

**Agriculture and Oil and Gas
in Northeast British Columbia -
Background Report**

Acknowledgements

This background report was developed by the Ministry of Energy, Mines and Petroleum Resources, the Ministry of Agriculture, the Agricultural Land Commission and the British Columbia Oil and Gas Commission with the assistance of AHA Creative Strategies Inc..

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Introduction

In January 2018, British Columbia's (B.C.) Minister of Agriculture (AGRI) tasked an Independent Advisory Committee to lead a public consultation that would provide Government with strategic advice and policy guidance for revitalizing the Agricultural Land Reserve (ALR) and Agricultural Land Commission (ALC). The results were detailed in the December 2018 report entitled *Revitalizing the Agricultural Land Reserve and the Agricultural Land Commission*ⁱ (Revitalization Report).

The Revitalization Report looked at the interface between B.C.'s agriculture and energy (primarily oil and gas) industries due to the shared land base in northeast B.C. (NEBC). NEBC is an important geographic region for both industries due to productive agricultural soil and the underlying geology that holds some of the largest natural gas reserves in North America. The Committee recognized both agriculture and the energy sector as vital to B.C.'s economy.

The Revitalization Report promotes an "Agriculture First" approach to, which is described as a "government-wide policy shift that identifies B.C.'s agricultural land and industry as the equivalent to other provincial natural resources." The Committee submitted 32 final recommendations for the Minister's consideration, which included Recommendation 25 specific to the interaction of agriculture and oil and gas development in NEBC. Recommendation 25ⁱⁱ states:

Immediately work to address the imbalance between oil and gas development and agriculture in BC's Northeast ALR:

1. *Form a Deputy Minister-level, multi-agency, multi-jurisdictional Task Force to develop a Northeast ALR Strategy; and,*
2. *Establish an increased ALC presence to support farmers and ranchers in BC's Northeast ALR.*

A Deputy Minister Task Force has been established comprising the Deputy Minister of AGRI, the Deputy Minister of Energy, Mines and Petroleum Resources (EMPR), the Chief Executive Officer of the ALC, and the Commissioner and Chief Executive Officer of the B.C. Oil and Gas Commission (OGC). The Task Force is to examine the findings and recommendations from the Revitalization Report and, where and if appropriate, develop recommendations and initiate actions as may be necessary in providing Government's response to the Reportⁱⁱⁱ. As a first step, the Task Force has developed this Background Report which is a comprehensive and factual public facing report which provides:

- the history and current context in NEBC with respect to oil and gas and agricultural land use; and
- an examination of the existing policy and regulatory frameworks for both sectors.

This Background Report provides information on the history and current context of agriculture and oil and gas land use in NEBC, their contributions to the provincial economy, and a summary of the existing policy and regulatory frameworks for both sectors.

NEBC is home to several Treaty 8 First Nation communities, including McLeod Lake Indian Band, Saulteau First Nations, West Moberly First Nations, Doig River First Nation, Blueberry

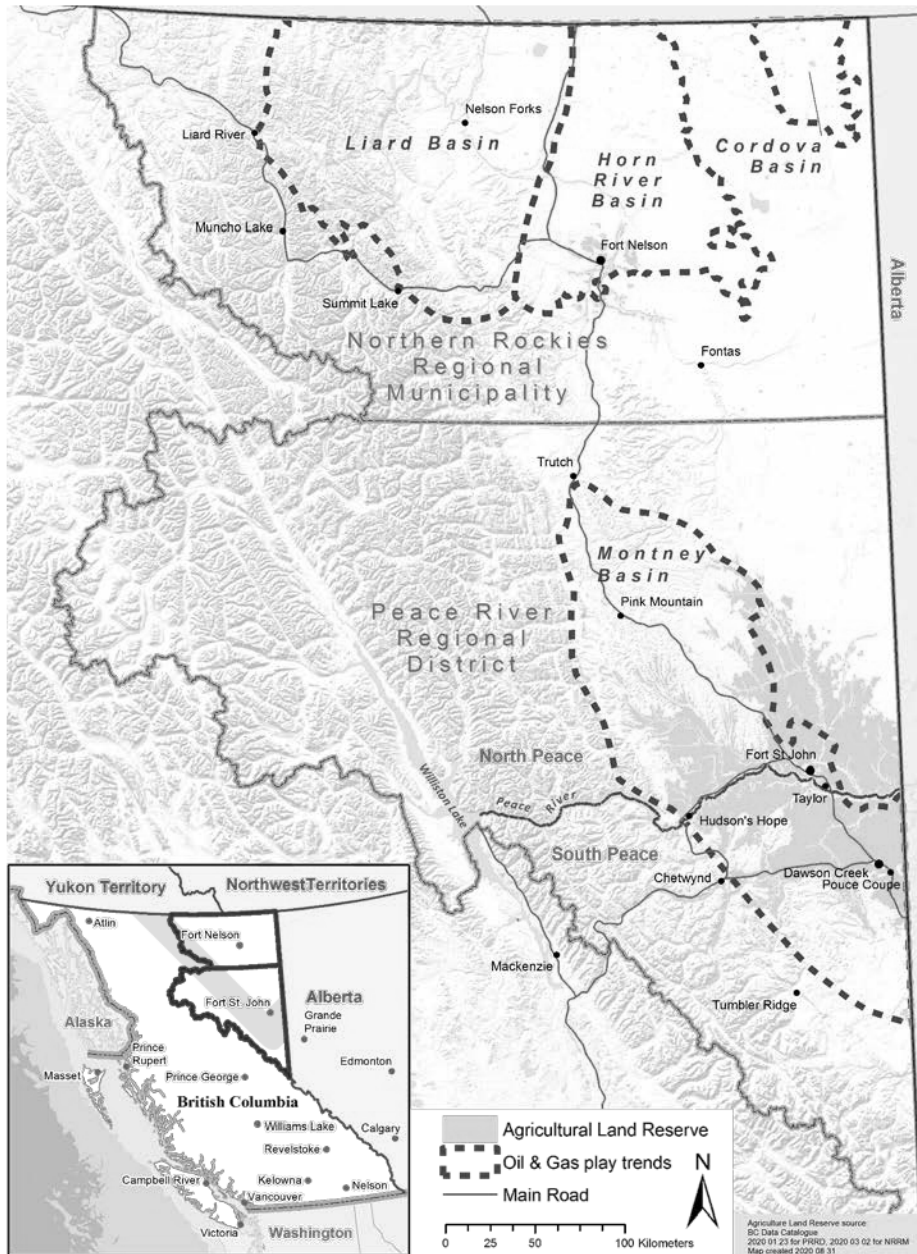
River First Nations, Halfway River First Nation, Prophet River First Nation and Fort Nelson First Nation. In NEBC there are two regional jurisdictions; the Peace River Regional District (PRRD) and Northern Rockies Regional Municipality (NRRM) (Map 1).

The NRRM is situated north of the PRRD along the Alaska Highway and extends to the B.C.-Yukon border, covering approximately 8.5 million hectares with a population of 5,393 people, primarily situated in Fort Nelson.

The PRRD is approximately 12 million hectares in size with a population of 66,477 people, 70 per cent of which is situated in the communities of Fort St. John, Dawson Creek, Tumbler Ridge, Chetwynd, Taylor, Hudson's Hope and Pouce Coupe. The PRRD is made up of the provincial electoral districts of Peace River North and Peace River South, which are separated by the Peace River.

Of the four shale gas basins within NEBC, most of the recent oil and gas activity has occurred in the Montney Basin (Montney) which lies fully within the PRRD and extends into Alberta. Therefore, while this Background Report provides statistics for NEBC, it also provides a much greater focus on the Montney, and the ALR within this basin.

Preparation of this report was well underway when COVID-19 impacted B.C.'s people and economy. Ongoing work and recommendations should consider B.C.'s Economic Recovery Plan, and additional work as it is developed.



Map 1: Overview map of NEBC

Overview of agriculture in NEBC

Agriculture in NEBC

Agriculture has played a major role in the economy of NEBC for the last 100 years, with notable contributions following the first World War, the depression of the 1930's and the recession of the early 1980's. The soil quality, annual precipitation and the short growing season limit the selection of crops to those early-maturing species that perform well at lower temperatures and take advantage of long summer daylight hours.

The similar soils, topography and climate between NEBC and the prairies naturally led to wheat and seed crops being the first components of the agricultural industry. Wheat production was the primary crop in the 1930's, and was surpassed by barley in the 1950's. Select short-season crops, such as potatoes, rutabagas, carrots, beets, cabbage, lettuce, peas, and even tomatoes and sweet corn, can be commercially grown in areas adjacent to the Peace River and its major tributaries at elevations below 800m. The bulk of the land is suitable for conventional prairie field crops such as wheat, barley, canola and forage. A growing number of farms in the Peace Region are now producing certified organic beef, bison, poultry, hogs, eggs, wheat, barley, hay, oil seeds and potatoes. A more comprehensive description of crops and agriculture products is found in Appendix A.

ALR in NEBC

As of April 2020, approximately 1,333,077 hectares (29% of Provincial ALR total) of ALR is located in NEBC, with 3.6 per cent (48,433 hectares) in the NRRM, and 96.4 percent (1,284,644 hectares) in the PRRD - 56.6 percent (753,702 hectares) in the North Peace and 39.8 per cent (530,942 hectares) in the South Peace (Figure 1).

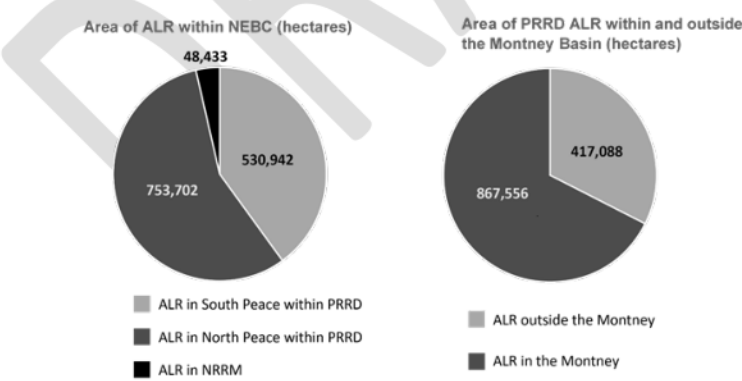


Figure 1: Distribution of ALR within NEBC and PRRD

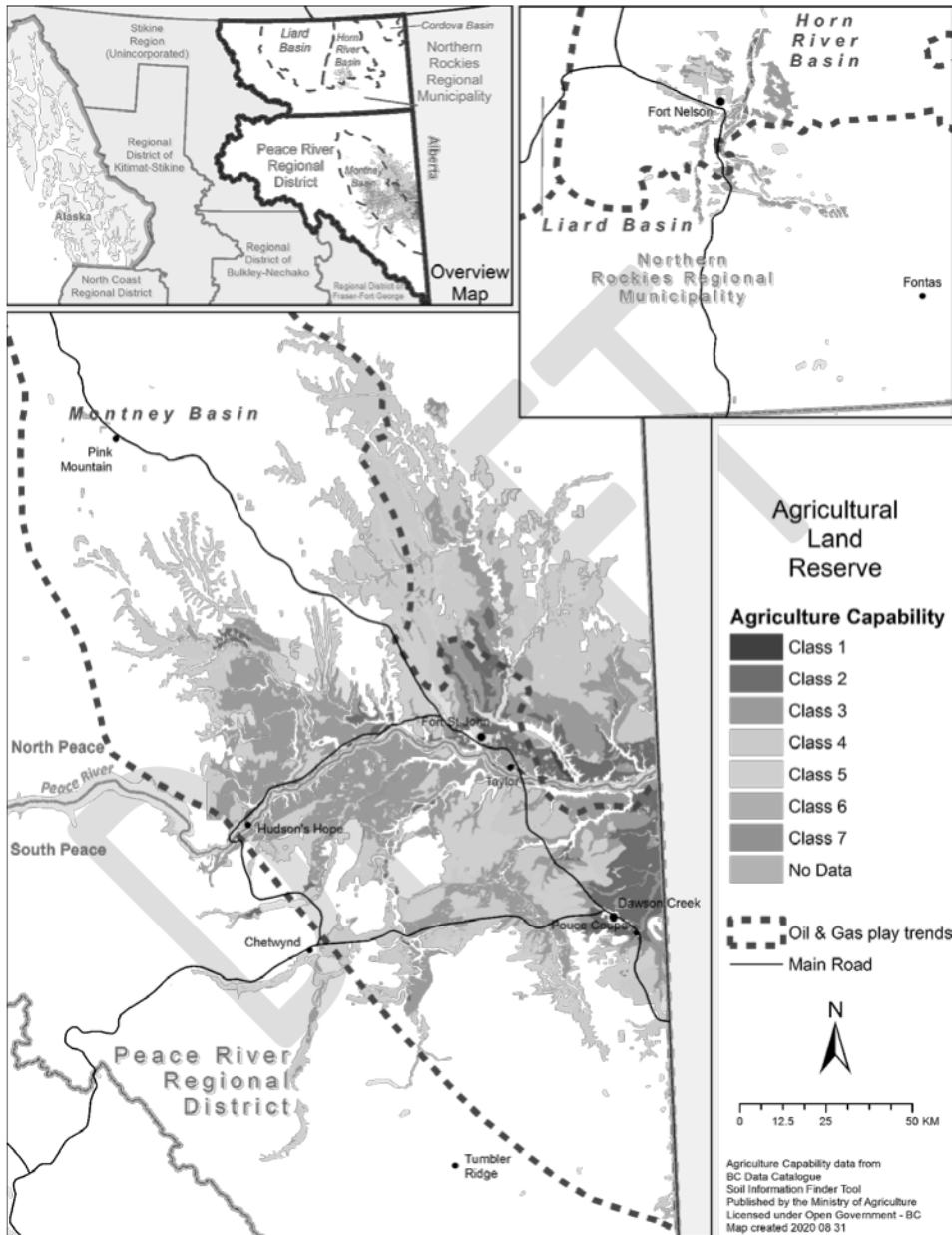
The Montney intersects approximately 67.5 per cent (867,556 hectares) of the ALR within the PRRD.

Description of the ALR in NEBC

The Canada Land Inventory classification of soils identifies the potential for agricultural activity on the land. The best agricultural lands are rated Class 1 because they have the ideal climate and soil to enable the widest range of crops. Class 7 is considered non-arable, with no potential for soil-bound agriculture. The agricultural capability of ALR in NEBC ranges from class 1 to class 7, with class O for "organic". Appendix B contains additional detail on each class.

Map 2 shows the geographic distribution of the capability classes in NEBC, and Figure 2 shows the percent distribution of classes within the Montney. Additional detail is also below in the section titled "Overview of oil and gas in NEBC".

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Map 2: Distribution of agriculture capability of the agriculture land reserve

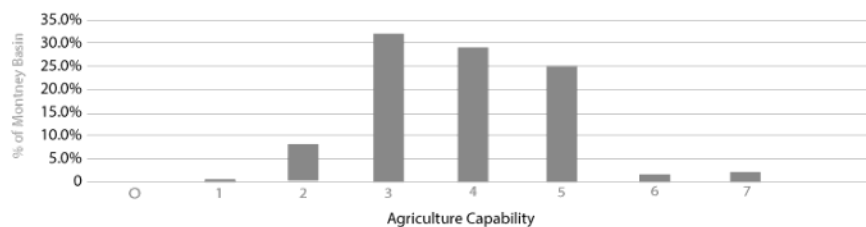
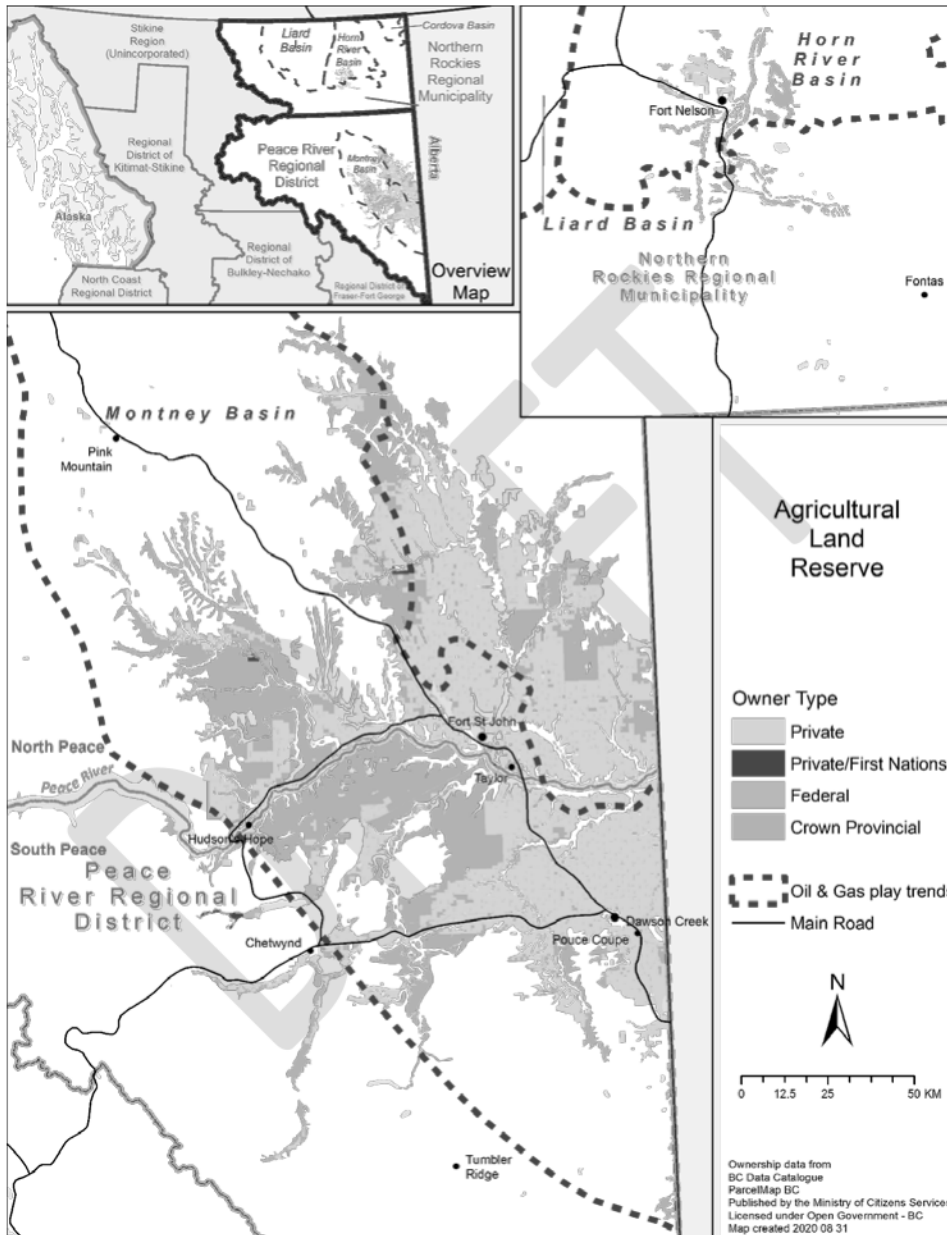


Figure 2: Distribution of agriculture capability class of the ALR within the Montney¹

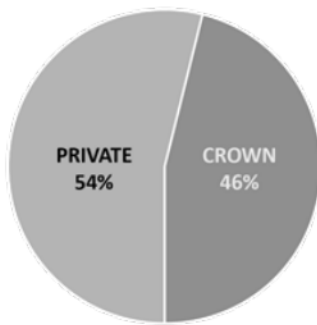
Of the 1,284,644 hectares of ALR within the PRRD, 55.2 per cent (709,123 hectares) is privately owned, 44.6 per cent (572,951 hectares) is provincial Crown land, and the final 0.2 per cent (2,569 hectares) is owned by the Federal Government and First Nations Governments. Map 3 illustrates the different types of land ownership of ALR within the PRRD. Of note is the different ownership percentages of ALR within the Montney between the South Peace and North Peace as shown in Figure 3 below.

¹ Class "0" is 9.53 ha in size (0.001%)



Map 3: Types of land ownership within the ALR in NEBC

South Peace ALR Land Ownership within the Montney



North Peace ALR Land Ownership within the Montney

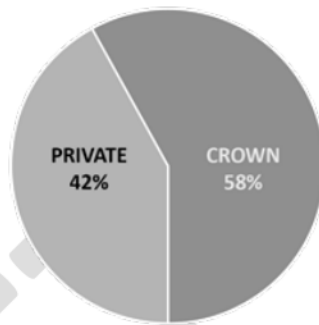
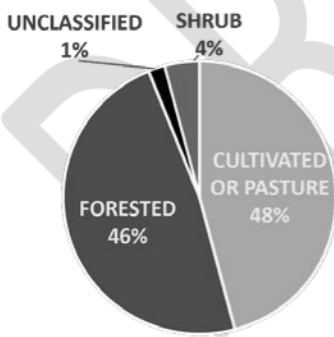


Figure 3: ALR land ownership within the Montney

In addition to ownership, the ALR land cover varies considerably between the South Peace and North Peace as highlighted in Figure 4 below.

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South Peace ALR land cover within the Montney



North Peace ALR land cover within the Montney

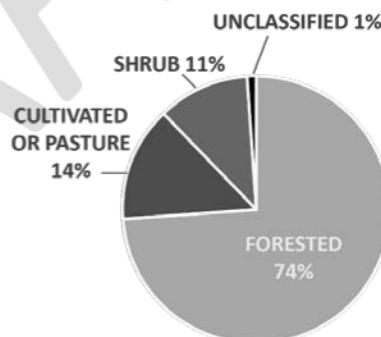


Figure 4: ALR land classification within the Montney

The overall area of farmland in the NEBC has remained consistent since 1981. The 2016 agricultural census indicates that farms and ranches in NEBC occupy approximately 804,053 hectares of land. Of the 1,335 farms in NEBC, there were approximately 844 crop farms and 515 livestock farms. The average size of farms in the NEBC is 602.3 ha.

Key statistics from the 2016 Agriculture in Brief report^{iv} for the PRRD, in Table 1 below, show that the number of farms and total farmland² has been decreasing since 2006, at the same time the average farm size has been increasing.

Table 1: Farmland in PRRD (hectares)

Category	2006	2011	2016	Proportion of B.C. in 2016
Total farmland	885,485	823,498	794,599	30.7%
Crops ³	253,733	268,362	273,211	47.0%
Summer fallow	n/a	15,990	3,716	69.6%
Tame or Seeded Pasture	111,507	99,619	97,815	47.5%
Natural Land for Pasture	345,172	339,848	324,525	22.6%
All Other Land ⁴	Na	99,678	95,333	26.1%
Number of farms ⁵	1,699	1,532	1,311	N/A
Average farm size	521.2	537.5	606.1	N/A

² Some agricultural activity (ranching) may take place outside of the ALR so the area summaries collected through the census related to "farmland" may not correspond exactly to the ALR numbers.

³ Crops include hay crops, field crops, field vegetables, fruits and nuts, sod and nursery products.

⁴ Other farmland area includes: woodland, wetlands, Christmas tree land, land with farm buildings, barnyards, lanes, home gardens, greenhouses, mushroom houses and idle land.

⁵ Total number, not hectares.

Overview of oil and gas in NEBC

Oil and Gas in NEBC

The first oil and gas exploration activity in the province occurred in southeast B.C. in the 1890s. Sporadic drilling to shallow depths occurred in various regions of the province in the decades that followed, without commercial success. Development accelerated in NEBC after the world-class Leduc, Alberta oil discovery in 1947, with the first gas production in 1954 from wells located close to the city of Fort St. John.

B.C. oil production commenced in 1955 from the Boundary Lake field, which borders Alberta, and gas exploration and development continued at a steady pace across NEBC through the decades, with both dips and highs in activity depending on oil and gas prices. The pursuit of other hydrocarbon resources included several unsuccessful attempts at commercial coalbed methane production in the late 90's, including locations north of Hudson's Hope.

In the early 2000's, horizontal drilling was matched with multi-stage hydraulic fracturing to release trapped oil and gas in shale and tight rock formations that were previously unproduced. This new approach led to the exploration and production of unconventional sources of natural gas and natural gas liquids (e.g. propane). Extracting natural gas from unconventional formations is fundamentally different in method, size and scale than from conventional formations, in which gas generally flows freely to the wellbore.

Unconventional development targeted the Horn River Basin, north of Fort Nelson, and to a lesser extent the Liard Basin to the west, but by 2005, the Montney was beginning to be the focus of ever-increasing development. Continual advances in technology, improvements in well performance, availability of liquid rich gas, and competitive production costs have kept the focus of oil and gas development in NEBC on the Montney. Currently, the Montney accounts for over 90 per cent of all oil and gas activity in NEBC.

Montney

The Montney, is an unconventional resource play, with an approximately 200 to 300 metre thick siltstone that is saturated with hydrocarbons (natural gas, natural gas liquids and some oil) over a broad area of NEBC^v. The Montney stretches from just south of Prophet River to south of Dawson Creek (Map 2) and is well known throughout North America as one of the most prolific oil and gas plays. The term "play" is a term used by geologists and engineers to identify a specific subsurface geological zone where rocks, usually covering vast areas, are saturated with trapped hydrocarbons. Unconventional plays in North America require hydraulic fracturing to be developed and productive.

Montney and the ALR

As shown in Figure 1, the Montney intersects with approximately 67.5 per cent (867,556 hectares) of the ALR within the PRRD, and approximately 33 per cent of the entire Montney overlaps with ALR land designation. Approximately 80 per cent (697,047 hectares) of the ALR land in the Montney has been tenured with subsurface oil and gas rights.

In 2018, drilling in the Montney led to an increase in the production of natural gas liquids. By the end of December 2018, 3,280 of B.C.'s 8,090 producing wells were within the Montney. The growth of new and producing wells in the Montney is shown in Figure 5.

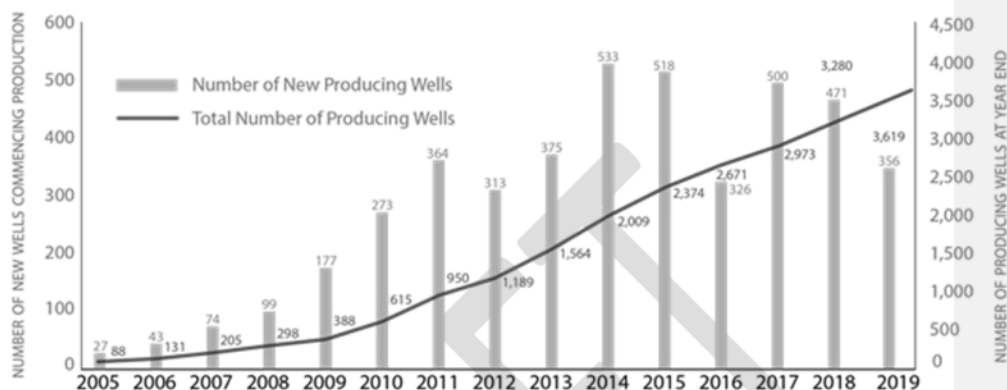


Figure 5: Number of new wells and producing wells in Montney 2005 to 2019

Footprint⁶ of Oil and Gas Activities in NEBC

The following tables provide statistics on the area of land permitted for oil and gas activity⁷ in NEBC. Table 2 shows the cumulative footprint by oil and gas activity.

Table 2: Cumulative footprint of oil and gas activity on ALR ownership in NEBC

Activity	Total Area (hectares)	Area (hectares)		Per cent Area of ALR in NEBC		
		Crown	Private	Crown	Private	Total
Pipelines	9,130	4,608	4,522	0.35	0.34	0.69
Wells & facilities	10,883	3,754	7,129	0.28	0.53	0.81
Roads	3,414	2,524	890	0.19	0.07	0.26
Ancillary	3,464	1,425	2,039	0.11	0.15	0.26
Total footprint	26,891	12,311	14,580	0.93	1.09	2.02
Total ALR	1,333,079	613,893	719,186	46.1	53.9	

A further breakdown of the cumulative NEBC footprint total is in Tables 3 and 4 below. It is important to emphasize that the impact of oil and gas activity on agricultural operations depends on a number of factors, including but not limited to: the amount of land impacted, soil classification, the type of oil and gas activity, the placement and duration of oil and gas activity on a parcel, timeliness and degree of restoration efforts, and potential impacts on current and future agricultural uses.

⁶ The term "footprint" is used to describe the area within permitted and authorized oil and gas activities.

⁷ See Appendix C for a more detailed description of oil and gas activities.

Table 3: Cumulative footprint by agricultural capability classification in NEBC

Land Capability	Total Area (hectares)	Total Area Affected (hectares)			Total Area Affected (%)
		Crown	Private	Total	
Organic (O)	14,382	67	18	85	0.59
1	440	0	2	2	0.45
2	114,360	80	1,657	1,737	1.52
3	397,113	3,151	3,914	7,065	1.78
4	456,346	4,699	5,105	9,804	2.15
5	304,512	4,021	3,627	7,648	2.51
6	15,845	53	108	161	1.02
7	30,081	242	147	389	1.29
Total	1,333,079	12,313	14,577	26,891	2.02

Table 3 and 4 indicate that approximately 2.2 percent (26,891 hectares) of the ALR in NEBC has been impacted by oil and gas activities. Regional and local assessments will result in higher or lower percentages, based on location, size and the shape of the area considered. Map 4 shows 6 categories of oil and gas land use⁸ by section. Figure 6 shows representative examples of oil and gas activity for each of the six categories within the Peace River Block.

Table 4: Cumulative footprint by land cover classification in NEBC

Activity	Land Cover Categories (hectares)						Total Area (hectares)
	Forest	Shrub	Cultivated / Pasture	Clearing	Rock	No Class	
Pipelines	5,121	629	3,350	18	0	12	9,130
Wells, facilities	3,781	804	6,082	211	0	5	10,883
Roads	2,241	267	902	3	0	1	3,414
Ancillary	1,829	185	1,401	45	0	4	3,464
Total Affected	12,972	2,060	11,736	277	0	22	26,891
Affected (%) ⁹	1.7	2.7	2.6	18.1	0.0	2.7	

All oil and gas activities require restoration, under the Environmental Protection and Management Regulation, the Delegation Agreement¹⁰, and more recently the Dormancy and Shutdown Regulation enacted in May 2019. Oil and gas activities are a temporary use of land, and the duration of permitted use, and surface impact ranges from one season (seismic line) to many years (gas plant).

⁸ Includes well/facility pads, oil and gas roads, pipelines and ancillary features

⁹ Represents the proportion of each ALR land cover category affected by oil and gas activity.

¹⁰ Discussed in more detail below

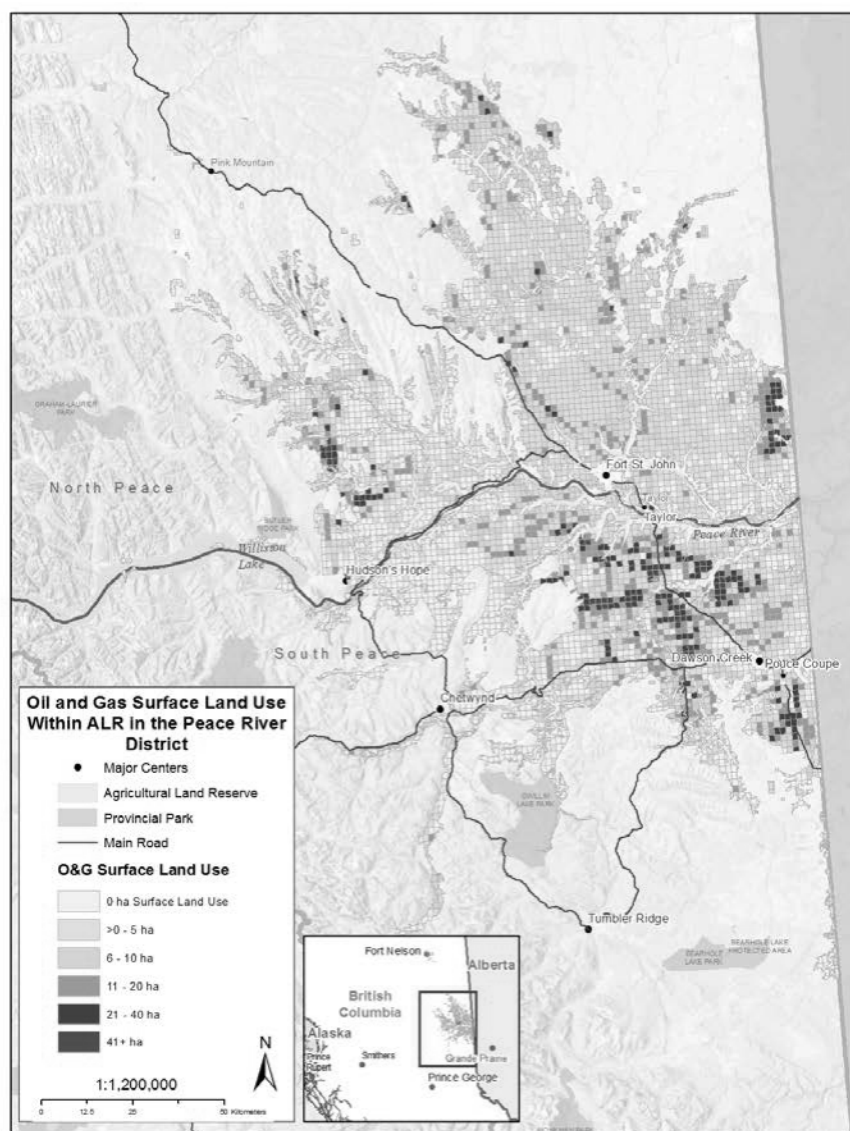




Figure 6a: 0 hectares (0 hectares)



Figure 6b: 2.9 hectares (>0 to 5 hectares)



Figure 6c: 8.8 hectares (5 to 10 hectares)
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Figure 6d: 15.3 hectares



Figure 6e: 29.6 hectares



Figure 6f: 58.7 hectares

Figure 6: Images of oil and gas disturbance of representative sections for each of the 6 categories in map 4.

Economic data

Agriculture

A detailed economic analysis was not conducted, rather metrics from publically available reports and data are used below to outline the economic contribution of agriculture to NEBC and to the Province.

Farm Production

Figure 6^{vi} shows that area seeded and harvested has remained relatively constant since 2010, where as overall production has increased by around 250 tonnes.as has production.

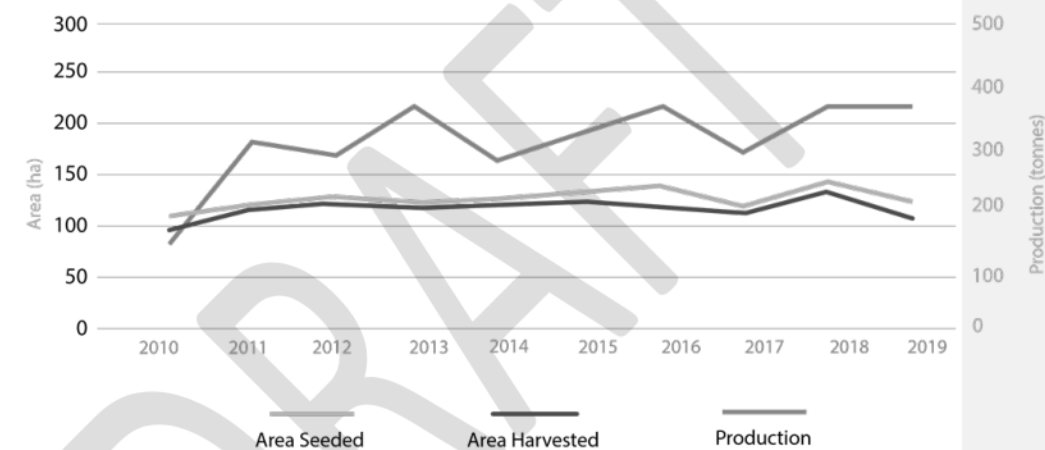


Figure 7: Area seeded and harvested, and production tonnes

Farm Cash Receipts and Expenses

Gross domestic product (GDP) is the typical indicator used to inform on the health of the economy and on certain industries in the economy, and GDP estimates used here are released by Statistics Canada. In addition, the Census of Agriculture data and the financial indicators it provides is used to inform on the health of the farm sector for the north-east region of the province.

The Census of Agriculture tracks total farm sales¹¹, expenses, and the value of farm capital¹² for all census farms, as reported every five years.

¹¹ Also known as farm receipts

¹² Consisting of land, buildings, machinery and equipment

In NEBC employment numbers between 2010 and 2015 show a decline in number of farm operators and farm employees. Of the 2025 farm operators in NEBC in 2015, approximately 50 percent were over the age of 55 and approximately 50 percent worked full time.

Farm receipts are the value of total farm output or production and from it the magnitude and rate of growth over time can be calculated and provide the closest proxy to GDP. Between the 2011 Census and 2016 Census, total farm receipts in NEBC increased by \$50.6 mil (35 per cent), as shown in Figure 7.

A more in-depth and useful measure of the health of the agriculture sector is farm profitability. Farm income¹³ provides a picture of farm business cash flow, representing the amount of money available for debt repayment, investment or withdrawal. Farm revenues that exceed and grow at a faster rate than farm expenses, provides an indication of the financial viability of the sector.

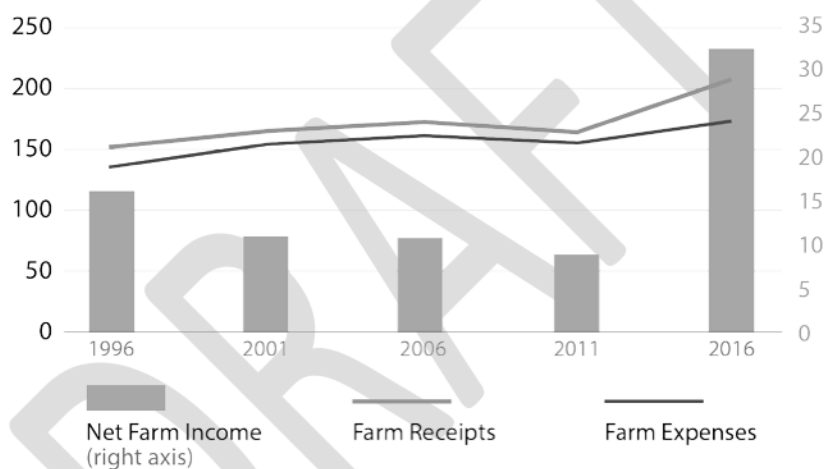


Figure 8: Farm receipts, expenses and net farm income in NEBC

The increase in farm receipts is attributable to:

- Grain and oilseed receipts rose by \$37.7 mil (84 per cent) and accounted for about three-quarters of the total growth in receipts in NEBC over these two census years.
- Other crop farming (two-thirds of which is hay farming) also shows a notable contribution to the increased growth in receipts (accounting for \$22.6 million of the total \$50.6 million).
- Sheep and goat farming receipts in this area increased by over 800 per cent.

¹³ farm receipts less farm expenses

Farm Capital

The value of farmland, buildings and capital provides another useful measure of farm sector health. Land, buildings and capital are business assets, which provide an indication of both the investment and re-investment in the sector over time. In addition, higher asset values provide a practical indication of the ability to manage debt obligations through borrowing and/or through asset liquidation.

It should be noted, however, the farm receipts and farm income measures at the aggregate sector level, can vary widely from individual farm receipts and incomes. This is due to several factors, including the commodity(s) produced, prices, weather and farm management.

The total capital value of farms in NEBC has steadily increased since 1981. Farm capital includes land and buildings, livestock and poultry, as well as farm machinery and equipment. Total value of owned land and buildings has increased by over \$554 million between 2011 and 2016. Increasing land and building value was a major contributor to rising total capital value in NEBC. Throughout the period between 1996 and 2016, value of land and buildings in the region has been steadily increasing. Figure 6 shows that the value of owned land and the buildings on it has demonstrated a higher growth rate over time.

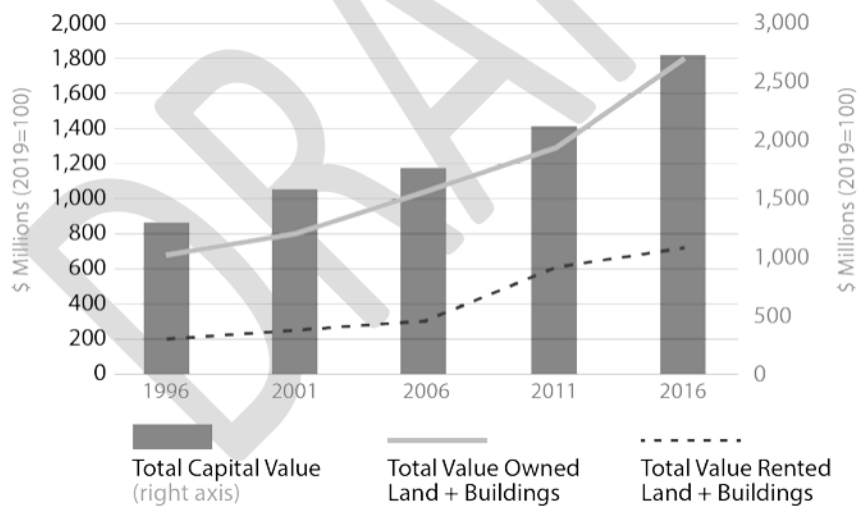


Figure 9: Farm value and capital over time

Oil and Gas

Production and Resources

B.C.'s natural gas production increased 26 per cent between 2013 and 2018, and accounts for approximately one-third of Canada's natural gas production. In 2018, B.C.'s natural gas production averaged 5.1 billion cubic feet per day (BCF/d), 90 per cent from unconventional sources. In addition, B.C. produced 101.2 thousand barrels of crude oil per day (MB/d).

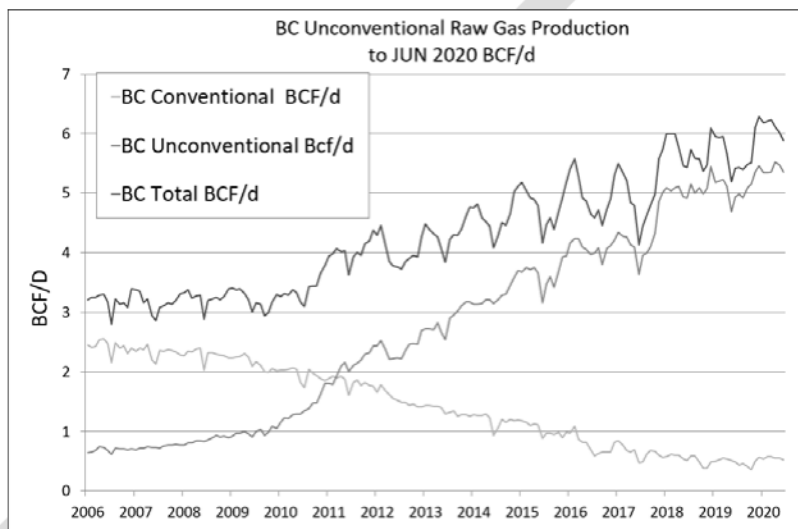


Figure 10: Raw Gas Production in B.C. to June 2020 (BCF/d-billion cubic feet/day)

According to the OGC's Oil and Gas Reserves and Production Report 2018^{vii}, the Montney is currently the largest contributor to natural gas production volumes in the province. It is the primary active resource play in B.C. and close to 99 per cent of all new wells drilled in the area in 2019 targeted the Montney. As of 2019, the Montney is the source for approximately 86 per cent of gas production in the province.

Oil and Gas Resource Value and Revenue

The total potential recoverable oil and natural gas resource volumes in the ALR in the PRRD is estimated to be approximately one hundred trillion cubic feet (Tcf) of gas and several billion barrels of natural gas liquids. The estimated potential oil and natural gas resource value ranges from a few hundred billion to several hundred billion dollars, although estimates depend on a variety of factors such as market conditions, resource availability and access. The revenue generated from B.C.'s oil and natural gas resources comes from the disposition (sale) of oil and gas tenure rights that allows access to this resource, the collection of tenure related fees and

rental payments, and collecting royalty payments from produced oil and gas volumes if wells are drilled and tenure is put into production.

In B.C., oil and natural gas tenure rights are disposed as a drilling licenses or as leases. Each type of tenure grants a specific set of rights and sets out the obligations of the tenure holder and the circumstances under which the tenure can be extended or converted to another type of tenure. As of September 30, 2020, active tenure in B.C. is comprised of 258 drilling licences and 11,969 leases, covering approximately 6.4 million hectares, which is mostly located in NEBC.

The disposition of the different types of oil and natural gas tenure rights occurs through monthly public tender auctions, which are competitive to maximise the price or bonus bid paid. A bonus bid is the amount an oil and gas company will pay over and above the expected annual tenure fees and rents that are charged for tenure rights. On a per hectare basis, bonus bids have fluctuated since 2006, averaging approximately \$1,500 per hectare over the past 13 years (Figure 10^{viii}).

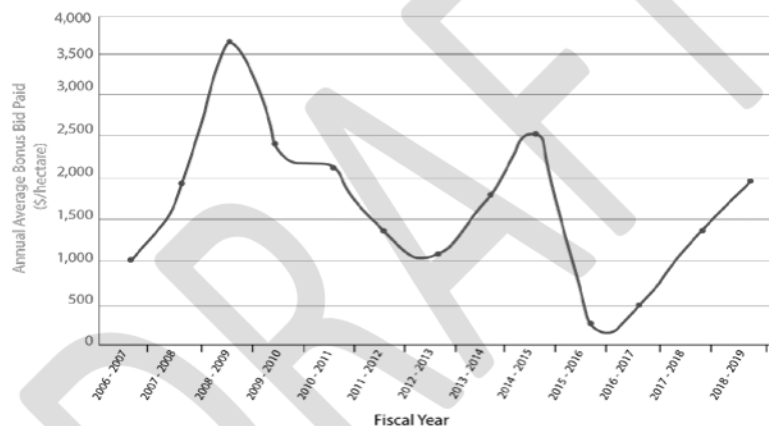


Figure 11: Annual average bonus bid paid for oil and natural gas tenure rights in B.C.

The total annual bonus bid revenue has generally declined since 2008, when the bonus bid revenue was highest at approximately \$2.4 billion (Figure 11^{ix}). Since 2006, B.C. has received approximately \$7.2 billion in revenue from the disposition oil and natural gas tenure rights ^x. Revenue from tenure fees and annual rental charges is on average, approximately \$52 million/year ^{xi}.

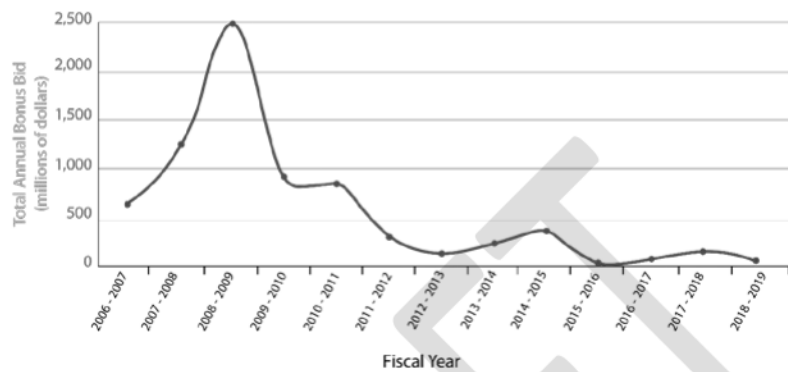


Figure 12: Total annual bonus bid revenue from the disposition of oil and natural gas tenure rights in B.C.

In addition to revenue generated from bonus bids, fees and rental charges, B.C. collects royalty revenue from tenure when it becomes productive. Between 2006 and 2009, royalty revenue was greater than \$1 billion/year (Figure 12). In recent years, however, royalty revenues are far less, averaging approximately \$160 million/year over the past three fiscal years. Royalty revenue is expected to increase as B.C. production continues to grow, despite low commodity prices in recent years.

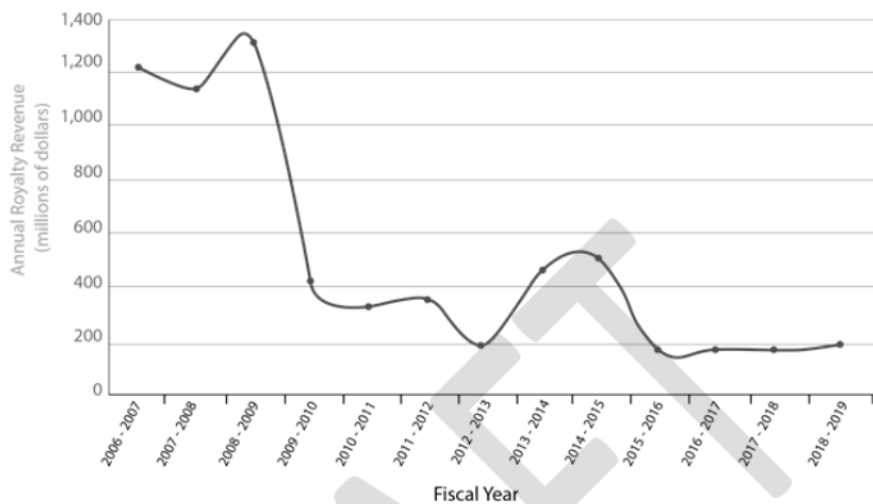


Figure 13: Annual royalty revenue from the production of oil and natural gas in B.C.

Related statistics

The development of B.C.'s oil and natural gas resources are not only an important source of revenue, but also a key factor in the creation of employment. Since 2006, the annual average employment of persons in the oil and natural gas sector has been steadily increasing and in 2019, there was an average of approximately 5,000 persons employed (Figure 13).

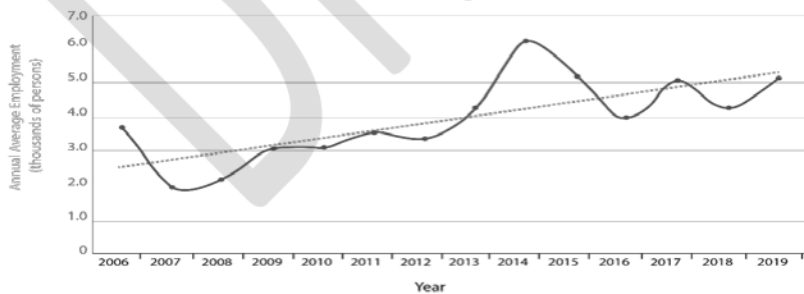


Figure 14: Annual average employment related to the development of oil and natural gas resources in B.C.

Ministries, agencies and relevant legislation

Ministry of Agriculture (AGRI)

AGRI^{xii} was established in 1894 as the Department of Agriculture. AGRI is responsible for: the production, marketing, processing and merchandising of agricultural and seafood products; the institution and carrying out of advisory, research, sustainability and adaptation, food safety or plant and animal health programs, projects or undertakings related to agriculture and seafood; and the collection of information and the preparation and dissemination of statistics relating to agriculture and seafood.

The Minister of AGRI is responsible for the *Agricultural Land Commission Act* (ALC Act). The ALC Act establishes the ALC as an independent administrative tribunal and contains regulations that govern the ALC and how the ALR is to be managed. For example, the ALC Act limits “non-farm” use in the ALR.

Ministry of Energy, Mines and Petroleum Resources (EMPR)

EMPR^{xiii} was established in 1899, as the Department of Mines. EMPR is responsible for B.C.’s electricity, alternative energy, oil, natural gas and related infrastructure, mining, and mineral exploration sectors. It also focuses on advancing energy efficiency and clean or renewable energy sources and technologies, and is responsible for Crown Corporations, such as BC Hydro and the OGC.

EMPR develops legislation and regulations governing the management of oil and gas activities in B.C. For instance, the *Petroleum and Natural Gas Act* (PNG Act) governs the disposition and management of oil and gas resources, including the collection and management of revenues associated with developing and producing this resource. The *Oil and Gas Activities Act* (OGAA) regulates oil and gas surface related activities including wells, facilities, oil refineries, natural gas processing plants, pipelines, and oil and gas roads, through permits, authorizations, orders and regulations. OGAA’s Consultation & Notification Regulation outlines requirements for consultation and engagement with landowners and rights holders on permit applications and amendments.

In addition, EMPR also develops policies and programs to improve the understanding of surface and subsurface rights among landowners and farmers in NEBC. These programs have included the former Landowner Notification Program and Farmers’ Advocacy Office, and the newly formed Farmers’ Information Service.

The Agricultural Land Commission (ALC)

The ALC^{xiv} is an independent administrative tribunal, established in conjunction with the ALR in 1973. Its mandate is to preserve the ALR, encourage farming on agricultural land in collaboration with other communities of interest, and advance and enable farm use of agricultural land in plans, bylaws and policies of local government, First Nations, the Government and its agencies.

Applications for non-farm uses submitted to the ALC are considered on a case-by-case basis within its mandate. The application and supporting material should demonstrate how the

purposes of the ALC will be supported if the application is approved. This decision-making process for industrial oil and gas facilities has been delegated to the OGC by the ALC since 2004 through delegation agreements enabled under the ALC Act.

The Delegation Agreement outlines decision making criteria and requires annual reporting by the OGC by May 31 of each year for inclusion into the ALC Annual Report.

The B.C. Oil and Gas Commission (OGC)

The OGC^{xv} was established in 1998 under the *Oil and Gas Commission Act* (which was replaced by the OGAA in 2010). The OGC is the provincial independent, single-window regulatory agency responsible for regulating oil and gas operations in the province. This includes overseeing activities from exploration and development through to pipeline transportation, and reclamation.

The OGC fulfills its oversight role with respect to petroleum, natural gas, and geothermal and liquefied natural gas (LNG) development by providing regulatory services to industry, Indigenous groups and a wide range of stakeholders whose interests are considered in the regulatory process. The OGC's core services include reviewing and assessing applications for industry activity, consulting with First Nations, cooperating with partner agencies, and ensuring industry complies with provincial legislation and all regulatory requirements. The public interest is protected by ensuring public safety, respecting those affected by oil and gas activities, conserving the environment, and ensuring equitable participation in production. In 2017, the OGC's regulatory role expanded to include refineries, value added gas and liquids manufacturing processes, and aspects of geothermal power.

The current ALC/OGC Delegation Agreement^{xvi} (Appendix E) provides the framework for the OGC to decide on applications for non-farm use, determine if reclamation obligations are met and undertake compliance and enforcement related to the ALC Act. The agreement follows the overall purposes of the ALC Act and describes:

- Non-farm uses of land that are exempt from an application to the OGC.
- Non-farm uses that require an application to the OGC under the ALC Act.
- Specific application conditions that must be met for the OGC to make decisions on an application.
- Application information requirements.
- Standards and sampling procedures for reclamation obligations.

In making non-farm use decisions, the OGC considers the applicable requirements of the ALC Act, conditions specified in the application, the likely duration of the non-farm use, the ability of those who hold oil and gas tenure rights to reasonably exercise those rights, and the potential to bring lands not currently used for agriculture into future agricultural production.

An annual report is submitted by the OGC which provides data to the ALC to help assess the effectiveness of the guidelines, identify trends, determine overall levels of oil and gas activity on the ALR, and identify whether changes to the Delegation Agreement or decision making may be required.

Decision making on the ALR

General Orders

Historically, General Orders¹⁴ were used by the ALC to allow identified non-farm uses in the ALR without the need for an ALC application or regulatory amendment. A General Order provided a “blanket” approval for select non-farm activities to a threshold, which when exceeded required an application to the ALC. General Orders are a historic reference and are not a legal mechanism that can be used today.

In response to the growth of the oil and gas industry and an increase in applications to the ALC, in August 1976, the ALC adopted its first General Order specific to oil and gas development in the ALR. As a result, the oil and gas development approval process was streamlined, removing the requirement for an ALC application for every oil and gas wellsite and pipeline in the ALR in the PRRD.

This General Order was occasionally amended to increase the density threshold for when an application to the ALC was required for oil and gas development. In 1997, General Order #293/1995 delegated decision-making authority to the CEO of the ALC for all oil and gas applications that exceeded the exemption threshold.

Delegation Agreements

In 2004 Delegation Agreements replaced General Orders, as per Section 26 of the ALC Act. A Delegation Agreement allowed the ALC to identify other authorities to exercise the ALC’s ability to decide on applications for non-farm use, subject to the ALC mandate.

In 2004, the ALC established a Delegation Agreement with the OGC, limited to NEBC. Key elements were carried over from the preceding General Order, including levels of oil and gas activity that would trigger a non-farm application, and preferential locations for activities to minimize impacts on the ALR.

The Delegation Agreement was audited twice, updated and modified several times between 2005 and 2017. This was done to ensure the effective application of the ALC mandate by the OGC, to ensure effective reclamation of oil and gas activities, and increase efficiency in the application process.

The most recent amendments to the Delegation Agreement in 2017 were intended to improve conservation and reclamation practices, encourage oil and gas producers to locate oil and gas facilities relative to agricultural capability, and add more rigorous requirements for pre-construction baseline soil sampling.

Restoration standards are stipulated in a two-step process within the current Delegation Agreement. Schedule A, a pre-site assessment report of the soil capability, is completed prior to any development, and is submitted along with the application to the OGC. The assessment

¹⁴ A more detailed chronology with key details is in Appendix D.

outlines how the site will be restored once it is no longer required for the oil and gas activity, and must include land use objectives, soil handling methods, and revegetation plans.

Oil and gas activity permit holders must ensure the soil, topography and vegetation are restored to specific standards after the activity has been decommissioned or pipelines have been installed, and then submit a Schedule B, a reclamation/closure report to the OGC. The report outlines the reclamation activities of the permit holder and the current condition of soils and vegetation at and adjacent to the reclaimed activity. The OGC reviews these reports to assess compliance with the requirements and objectives detailed in Schedule B of the delegation agreement between the OGC and ALC. These reports are subject to the OGC's compliance and enforcement process.

Restoration

The life cycle of an oil and gas activity concludes with restoration. Permit holders are required to properly deactivate and decommission wells, facilities and pipelines and to restore disturbances in accordance with regulatory requirements.

In addition to the requirements in the Delegation Agreement, all permit holders must comply with OGAA's Dormancy and Shutdown Regulation which sets the steps and timelines for sites to be returned to their pre-activity state once oil and gas activities are complete. Permit holders must complete an environmental assessment quantifying the degree of soil and water contamination. This investigation informs the magnitude of the remediation work needed for the site to meet the remediation standards stipulated in the *Environmental Management Act*. Once remediation has occurred, surface reclamation is required to ensure site productivity has been adequately restored.

A permit holder may apply to the OGC for a Certificate of Restoration (COR) once all of the work is completed. This confirms a site was restored in accordance with current standards and requirements, and that any known contamination issues or hazards were mitigated. The OGC publishes COR data on its website.

When a company becomes insolvent, or can no longer be found, the OGC can declare the related oil and gas infrastructure as orphan sites. The OGC assumes the management of these sites and carries out the decommissioning and restoration of the sites and compensates landowners for the loss of use of their land using the Orphan Site Reclamation Fund^{xvii}.

Prior to the declaration of oil and gas infrastructure as "orphan", the permit holder retains all obligations, including the obligation for land owner compensation. In situations of prolonged financial difficulty or prolonged insolvency proceedings, a temporal gap can be created and landowner compensation may be delayed, until the conclusion such situations, or until the site(s) are declared as "orphan". During the recent insolvency proceedings there were an estimated 315 orphan sites where there was a delay between the last rental payment by a permit holder and the designation and compensation to the land owner from the Orphan Site Reclamation Fund.

Commented [CS2]: Added this to identify the potential delay in landowner compensation raised by James Mack.

Surface Rights

Under OGAA, the OGC authorizes and regulates surface related activities required to explore, develop and produce petroleum and natural gas resources, including well drilling, pipelines,

facilities, and road construction. The application process for the right to carry out an oil and gas activity requires notifications and consultations with prescribed parties. Once the requirements are completed, the proponent submits an application to the OGC, for which there are specific guidelines^{xviii}. The OGC then reviews the application and may issue a permit.

The OGC may also issue an authorization to access Crown land under the *Land Act* or the PNG Act. However, the OGC does not have the authority to provide a right of access to private land. Where access to private land for oil and gas activities and related activities is required, a permit holder must obtain permission for access through one of the mechanisms specified in OGAA^{xix}. Most commonly, permission for access to private land will be granted through a surface lease agreement negotiated between the landowner and the permit holder: if an agreement cannot be reached, a right of entry order can be applied for to the Surface Rights Board (SRB). For certain pipelines, access to private land may be granted through expropriation where the resource company and landowner are unable to reach a surface lease agreement.

The SRB is an administrative tribunal identified under the PNG Act^{xx}. The SRB provides dispute resolution services to landowners and resource companies that have rights to explore for, develop or produce petroleum, natural gas, coal or minerals.

Where such rights are being developed, the resource company has obligations to obtain permission for access, adhere to the terms of access, and pay compensation. The SRB resolves disputes regarding access and compensation. The SRB also has several related powers under Part 17 of the PNG Act, including powers to require security deposits, to assess damages, to assist in rent renegotiations, to resolve other issues relating to the terms of access, and to provide mediation and arbitration services.

If the oil and gas company does not uphold the lease agreement and pay rent to the land owner, the SRB can suspend/terminate the right of entry and order that compensation be paid with interest, but such action does not guarantee that a land owner will be able to fully collect amounts owed pursuant to such an order.

Conclusion

A Deputy Minister Task Force has been established to examine the findings and consider Recommendation 25 from the Revitalization Report. To support this work, the Task Force has developed this Background Report which provides information on the history and current context of agriculture and oil and gas land use in NEBC, their contributions to the provincial economy, and a summary of the existing policy and regulatory frameworks for both sectors. This background report will be used to identify additional work as required.

Appendix A: Crop and Agricultural Employment information

Field and Hay Crops:

NEBC accounts for 73.3 per cent of B.C.'s total farmland area in field crops, including 37.6 per cent of B.C.'s total farmland area in hay (hay includes forage) crops. Field crops are grown in the region for three primary reasons: as livestock feed, for human consumption and for starter seed. Organic farm production is also on the rise in this area.

Livestock:

The NEBC livestock industry is predominantly comprised of beef and bison, sheep and goat, and pigs. Most processing happens outside the province and most livestock produced in the region is for export. In 2016, 23.9 per cent of the province's beef cattle were in NEBC. In addition to a significant cow/calf industry, the PRRD has 44 per cent of B.C.'s bison farms.

There are two slaughter facilities for red meat in NEBC, with most livestock exported to Alberta or the Fraser Valley for processing.

Poultry

Production is managed and focused on satisfying domestic markets. Supply managed commodities includes chickens for the purpose of meat production, for the purpose of egg production for consumption, and turkeys. Plants processing fowl or grading eggs are required to be registered with marketing boards, as well as regulatory agencies.

Honey

While the large commercial operations of B.C.'s Peace disappeared 10 years ago, a large number of small beekeepers have started in the area. Most have remained small and are involved as a hobby or side-line. Most of the honey produced in NEBC is shipped to other parts of Canada and exported to the US.

Census Data Related to Agricultural Employment in North East BC¹

	2015 ²	2010 ³
All Farm Employees⁴	582	730
Year round employees	265	271
Seasonal employees	317	459
Number of Family Members paid to work on the Farm	292	n/a ³
Number of Farm Operators	2,025	2,325
One Operator on Farm	670	n/a ³
Two or More Operators	1,355	n/a ³
Number of Farm Operators by Age	2,020	2,325
Under 35 Operators	215	n/a ³

35-54 Operators	695	n/a ³
55 and over Operators	1,110	n/a ³
Number of Farm Operators by Employment Type	2,025	2,325
Fulltime Farm Operators (30 or more hours per week)	910	1,015
Part-time Farm Operators (fewer than 30 hours per week)	1,115	1,315
Average age of Operators	55.1	n/a ³

Source: 2011 and 2016 Census of Agriculture.

1) North East BC includes the Peace River Regional District and the Northern Rockies Regional Municipality

2) The census reports on the data from the previous year

3) Various questions asked in 2016 were not asked in 2011 and therefore marked with "n/a"

4) Does not include farm operators or family paid to work on the farm

Appendix B: Agricultural capability

The Canada Land Inventory classification of soils (table 5) identifies the potential for agricultural activity on the land. The best agricultural lands are rated Class 1 because these sites have the ideal climate and soil to grow the widest range of crops. Class 7 is considered non-arable, with no potential for soil-bound agriculture.

The higher capability land classes (1- 4) are more desirable because pf the ability to grow a wider variety of crops in comparison with the other classes (5-7). More than 87 per cent of the ALR land is within classes 3-5. Class 5 and 6 lands can also be farmed, but the range of crop options is less than those found in classes 1-4.

Table 5: Canada Land Inventory Agriculture soils classification

Class	Description
1	This type of land either has no or only slight limitations that restrict its use to produce common agricultural crops.
2	This type of land has minor limitations that require good, ongoing management practices or that slightly restrict the range of crops, or both.
3	This type of land has limitations that require moderately intensive management practices or that moderately restrict the range of crops, or both.
4	This type of land has limitations that require special management practices or that severely restrict the range of crops, or both.
5	This type of land has limitations that restrict its capability to produce perennial forage crops or other specially adapted crops.
6	This type of land is non-arable but is capable of producing native and/or uncultivated perennial forage crops.
7	This type of land has no capability for arable or sustained natural grazing.

Appendix C: Description of oil and gas activities

The main types of oil and gas activities permitted by the OGC are well sites, pipelines, facilities, roads and ancillary sites (e.g. additional workspace, borrow pits, camps). Additional permits and authorizations associated with these activities may also be issued by the OGC and can include authorizations for water use, in-stream works, harvest of Crown timber, geophysical exploration and authorizations under the Environmental Management Act.

Pipelines

Pipelines are constructed to transport natural gas and oil from producing wells to facilities and then to processing plants and refineries before the products are marketed to consumers. They vary in size and are usually buried underground, and transport a variety of products including natural gas, oil, sour natural gas, water, high-vapour pressure hydrocarbon liquids, as well as other miscellaneous gases and oil effluent.

Roads

Roads are constructed and maintained by industry to provide access to areas where oil and gas activities are being undertaken or may potentially occur. Existing roads such as highways and forestry roads are used where possible and, in some areas, snow or ice roads may be constructed during the winter.

Well Pads / Sites

Well pads / sites are clearings that are constructed to provide a relatively flat and safe area so a well can be drilled and completed. Drilling is a process that utilizes a mechanical rig configured to bore a hole into the earth's subsurface to explore for, produce and or store oil and gas, or to inject oil and gas-related waste. Following drilling, producing wells are then completed in order to bring them into production. Completion activities include stimulation such as hydraulic fracturing, flowback of water and sand from fracturing, clean up and testing of the gas stream. Following these phases, the well is put into production and activity associated with it is reduced to occasional inspection and maintenance visits. The operational life of a producing well is normally several decades although much of the activity associated with a well occurs during the drilling and completions phases.

Single Well pads

Conventional drilling, the primary method used until the mid-2000s, usually has one well per pad. The average well pad size is 1.44 hectares in size. When developing conventional oil and gas reservoirs, drilling and production operations typically require well pads separated by 500 to 1,500 metres.

Multi Well Pads

Unconventional drilling allows for multiple wells per pad and the pad size depends on the number of wells. The average pad size is around six hectares. Multi well pads can be widely spaced at several kilometres apart and one pad can accommodate between eight to 24 wells or more.

Facilities

Facilities are a system of vessels, piping, valves, tanks and other equipment used to gather, process, measure, store or dispose of petroleum, natural gas or water. The operational life of a production facility will match the life of the wells it receives oil or natural gas from which will normally be several decades. While not containing the same system of vessels, piping and valves, water storage ponds or reservoirs are categorized as facilities.

Ancillary Activities

Ancillary activities include other oil and gas activities that do not fit into the above categories such as borrow pits (to obtain gravel/sand/dirt material), helipads, airstrips, power lines and campsites.

Appendix D: General order, delegation agreement summary

Table 6: Summary of key information for General Orders and Delegation Agreements

Time Period	Mechanism	Action/Results	Key Details
1976-1982	General Order #4473/1976	First Order that was specific to oil and gas wells, pipelines.	<ul style="list-style-type: none"> Required wells to be rehabilitated to original or better topographical and soil conditions. Pipelines were not to restrict agricultural operations. Mandated topsoil conservation and replaced when pipelines were backfilled. Exempted certain non-farm uses from making applications to the ALC.
1982-1995	General Order #132/1982	Doubled the allowable area for oil and gas site development, including ancillary buildings and equipment (from less than 0.8 hectares (ha) to two ha per quarter section of land).	<ul style="list-style-type: none"> Included the construction and clean-up of roads, leases and service lines in petroleum exploration areas. Established additional details for site development and reclamation standards.
1995-2004	General Order #293/1995	Variety of amendments	<ul style="list-style-type: none"> Enhanced reclamation standard including a condition for land owner. Removed ALC from agricultural and locational issue concerns between land owners and oil and gas companies. In 1997, the ALC delegated its decision making regarding non-farm use applications to the ALCs CEO. The ALC continued to require applications for oil and gas-related non-farm uses that were not exempted.
2002	Amendments to ALC Act	Provide the ALC with the ability to delegate decision-making powers to an "authority" (section 26 of ALC Act).	<ul style="list-style-type: none"> The ALC was provided with the ability, through a Delegation Agreement with an authority to exempt certain non-farm uses from application.
2004	OGC Delegation Agreement (Resolution #577/2003)	A two-year delegation agreement was endorsed in 2004 with the OGC and replaced the General Order #293/1995.	<ul style="list-style-type: none"> Expanded the exempted area threshold and permitted the OGC to make decisions on specified ALC related oil and gas applications.

Time Period	Mechanism	Action/Results	Key Details
		Decision-making authority for specific non-farm uses was delegated to the OGC. The ALC continued to review applications for non-farm use activities that exceeded seven ha per ¼ section.	<ul style="list-style-type: none"> It concentrated on elements such as geophysical exploration, related pipelines and surface facilities, new wells on existing sites,
2005-2010	Annual Updates to the Delegation Agreement	The Delegation Agreement was extended by one year each year from 2006-2009; term length was removed in 2010, allowing either party to terminate the agreement with three months' notice.	<ul style="list-style-type: none"> Since 2005, the OGC has reported annually to the ALC on the number of Schedule A and Schedule B Reports. Additional metrics include the number of applications reviewed, approved, rejected by the OGC, the number of investigations undertaken, and any enforcement actions.
2010-2013	Resolution #28N/2013	The ALC delegated the OGC with the decision-making authority in the ALR for all oil and gas activities that exceeded the exemption thresholds (20 ha per section). The changes also includes that the OGC report annually to the ALC on its decisions and other "total impacts" information.	<ul style="list-style-type: none"> The OGC became the sole single-window regulator to simplify and expedite the process for oil and gas development in northeastern B.C.
2017	Resolution #43N/2017	In 2017 the Delegation Agreement was updated to make specific changes to: Improve the scope of reporting; provide a CLI of affected lands; differentiate between Crown, private land, cultivated/forested land etc. Strengthen locational criteria to move oil and gas development away from cultivated ALR land. Improve reporting re: Schedule A and B reports.	<ul style="list-style-type: none"> Schedule A and B reports were modified to bring them in line with other oil and gas jurisdictions, improve conservation and reclamation practices, encourage the location of oil and gas development relative to agricultural capability and improvements, include additional requirements for pre-construction soil sampling.

End notes

ⁱ BC Minister of Agriculture's Advisory Committee for Revitalizing the Agricultural Land Reserve and the Agricultural Land Commission. "Final Committee Report to the Minister of Agriculture: Recommendations for Revitalization". 2018.

https://engage.gov.bc.ca/app/uploads/sites/121/2019/04/Final-Committee-Report-to-the-Minister-of-Agriculture-Recommendations-for-Revitalization-December-4-2018_Optimized.pdf

ⁱⁱ Revitalizing the Agricultural Land Reserve and the Agricultural Land Commission, Pg. 96.

ⁱⁱⁱ Terms of Reference, Deputy Minister Task Force, Agriculture and Oil & Gas in Northeast British Columbia. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/agricultural-land-and-environment/agriculture-land-reserve/tor_dm_task_force.pdf

^{iv} BC Ministry of Agriculture. "Agriculture in Brief: Northern Rockies Regional District". 2016. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/statistics/census/census-2016/aginbrief_2016_peace_river.pdf

^v Montney Formation Play Atlas NEBC October 2012 | BC Oil and Gas Commission. <https://www.bcogc.ca/files/reports/Technical-Reports/montney-format-play-atlas-nebc.pdf>

^{vi} Agriculture and Agri-food Canada. <https://aimis-simia.agr.gc.ca/rp/index-eng.cfm?action=pR&r=243&lang=EN>

^{vii} BC Oil & Gas Commission. "British Columbia's Oil and Gas Reserves and Production Report - 2018". 2018. <https://www.bcogc.ca/files/reports/Technical-Reports/2018-oil-and-gas-reserves-and-production-reportfinal.pdf>

^{viii} Sales statistics and results for Petroleum and Natural gas. <https://www2.gov.bc.ca/gov/content/industry/natural-gas-oil/petroleum-natural-gas-tenure/sales-results-statistics>

^{ix} Sales statistics and results for Petroleum and Natural gas. <https://www2.gov.bc.ca/gov/content/industry/natural-gas-oil/petroleum-natural-gas-tenure/sales-results-statistics>

^x Sales statistics and results for Petroleum and Natural gas. <https://www2.gov.bc.ca/gov/content/industry/natural-gas-oil/petroleum-natural-gas-tenure/sales-results-statistics>

^{xi} Sales statistics and results for Petroleum and Natural gas.
<https://www2.gov.bc.ca/gov/content/industry/natural-gas-oil/petroleum-natural-gas-tenure/sales-results-statistics>

^{xii} Ministry of Agriculture web site.
<https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/ministries/agriculture>

^{xiii} Ministry of Energy, Mines and Petroleum Resources web site.
<https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/ministries/energy-mines-and-petroleum-resources>

^{xiv} Agriculture Land Commission web site. <https://www.alc.gov.bc.ca/alc/content/home>

^{xv} BC Oil and Gas Commission web site <https://bcogc.ca/>

^{xvi} Delegation Agreement between the ALC and OGC, 2017. <https://www.bcogc.ca/files/application-manuals/Oil-and-Gas-Activity-Application-Manual/Supporting-Documents/alcogcdelegationagreement2017update.pdf>

^{xvii} 2017/18 and 2018/19 Orphan Site Reclamation Fund Annual Report BC Oil and Gas Commission <https://www.bcogc.ca/files/reports/Technical-Reports/2017-18-and-2018-19-orphan-site-reclamation-fund-annual-report.pdf>

^{xviii} Chapter 5.3 Completing application information, Agriculture Land Reserve. BC Oil and Gas Commission - Oil & Gas Activity Application Manual Version 1.33 published: December 2019. <https://www.bcogc.ca/files/application-manuals/Oil-and-Gas-Activity-Application-Manual/OGAAM-Chapter-5.3.pdf>

^{xix} Section 34 of the Oil and Gas Activities Act.

^{xx} Surface Rights Board web site. <http://www.surfacerightsboard.bc.ca/>