

# Energy in Canada: A Statistical Overview

## INTRODUCTION

It is well known that energy industries are major contributors to Canada's economy, and today Canada is one of the world's leading energy economies. This fact is quickly illustrated by headline statistics: Canada is the world's 3<sup>rd</sup> largest exporter of electricity, 5<sup>th</sup> largest exporter of natural gas, 7<sup>th</sup> largest exporter of crude oil, and 8<sup>th</sup> largest exporter of refined petroleum products (Table 1). In addition, it is the 2<sup>nd</sup> largest exporter of uranium and the 7<sup>th</sup> largest exporter of coal.<sup>1</sup>

However, the extent to which energy alone affects Canada's economic prosperity is less broadly recognized. This Policy Brief summarizes some of the key macroeconomic contributions of the energy sector to Canada's economy by drawing on disparate data sources.<sup>2</sup> Through out the Brief, unless otherwise noted, we adopt Statistics Canada's definition of the energy sector (T016) as the combination of the following sub-sectors: oil and gas extraction (211), coal mining (2121), other metal ore mining (21229), support activities for mining, oil and gas extraction (21311A), electric power generation, transmission and distribution (2211), natural gas distribution (2212), petroleum refineries (32411), and pipeline transportation (486).

## THE ENERGY SECTOR AND GDP

As a developed country, Canada's GDP of approximately \$1.8 trillion (USD) made it the sixteenth largest economy in the world in 2014, and its GDP per capita of \$44,500 (USD) placed it at twenty-ninth in economic performance relative to population size.<sup>3</sup> Its economy, similar to other developed countries, is increasingly dominated by the service sector, which accounted for approximately 70% of GDP and employed 78% of its workforce in 2014.<sup>4</sup> However, unlike many other developed economies, the energy and natural resource sectors are major drivers of Canada's economy. The energy supply chain, together with industries that supply goods and services to the energy sector, represented about 13.4% of Canadian GDP in 2013.<sup>5</sup> Alberta, Saskatchewan, and Newfoundland and Labrador all obtain roughly a quarter of GDP directly from energy industry sources (Table 2).

The largest energy subsector is oil and gas, which contributed 7.5% to Canadian GDP alone or 56.1% of the energy sector's contribution to GDP in 2013. Within the oil and gas subsector the sources of oil and gas extraction are shifting from conventional to non-conventional sources such as oil sands, surface shale and semi-solid hydrocarbon reservoirs. Non-conventional oil and gas extraction grew from approximately 22% to 34% of oil and gas extractions' contribution to GDP from 2007 to 2014, while conventional oil and gas extraction declined.<sup>6</sup> This activity primarily occurs in Alberta, and in 2014 Alberta accounted for 78% of Canada's total oil and equivalent production and 67% of its natural gas production (Figure 1).<sup>7</sup> Nearly all the remaining contribution of oil and gas extraction to Canadian GDP originates in Saskatchewan and British Columbia with small amounts accruing from other provinces (see Tables 3 and 4).

## Policy Brief

### Energy in Canada: A Statistical Overview

The second largest energy subsector is electricity, composed of electric power generation, transmission, and distribution, accounting for 15.6% of the energy sector's contribution to GDP. The majority of electricity's contribution to Canada's GDP is derived from activity in Quebec, followed by Ontario (see Tables 3 and 4). Canada has huge potential hydroelectric resources along with large reserves of coal, natural gas and uranium for electric power generation. Canada's total electricity generation has remained constant at just above 600 million megawatt hours per year on average between 2005 and 2013, with hydroelectric plants generating over 60%, one of the largest proportions in the OECD. Over the same period, conventional steam turbines using fossil fuels have declined from 21% to 14% of Canada's total power generation, while nuclear power has been stable at approximately 14% of power generated (See Figure 2 and Table 5).<sup>8</sup> While estimates of the contribution to Canadian GDP of emerging renewable energy sources are difficult to obtain, data from Statistics Canada suggests approximately 2.3% of electricity generation in 2013 came from non-hydro renewable sources.<sup>9</sup> Wind and photovoltaic energy are the fastest growing sources of electric power generation in Canada as of 2014.<sup>10</sup>

A further 26.1% of the energy sector's contribution to GDP is made up by indirect contributions from firms that supply goods and services to the energy industry such as construction, equipment manufacturing and financial services, indicating the diverse business interests engaged in the country's energy sector.<sup>11</sup> Pipeline transportation, which is treated as part of the oil and gas sector in estimates from Natural Resources Canada but as a separate sector in national accounting data, made up a 3.4% share of the energy sector's contribution to GDP.<sup>12</sup>

## THE ENERGY SECTOR AND EMPLOYMENT

The energy sector employed 1.6% of Canada's labor force in 2013. This comprises about 287,500 workers out of a total labor force of 18 million.<sup>13</sup> Of this amount the oil and gas sector employed 64.6% and electrical utilities 31.1%. Within oil and gas, subsector employment is comprised of oil and gas extraction (27.3%), support activities for oil and gas extraction (23.6%), natural gas distribution (6.2%), petroleum refineries (4.6%), and pipeline transportation (2.7%).

While all subsectors have increased employment over this period, the greatest change has occurred in oil and gas extraction with a 90% expansion in total jobs from 2003 to 2013 (See Figure 3 and Table 6). The growth in this subsector's labor force was predominantly in Alberta, more than 50% of the increase, which corresponds with previous data regarding the growth of non-conventional crude oil extraction within the province. Nearly all of the remaining expansion in oil and gas sector employment over the past decade occurred in Saskatchewan (See Figure 4 and Table 7).

The electrical subsector employed about 90,000 workers in 2013, over one third of whom were in Ontario. Over the past decade employment in electrical power generation, transmission and distribution has been primarily concentrated in Ontario, followed by Quebec (See Figure 5 and the accompanying Table 8).

As a whole, contributions to Canadian GDP from each energy sector employee significantly exceed the national average of roughly \$90,000, highlighting the high value-added nature of the sector. Estimates from 2010 show oil and gas extraction provided the highest value-added per job per year at \$1.36 million. The mining and coal and petroleum products sectors follow with over \$400,000 per job and utilities (including electricity and natural gas) at over \$200,000. Support activities for mining, oil and gas also exceed the national average at more than \$100,000 value-added per job per year.<sup>14</sup>

## THE ENERGY SECTOR AND CAPITAL EXPENDITURE

Capital investment in the energy sector is characterized by high initial fixed costs in extraction, production and distribution with economic returns generated over the long term. Total capital expenditures in the energy industry are estimated at \$112 billion in 2014, accounting for nearly 28% of total public and private investment in Canada. Capital expenditure in the sector has greatly increased over the past twenty years, growing from approximately 17% of total national expenditures in 1994 (See Figure 6 and Table 9).<sup>15</sup>

The largest capital expenditures over this period occurred in the oil and gas extraction subsector with over \$71 billion invested in 2014. 77% of this amount was invested in Alberta. Investment in oil and gas extraction represented nearly 50% of all capital investment in the province in 2014.<sup>16</sup> Newfoundland and Saskatchewan also had large shares of their total capital investment in this sub-sector; 42% for Newfoundland and 21% for Saskatchewan in 2014. However, the total investment in these two provinces was only 11% and 18% of the amount invested in Alberta, respectively. Nearly all of the increase in the energy sector's share of national capital investment has come from increases in capital expenditures in oil and gas extraction. Capital investment in all other subsectors has remained essentially constant in percentage terms over the past two decades.<sup>17</sup>

Foreign direct investment (FDI) in the energy sector has also grown significantly since the 1990s. In 2013 the stock of FDI was estimated at \$182 billion, having increased from an estimated \$27 billion in 1999. Approximately one-third of this amount was invested in Canada's oil and gas extraction industry.<sup>18</sup>

## THE ENERGY SECTOR AND EXPORTS

Canada is a global leader in the export of energy products. In 2013 Canada's energy exports totaled \$128 billion or 29% of domestic merchandise exports. Canada's largest trading partner in energy products is the United States, comprising 92% of Canadian energy exports.<sup>19</sup> According to the U.S. Energy Information Administration, "The United States and Canada form the largest integrated energy market in the world."<sup>20</sup>

Canada is a net exporter of oil, gas, electricity, and other energy products to the United States. Further, Canada is the largest foreign supplier of oil to the United States with 97% of Canada's oil exports directed there in 2013. All of Canada's exports of natural gas and electricity are also to the United States. In contrast, Canada sends less than 9% of its coal exports to the United States with the majority, about 83%, destined for Asia in 2013.<sup>21</sup> Canadian uranium exports are primarily directed to the United States, Europe and Asia with an approximate value of \$1 billion in 2013.<sup>22</sup> With world energy demand project to increase 33% by 2035, 90% of which is forecast to occur in non-OECD countries, substantial opportunities exist for Canadian industry to expand exports of energy products into new growth markets.<sup>23</sup>

## THE ENERGY SECTOR AND GOVERNMENT

One of the major influences of the energy sector on Canada's economy is its financial contribution to government revenue. The federal, provincial and territorial governments collect revenues from the sector through a combination of taxes, royalties and sales of crown lands. Natural Resources Canada estimates that on average these revenues totaled \$25 billion between 2008 and 2012. The largest share of these revenues is made up by royalties (\$12.5 billion) followed by corporate income taxes (\$6.2 billion), land sales (\$4.0 billion), and indirect taxes (\$2.4 billion).<sup>24</sup>

In 2013 the energy sector contributed roughly 8% of Canada's total industry taxes, down from a peak of nearly 19% in 2006. The majority of this was collected from the oil and gas industry with 3.3% of Canada's industry taxes contributed by oil and gas extraction and support activities. Nearly 40% of the taxes paid in 2013 were provincial corporate income taxes.<sup>25</sup> (See Table 10.)

Canadian governments also invest in energy sector research and development (R&D). Together the federal, provincial and territorial governments expended approximately \$1.25 billion on energy R&D in 2012-2013. A substantial portion of this investment went to carbon capture and storage as well as to renewable and clean energy supply projects.<sup>26</sup>

## CONCLUSION

This Policy Brief highlights statistical facts about the contribution of Canada's energy sector to the national economy. The energy sector is a major driver of the economy by many macroeconomic metrics, and Canada is forecast to remain one of the primary sources of growth in global energy supply. Such growth will create opportunities for high value jobs, business ventures, and increased government revenues in energy and in industries providing services to the energy sector. The provinces vary dramatically both with respect to their involvement with the energy sector and with the composition of energy industry activities. Lastly, there are perceptible shifts occurring within the industry over time towards non-conventional sources of fossil fuels and renewable sources of electrical generation that warrant attention from those interested in the future of the industry.

## TABLES AND FIGURES

Table 1: Canadian Energy Sector Global Rankings

World Rank	Category	Amount	Year
7 <sup>th</sup>	Crude Oil Exports	1.756 million bbl./day	2012
5 <sup>th</sup>	Crude Oil Production	4.001 million bbl./day	2013
3 <sup>rd</sup>	Crude Oil Proved Reserves	173.2 billion bbl.	2014
3 <sup>rd</sup>	Electricity Export	62.33 billion kWh	2013
7 <sup>th</sup>	Electricity Production	644.1 billion kWh	2012
5 <sup>th</sup>	Natural Gas Exports	82.450 billion m <sup>3</sup>	2013
6 <sup>th</sup>	Natural Gas Production	145.2 billion m <sup>3</sup>	2013
8 <sup>th</sup>	Refined Petroleum Products Exports	1.073 million bbl./day	2012
11 <sup>th</sup>	Refined Petroleum Products Production	1.927 million bbl./day	2012

**Source:** *The World Factbook*, U.S. Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook>, accessed 12 May 2015.

Table 2: Energy Sector Contribution to Provincial GDP (Percentage Share)

	2007	2008	2009	2010	2011	2012	2013	2014
Alberta	31.3	34.8	25.1	27.2	28.7	25.5	26.2	28.7
Newfoundland and Labrador	37.7	43.5	29.0	31.0	34.2	27.4	28.9	26.9
Saskatchewan	25.2	27.8	22.2	22.6	23.0	23.1	22.6	24.2
Northwest Territories	16.4	17.1	11.4	10.7	10.6	11.7	11.1	10.7
New Brunswick	6.9	5.7	5.1	5.0	5.4	4.9	5.6	7.6
British Columbia	6.6	8.6	5.8	6.4	7.4	6.2	5.8	6.0
Manitoba	5.0	5.2	4.5	5.0	5.7	5.6	5.7	5.4
Quebec	4.4	4.4	4.4	4.4	4.3	4.1	4.2	4.2
Nova Scotia	7.0	8.0	4.2	4.5	4.0	3.3	3.3	4.2
Ontario	2.2	2.2	2.3	2.4	2.3	2.3	2.5	2.6
Yukon	2.8	3.0	2.0	2.1	2.0	1.8	1.7	1.7

**Source:** Statistics Canada, Table 379-0028 - Gross domestic product at basic prices, by North American Industry Classification System, NAICS codes 211, 2121, 21229, 21311A, 2211, 2212, 32411, 32419, 486.

**Note:** Data for Prince Edward Island and Nunavut suppressed by Statistics Canada to meet the confidentiality requirements of the Statistics Act.

# Policy Brief

## Energy in Canada: A Statistical Overview

Table 3: Energy Subsector Contributions to GDP by Province (2014, Millions of Dollars)

	NL	PEI	NS	NB	QC	ON	MB	SK	AB	BC
Oil and gas extraction	x	0	x	x	0.5	93.7	x	9,217.3	75,223.7	6,417.4
Coal mining	0	0	0	0	0	0	0	x	x	x
Other metal ore mining	x	0	0	0	x	x	x	x	0	x
Support activities for oil and gas extraction	x	x	x	x	92	174	x	930	7,899	369
Electric power generation, transmission & distribution	x	x	589	907	12,329	8,506	1,160	997	3,306	2,751
Natural gas distribution	0	0	x	x	x	2,276	x	x	1,479	x
Petroleum refineries	x	0	0	x	x	x	0	x	x	x
Pipeline transportation	0	0	x	x	124	791	390	863	2,700	530

**Source:** Statistics Canada, Table 379-0030 - Gross domestic product at basic prices, by North American Industry Classification System, provinces and territories, annual (dollars)

**Note:** 1) "x" indicates amounts suppressed by Statistics Canada to meet the confidentiality requirements of the Statistics Act; 2) amounts are chained 2007 dollars.

Table 4: Subsector Share of Energy Sector GDP by Province (2014)

	NS	NB	QC	ON	MB	SK	AB	BC
Oil and gas extraction	x	x	0.0%	0.7%	x	66.9%	81.6%	50.2%
Coal mining	0.0%	0.0%	0.0%	0.0%	0.0%	x	x	x
Other metal ore mining	0.0%	0.0%	x	x	x	x	0.0%	x
Support activities for oil and gas extraction	x	x	0.7%	1.3%	x	6.7%	8.6%	2.9%
Electric power generation, transmission & distribution	32.4%	51.0%	90.5%	64.9%	40.1%	7.2%	3.6%	21.5%
Natural gas distribution	x	x	x	17.4%	x	x	1.6%	x
Petroleum refineries	0.0%	x	x		0.0%	x	x	x
Pipeline transportation	x	x	0.9%	6.0%	13.5%	6.3%	2.9%	4.1%

**Source:** Statistics Canada, Table 379-0030 - Gross domestic product at basic prices, by North American Industry Classification System, provinces and territories, annual (dollars)

**Note:** "x" indicates amounts suppressed by Statistics Canada to meet the confidentiality requirements of the Statistics Act.

Table 5: Electric Power Generation by Type

Year	Hydro	Non-nuclear thermal	Nuclear	Non-hydro renewables
2005	59.3%	26.1%	14.4%	0.3%
2006	59.0%	25.0%	15.6%	0.4%
2007	59.0%	26.2%	14.3%	0.5%
2008	60.5%	24.2%	14.7%	0.6%
2009	61.3%	23.0%	14.3%	1.4%
2010	59.2%	24.3%	14.5%	2.0%
2011	60.2%	23.5%	14.3%	2.1%
2012	61.0%	22.2%	14.5%	2.3%
2013	62.5%	21.9%	13.3%	2.3%

**Source:** Calculations from Statistics Canada Table 127-0007- Electric power generation, by class of electricity producer

Table 6: National Employment in the Oil, Gas and Pipeline Sectors

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Oil and gas extraction	41,390	43,655	51,550	59,260	60,990	68,455	70,020	62,610	63,495	79,055	78,465
Support activities for oil and gas extraction	52,890	52,705	67,985	79,420	4,190	76,680	65,185	67,975	69,880	70,365	67,965
Natural gas distribution	14,275	14,950	14,455	14,990	15,640	15,065	17,235	18,295	17,380	19,320	17,955
Petroleum refineries	9,085	10,000	10,435	10,115	10,905	10,840	11,065	11,665	11,805	12,790	13,335
Pipeline transportation	6,450	6,580	6,990	6,625	6,425	5,755	5,570	6,950	6,840	6,935	7,880
Total oil and gas sector	124,090	127,890	141,415	170,410	168,150	176,795	169,075	167,495	169,400	188,465	185,600

**Source:** Statistics Canada, Table 383-0031 - Labour statistics consistent with the System of National Accounts, by province and territory, job category and North American Industry Classification System

**Note:** Employment in the oil and gas sector is defined as oil and gas extraction, support activities for oil and gas extraction, natural gas distribution, petroleum refineries, and pipeline transportation.

# Policy Brief

## Energy in Canada: A Statistical Overview

Table 7: Provincial Employment in Oil and Gas and Pipeline Sectors

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Quebec	440	760	515	735	495	490	500	325	415	300	280
Ontario	2,140	2,365	2,730	2,850	2,545	2,230	2,460	2,720	2,195	2,535	2,570
Manitoba	625	630	690	920	740	855	765	860	750	715	685
Saskatchewan	6,735	7,170	8,105	9,095	9,260	10,050	9,120	10,125	10,425	11,245	12,480
British Columbia	6,655	6,830	6,540	7,255	6,800	6,760	5,200	4,805	4,500	3,980	3,905
Alberta	81,135	81,960	104,530	120,290	117,715	126,315	119,630	115,035	117,760	133,390	130,305

**Source:** Statistics Canada, Table 383-0031 - Labour statistics consistent with the System of National Accounts, by province and territory, job category and North American Industry Classification System

**Note:** Employment defined as oil and gas extraction, support activities for oil and gas extraction, and pipeline transportation.

Table 8: Employment in Electric Power Generation, Transmission and Distribution (Total Number of Jobs)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nova Scotia	1,895	1,945	2,055	1,585	1,710	1,875	1,955	1,885	1,700	2,290	2,220
New Brunswick	1,860	2,200	2,070	2,145	2,455	3,035	2,950	2,310	2,475	2,510	2,740
Quebec	22,415	23,090	23,970	24,745	25,070	23,050	14,790	14,825	18,885	16,670	17,870
Ontario	21,955	26,685	23,510	19,925	17,115	16,855	28,345	30,150	32,090	30,920	33,430
Manitoba	5,100	4,730	4,720	4,015	5,115	5,390	5,895	5,995	6,355	6,305	6,145
Saskatchewan	2,020	2,060	1,850	1,935	2,510	2,385	1,560	1,750	2,775	2,665	3,035
Alberta	7,775	8,665	8,635	9,365	8,895	9,470	10,010	10,255	9,695	10,495	9,745
British Columbia	5,785	4,870	6,920	6,830	6,320	7,470	7,630	10,965	11,370	12,520	12,065
All of Canada	71,265	77,020	76,370	73,155	71,985	72,370	75,990	80,880	88,040	87,200	89,970

**Note:** Amounts have been suppressed by Statistics Canada for Prince Edward Island, Newfoundland and Labrador, Yukon, Northwest Territories, and Nunavut to meet the requirements of the Statistics Act.

**Source:** Statistics Canada, Table 383-0031 - Labour statistics consistent with the System of National Accounts, by province and territory, job category and North American Industry Classification System

Table 9: Energy Sector Capital Expenditures (Millions of Dollars)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oil and gas extraction	42,048	48,283	46,765	50,196	30,749	48,280	57,848	65,309	69,410	71,559
Electric power generation, transmission and distribution	9,814	11,775	14,180	15,571	18,242	18,950	20,153	21,085	24,815	22,820
Pipeline transportation	839	2,001	2,255	5,418	4,704	2,672	2,919	4,952	6,741	9,154
Support activities for mining and oil and gas extraction	2,682	4,172	5,168	5,713	3,675	3,966	6,815	5,869	5,325	5,279
Natural gas distribution	1,158	1,381	1,563	1,527	1,561	1,281	1,513	2,245	2,324	2,619
Coal mining	606	408	405	810	422	770	1,088	1,234	759	771
Total	57,146	68,019	70,336	79,234	59,353	75,918	90,337	100,694	109,374	112,202

**Sources:** Statistics Canada, Table 029-0005 - Capital and repair expenditures, by sector and province; Table 029-0007 Capital and repair expenditures, industry sector 21, mining and oil and gas extraction; Table 029-0008 Capital and repair expenditures, industry sector 22, utilities; Table 029-0009 Capital and repair expenditures, industry sectors 31-33, manufacturing; Table 029-0012 Capital and repair expenditures, industry sectors 48-49, transportation and warehousing

**Note:** Amounts are unavailable or have been suppressed by Statistics Canada for energy subsectors other metal ore mining (21229) and petroleum refineries (32411).

# Policy Brief

## Energy in Canada: A Statistical Overview

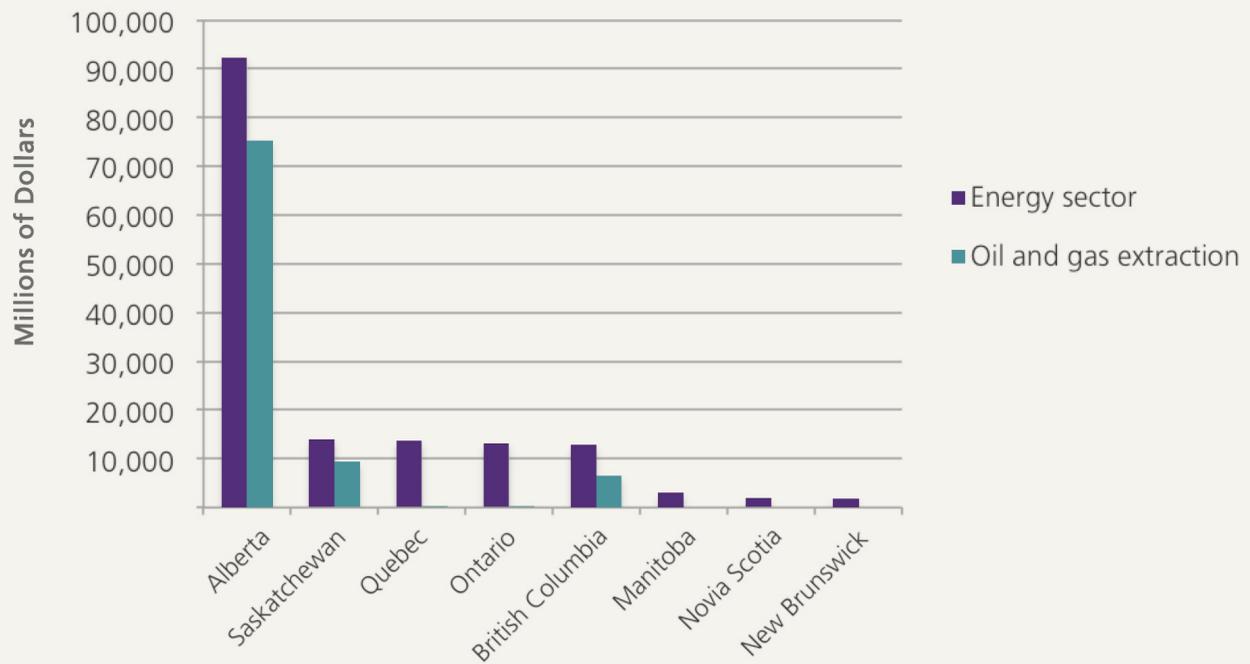
Table 10: Energy Sector Taxes Paid (Millions of Dollars)

<b>Total Federal Tax</b>	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Oil and gas extraction and support activities	1,180	2,504	2,644	3,641	2,307	3,101	3,928	1,710	1,463	1,345	1,138
Mining and quarrying (except oil and gas)	268	495	536	806	866	909	321	644	678	277	181
Utilities	553	451	351	336	330	308	376	272	278	239	295
Petroleum and coal products manufacturing	724	1,179	1,597	2,089	1,527	1,258	954	563	607	697	860
Pipelines, warehousing and transportation support activities	316	356	436	450	565	421	305	331	390	492	523
<b>Provincial Income Taxes</b>											
Oil and gas extraction and support activities	444	1,034	1,167	1,543	1,006	1,722	2,194	1,027	987	1,057	948
Mining and quarrying (except oil and gas)	83	209	245	352	478	636	220	497	571	252	162
Utilities	204	229	189	192	191	186	262	170	162	119	152
Petroleum and coal products manufacturing	329	463	725	878	746	747	554	344	389	506	633
Pipelines, warehousing and transportation support activities	127	196	229	226	276	223	260	256	279	338	324
<b>Total Taxes</b>											
Oil and gas extraction and support activities	1,625	3,538	3,811	5,184	3,313	4,824	6,122	2,737	2,450	2,401	2,086
Mining and quarrying (except oil and gas)	350	703	781	1,158	1,344	1,545	541	1,142	1,249	529	343
Utilities	758	681	539	528	522	493	638	443	440	359	447
Petroleum and coal products manufacturing	1,053	1,642	2,322	2,967	2,274	2,005	1,508	907	996	1,203	1,492
Pipelines, warehousing and transportation support activities	444	553	665	676	841	645	565	586	668	830	847

**Sources:** Statistics Canada, Table 180-0003 - Financial and taxation statistics for enterprises, by North American Industry Classification System (NAICS), annual

**Notes:** 1) "Mining and quarrying" includes coal mining (2121) and other metal ore mining (21229); 2) "Utilities" includes electric power generation, transmission and distribution (2211) and natural gas distribution (2212); 3) "Petroleum and coal products manufacturing" includes petroleum refineries (32411); and 4) "Pipelines, warehousing and transportation support activities" includes pipeline transportation (486).

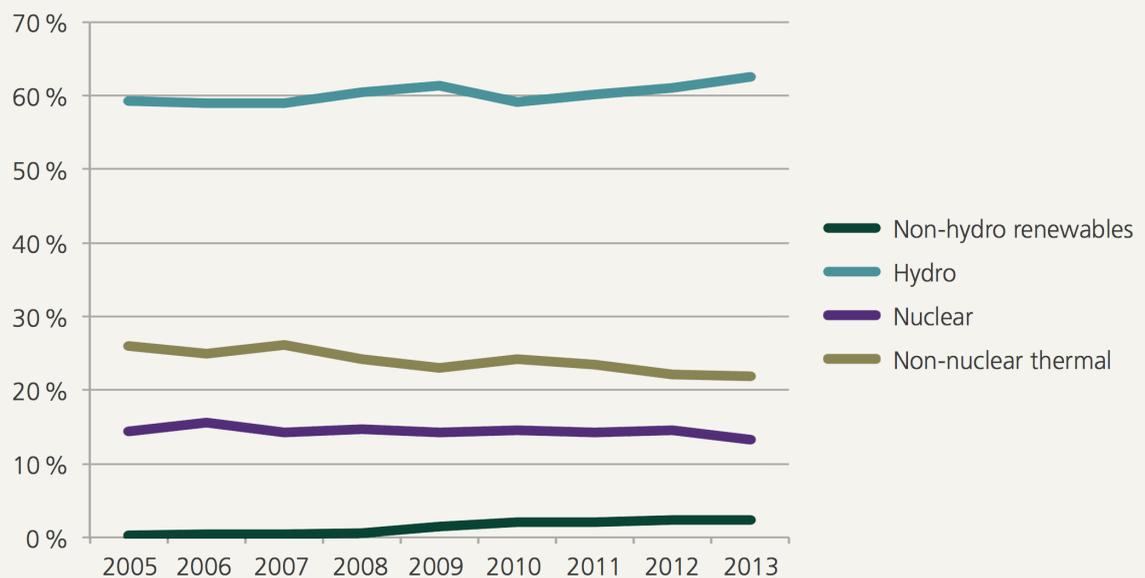
Figure 1: Energy Sector Contribution to Canadian GDP by Province (2014)



**Source:** Statistics Canada, Table 379-0030 - Gross domestic product at basic prices, by North American Industry Classification System, provinces and territories, annual (dollars)

**Note:** Dollars are chained 2007 amounts.

Figure 2: Electric Power Generation by Type

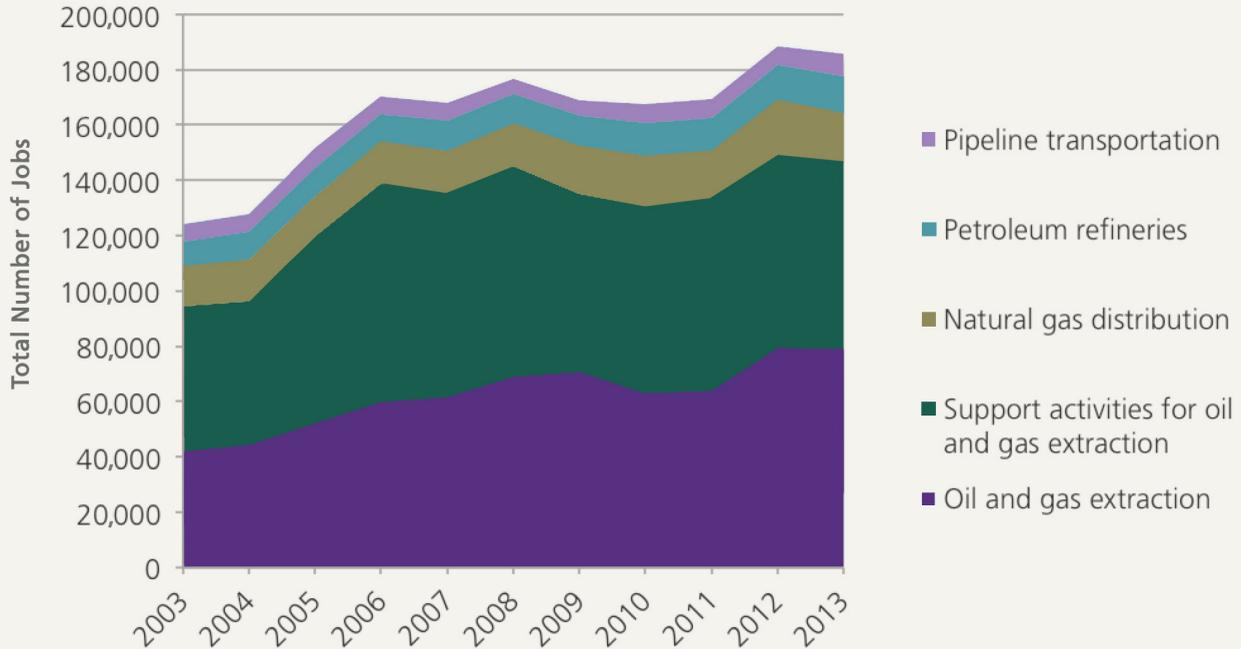


**Sources:** Calculations from Statistics Canada Table 127-0007 - Electric power generation, by class of electricity producer

# Policy Brief

## Energy in Canada: A Statistical Overview

Figure 3: National Employment in Oil, Gas and Pipeline Sectors



**Source:** Statistics Canada, Table 383-0031 - Labour statistics consistent with the System of National Accounts, by province and territory, job category and North American Industry Classification System

**Note:** Employment in the oil and gas sector is defined as oil and gas extraction, support activities for oil and gas extraction, natural gas distribution, petroleum refineries, and pipeline transportation.

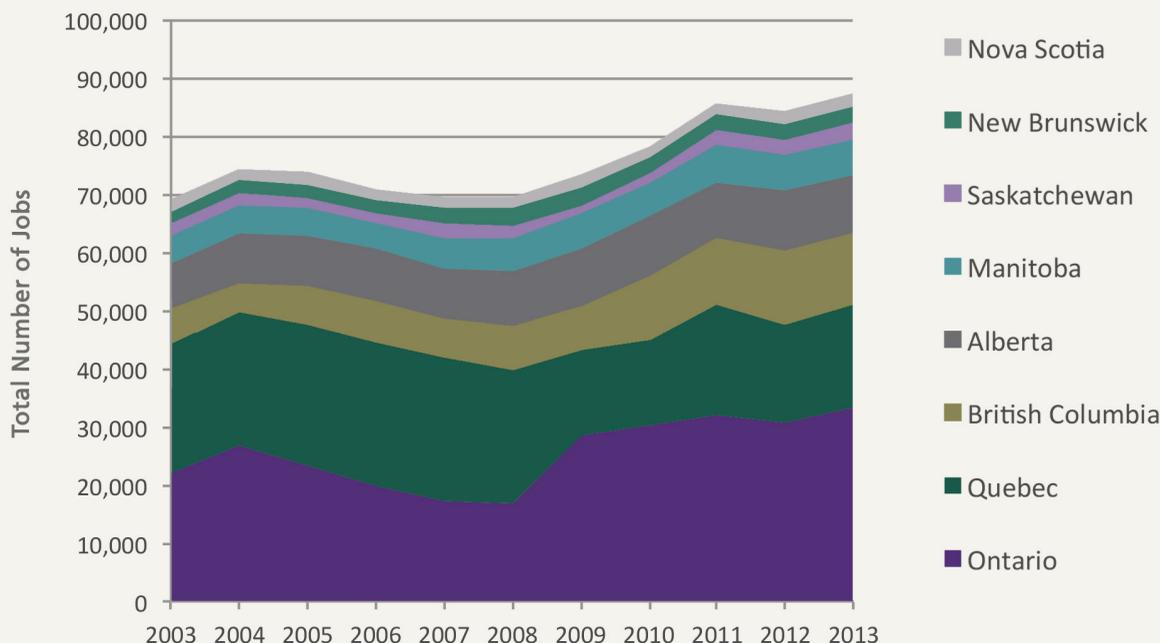
Figure 4: Provincial Employment in Oil and Gas and Pipeline Sectors



**Source:** Statistics Canada, Table 383-0031 - Labour statistics consistent with the System of National Accounts, by province and territory, job category and North American Industry Classification System

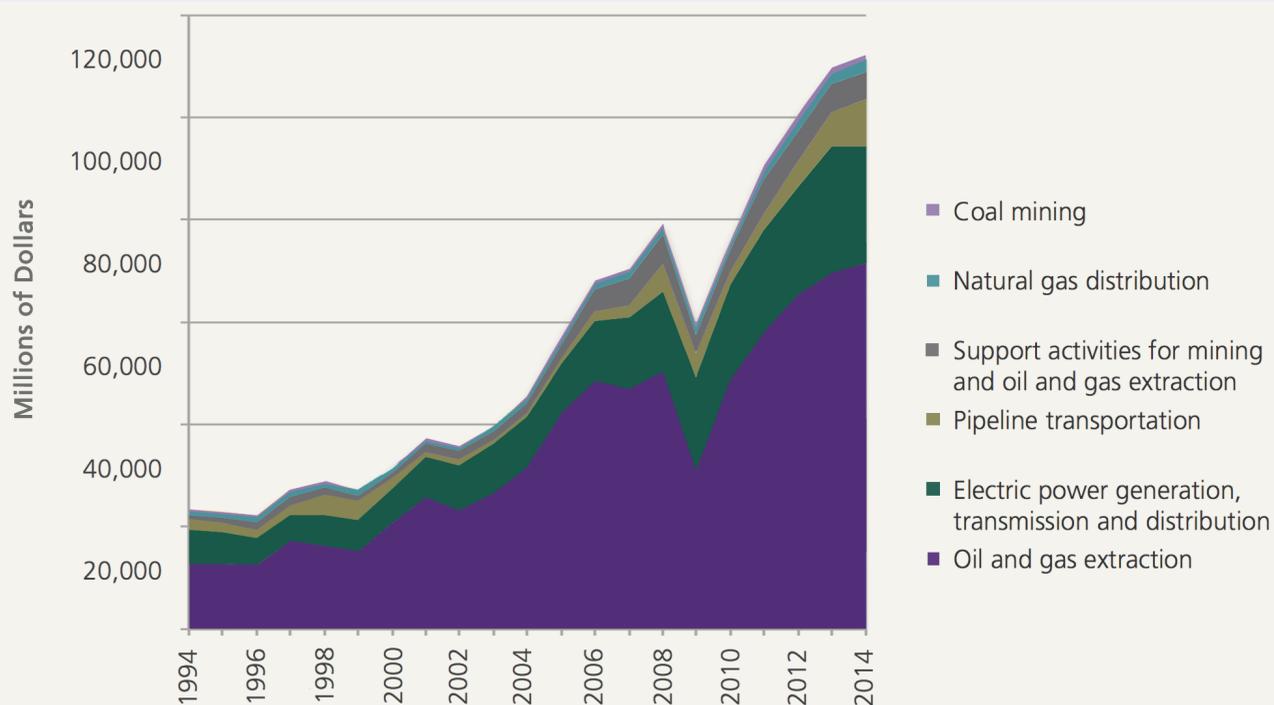
**Note:** Employment defined as oil and gas extraction, support activities for oil and gas extraction, and pipeline transportation.

Figure 5: Employment in Electric Power Generation, Transmission and Distribution



Source: Statistics Canada, Table 383-0031 - Labour statistics consistent with the System of National Accounts, by province and territory, job category and North American Industry Classification System

Figure 6: Energy Sector Capital Expenditures



Sources: Statistics Canada, Table 029-0005 - Capital and repair expenditures, by sector and province; Table 029-0007 Capital and repair expenditures, industry sector 21, mining and oil and gas extraction; Table 029-0008 Capital and repair expenditures, industry sector 22, utilities; Table 029-0009 Capital and repair expenditures, industry sectors 31-33, manufacturing; Table 029-0012 Capital and repair expenditures, industry sectors 48-49, transportation and warehousing

### REFERENCES

- Alberta Energy Regulator, ST98-2015: Alberta's Energy Reserves 2014 and Supply/Demand Outlook 2015-2024, June 2015.
- International Energy Agency, World Energy Outlook 2013 Factsheet: How will global energy markets evolve to 2035?, Web 20 October 2015.
- Natural Resources Canada, About Renewable Energy, Web 8 October 2015.
- , About Uranium, Web 8 October 2015.
- , Additional Statistics on Energy, Web 8 October 2015.
- , Energy Markets Fact Book: 2014-2015, Minister of Natural Resources, Government of Canada, 2014.
- , Oil Sands: A Strategic Resource For Canada, North America, and the global market, Minister of Natural Resources, Government of Canada, February 2013.
- Statistics Canada, Table 029-0005 - Capital and repair expenditures, by sector and province, \*Terminated\*, annual (dollars), CANSIM (database). (accessed: October 21, 2015)
- , Table 029-0007 - Capital and repair expenditures, industry sector 21, mining and oil and gas extraction, annual (dollars), CANSIM (database). (accessed: October 28, 2015)
- , Table 029-0008 - Capital and repair expenditures, industry sector 22, utilities, annual (dollars), CANSIM (database). (accessed: October 28, 2015)
- , Table 029-0009 - Capital and repair expenditures, industry sectors 31-33, manufacturing, annual (dollars), CANSIM (database). (accessed: October 28, 2015)
- , Table 029-0012 - Capital and repair expenditures, industry sectors 48-49, transportation and warehousing, annual (dollars), CANSIM (database). (accessed: October 28, 2015)
- , Table 127-0007 - Electric power generation, by class of electricity producer, annual (megawatt hour), CANSIM (database). (accessed: September 17, 2015)
- , Table 180-0003 - Financial and taxation statistics for enterprises, by North American Industry Classification System (NAICS), annual (dollars unless otherwise noted), CANSIM (database).. (accessed: November 4, 2015)
- , Table 282-0012 - Labour force survey estimates (LFS), employment by class of worker, North American Industry Classification System (NAICS) and sex, annual (persons), CANSIM (database). (accessed: October 20, 2015)
- , Table 379-0031 - Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS), monthly (dollars), CANSIM (database). (accessed: October 20, 2015)
- , Table 379-0030 - Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS), provinces and territories, annual (dollars x 1,000,000), CANSIM (database). (accessed: October 9, 2015)
- , Table 379-0028 - Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS), provinces and territories, annual (percentage share), CANSIM (database). (accessed: October 27, 2015)
- , Table 383-0031 - Labour statistics consistent with the System of National Accounts (SNA), by province and territory, job category and North American Industry Classification System (NAICS), annual, CANSIM (database). (accessed: October 26, 2015)
- Tombe, Trevor, "Better Off Dead: 'Value Added' in Economic Policy Debates", University of Calgary, SPP Research Papers, volume 8, issue 9, March 2015.
- U.S. Central Intelligence Agency, The World Factbook, Web 12 May 2015.
- U.S. Energy Information Administration, Canada: International data and analysis, 30 September 2014.
- , Canada Week: The United States and Canada share the world's most significant energy trade, Web 8 October 2015.
- , International Energy Outlook 2014, DOE/EIA-0484(2014), September 2014.
- , Short Term Energy Outlook, September 2015.

## NOTES

- <sup>1</sup> Natural Resources Canada, Energy Market Factbook 2014-2015, p.3.
- <sup>2</sup> See Statistics Canada, National monthly gross domestic product by industry: Industry code concordances, [http://www23.statcan.gc.ca/imdb-bmdi/document/1301\\_D2\\_T9\\_V1-eng.htm](http://www23.statcan.gc.ca/imdb-bmdi/document/1301_D2_T9_V1-eng.htm).
- <sup>3</sup> *The World Factbook 2013-2014*, U.S. Central Intelligence Agency.
- <sup>4</sup> Calculations from Statistics Canada Tables 379-0031 and 282-0008.
- <sup>5</sup> This figure includes industries such as equipment and manufacturing, construction, and financial services. See Natural Resources Canada, Energy Market Factbook 2014-2015, p.4.
- <sup>6</sup> Calculations from Statistics Canada, Table 379-0031. Creating consistent data series for sector and subsector contributions to GDP can be unexpectedly difficult. For further discussion of these time series see Ivey Energy Policy and Management Centre Policy Brief "Up or Down?: Trends in the Oil & Gas Sector's Contribution to the Canadian Economy."
- <sup>7</sup> Alberta Energy Regulator, Alberta's Energy Reserves 2014 and Supply/Demand Outlook 2015-2024, p.3-5.
- <sup>8</sup> Calculations from Statistics Canada, Table 127-0007
- <sup>9</sup> Calculations from Statistics Canada, Table 127-0007
- <sup>10</sup> Natural Resources Canada, About Renewable Energy, April 11, 2014.
- <sup>11</sup> Natural Resources Canada, Energy Markets Factbook 2014-2015, p.4.
- <sup>12</sup> Calculations from Statistics Canada, Table 379-0031.
- <sup>13</sup> Calculations from Statistics Canada, Table 383-0031
- <sup>14</sup> Tombe, Trevor, "Better Off Dead: 'Value Added' in Economic Policy Debates", p.8-9.
- <sup>15</sup> Calculations from Statistics Canada, Tables 029-0005, 029-0007, 029-0008, 029-0009, and 029-0012
- <sup>16</sup> Calculations from Statistics Canada, Tables 029-0005 and 029-0007.
- <sup>17</sup> Calculations from Statistics Canada, Table 029-0005
- <sup>18</sup> Natural Resources Canada, Energy Market Factbook 2014-2015, p.12.
- <sup>19</sup> Natural Resources Canada, Energy Market Factbook 2014-2015, p.5.
- <sup>20</sup> U.S. Energy Information Administration, Canada Week: The United States and Canada share the world's most significant energy trade
- <sup>21</sup> U.S. Energy Information Administration, Canada: International data and analysis, November 2014, p.13.
- <sup>22</sup> Natural Resources Canada, About Uranium
- <sup>23</sup> International Energy Agency, World Energy Outlook 2013 Factsheet.
- <sup>24</sup> Natural Resources Canada, Energy Market FactBook 2014-15, p.7.
- <sup>25</sup> Calculations from Statistics Canada, Table 180-0003.
- <sup>26</sup> Natural Resources Canada, Energy Market FactBook 2014-15, p.9.

## ABOUT THE IVEY ENERGY POLICY AND MANGEMENT CENTRE

The Ivey Energy Policy and Management Centre is the centre of expertise at the Ivey Business School focused on national energy business issues and public policies. It conducts and disseminates first class research on energy policy; and promotes informed debate on public policy in the sector through supporting conferences and workshops that bring together industry, government, academia and other stakeholders in a neutral forum. The Centre draws on leading edge research by Ivey faculty as well as by faculty within Western University.

More information is available at  
[www.ivey.ca/energy](http://www.ivey.ca/energy)



WESTERN UNIVERSITY · CANADA

Energy Policy and  
Management Centre

## AUTHORS

**Adam Fremeth**, Assistant Professor and Ivey Energy Consortium Fellow, Ivey Business School

**Guy Holburn**, Suncor Chair in Energy Policy and Director, Ivey Energy Policy and Management Centre, Ivey Business School

**Margaret Loudermilk**, Adjunct Research Professor and Research Director, Ivey Energy Policy and Management Centre, Ivey Business School

*The findings and opinions contained in this report reflect solely those of the author(s). The Ivey Energy Policy and Management Centre submits reports for external review by academic and policy experts and energy sector stakeholders. The Centre gratefully acknowledges support from organizations and individuals listed on the Centre's website: <https://www.ivey.uwo.ca/energycentre/about-us/supporters>*