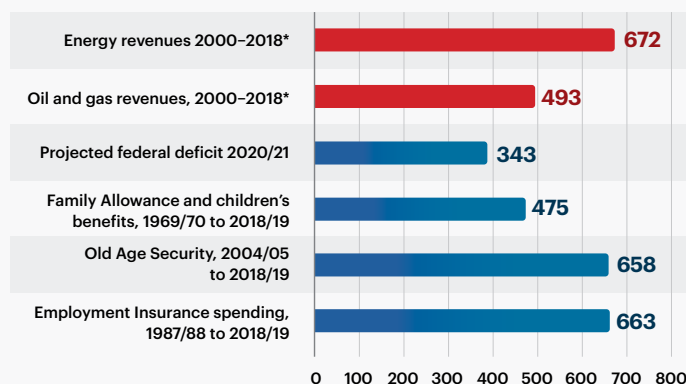
2.

Since 2000, Canada's oil and gas sector alone paid **over \$493 billion** to federal, provincial, and local governments.

- This is more than the real estate and construction sectors combined (at \$469 billion)
- This is more than the \$475 billion in Family Allowance and children's benefits paid out between 1969/70 and 2018/19

Total Energy Sector Revenues, Oil and Gas Sector Revenues, and Selected Fiscal Indicators, 2000-2018

(in \$ billions, 2020 dollars)

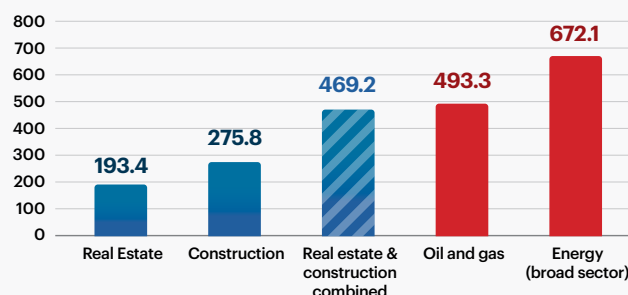


*Excludes personal income taxes 2000 to 2006.

Sources: Statistics Canada, 2020 (a, b, c, d, e, f, g); CAPP, 2020.

Comparing Gross Revenues to Governments, by Sector, 2000 to 2018*

(in \$ billions, 2020 dollars)

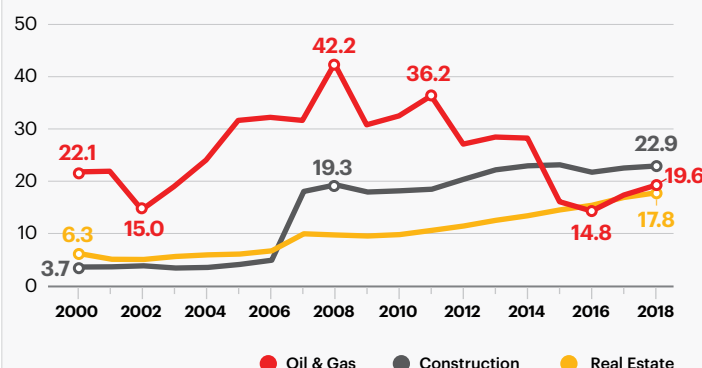


*Excludes personal income taxes 2000 to 2006.

Sources: Statistics Canada, 2020 (a, b, d, e, f, g) and CAPP, 2020.

Total Revenue Comparisons, by Sector (Oil and Gas, Construction, and Real Estate), 2000-2018*

(in \$ billions, 2020 dollars)



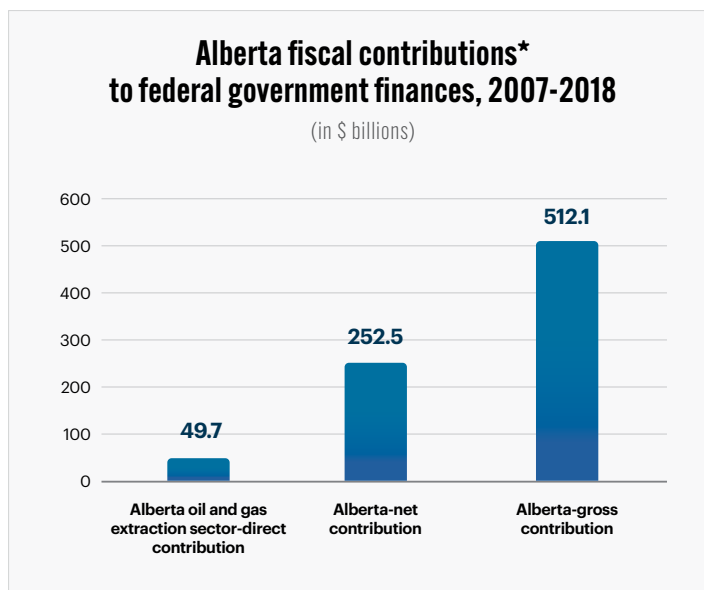
*Excludes personal income taxes 2000 to 2006.

Sources: Statistics Canada, 2020 (a, b, d, e, f, g) and CAPP, 2020.

3.

Alberta taxpayers made a \$252 billion net contribution to federal government finances between 2007 & 2018.

- The direct share from Alberta's oil and gas extraction sector was, at a minimum, nearly \$50 billion, about 10% of gross Alberta contributions and 20% of Alberta's total net fiscal contribution over the period



*The net fiscal contribution of "Alberta" refers to the difference between federal revenues raised in Alberta from individuals and businesses and federal expenditures made to Albertans and the provincial government.

Sources: Derived from Statistics Canada, Table 36-10-0450-01; Table 11-10-0073-01; Table 33-10-0006-01; T1 Family File (custom tabulation); and Financial and taxation statistics for enterprises, by industry type (custom tabulation).

CONTRIBUTION TO NATIONAL AND REGIONAL ECONOMIES

The oil and gas sector makes an [outsized contribution](#) to the Canadian economy, when healthy or even when enduring a down year such as in 2016.

4.

In 2016 the oil and gas sector was responsible for adding \$7.3 billion in nominal GDP to the [Ontario economy](#). Oil and gas:

- generated \$14.4 billion in outputs, consisting primarily of the value of goods and services produced by sectors in the Ontario economy
- supported over 68,000 jobs in Ontario, directly and indirectly
- paid \$2.1 billion in wages and salaries to workers in Ontario

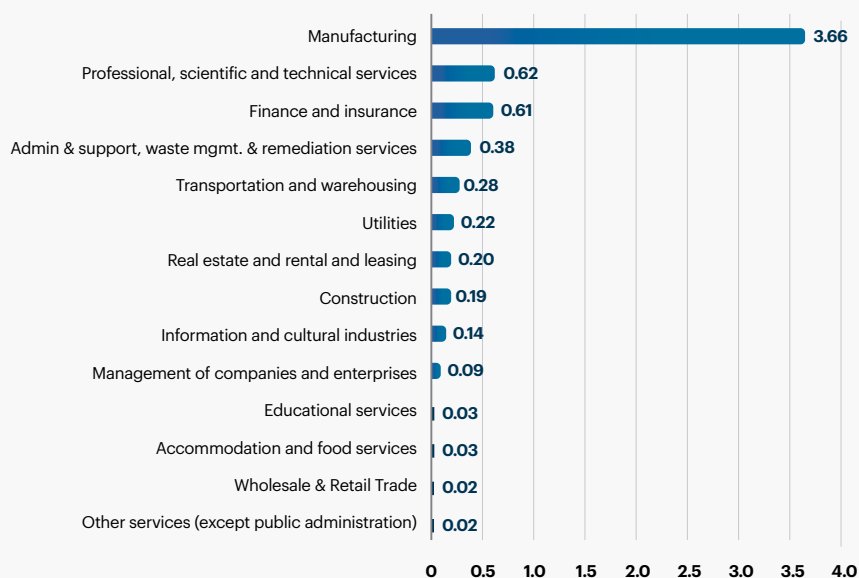
5.

In 2016 the oil and gas sector was responsible for adding nearly \$7.7 billion in nominal GDP to [the BC economy](#). Oil and gas:

- generated nearly \$15.3 billion in outputs, consisting primarily of the value of goods and services produced by various sectors in the BC economy
- supported nearly 57,000 jobs in BC, directly and indirectly
- paid over \$2.3 billion in wages and salaries to workers in BC

Oil and natural gas sector impacts on Ontario industries

2016 (\$ billions)



6.

In 2016 the oil and gas sector was responsible for adding nearly \$6.3 billion in nominal GDP to the economy [in Atlantic Canada](#). Oil and gas:

- generated nearly \$15 billion in outputs, consisting primarily of the value of goods and services produced by various sectors in the Atlantic economy
- supported nearly 27,000 jobs in Atlantic Canada, directly and indirectly
- paid over \$1.6 billion in wages and salaries to workers in Atlantic Canada

The oil and gas sector's impact on Atlantic Canada's economy

2016

	Output	GDP	Jobs
	\$ billions		#
Direct impact	11.3	4.5	10,411
Indirect impact	3.8	1.8	16,754
Total impact	15.0	6.3	27,165

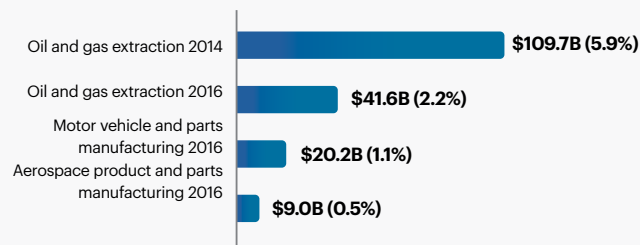
Source: Derived from Statistics Canada, Supply and Use Tables, Custom Tabulation. Totals may not add exactly due to rounding.

7.

In 2016, Canada's oil and gas industry GDP was [twice the size](#) of the country's automotive industry and over four times the size of its aerospace industry. In 2016, the

- oil and gas extraction was worth \$41.6 billion of Canada's nominal GDP
- motor vehicle and parts manufacturing sector accounted for \$20.2 billion of Canada's nominal GDP
- aerospace product and parts manufacturing sector accounted for \$9 billion of Canada's nominal GDP

Comparing oil and gas to motor vehicle manufacturing and aerospace, (\$ billions) and as a percentage of nominal GDP



Source: Statistics Canada, Table 36-10-0402-01.

ECONOMIC IMPACT ON CANADA'S PORTS: OIL AND GAS IS THE LARGEST COMMODITY

8.

Petroleum, liquefied natural gas and other petroleum products represent the [largest volume of commodities handled by Canadian ports](#), at 326 million tonnes, or about 20% of total tonnage of approximately 1,630 million tonnes.

9.

Of the almost \$113 billion generated in Canadian ports and marine shipping exports in 2018, [nearly \\$22 billion or 19%](#) was generated by exports of petroleum products, liquefied natural gas and other fuels.

Petroleum products, LNG and other fuels shipped via Canada's ports

Exports		
	In \$, billions	as a % of total ports and marine shipping exports
2010	18.8	23%
2018	21.6	19%
Change	2.8	-4%

Imports		
	In \$, billions	as a % of total ports and marine shipping imports
2010	23.2	27%
2018	27.8	20%
Change	4.6	-7%

Source: Transport Canada 2018.

ECONOMIC IMPACT ON INVESTMENT:

OIL AND GAS IS A MAJOR SOURCE OF INVESTMENT

10.

Even through recessions and price declines, capital investment in Canada's oil and gas sector has been significant over the past two decades.

- Capital investment in the oil and gas sector has been a driver of Canada's economic growth over the past two decades. Investment in the oil and gas sector increased from nearly \$41 billion in 2006 to \$76 billion in 2014, before falling to \$33 billion in 2019

11.

Investment in the oil and gas sector is a significant part of all investment in Canada

- Oil and gas extraction sector capital investment at \$33.3 billion or 12.4% of all capital investment in Canada in 2019 was the second largest among all key industries
- This was behind only transportation and warehousing (much of which is oil-related pipelines) at \$40.5 billion or 15.1%
- This was far ahead of manufacturing at \$22.1 billion or 8.3%, and
- far ahead of construction at \$7.6 billion or 2.8%.

Capital investment by key industry

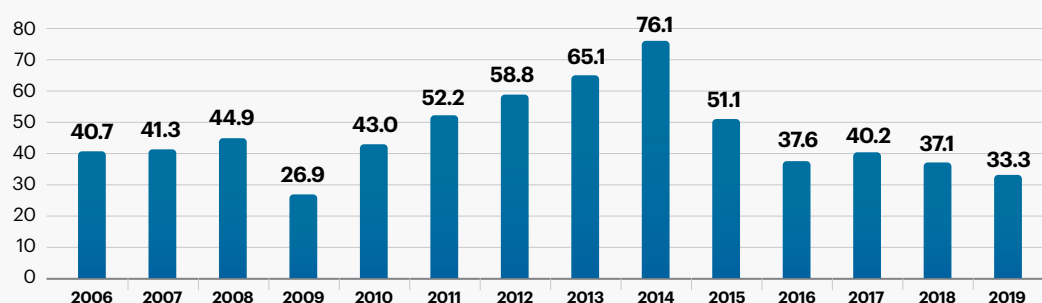
2019

	In C\$ billions	As a % of all industries
Transportation and warehousing	40.5	15.1%
Oil and gas extraction	33.3	12.4%
Manufacturing	22.1	8.3%
Construction	7.6	2.8%

Source: Statistics Canada, Table 34-10-0035-01.

Capital expenditures in the oil and gas extraction sector in Canada

In CA\$ billions

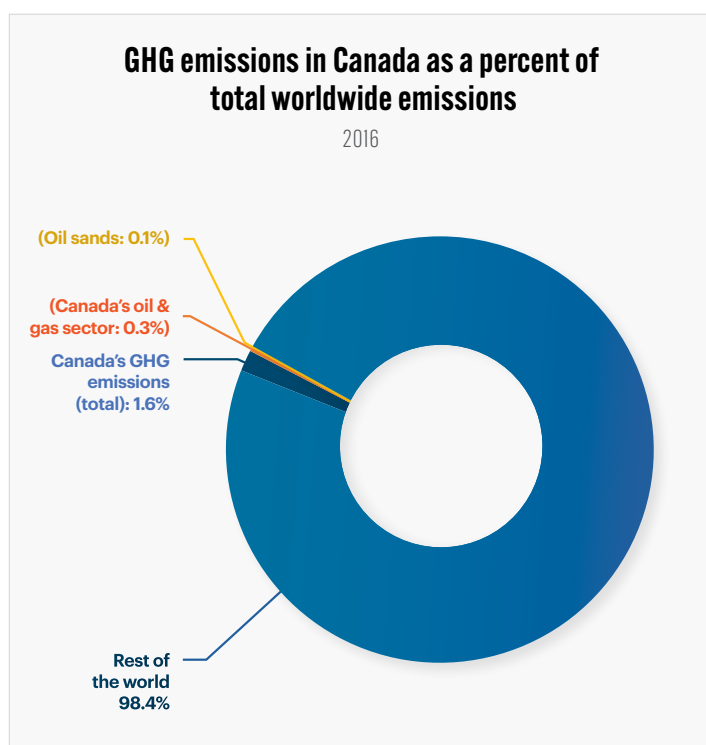


Source: Statistics Canada, Table 34-10-0035-01.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) ISSUES

12.

Canada's greenhouse gas emissions are 1.6% of the total world emissions with the oil and gas sector's emissions at 0.3% of total world emissions



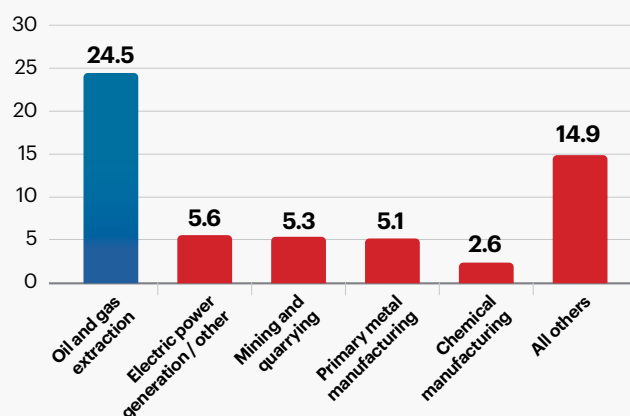
Sources: World Resources Institute (2020) and BMO Capital Markets (2020).

13.

Energy companies spent **\$24.5 billion** on environmental protection between 2006 and 2016, 42% of all environmental spending in Canada. That was more than any other industry.

Environmental protection spending by industry: Partial* 2006-2016 totals

\$ billions



Source: Statistics Canada Table 38-10-0042-01

*Statistics Canada surveys companies only every second year, i.e., 2006, 2008 and so forth. This leads to an underestimate of environmental spending by companies, possibly by as much as 50%, given that data on every second year is absent.

14.

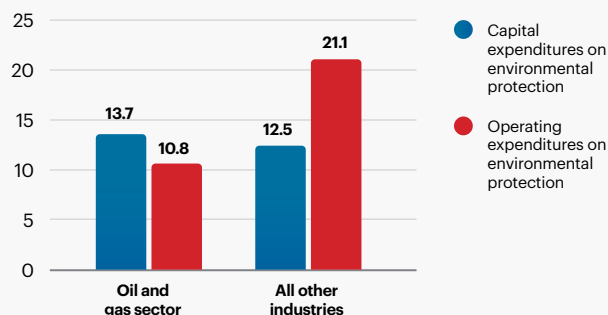
Canada's oil and gas sector was responsible for **52%** (**\$13.7 billion**) of all capital spending for environmental protection between 2006 and 2016, compared with 48% for all other industries together (\$12.5 billion).

15.

Canada's oil and gas sector was responsible for **34%** (**\$10.8 billion**) of all operating spending for environmental protection between 2006 and 2016, compared with 66% for all other industries together (\$21.1 billion).

Industry expenditures on environmental protection Partial 2006-2016 data*

\$ billions



Source: Statistics Canada Table 38-10-0042-01

*Statistics Canada surveys companies only every second year, i.e., 2006, 2008 and so forth. This leads to an underestimate of environmental spending by companies, possibly by as much as 50%, given that data on every second year is absent.

16.

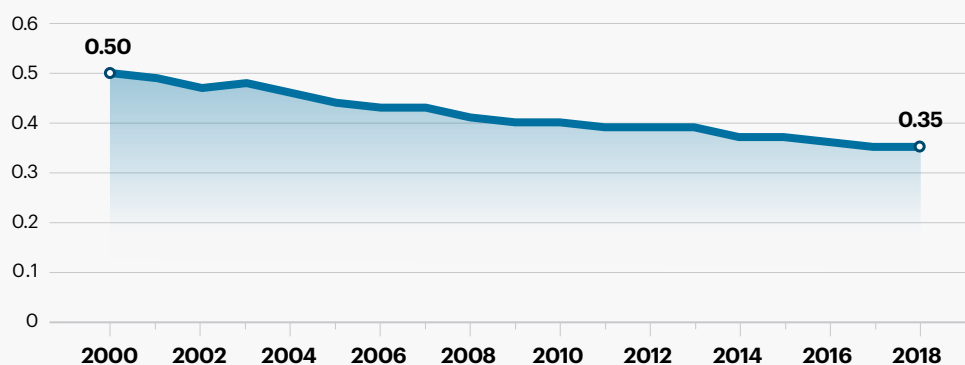
Canada's greenhouse gas emissions intensity has [fallen by 30% since 2000](#). Between 2000 and 2018, GHG emissions intensity in Canada fell from 0.5 megatonnes of carbon dioxide equivalent (MT of CO₂e) per billion dollars of GDP to 0.35 MT of CO₂e per billion dollars of GDP.

17.

GDP measurements: Canada's emissions intensity is lower than a number of other energy-producing and consuming nations. Accounting for GDP, between 2000 and 2016, Canada's GHG emissions intensity fell from 985 tonnes of CO₂e per million dollars of GDP to 510 tonnes, [a decline of over 48%](#).

Canadian GHG emissions intensity (Mt of CO₂e per billion dollars of GDP)*

2000-2018

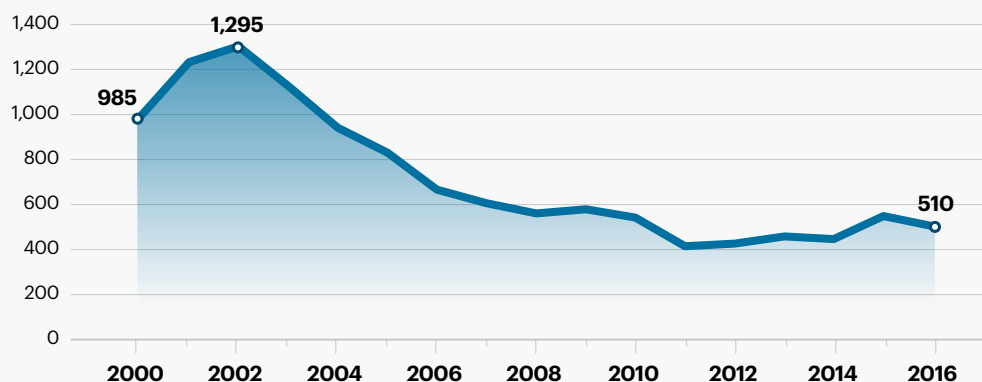


Source: Environment and Climate Change Canada (2020).

*GDP in 2012 US dollars.

Canadian GHG emissions intensity (tonnes of CO₂e per million dollars of GDP)

2000-2016



Source: World Resources Institute (2020).

18.

As of 2016, Canada's GHG emissions intensity of 510 tonnes of CO₂e per million dollars of GDP is lower than other energy-producing and energy-consuming countries [such as China, India, Brazil, Oman, Qatar, Russia, Saudi Arabia, and the United Arab Emirates](#).

19.

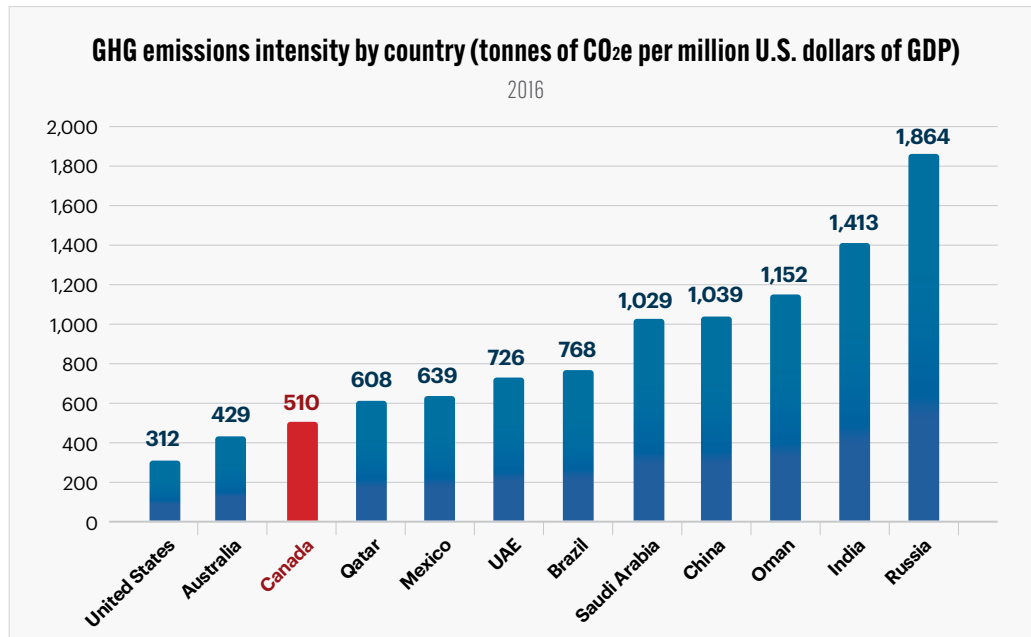
Between 2000 and 2016, Canada's GHG emissions intensity [fell](#) from nearly 24 tonnes of CO₂e per person to just under 21.6 tonnes, a decline of over 9%.

20.

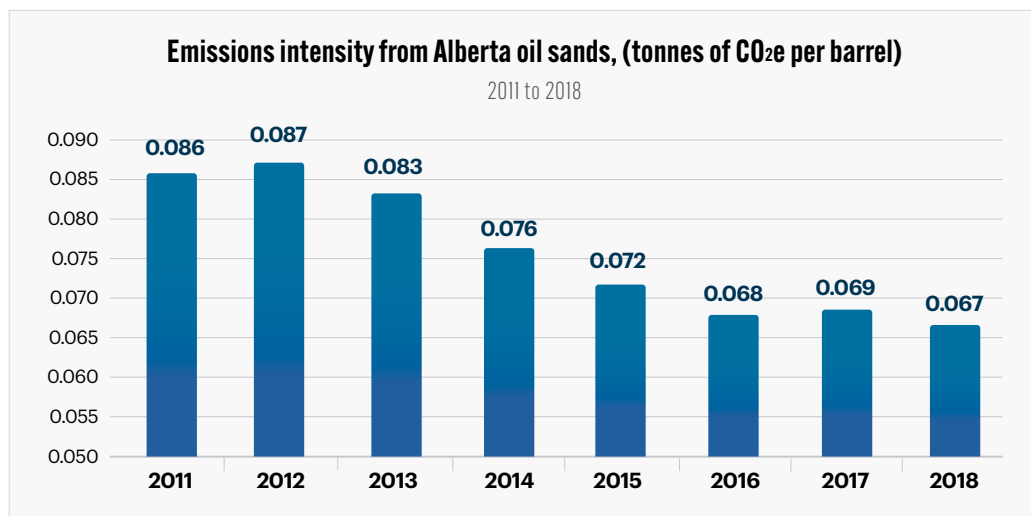
As of 2016, Canada's GHG emissions intensity per person was [nearly the same as Australia and Saudi Arabia, and lower than Qatar](#) but higher than the United States.

21.

Oil sands emissions intensity has been falling. Between 2011 and 2018, oil sands emissions intensity fell from 0.086 tonnes of CO₂e per barrel to 0.067 tonnes of CO₂e per barrel, [a decline of about 22%](#).



Source: World Resources Institute (2020).



Source: Alberta Oil Sands Greenhouse Gas Emission Intensity Analysis (2019).

22.

According to [Natural Resources Canada](#), oil sands producers recycle 80% to 95% of water used in mining operations and 85% to 95% of water used for in situ operations.

23.

Canada's developed oil sands covers [an area smaller than New York City](#).

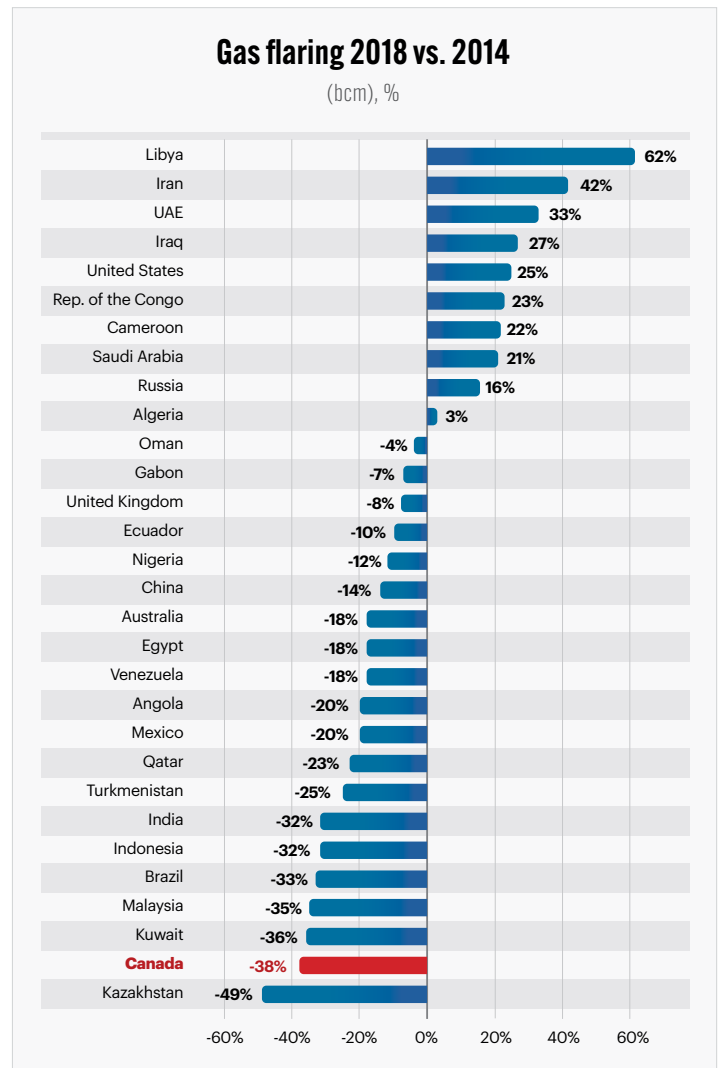
- Disturbed surface oil sands area equaled roughly 895 km² in 2013, accounting for less than 1% of the total oil sands area
- 895 square kilometres is smaller than greater New York City at 953 km²
- 895 square kilometres is about [0.2% of Alberta's boreal forest](#), which covers over 381,000 km²

24.

Natural gas flaring: There has been a 38% reduction in emissions from oil and gas flaring in Canada in 2018 relative to 2014, even though production rose by 22%.

25.

Canada ranks the [eighth lowest out of 30 countries for natural gas flaring](#), despite being the fourth-largest oil and gas producer. For example, Canada's flaring emissions were 1.3 bcm in 2018, while Russia was the highest at 21.3 bcm, followed by Iraq (17.8 bcm), Iran (17.3 bcm) and the United States (14.1 bcm).



Source: World Bank

Gas flaring volumes 2014-2018

(billion cubic meters)

30 highest-volume countries

(as of 2018)

		2014	2018	2014-18 change	2014-18 change
		(billion cubic meters)		(percent)	
1	Russia	18.3	21.3	3.0	16%
2	Iraq	14.0	17.8	3.8	27%
3	Iran	12.2	17.3	5.1	42%
4	United States	11.3	14.1	2.8	25%
5	Algeria	8.7	9.0	0.3	3%
6	Venezuela	10.0	8.2	-1.8	-18%
7	Nigeria	8.4	7.4	-1.0	-12%
8	Libya	2.9	4.7	1.8	62%
9	Mexico	4.9	3.9	-1.0	-20%
10	Angola	3.5	2.8	-0.7	-20%
11	Oman	2.6	2.5	-0.1	-4%
12	Saudi Arabia	1.9	2.3	0.4	21%
13	Egypt	2.8	2.3	-0.5	-18%
14	Malaysia	3.4	2.2	-1.2	-35%
15	Indonesia	3.1	2.1	-1.0	-32%
16	Kazakhstan	3.9	2.0	-1.9	-49%
17	China	2.1	1.8	-0.3	-14%
18	Rep. of the Congo	1.3	1.6	0.3	23%
19	Turkmenistan	2.0	1.5	-0.5	-25%
20	Gabon	1.5	1.4	-0.1	-7%
21	India	1.9	1.3	-0.6	-32%
22	Canada	2.1	1.3	-0.8	-38%
23	United Kingdom	1.3	1.2	-0.1	-8%
24	UAE	0.9	1.2	0.3	33%
25	Cameroon	0.9	1.1	0.2	22%
26	Brazil	1.5	1.0	-0.5	-33%
27	Qatar	1.3	1.0	-0.3	-23%
28	Ecuador	1.0	0.9	-0.1	-10%
29	Kuwait	1.4	0.9	-0.5	-36%
30	Australia	1.1	0.9	-0.2	-18%
	Rest of world	11.7	8.1	-3.6	-31%
	Global total	143.9	145.0	1.1	1%

Source: World Bank

Sources: World Bank, U.S. Energy Information Administration, International Energy Agency

*Ranking based on increase (decrease) in petroleum and other liquids. Data description depends on source agency with petroleum data in Mb/d; gas data in mcm, and flaring data in bcm. For Figure 3, the relevant comparison is the percentage increase/decrease in volumes.

26.

Canada also showed the second-largest decrease in flaring between 2014 and 2018 – a 38% decrease, second only to Kazakhstan which reduced flaring by 49%. This decrease occurred while petroleum liquids production in Canada rose by 22% and dry natural gas production rose by 16%.

Countries compared on production* and flaring

		Production increase (decrease) (Petroleum and other liquids)	Production increase (decrease) (Natural gas)	Gas flaring: Increase (decrease)
		2018 vs. 2014		
		%		
1	Libya	86%	-24%	62%
2	Rep of the Congo	44%	126%	23%
3	Iraq	37%	34%	27%
4	Iran	31%	32%	42%
5	United States	27%	18%	25%
6	United Kingdom	25%	5%	-8%
7	Canada	22%	16%	-38%
8	Brazil	15%	9%	-33%
9	Kazakhstan	14%	28%	-49%
10	Malaysia	12%	-5%	-35%
11	Saudi Arabia	7%	14%	21%
12	UAE	7%	15%	33%
13	Russia	5%	11%	16%
14	Oman	4%	13%	-4%
15	Kuwait	4%	16%	-36%
16	Turkmenistan	2%	1%	-25%
17	Indonesia	0%	-4%	-32%
18	India	0%	-2%	-32%
19	Egypt	-5%	37%	-18%
20	China	-5%	23%	-14%
21	Qatar	-5%	7%	-23%
22	Angola	-6%	736%	-20%
23	Ecuador	-7%	-31%	-10%
24	Algeria	-8%	16%	3%
25	Cameroon	-8%	188%	22%
26	Gabon	-11%	-26%	-7%
27	Nigeria	-17%	4%	-12%
28	Australia	-17%	86%	-18%
29	Mexico	-26%	-31%	-20%
30	Venezuela	-43%	6%	-18%

27.

According to a [2020 analysis](#) by BMO Capital Markets, Canada ranks number one among major oil producers on environmental, social and governance (ESG) measures, based on the Yale Environmental Performance Index, Social Progress Imperative and World Bank Worldwide Governance Indicators.

28.

Canada's largest oil sands producers receive high ESG scores, along with the European-based producers. According to BMO Capital Markets, Suncor Energy, Cenovus Energy and Imperial Oil receive among the highest ESG rankings, comparable with Equinor and Total SA, and with higher ratings than Royal Dutch Shell and BP. (Source: BMO Capital Markets: The 400 Billion Barrel Opportunity for Friendly Oil, March 2020)

FOREIGN OIL IMPORTS: CANADA AND THE WORLD IN CONTEXT

29.

In 2019, Canada and the United States were the least dependent on [oil](#) from countries characterized as “Not Free” by Freedom House, a Washington D.C. think tank that has measured freedom around the world since the 1970s.

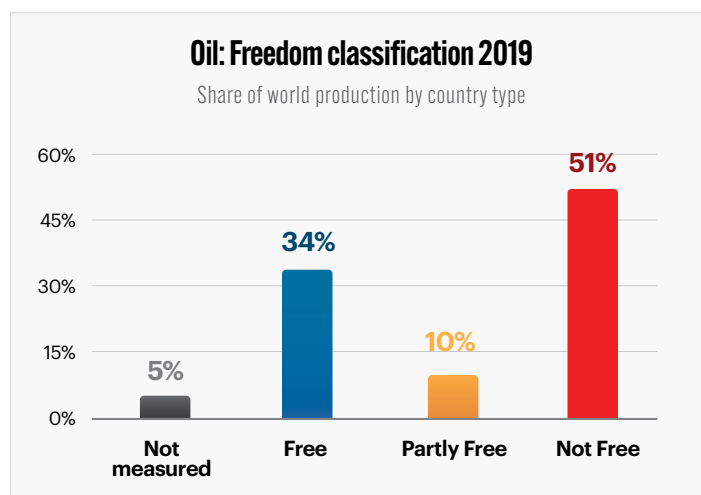
- Canada and U.S. dependency on Not Free oil as a proportion of all imports was just 16% and 19% respectively

30.

Germany, South Korea, France, Italy and Japan are [highly dependent on foreign oil from Not Free countries](#), ranging from 61% for Germany to 87% for Italy in 2019

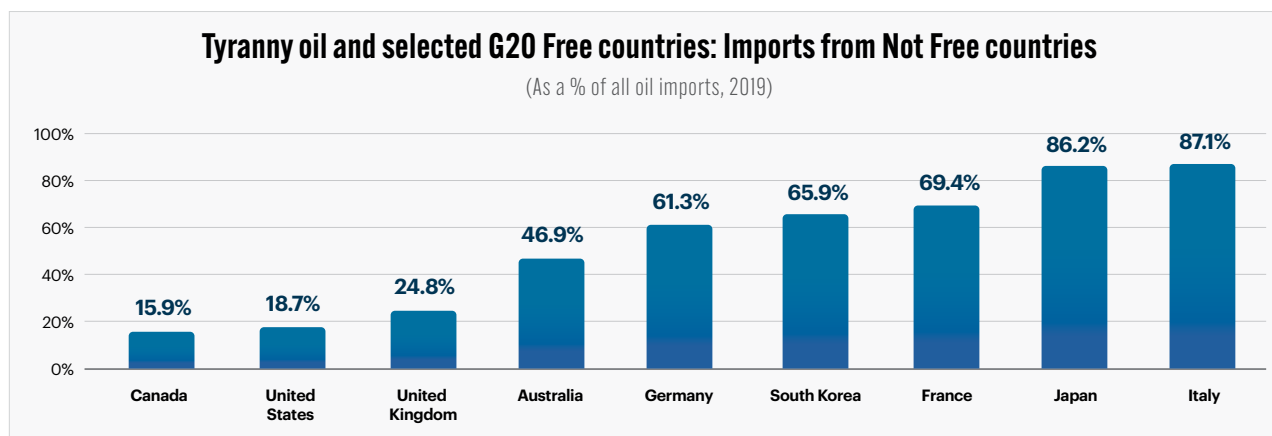
31.

As of 2017, [51% of global oil production](#) came from nations that Freedom House ranks as Not Free, the highest proportion of any year measured in the last four decades. That compares to a 34% share of oil production in Free and 10% in Partly Free countries.



Sources: Freedom House. Countries and Territories: Global Freedom Scores. U.S. Energy Information Administration, International Statistics.

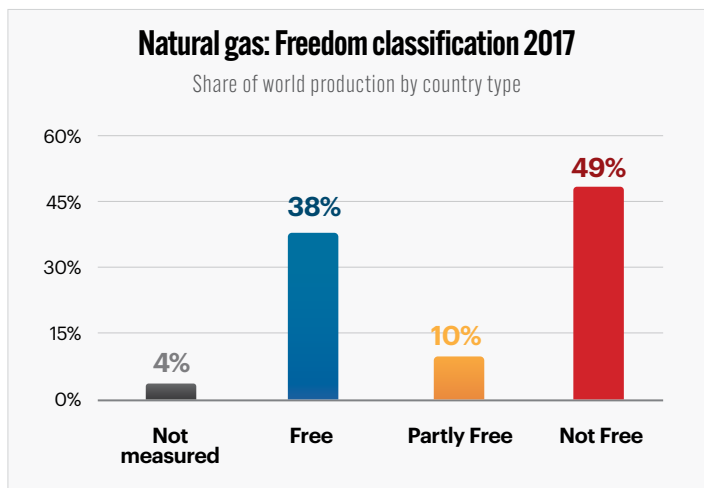
Percentages may not add to 100% due to rounding.



Sources: International Energy Agency (2019) and Freedom House (2020). Data from India for this measurement are not available.

32.

In 2017, [49% of global natural gas production](#) came from countries characterized as Not Free. That is also the highest proportion observed in the last four decades, and is higher than the proportion of production in Free (38%) or Partly Free (10%) nations.



Sources: Freedom House. Countries and Territories: Global Freedom Scores. U.S. Energy Information Administration, International Statistics.

Percentages may not add to 100% due to rounding.

FOREIGN OIL IMPORTS TO CANADA

33.

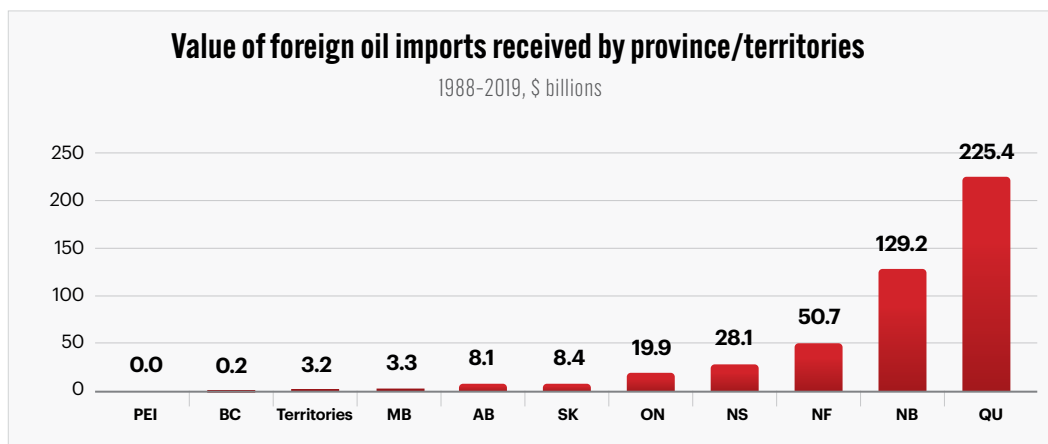
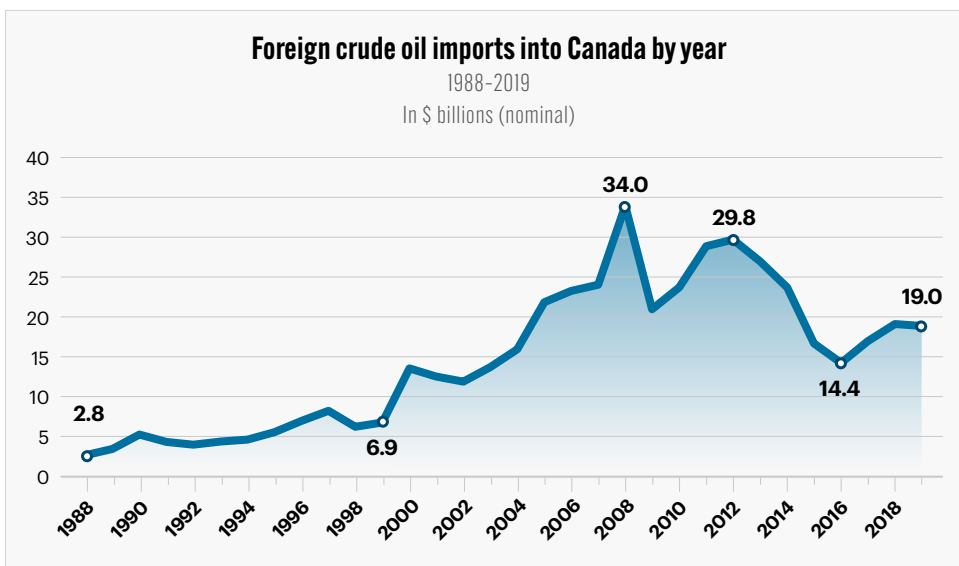
Despite its vast oil and gas resources, Canada does import foreign oil. Between 1988 and 2019, Canada imported an average of [749,000 barrels of oil per day](#) from countries including Saudi Arabia, Russia and the U.S.

34.

Canada imported [\\$477 billion in foreign oil](#) between 1988 and 2019.

35.

Quebec imported [\\$225 billion in foreign oil](#) between 1998 and 2019, more than any other province.



36.

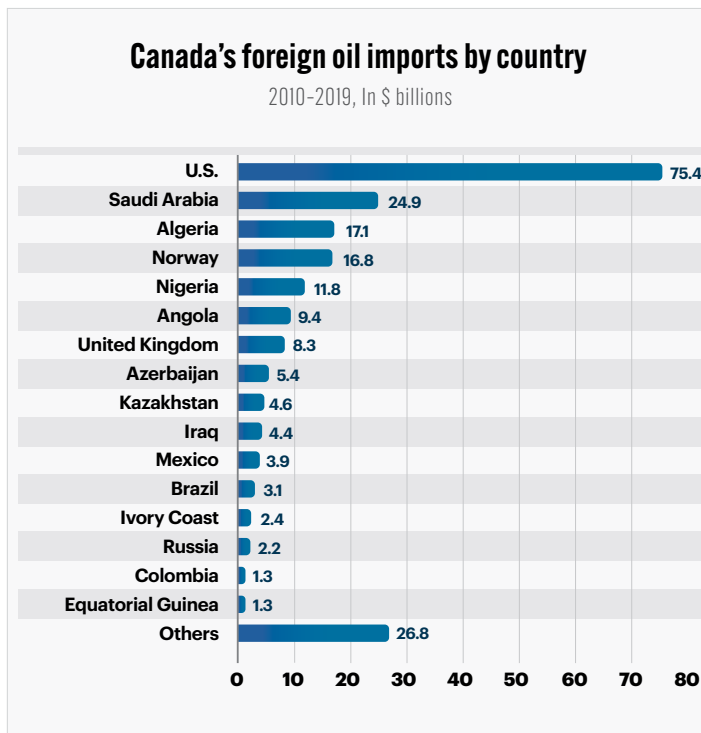
Between just 2010 and 2019, [Canada imported \\$220 billion](#) in foreign oil.

37.

Between 2010 and 2019, [Canadians bought \\$75 billion worth of American oil](#).

38.

Between 2010 and 2019, [Canadians bought \\$25 billion worth of Saudi Arabian oil](#).



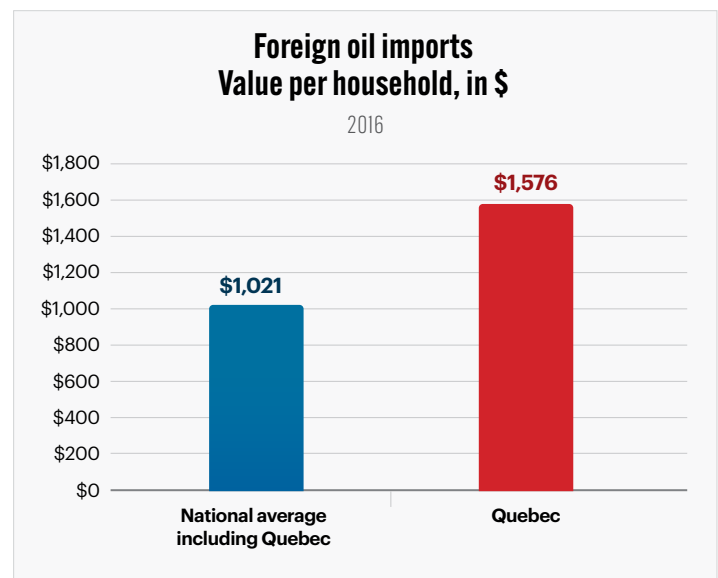
Source: Derived from Statistics Canada, Canadian International Merchandise Trade Database.

39.

In 2016, the value of foreign oil imports averaged among all province and territories amounted to [\\$1,021 per Canadian household](#).

40.

In 2016, the value of foreign oil imports to Quebec alone was [\\$1,576 per Quebec household](#).



Sources: Derived from Statistics Canada, Canadian International Merchandise Trade Database and the 2016 Census.

INDIGENOUS CANADIANS AND OIL AND GAS

41.

Indigenous people involved in Canada's oil and gas sector have [lower unemployment rates and higher incomes](#).

- For example, median income for full-time, full-year workers in the Fort McKay First Nation in the heart of the oil sands is \$61,248. That is higher than the median income in nine of ten Canadian provinces.

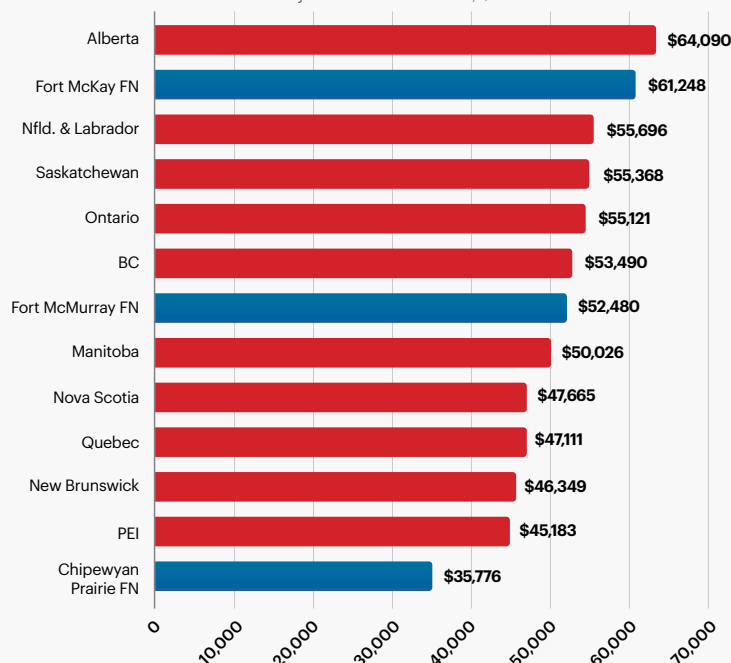
42.

The [oil and gas industry](#) pays Indigenous Canadians better than any other major industry.

- Median employment income for Indigenous people working in Canada's oil and gas extraction sector is \$144,034; \$142,883 in pipelines; \$78,019 in automobile manufacturing; \$64,631 in aerospace, and \$47,596 when averaged across all industries.

**Median employment income:
Three First Nations in the oil sands compared
with provincial incomes**

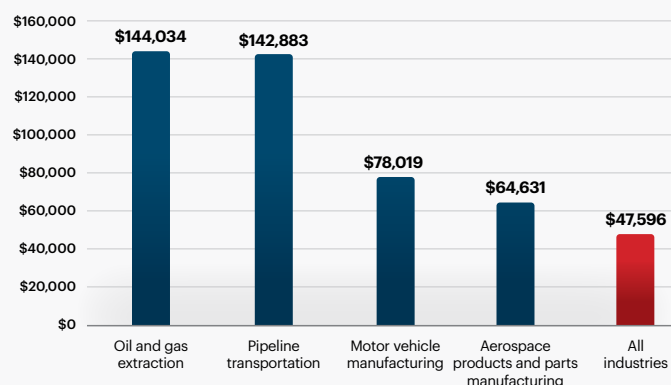
Full-year full-time workers, \$



Derived from Statistics Canada, 2018, Aboriginal Population Profile, 2016 Census.

**Median employment
income for those identifying as
Aboriginal identity, by industry**

Full-year, full-time workers, in \$



Derived from Statistics Canada, 2018, Aboriginal Population Profile, 2016 Census.

Source: Census 2016

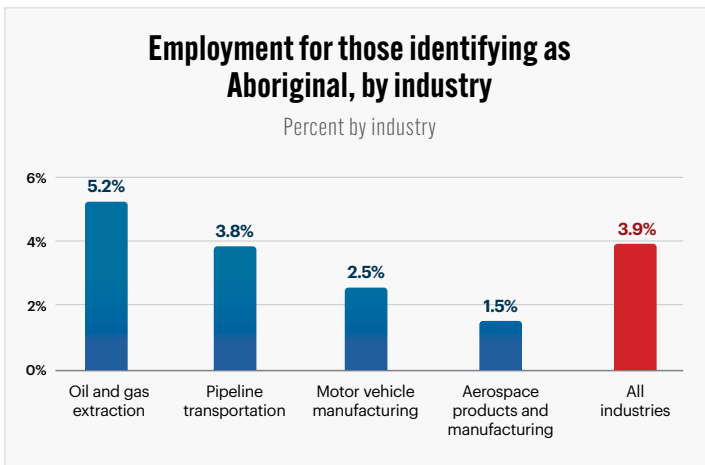
43.

In British Columbia, Indigenous participation [in oil and gas extraction \(8.6%\)](#) is far higher the average for all industries (5.0%).

44.

Nationally, the [oil and gas industry employs a greater proportion of Indigenous Canadians](#) than any other major industry:

- Indigenous employment [in oil and gas extraction is 5.2%](#)
- Indigenous employment [in pipelines is 3.8%](#)
- Indigenous employment as a proportion of [automobile manufacturing employment is 2.5%](#) and [just 1.5% in aerospace](#)

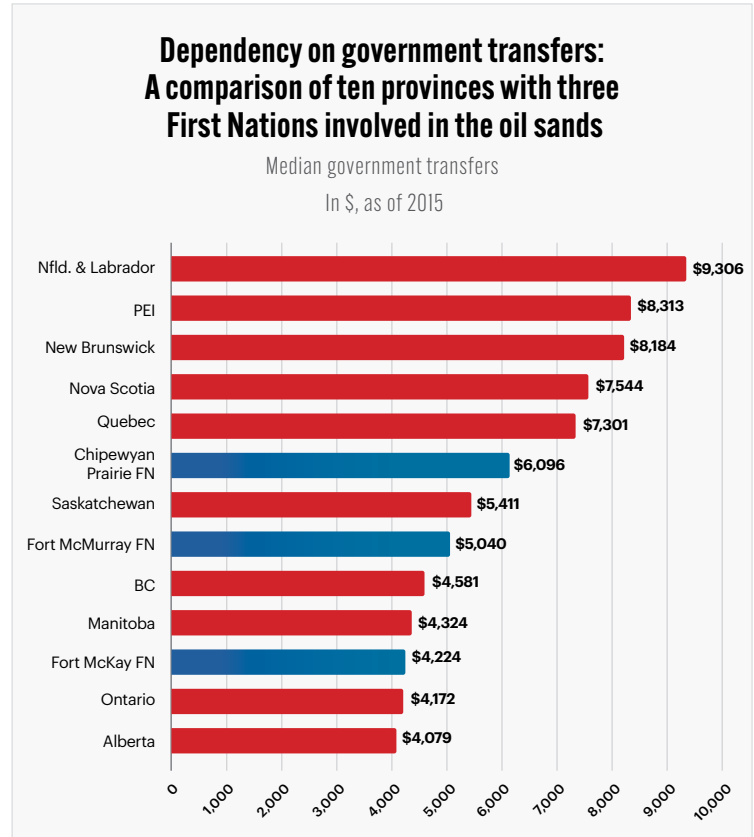


Derived from Statistics Canada. 2018, Aboriginal Population Profile, 2016 Census.

45.

First Nations involved in oil and gas are [less dependent on government transfers](#) than citizens in many provinces:

- Fort McKay First Nation, in the midst of the oil sands region, shows median transfers of [just \\$4,224 per person](#)
- Indigenous people in eight provinces—except Alberta and Ontario—are [more dependent](#), with transfers per person ranging from \$4,324 (Manitoba) to \$9,306 (Newfoundland and Labrador)



Derived from Statistics Canada. 2018, Aboriginal Population Profile, 2016 Census.

46.

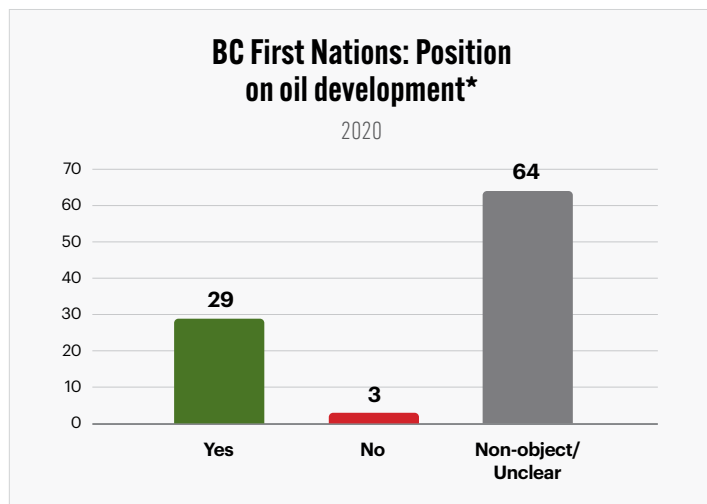
Oil and gas producers have spent more than \$13 billion with Indigenous businesses since 2012, including annual spending topping a record \$2.1 billion in 2018.

Source: BMO Capital Markets: The 400 Billion Barrel Opportunity for Friendly Oil, March 2020.

47.

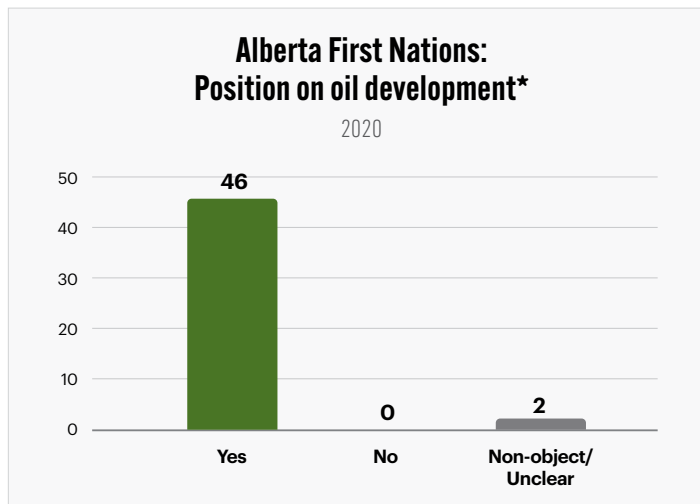
Oil and natural gas extraction and development in [British Columbia](#) and Alberta is supported by the vast majority of First Nations that have a publicly available position:

- Of 32 First Nations with publicly available positions, 29 of 32 in B.C. support oil development and 40 of 40 with publicly available positions support natural gas development



*106 First Nations were ranked as N/A.

Sources: Canadian Energy Regulator, British Columbia Oil and Gas Commission, Coastal Gaslink, Trans Mountain, Indian Resource Council, First Nations Major Project Coalition, First Nations LNG Alliance, Indian Oil and Gas Corporation, Individual First Nations' Community Websites, and personal correspondence.



*Zero First Nations were ranked as N/A.

Sources: Canadian Energy Regulator, British Columbia Oil and Gas Commission, Coastal Gaslink, Trans Mountain, Indian Resource Council, First Nations Major Project Coalition, First Nations LNG Alliance, Indian Oil and Gas Corporation, Individual First Nations' Community Websites, and personal correspondence.

48.

Oil and natural gas extraction and development [in Alberta](#) is supported by the vast majority of First Nations that have a publicly available position.

- Of 46 First Nations with publicly available positions, 46 of 46 in Alberta support both oil and natural gas development

JOBS: CANADA-US COMPARISONS

49.

US competition for oil and gas jobs: Between 2009 and 2018, oil and gas extraction in the U.S. created 95,000 new jobs, while just 1,610 were created in Canada over the same period.

50.

Tens of thousands of new oil and gas jobs were created in US states between 2009 and 2018:

- 45,326 in Texas
- 18,115 in Oklahoma
- 5,427 in Pennsylvania, which exports natural gas to Canada

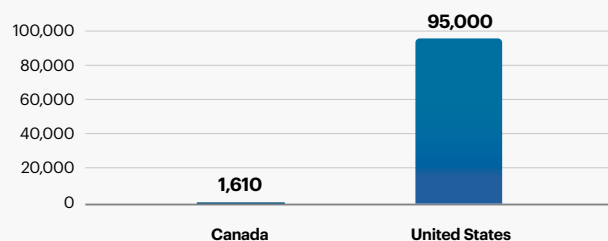
51.

Between 2009 and 2018, oil and gas job creation in Canadian provinces **stalled**

- Alberta only saw 1,012 new jobs in oil and gas extraction
- There were just 835 new oil and gas jobs in British Columbia
- Saskatchewan's oil and gas employment rose by just 89 jobs

Jobs created in oil & gas extraction*: Canada compared with the United States

(2018 increase relative to 2009)

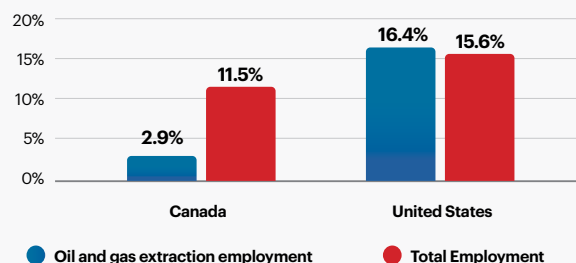


*The category of oil and gas extraction does not include pipelines or other energy-related economic activity.

Sources: U.S. Bureau of Economic Analysis, Regional Analysis, Employment; Statistics Canada. Table 14-10-0202-01.

Comparing oil and gas (extraction) job growth to total employment growth: Canada and the United States

2009 to 2018



Sources: U.S. Bureau of Economic Analysis, Regional Analysis, Employment; Statistics Canada Table 14-10-0202-01 and Table 14-10-0023-01.

JOBS: INTERPROVINCIAL EMPLOYEES AND OIL AND GAS

52.

Statistics Canada shows the number of “interprovincial employees”— those [who technically reside in other provinces but earn income in Alberta](#) — increased from 61,395 in 2002 to 146,530 in 2014, before falling back to 96,215 in 2016.

53.

The Alberta angle: Income earned by interprovincial employees in Alberta increased from \$1.2 billion in 2002 to [\\$7.6 billion in 2014](#), before falling to \$4.4 billion in 2016.

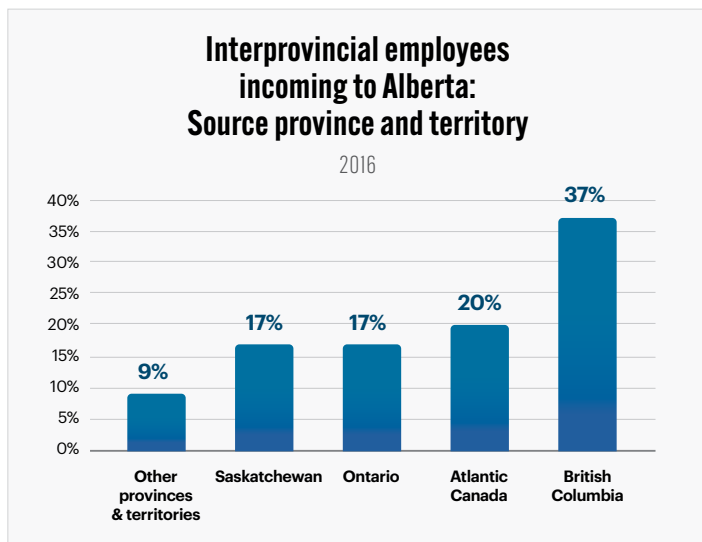
- Of the nearly \$4.4 billion earned by interprovincial employees in Alberta during 2016, nearly 37% was earned by B.C. residents; 20% by residents of the Atlantic provinces; 17% by residents of Saskatchewan; and 17% by residents of Ontario

Inter-jurisdictional employees incoming, by year

2002 to 2016

	BC	AB	SK	MB	ON	QU	NB	NS	PE	NF
2002	38,650	61,395	15,995	11,005	124,130	49,840	11,895	17,925	3,095	4,310
2003	38,000	59,030	15,075	11,620	124,355	47,235	12,550	17,895	3,375	4,300
2004	41,510	63,715	14,660	11,345	126,380	46,335	12,255	17,930	3,290	4,105
2005	45,665	75,130	16,000	11,925	136,115	48,150	13,355	17,275	3,090	4,960
2006	49,845	99,565	16,905	12,170	137,670	51,245	14,495	18,615	3,745	5,460
2007	50,220	112,925	17,265	13,145	138,840	51,445	14,980	18,745	3,640	5,500
2008	50,135	123,185	19,760	13,980	141,525	50,015	15,575	17,880	3,430	6,075
2009	43,160	96,680	20,295	14,245	133,745	49,285	14,400	16,500	3,300	5,345
2010	44,265	92,530	22,880	13,615	133,840	47,710	14,030	16,330	3,160	5,730
2011	44,300	102,690	28,290	12,805	137,040	49,230	13,420	16,465	3,220	6,260
2012	45,755	121,340	31,075	12,545	139,805	48,780	12,975	16,440	3,260	7,765
2013	48,720	137,820	32,290	12,840	138,155	49,330	11,220	16,490	3,160	9,145
2014	50,520	146,530	31,900	12,945	141,675	50,410	11,500	16,710	3,125	8,150
2015	50,155	124,515	29,215	12,885	145,860	52,135	11,330	16,305	2,950	8,310
2016	52,135	96,215	24,690	13,815	147,090	54,340	11,710	16,290	2,995	7,965
Change (2016 vs. 2002)	35%	57%	54%	26%	18%	9%	-2%	-9%	-3%	85%

Source: Derived from Statistics Canada, Canadian Employer-Employee Dynamics Database.



Source: Derived from Statistics Canada, Canadian Employer-Employee Dynamics Database.

54.

In 2016, [interprovincial employees](#) employed in the oil and gas sector in Alberta earned an average income of \$77,091.

55.

In total, interprovincial employees who worked in Alberta's oil and gas sector earned and took home [\\$12.1 billion](#) in total to other provinces between 2002 and 2016.

JOBS: NEW CANADIANS IN CANADA'S RESOURCE SECTOR

56.

The number of landed immigrants [employed in the resource sector](#) (quarrying, mining and oil and gas extraction) grew from 22,000 in 2006 to a high of 33,600 in 2014, and in 2019 stood at 28,800.

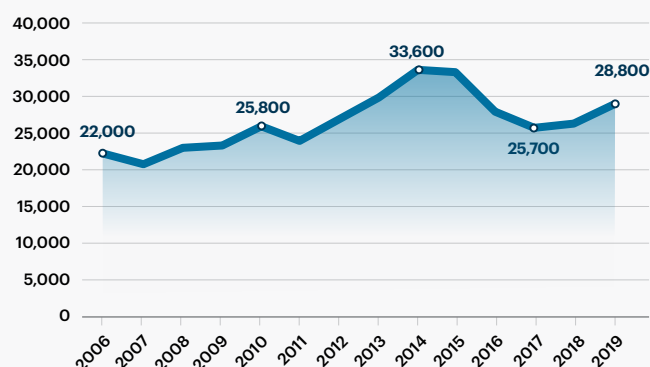
57.

In [2019](#), immigrants to Canada employed in the resource sector earned an average weekly wage of \$2,032. This was:

- 9% higher than those employed in utilities (\$1,855)
- 31% higher than those in construction (\$1,407)
- nearly twice as much those employed in agriculture (\$1,041)
- 71% more than the average weekly wage for all industries (\$1,186)

**Landed immigrants
employed in mining, quarrying, oil and
natural gas extraction**

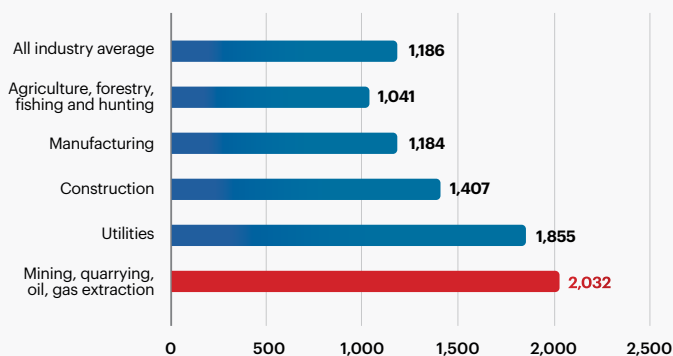
2006-2019



Source: Derived from Statistics Canada, Labour Force Survey, Custom Tabulation.

**Landed immigrants:
Average weekly wages (\$) by select industry**

2019



Source: Derived from Statistics Canada, Labour Force Survey, Custom Tabulation.

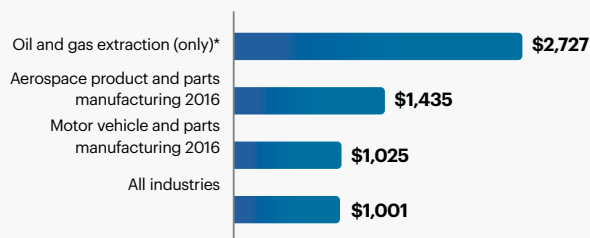
JOBS: WAGES AND WORKERS

ACROSS CANADA

58.

Average weekly earnings are highest in oil and gas extraction at \$2,727 weekly in 2018 compared with \$1,435 in aerospace and \$1,025 in motor vehicle manufacturing

**Average weekly earnings in 2018:
Industry comparisons (\$)**



*Excludes pipeline construction, for example.
Source: Statistics Canada, Table 14-10-0204-01.

60.

British Columbia: The oil and gas sector is responsible for [nearly 57,000 BC jobs and pays over \\$2.3 billion in wages and salaries](#).

**The oil and gas sector's impact
on BC's economy**

2016

	Output	GDP	Jobs
	\$ billions		#
Direct impact	8.9	4.1	20,748
Indirect impact	6.4	3.6	35,948
Total impact	15.3	7.7	56,696

Source: Derived from Statistics Canada, Supply and Use tables, custom tabulation.

59.

Ontario: The oil and gas sector is responsible for [over 68,000 Ontario jobs and pays over \\$2.1 billion in wages and salaries](#).

**The oil and gas sector's impact
on Ontario's economy**

2016

	Output	GDP	Jobs
	\$ billions		#
Direct impact	0.9	0.3	1,543
Indirect impact	13.5	7.0	66,766
Total impact	14.4	7.3	68,309

Source: Derived from Statistics Canada, Supply and Use Tables, Custom Tabulation.

61.

Atlantic Canada: The oil and gas sector is responsible for [nearly 27,000 Atlantic Canada jobs and pays over \\$1.6 billion in wages and salaries](#).

**The oil and gas sector's impact
on Atlantic Canada's economy**

2016

	Output	GDP	Jobs
	\$ billions		#
Direct impact	11.3	4.5	10,411
Indirect impact	3.8	1.8	16,754
Total impact	15.0	6.3	27,165

Source: Derived from Statistics Canada, Supply and Use Tables, Custom Tabulation.
Totals may not add exactly due to rounding.

NATURAL GAS AND CENTRAL & EASTERN CANADA: MISSED OPPORTUNITIES

Quebec, Ontario, Quebec, Nova Scotia and New Brunswick are [missing opportunities](#) to develop natural gas reserves, while Pennsylvania, North Dakota, Ohio, and West Virginia are taking advantage of these opportunities

62.

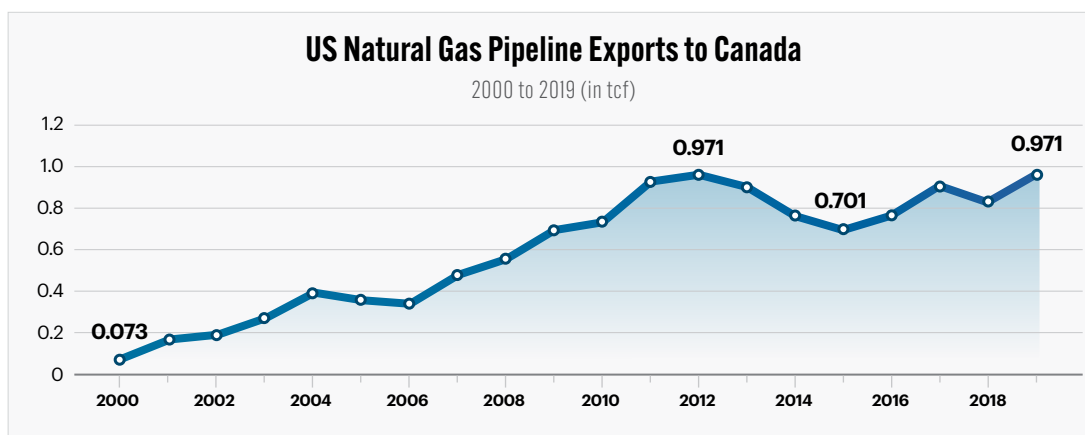
Central and Eastern Canada are losing out to Pennsylvania, Ohio, North Dakota and West Virginia. Those US states have all seen [significant increases](#) in natural gas production over the past decade.

- Since 2010 and to 2019, natural gas production is up, Seven-fold in West Virginia, nine-fold in North Dakota, 12-fold in Pennsylvania, and 34-fold in Ohio to 2.7 trillion cubic feet.

63.

Central and Eastern Canada have been importing ever-more natural gas from the United States. As of 2019, natural gas imports from the US to central and eastern Canada were [up 1,233%](#).

- This occurred despite the existence of 108 trillion cubic feet of remaining marketable natural gas resources located in central and eastern Canada.



Source: U.S. Energy Information Administration, 2020

64.

In 2018/19, Pennsylvania, Ohio, North Dakota and West Virginia alone brought in [nearly over US\\$1.8 billion](#) (Cdn. \$2.3 billion) in natural gas revenues.

- In comparison, in 2018, \$781 million in oil and gas royalties were collected in central and eastern Canada, with virtually all of that (\$779 million) being oil and gas royalties collected in Newfoundland & Labrador

Natural Gas Industries in Selected US States

	Dry natural gas expected future production (2019)	Natural gas marketed production (2018)	Oil and natural gas revenues (2018/19)*	Oil and natural gas revenues (2018/19)*
	(tcf)		(US\$ millions)	(C\$ millions)
Pennsylvania	103.5	6.9	251.8	334.1
North Dakota	10.2	0.85	1,295.5	1,719.0
Ohio	23.8	2.7	68.6	91.0
West Virginia	35.0	2.2	145.7	193.3
Totals	172.5	12.7	1,761.6	2,337.5

*US states impose and collect revenues on natural gas producers in a number of diverse ways and are not necessarily comparable to Canadian practices. The data here are based on the available information from and about the respective states. See state charts for how each state references natural gas revenues.

Sources: Bank of Canada (undated); U.S. Energy Information Administration (2020a); U.S. Energy Information Administration (2020c); Ohio Department of Taxation (undated); North Dakota (2018); Pennsylvania Public Utilities Commission (undated); West Virginia State Tax Department (undated).

PIPELINES ECONOMIC IMPACTS, AND WORLDWIDE COMPARISONS

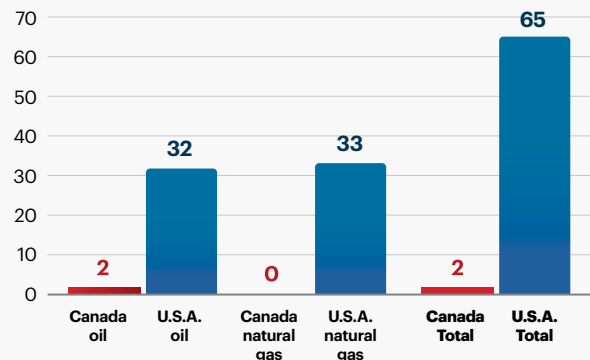
65.

In 2019, Alberta Treasury Board and Finance estimated that with market access achieved through the completion of the Trans Mountain expansion, Line 3 and Keystone XL, Canadian GDP would increase by about **\$19 billion annually**, and Canada would achieve \$43 billion in increased income over four years due to increased production and investment.

- Alberta Treasury Board and Finance [estimated](#) that the increased economic impact from the completion of the Trans Mountain expansion, Line 3 and Keystone XL has the potential to add about 35,000 new jobs per year across Canada.

A Canada-U.S. comparison of new oil and gas pipelines 2014 to 2020

New pipelines completed as of April 2020



Sources: CAPP; International Energy Agency.

New pipelines only. Data does not include replacement, expansion, or facility pipelines.

66.

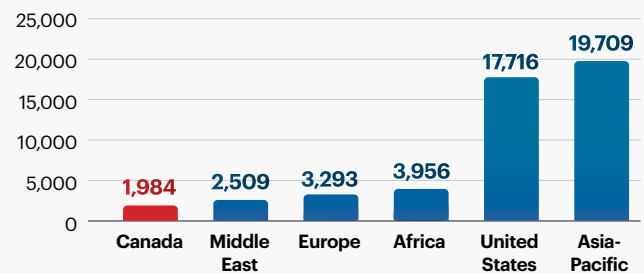
Between **2014 and 2020**, 66 new pipelines were completed in the U.S. compared to just two in Canada.

67.

As of 2020, 50,000 new miles of pipelines were under construction worldwide with just 2,000 miles of that in Canada.

A comparison of oil and gas pipeline construction underway as of 2020

Region or country, in miles

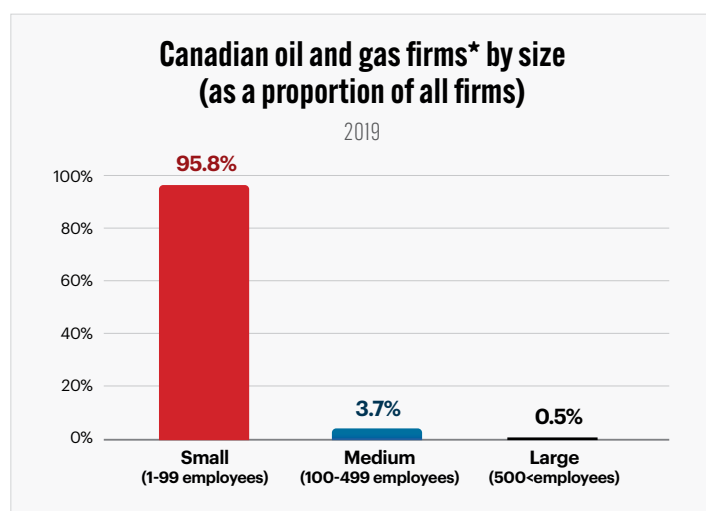


Source: Christopher E. Smit (2020)

SMALL BUSINESS AND OIL AND GAS

68.

In Canada, 95.8% of the companies in the oil and gas sector are small businesses (fewer than 100 employees), while 3.7% are medium-sized (100-499 employees), and 0.5% are large enterprises (500+ employees).



Source: Authors' calculation based on Statistics Canada Table 33-10-0222-01.

*Includes oil and gas extraction; support activities for mining, and oil and gas extraction; mining and oil and gas field machinery manufacturing; pipeline transportation of crude oil; pipeline transportation of natural gas; pipeline transportation of refined petroleum products.

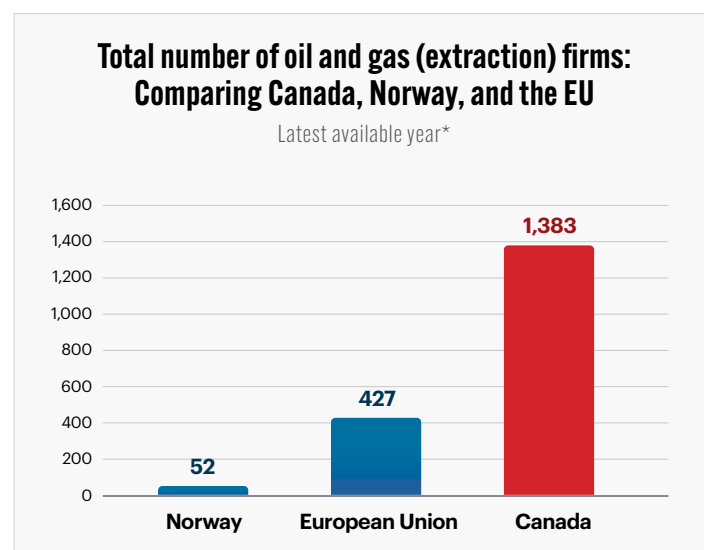
69.

Narrowing the comparison to just oil and gas **extraction** firms, **93.5% of Canada's oil and gas extraction sector** is comprised of small businesses, compared to the United States at 79.1%.

70.

Canada's oil and gas extraction sector has a higher proportion of small and medium-sized businesses [than either Norway or the EU](#).

- Canada has 1,330 oil and gas firms with fewer than 200 employees;
- The European Union has 377 firms with fewer than 250 employees; and
- Norway has just 40 oil and gas firms with fewer than 250 employees.



Source: Eurostat and Statistics Canada

*2019 for Canada and most recent year (2016 or 2017) for other jurisdictions.

SUBSIDIES FOR OIL AND GAS IN CANADA AND COMPARISONS

71.

Despite claims to the contrary, Canadian oil and gas has not been heavily subsidized.

- In 2011, economists Kenneth McKenzie and Jack Mintz noted that measuring fossil fuel subsidies was a “tricky art.” They noted methodology that led to “billions-of-dollars” subsidy claims include flawed methodology that:
 - Used a subsidy definition designed for a different purpose;
 - inappropriately added individual tax expenditures and royalty relief items up without accounting for critical interactions;
 - was not based upon an underlying optimizing economic model which emphasizes the impact of taxes, royalties and subsidies on investment at the margin;
 - and was not based upon an economically meaningful benchmark.
- In 2015, the Montreal Economic Institute estimated total subsidies that year [at \\$71 million annually](#).

72.

Using the most recently available Supply and Use Tables (SUT) from Statistics Canada, the Canadian Energy Centre estimates that federal, provincial and local subsidies amounted to \$1.9 billion in total (2010 to 2016) or an average of \$271 million annually. It should be noted that,

- some selected tax treatment of oil and gas sector activities has since been phased out;
- for comparison to other industries, the 2010 to 2016 SUT does not capture other subsidies such as 2009 federal and Ontario subsidies to the automotive sector at [\\$13.7 billion](#), among others; and
- post-2016 policy by governments is not yet recorded in the Supply and Use Tables (SUT) from Statistics Canada.

Subsidies to industries*2010 to 2016

Federal, provincial, local

Industry	7-year total	Annual Average	% of all subsidies
	In \$ billions		
Automotive	0.6	0.086	0.5%
Aerospace	0.7	0.100	0.5%
Residential building construction	1.7	0.243	1.3%
Computer design and related services	1.9	0.271	1.4%
Oil and gas extraction and support activities	1.9	0.271	1.4%
Rail transportation	2.8	0.400	2.1%
Water transportation systems	3.1	0.443	2.4%
Scientific research and development services	4.2	0.600	3.2%
Animal production	6.5	0.929	4.9%
Electric power generation	7.3	1.043	5.5%
Social assistance**	9.7	1.386	7.4%
Motion picture and video industry	12.6	1.800	9.6%
Crop production	12.8	1.829	9.7%
Urban transit systems	27.8	3.971	21.1%
Other***	38.2	5.457	29.0%
TOTAL	131.8	18.829	100.0%

Source: Statistics Canada. Table 36-10-0478-01

*Figures do not include payments to consumers or grants that governments may make to enterprises in order to finance their capital formation, or compensate them for damage to their capital assets. Such grants are treated as capital transfers.

**This data results in part from government subsidies to for-profit childcare centres in the provinces.

***Includes subsidies on products and production to over 200 separate industries based on the North American Industry Classification System from Statistics Canada.

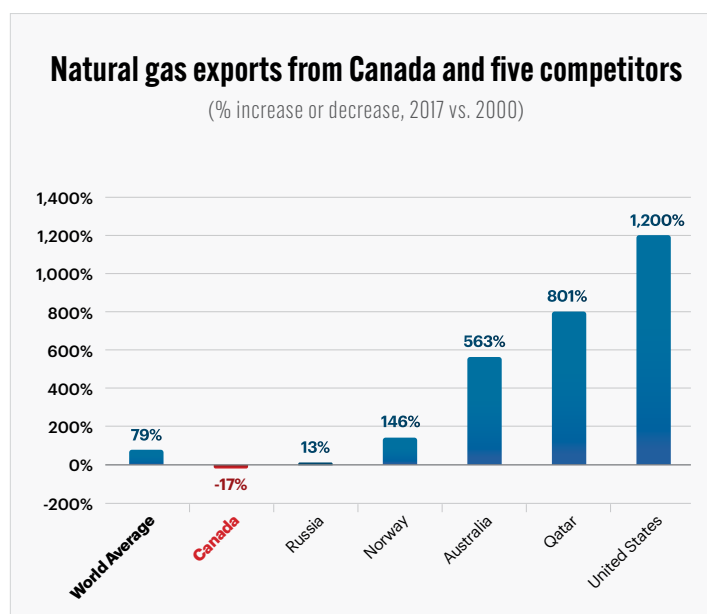
73.

The most significant energy industry subsidy in recent years was noted by the Ontario Auditor General [in 2015](#): \$37 billion in payments to renewable energy producers—characterized by the Auditor General as “excess payments to generators over the market price” for electricity.

WORLD COMPARISONS: OTHER ENERGY NATIONS AND COMPARISONS TO CANADIAN OIL AND NATURAL GAS PRODUCTION

74.

In 2018, Canada ranked as the [fifth largest producer of dry natural gas](#) in the world behind only the United States, Qatar, Iran, and Russia. However, its natural gas exports have been falling due to reliance on one export market, the United States, while other major natural gas producers have been exporting significantly more natural gas.

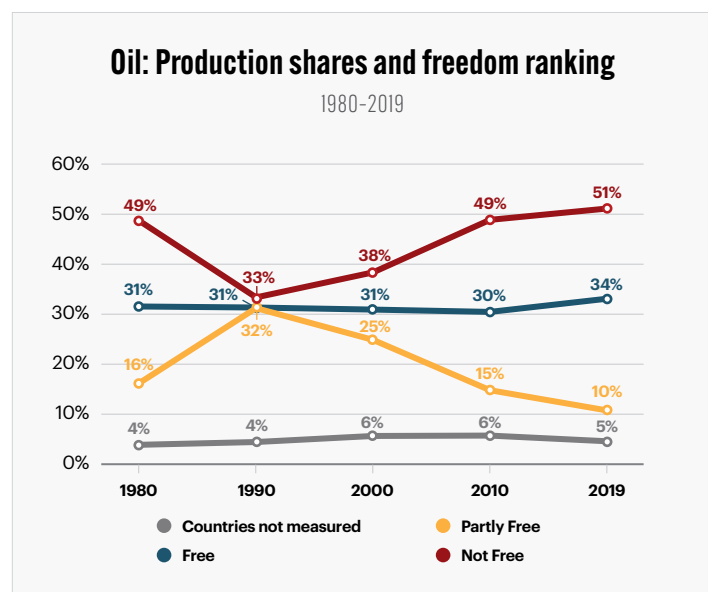


Source: U.S. Energy Information Administration

75.

In 2018, Canada ranked as the [fourth largest producer of petroleum and other liquids](#) production in the world behind only the United States, Saudi Arabia, and Russia.

- If Canada does not extract and produce oil, Canadians and consumers in other countries will buy oil from Canada's competitors including those ranked as "Not Free" by Freedom House. Those and other energy-rich nations will have the jobs, incomes and tax revenues, and not Canada.



Sources: Freedom House. Countries and Territories: Global Freedom Scores. U.S. Energy Information Administration, International Statistics.

Percentages may not add to 100% due to rounding.

About the Canadian Energy Centre

The Canadian Energy Centre's mandate is to promote Canada as the supplier of choice for the world's growing demand for responsibly produced energy. It is an independent provincial corporation that is primarily supported by the Government of Alberta's industry-funded Technology, Innovation and Emissions Reduction (TIER) fund. www.canadianenergycentre.ca.

CEC Research Briefs

Canadian Energy Centre (CEC) Research Briefs are contextual explanations of data as they relate to Canadian energy. They are statistical analyses released periodically to provide context on energy issues for investors, policymakers and the public. The source of profiled data depends on the specific issue. This research brief is a compilation of previous Fact Sheets and Research Briefs released by the Centre in 2020. Sources can be accessed in the previously-released reports.

About the authors

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