



Sectoral Profile

Mining, quarrying, and oil and gas extraction

Atlantic Region

2018



KEY HIGHLIGHTS

- There were 14,500 workers employed in the Mining, quarrying, and oil and gas extraction sector in 2017, down from a high of 23,900 three years ago. This decrease is largely due to a number of major mine closures as well as impacts related to low oil prices between 2014 and 2017.
- Newfoundland and Labrador (NL) accounts for about 90% of the sectoral GDP in the Atlantic Region. In addition to having a variety of metals and mineral deposits, a large portion of economic activity in that province is the product of offshore oil extraction.
- Workers in this sector are highly productive, and have a median wage which is approximately twice as high as the overall median wage for all industries.
- Resources extracted in this sector generally sell at global commodity prices. The level of these prices is a major determinant of production levels, closures, exploration, and sectoral employment levels.
- Employment levels are expected to increase modestly during the next three years, led by NL. Several prominent mines in NL are ramping up production or expanding, and new offshore oil discoveries are expected to boost the Oil and gas subsector.

INDUSTRY PROFILE

The Mining, quarrying, and oil and gas extraction sector is comprised of three subsectors: Oil and gas extraction, Mining and quarrying (except oil and gas), and Support activities for mining, and oil and gas extraction. Industries of the Mining and quarrying subsector are organized by the resource being extracted from the ground: coal, seven types of metals, four types of stone, sand and gravel, diamonds, salt, asbestos, gypsum, potash, and peat. Due to the complex and varying geology of Atlantic Canada, there is at least one extraction site for nearly all of these resources located in the region.

Support activities for mining, oil and gas extraction encompass a broad range of services such as: contract drilling and blasting; exploration and testing; equipment assembly, maintenance and repair; and site remediation.

This sector is characterized by a labour force that is relatively small but highly productive. In 2017 the sector was responsible for 10.5% of the Atlantic Region's GDP but employed just 1.3% of its workforce; in NL (the province in which this sector is the most extensive) labour productivity in this sector was \$651.90 per hour worked, nearly 10 times higher than overall labour productivity at \$67.10.¹ Employment in the sector tends to be divided fairly evenly among the three subsectors (see Table One), though the value of output is not. Compared to Canada as a whole, employment in the Atlantic region tends to be skewed more toward Mining and Quarrying and Support activities. In 2017, Oil and gas accounted for 65.3% of the sector's output at \$6.4B, while Mining and quarrying and Support activities represented 19.7% (\$3.0B) and 6.2% (\$330M) respectively.

Table One
Employed Labour Force - Mining, Quarrying, Oil & Gas Exploration
Atlantic Canada and Canada

	Atlantic	Canada
Mining, quarrying, and oil and gas extraction	100%	100%
Oil and gas extraction	25.7%	33.7%
Mining and quarrying (except oil and gas)	35.0%	29.4%
Coal mining	0.5%	2.7%
Metal ore mining	21.0%	16.9%
Non-metallic mineral mining and quarrying	13.5%	9.8%
Support activities for mining and oil and gas extraction	39.3%	36.9%

Source: Statistics Canada, 2016 Census of Canada, Table 98-400-X2016290

The Mining, quarrying, and oil and gas extraction sector employed 14,500 individuals in 2017, of which males comprised 87%. A relatively small share of workers are youth (aged 15-24 years) or older workers (55 years and older). Though the prime working age group (aged 25 to 54 years) made up about two-thirds of the total Atlantic workforce in 2017, it accounted for three-quarters of employment in the Mining, quarrying, oil and gas sector. Geographically, employment is concentrated in communities where ground resource extraction is occurring, which are often rural, as well as in the cities of St. John's and Halifax as these urban centres are major ports situated near off-shore oil and gas deposits and other industrial suppliers.

Wages in the Mining, quarrying, and oil and gas extraction sector are relatively high. According to the 2016 Census, the median incomes for full-time, full-year workers in this sector were approximately double the median incomes for all full-time, full-year workers. Taking NL as an example, the overall full-time, full-year median employment income was \$55,696 while the median worker in the Mining, quarrying and oil and gas extraction sector earned \$118,056. Within the sector, the Oil and gas subsector reported the highest median income—\$159,068—while Mining and quarrying and Support activities paid \$104,401 and \$89,749 respectively.

Activity in this sector, like other sectors, is subject to two major constraints: market prices and the production costs associated with the operation. However, oil, gas, and metals generally sell at global commodity prices, which can be volatile. The cost of production at a mine site relative to the market price determines whether extraction is economically viable, leaving businesses vulnerable to sudden price changes. In addition, physical access to a known oil, metal, or mineral deposit can be challenging due to geological conditions, regulatory restrictions, and other legal barriers. Environmental assessments and community consultations play an important role in the establishment and expansion of extraction sites.

¹ Statistics Canada. Table 36-10-0480-01 Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts

Mining operations characterized by large-scale underground or surface mining tend to have a large proportion of the workforce employed by a small number of firms, due to the nature of local mineral extraction rights and the high cost of specialized equipment. As each mine can employ up to several hundred people, openings and closures sometimes cause large fluctuations in sectoral employment.

RECENT HISTORY

In general, regional activity in the Mining, quarrying, and oil and gas extraction sector has responded as expected to global price trends. Falling prices of certain commodities have triggered mine closures and reduced production, while sustained high prices in other commodities have energized exploration and investment.

Over the past three years, regional employment has declined from a historic high of 23,900 in 2014 to 14,500 in 2017, a reduction of 39.4%. The Labour Force Survey indicates that all three Mining, quarrying, and oil and gas extraction subsectors have experienced similar declines in employment.

Oil and gas

The decline in employment in the Oil and gas extraction subsector may be partially explained by the large number of interprovincial commuters who resided in Atlantic Canada but worked in Western Canada. The Alberta oil sector was severely affected by the late-2014 decline in oil prices and ensuing layoffs brought on by an oversupply of oil. The sector did not begin to rebound meaningfully until mid-2017. According to the 2016 Census, 3,910 individuals with a residence in Atlantic Canada worked in Alberta Division No. 16, where much of Alberta's oil extraction takes place.

The three largest offshore oil fields in the region—Hibernia, Terra Nova, and White Rose—have breakeven prices ranging from approximately \$20 to \$60 USD per barrel of Brent equivalent.² During the protracted oversupply of oil, prices fluctuated inside this range for approximately three years and the region experienced a moderate reduction in oil production as well as some deferred investment. Oil producers in Atlantic Canada have been better situated to avoid major layoffs than their counterparts in Western Canada, though many residents of the Atlantic region who commuted to the Alberta oil patch became unemployed and returned home during this period. Despite reduced profitability and uncertainty around when prices would rebound during this period, construction associated with the Hebron project as well as exploration in the Flemish Pass Basin and the Scotian Shelf continued. More recently, this subsector received a large boost when the Hebron platform produced its first oil in November 2017. Gas extraction in the region has been less resilient: two major offshore gas projects in Nova Scotia (NS)—Deep Panuke and Sable—will soon go offline due to smaller-than-anticipated reserves.

Mining and Quarrying

Though the Atlantic region produced large amounts of coal prior to the early 2000's, there are currently just two active coal mines. In 2017, the Donkin coal project in Cape Breton, NS was reopened by the United States-based Cline Group, joining one other operational open-face mine—Pioneer Coal in Westville, NS. Finding buyers for coal produced in the region is challenging due to high sulphur content, which was a factor in the closures of the last four mines in Cape Breton between 1992 and 2001. However, in addition to domestic

² "Stronger Resilience to Lower Oil Prices in Canadian Offshore than Shale." *Rystad Energy*, July 2015.

purchases by Nova Scotia Power, the region exported \$22M worth of coal to the Netherlands in the first eight months of 2018.

A number of metal ore mines—mostly gold—are currently in various stages of exploration and assessment. Gold prices have been high throughout the last several years, spurring interest in mining deposits which were previously less profitable. The Touquoy Gold Mine located at the former village of Moose River Gold Mines, NS began commercial production in March 2018, while the Iron Ore Company of Canada, one of the largest employers in the sector, is increasing activity with the development of the Wabush 3 pit near Labrador City, NL. This is expected to extend the life of their mine by 50 years.

In 2013, base metal production and associated employment in the region declined suddenly with the closure of Xstrata’s Brunswick zinc mine near Bathurst, New Brunswick (NB), as the supply of extractable ore was exhausted. However, Vancouver-based mining company Trevali Mining Corp. re-opened the nearby Caribou mine and reached commercial production in 2016, re-hiring some of the laid off Brunswick mine workers. As a result, regional production of base metals has begun to increase again.

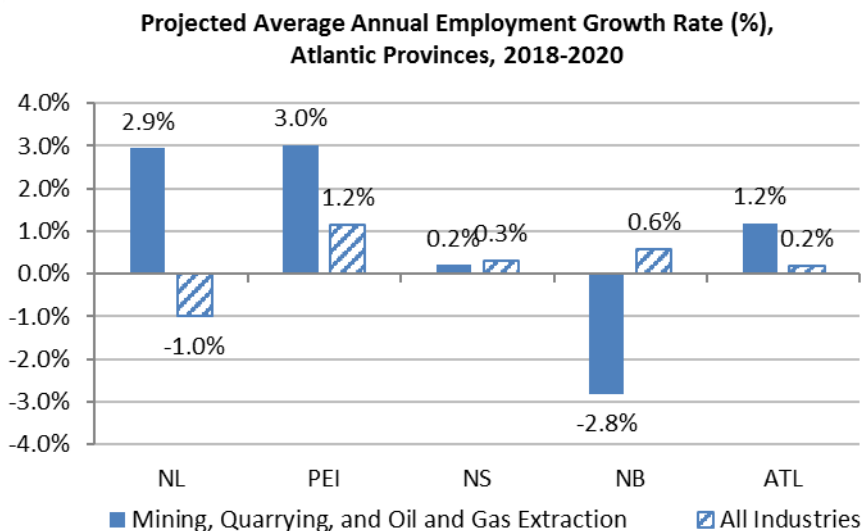
The production of potash in the Atlantic Provinces ended abruptly in 2016 when PotashCorp suspended operations at the Picadilly mine near Sussex, NB due to low global prices and high extraction costs. Several hundred-mine workers lost their jobs; with only a small crew kept on to keep the operation in care-and-maintenance mode. The mine closed permanently in late 2018. Because of this closure, Potash production in the region was nil in 2016 and 2017. Due to the large number of workers employed, this event had a significant impact on the Mining and quarrying subsector in NB.

Total employment in the Support activities subsector has declined at a similar rate as the other two subsectors.

EXPECTED OUTLOOK

Over the next three years, employment in Mining, quarrying, and oil and gas extraction in the Atlantic region is expected to increase at an average annual growth rate of 1.2%. It is anticipated that the sector will add to its workforce in NL and Prince Edward Island (PEI) while employment declines in NB. Negligible change is anticipated in NS.

NL is expected to lead job growth in this sector due to a number of events. Rebounding oil prices will encourage more production at established oil fields, and the new Hebron field, which came online in November 2017, is ramping up to maximum production. Development of the recently announced Bay du Nord project as well as recent discoveries by Husky in the White Rose field ensure that the Oil and gas subsector will be very active in NL during the next several years.



Source: Employment and Social Development Canada / Service Canada, Regional Occupational Outlooks in Canada, 2018-2020

The mining and quarrying subsector in NL will also see a number of key projects move forward. Canada Flourspar Inc.'s (CFI) mine in St. Lawrence, NL on the Burin peninsula made its first shipment of flourspar concentrate in August 2018, and it was announced in June that Vale's Voisey's Bay underground cobalt and nickel mine expansion in Labrador would go ahead. Demand for cobalt, nickel, and copper has increased with the growing production of batteries for electric vehicles, raising global prices. This trend is not expected to subside, ensuring a stable market for these products.

Aside from the offshore gas sites winding up, there are no looming openings or closures in NS, which would have a significant impact on sectoral employment. A number of proposed gold mines along the province's eastern shore are in various stages of exploration. Additionally, the Black Point Quarry project, which would extract aggregates from a site in Guysborough County, NS has been paused as the developer waits for market improvements. However, there are no firm projections with respect to production dates and employment numbers from these ventures.

In NB, the proposed Sisson tungsten-molybdenum mine project represents a potential contributor of several hundred jobs to the sector. Northcliff Resources Ltd., received a positive federal environmental assessment in 2017 and prices are expected to remain high, but the project is currently undergoing other required permit applications, engineering studies, and First Nations consultations. If the project meets all planning requirements, construction could begin in 2019 or 2020.

SUB-REGIONAL DYNAMICS

Newfoundland and Labrador

- NL accounts for the vast majority—92%—of the Mining, quarrying, and oil and gas sector's value in the Atlantic Region. The sector is a major driver of the NL economy, comprising over 33% of total provincial GDP. Three-quarters of sectoral economic activity is in Oil and gas extraction.
- The value of the other two subsectors in the province (Mining and quarrying, and Support activities) also make up the majority of their respective Atlantic totals. Large-scale iron ore mining occurs in Labrador, and a variety of other types of metals and minerals are mined throughout the province.
- Mining, quarrying, and oil and gas employment in the province is down by 40.8% from a peak of 13,700 in 2014. More than half of the provincial employment in this sector is located in the capital city of St. John's. Labrador also accounts for a large share of sectoral employment, mostly due to Mining and quarrying.
- NL's general economic health is very susceptible to volatility in the price of oil and other commodities. Following the steep decline of oil prices in 2014, NL experienced two years of negative economic growth, and the provincial government laid off hundreds of employees, increases taxes, and cancelled infrastructure projects to offset declining royalties.

Prince Edward Island

- PEI has the smallest Mining, quarrying, and oil and gas sector in the region, both in terms of regional share and relative to the size of the overall provincial economy. With a value of \$2M in 2017, the sector accounted for 0.04% of provincial GDP and employed just 200 workers (0.3%).

- The province contains only trace deposits of certain minerals which do not lend themselves to commercially viable extraction, though peat and sand extraction does occur on the island. According to the 2016 Census and the LFS, the majority of employment in this sector is in Support services.

Nova Scotia

- The Mining, quarrying, and oil and gas sector in NS accounted for 1.6% of the provincial GDP in NS in 2017 and employed 3,000 individuals, 0.7% of the provincial workforce.
- About half of the sector's value in 2017 was in Oil and gas extraction, though this share was much larger in past years. The province's two gas extraction sites—Sable and Deep Panuke—are winding down, and Shell and British Petroleum recently finished off-shore exploration without locating any deposits that warrant immediate development.
- Historically, the most important mined products have been a variety of rock and aggregates including salt, gypsum, and coal.
- There are currently a number of open pit gold mines under development in the Eastern Shore region of the province. The price of gold has remained above \$1,100 USD per ounce since 2010, albeit with volatility.

New Brunswick

- There were 3,100 workers in the Mining, quarrying, and oil and gas sector in NB in 2017, accounting for 0.9% of the province's total employment. The sector's output comprised 0.8% of the provincial economy, down from over 2% five years ago due to closures in key industries.
- Mining and quarrying accounts for the majority of sectoral output as well as just under half of sectoral employment. Within the mining and quarrying subsector, the most important industries have historically been base metals (copper, nickel, lead, and zinc), particularly in the northern part of the province around Bathurst, as well as potash (near Sussex) and peat.
- Xstrata's Brunswick zinc mine ceased production in 2013, though Trevali Mining Corp. re-opened the nearby Caribou mine in 2015, rehiring many of the laid-off workers. PotashCorp's potash mine in Sussex suspended operations in early 2016, ending potash production in the province and reducing employment in the mining sector by several hundred.
- Peat extraction in N.B. is characterized by a large number of small-to-medium sized businesses, who account for the majority of peat extraction in the Atlantic Region.

APPENDIX

Table Two
Real GDP (2017) and Employment (2017) for Atlantic Canada

	Mining, Quarrying, and Oil and Gas Extraction			All Industries		
	Number	Share of		Number	Share of	
		Total	AAGR*		Total	AAGR*
Real GDP (M\$)	\$11,858.3	100.0%	-4.2%	\$103,262.4	100.0%	0.4%
Newfoundland and Labrador	\$11,143.2	94.0%	-3.7%	\$31,585.2	30.6%	-0.3%
Prince Edward Island	\$2.8	0.0%	0.0%	\$5,540.0	5.4%	1.5%
Nova Scotia	\$403.4	3.4%	-8.0%	\$35,955.4	34.8%	0.8%
New Brunswick	\$308.9	2.6%	-12.5%	\$30,181.8	29.2%	0.4%
Employment (000s)	14.5	100.0%	-1.2%	1099.8	100.0%	0.1%
Male	12.5	86.2%	-1.1%	550.8	50.1%	-0.1%
Female	2.0	13.8%	-2.2%	549.0	49.9%	0.2%
15-24 years old	0.9	6.2%	-5.0%	140.3	12.8%	-1.5%
25-54 years old	10.8	74.5%	-1.9%	706.1	64.2%	-0.7%
55 years and older	2.8	19.3%	4.0%	253.4	23.0%	4.3%
Worked full-time	14.4	99.3%	-1.2%	918.9	83.6%	0.1%
Worked part-time	n/a	n/a	n/a	180.9	16.4%	-0.1%
Self-employed	n/a	n/a	n/a	131.5	12.0%	0.0%
Employees	14.4	99.3%	-1.2%	968.3	88.0%	0.1%
Permanent job	11.1	76.6%	-1.9%	788.2	71.7%	0.2%
Temporary job	3.3	22.8%	1.7%	180.1	16.4%	-0.2%
Less than high school	1.0	6.9%	-6.7%	103.3	9.4%	-4.4%
High school graduate	2.8	19.3%	-2.5%	286.2	26.0%	-0.8%
Postsecondary cert. or diploma	8.1	55.9%	-0.7%	430.5	39.1%	0.5%
University degree	2.6	17.9%	2.2%	279.8	25.4%	3.0%
Newfoundland and Labrador	8.1	55.9%	-0.4%	224.1	20.4%	0.3%
Prince Edward Island	0.2	1.4%	0.0%	73.7	6.7%	0.7%
Nova Scotia	3.0	20.7%	-1.2%	449.0	40.8%	0.0%
New Brunswick	3.1	21.4%	-3.7%	352.9	32.1%	-0.1%

Source: Statistics Canada, Labour Force Survey - Custom Table; Table 36-10-0402-01

*Average annual growth rate for last ten years of available data (GDP 2008-17 and Employment 2008-17)

Note: In preparing this document, the authors have taken care to provide clients with labour market information that is timely and accurate at the time of publication. Since labour market conditions are dynamic, some of the information presented here may have changed since this document was published. Users are encouraged to also refer to other sources for additional information on the local economy and labour market. Information contained in this document does not necessarily reflect official policies of Employment and Social Development Canada.

Prepared by: Labour Market Analysis Directorate, Service Canada, Atlantic Region

For further information, please contact the Labour Market Analysis Directorate at:

atl-lmi-imt-gd@servicecanada.gc.ca

© Her Majesty the Queen in Right of Canada as represented by Employment and Social Development Canada, 2018, all rights reserved