Ministry of Energy, Mines and Low Carbon Innovation

BC Oil and Gas Royalty Programs

2020 Performance Measures

Economics and Market Development Branch

Oil and Gas Division

March 2021

Table of Contents

Message from the Assistant Deputy Minister

The Ministry of Energy, Mines and Low Carbon Innovation (EMLI) is responsible for overseeing British Columbia (BC)'s upstream oil and natural gas sectors. Through teamwork and positive working relationships with its clients and stakeholders, EMLI facilitates thriving, safe, environmentally responsible and competitive natural gas and oil developments in order to create jobs and contribute to economic growth within the province.

In response to a recommendation from the Office of the Auditor General in 2010, EMLI committed to prepare a Performance Measures Report every year to follow-up on the goals of the current royalty regime. The aim of such a report is to divulge more information on the impact of BC royalty programs to industry and the Province. Specifically, it addresses questions of whether BC's royalty programs maximize value to the Province, treat producers fairly, are easy to administer, and contribute to longterm investment.

The November 2020 mandate letter for EMLI directs the minister to undertake a review of oil and gas royalty credits to ensure they meet BC's goals for economic development, a fair return on our resources and environmental protection. EMLI expects that this review will also include the re-development of this performance measures report, including refinement of existing measures, assessing measures for relevance and introducing new metrics that help the public understand if the system function supports broader public objectives.

This Performance Measures Report is not intended to be a static document. EMLI welcomes feedback, comments and suggestions.

May Mah-Paulson
Assistant Deputy Minister
Oil and Gas Division
Ministry of Energy, Mines and Low Carbon Innovation

Introduction to Performance Measures

BC collects royalties on oil and natural gas produced from Crown leases[1]. The royalty regime is structured to maximize the amount of economic rent collected from produced oil and natural gas, while ensuring that producers can earn a fair return on their investment. Specifically, the goals of the current royalty regime are:

- ***Value to the Province is maximized***: encourage resource development to the benefit of the Province in terms of maximizing royalties and taxes
- ***Equity***: producers, large and small, are treated equally under the regime
- ***Long-term investment***: the royalty regime is aimed at long-term investment by industry
- ***Administrative ease***: the royalty system is simple to administer and verify for government and industry

Industry evaluates a variety of factors when determining where to invest their capital budget. Some of those factors include geological characteristics of the resource, proximity to markets and business climate. Royalty programs do not exist in isolation when considering the impacts of government policy on the business environment; other policies that influence investment are climate policy, taxation and regulatory policy.

BC aims to have one of the cleanest, most environmentally responsible natural gas industries in the world. The CleanBC plan, released in December 2018, puts the province on a path to a cleaner, better future. The related policy changes and climate initiatives have impacts on the development of the natural gas industry in BC when compared with other jurisdictions in North America that do not have equivalent environmental policies and carbon prices. For example, all major U.S. oil and gas producing states do not have carbon pricing policies[2]. In addition, BC has taken the initiative to further the electrification of the upstream production and to reduce methane emissions throughout the oil and gas value-chain to help meet its stated climate targets. These initiatives add costs to oil and gas industry operations in BC.

The market price for natural gas has been trending downward over the last decade and has remained relatively low in recent years. The decline in pricing is due to rapid growth in shale gas production in North America. Despite challenged natural gas commodity pricing, provincial production has been growing due to sustained activity, impressive well productivity, as well as high market valuation for natural gas by-products.

The development of the prolific, liquids rich, resource of the Montney formation in the Province's northeast region underpins the rapid growth in natural gas production in BC in the last decade and is expected to be the focus of oil and gas industry for the foreseeable future.

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[1] Crown leases tenures that permit private industry to develop publicly owned oil and gas resources in BC.

[2] U.S. State Carbon Pricing Policies https://www.c2es.org/document/us-state-carbon-pricing-policies/.

Increasingly competitive natural gas and by-products markets in North America are presenting new challenges for attracting oil and gas industry investment in Western Canada. BC royalty programs are important tools for BC to secure market share. This in turn should secure long term value for what is arguably the most environmentally and socially responsible natural gas in the world.

Performance Measures Indicators

BC's royalty programs include lower royalty rates for low-productivity, marginal and ultra-marginal natural gas wells, royalty credits for infrastructure development and for upstream infrastructure that reduces upstream Greenhouse Gas emissions (Clean Growth Infrastructure Royalty Program), royalty credits for deep gas exploration (deep well and deep re-entry well program), and the net profit royalty program.

Please refer to the following link for detailed information on BC royalty programs:
https://www2.gov.BC.ca/gov/content/industry/natural-gas-oil/oil-gas-royalties/royalties-royalty-programs

Four indicators have been selected to assess the achievement of the four goals of the royalty regime listed above. These indicators are:

- ***Indicator #1***: Royalties per thousand cubic feet (mcf) of marketable gas production in BC over Alberta
- ***Indicator #2***: Producer equity ratio in BC
- ***Indicator #3***: Relative investment in BC
- ***Indicator #4***: Positive response rates on BC fiscal terms from the Fraser Institute Global Petroleum Survey

The selection of performance measures reporting indicators in this report is based on three conditions:

(1) The indicators should be representative of the goals of the royalty regime;
(2) The indicators should be readily available – moreover, if possible, data should be publicly accessible; and,
(3) The indicators should be easy to understand for a non-technical audience.

Performance Measure #1: Value to the Province is maximized

The first goal of BC's royalty regime calls for the maximization of value to the Province. More specifically, "encourage resource development to the benefit of the Crown in terms of maximizing royalties and taxes."

Rationale for Indicator #1

The Performance Measures Reporting Indicator #1 is aimed at capturing the balance between generating incentives for investment in BC's oil and gas industry while still receiving a fair return for Crown resources. This way, value to the Province is maximized.

The measure of "royalties per thousand cubic feet (mcf) of marketable gas production in BC over Alberta" is calculated by subtracting royalties per mcf of marketable gas production in Alberta from royalties per mcf of marketable gas production in BC. If the indicator is positive, BC is charging higher royalties than Alberta on a per mcf basis. If the indicator is negative, BC is charging lower royalties than Alberta on a per mcf basis.

Royalties per mcf of marketable gas production are calculated based on the following information that is publicly available:

- Natural gas and natural gas liquids royalties received by BC and Alberta, in millions of Canadian dollars, by fiscal year (available from government websites); and
- Marketable (commercially sold) natural gas production in BC and Alberta, in billions of cubic feet (bcf), by calendar year[3] (available from the Canadian Association of Petroleum Producers (CAPP)).

By introducing production in the analysis, the indicator adjusts for the fact that both provinces have different natural gas resources – and thus different productivity.

The indicator measures BC's "maximization" of revenues using a relative measure (comparison to Alberta). Alberta is the historical competitor in terms of BC's upstream investment. The incorporation of a neighbouring jurisdiction in the analysis reflects the fact that capital is mobile, and investors can decide to move their capital to other jurisdictions if BC does not offer competitive royalty treatment.

To achieve a balance between generating incentives for investment and receiving a fair return, the target for indicator #1 is set at no more than $0.10/mcf in absolute value. This target is selected based on historical trends (see Chart 3 for historical values for indicator #1 during the last number of years).

[3] Royalties are expressed in government fiscal years (April to March), while production is expressed in calendar years, as there is a lag for the Province to receive royalties corresponding to a certain production period. For example, natural gas production generated in January 2020 pays royalties to the Province in March 2020. By lagging royalty payments, the calculation matches the royalties received to the associated gas production.

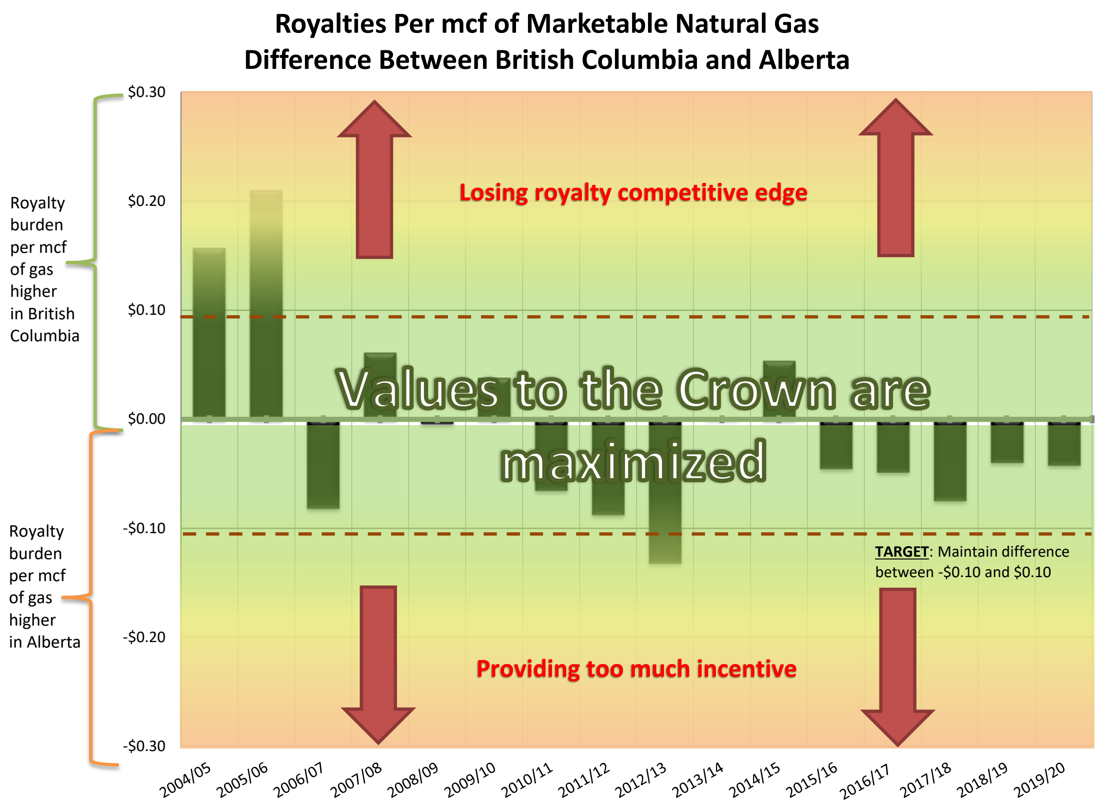
Indicator #1 Results

Royalties per mcf of production during the 2019/20 fiscal year were $0.06 in BC and $0.10 in Alberta. The royalties per mcf of marketable gas BC over Alberta was −$0.04 which indicates that, on average, BC collected 4 cents (42%) less royalties per mcf of natural gas production compared with Alberta during 2019/20.

BC collects lower unitized royalties in part due to its further distances to markets, and the higher infrastructure and transportation costs. The situation has been exacerbated since 2017 when Western Canada started to struggle with lack of incremental pipeline capacity to transport natural gas outside of the region. The egress restrictions impacted BC more so than Alberta as BC natural gas production increased at much higher rates compared with Alberta (see Chart 3).

Indicator #1, which compares absolute differences in unit royalties collected by the two provinces, also shows the same trends in historical developments when comparing the two provinces.

Chart 1: Indicator #1[4]



[4] Charts 1 to 4: royalties per mcf of gas production from Government of BC and Alberta publications including annual, quarterly reports and/or public accounts https://www2.gov.bc.ca/gov/content/governments/finances/reports, https://www.alberta.ca/planning-reporting-savings.aspx.

Indicator #1 has ranged between −$0.13 and $0.21 during the period between 2004/05 and 2019/20.

Chart 2[4]

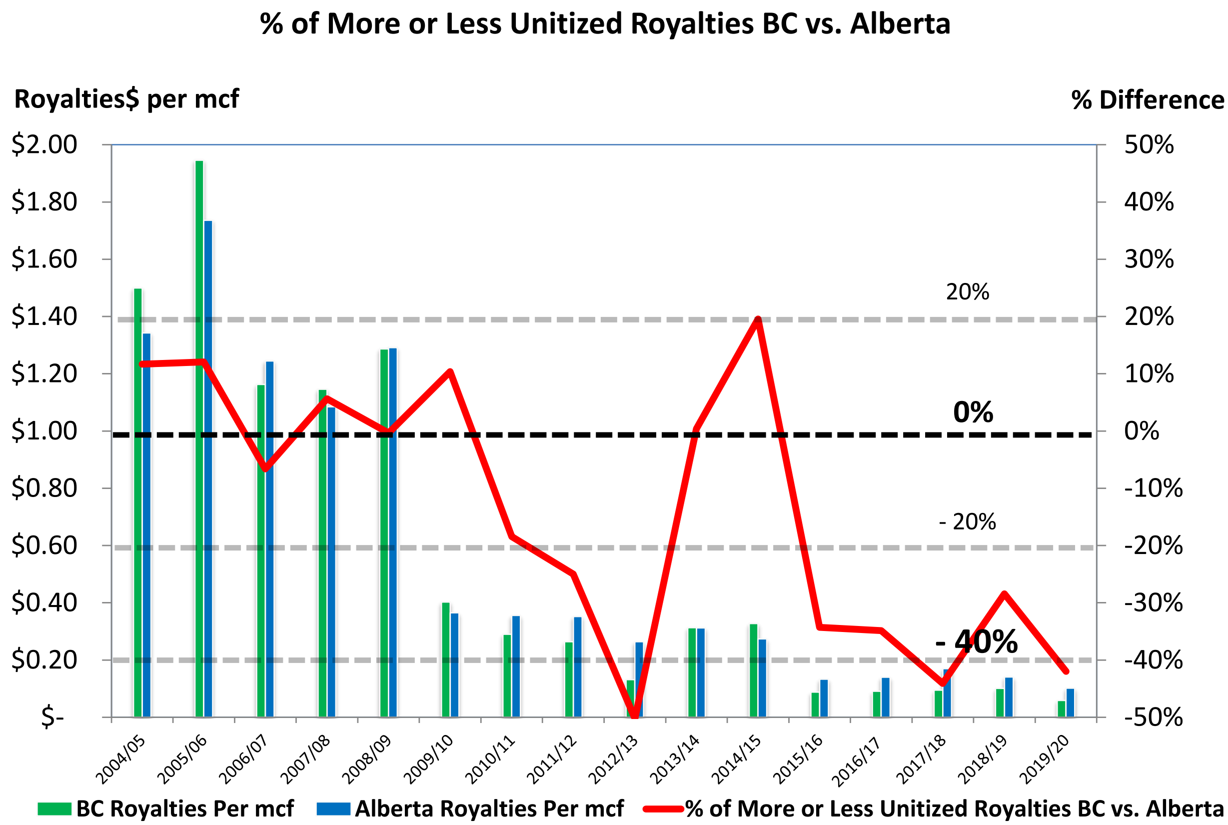
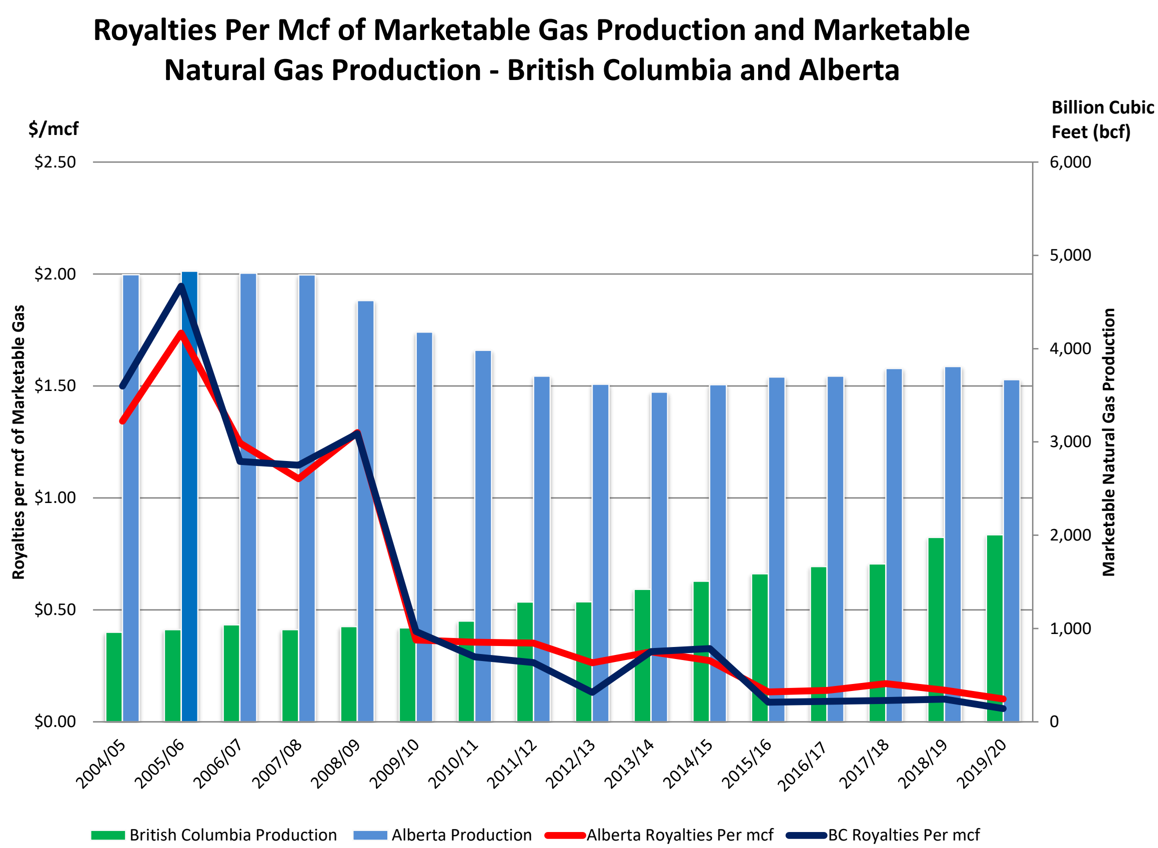


Chart 2 shows that producers have paid royalties to BC of between $0.06 and $1.95 per mcf of natural gas production between 2004/05 and 2019/20. In Alberta, this range is between $0.10 and $1.74 per mcf. Chart 2 also indicates that starting in 2010/11 BC has been collecting less unitized royalties compared to Alberta when natural gas prices dropped to historically low levels (see Chart 4 AECO historical prices). In contrast to the less percentages of royalties collected, BC marketable natural gas production has increased from 1,079 bcf in 2010/11 to 2,005 bcf in 2019/20 (56% increase)(see Chart 3 below) while Alberta production has declined from 3,982 bcf in 2010/11 to 3,669 bcf in 2019/20 (1% decline).

Chart 4 shows that % of unit royalties collected over AECO for both BC and Alberta dropped significantly beginning in 2009/10 as natural gas prices dropped to historically low levels. This is mainly because royalty rates in both provinces are price sensitive, i.e. base royalty rates drop as market prices are lower.

Chart 3[4,5]



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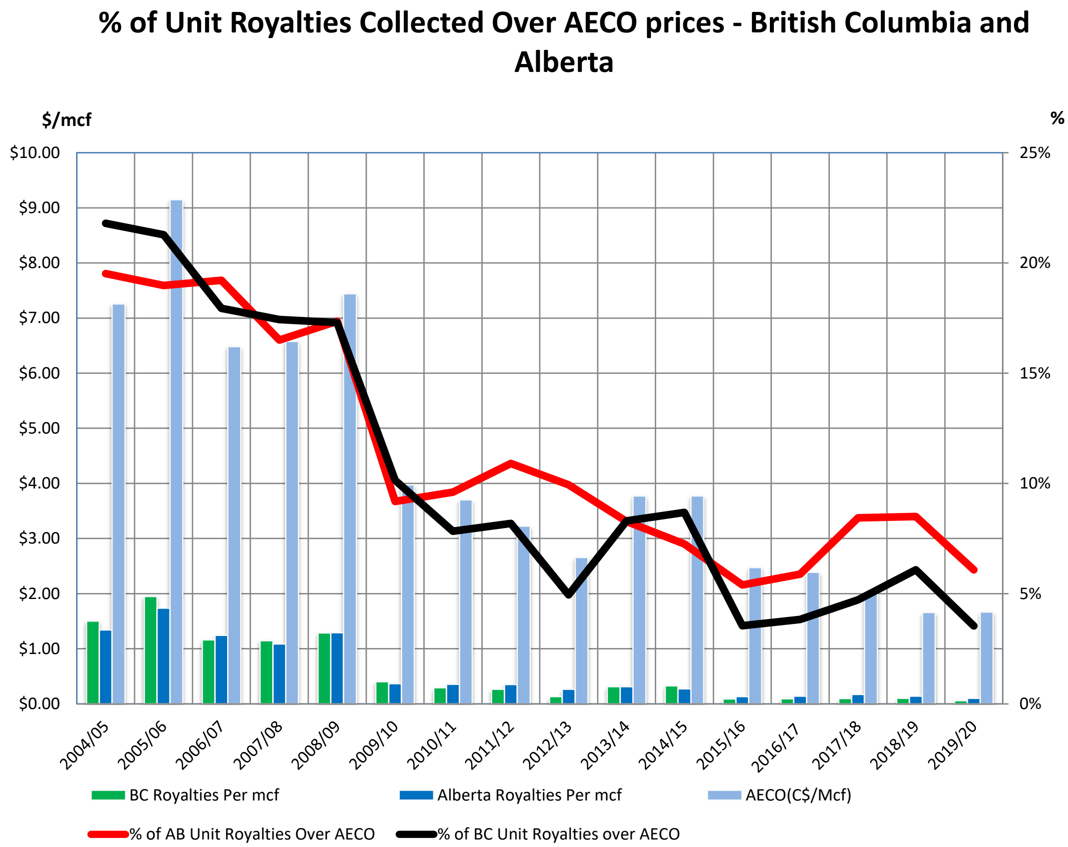
[5]Chart 3: Production from CAPP https://www.capp.ca/publications-and-statistics/statistics/statistical-handbook.

Chart 4[4,6]



Interpretation of Indicator #1 Results

The absolute differences in royalties per mcf of marketable natural gas production in BC and Alberta were less than $0.10/mcf during 9 of the last 10 years.

In 2019/20, indicator #1 was −$0.04/mcf, which met the target of an absolute value less than $0.10/mcf that was set for the indicator. Based on this result, BC's royalty programs achieved the goal of maximizing values to the Province in 2019/20. While this result is within the target range for this performance measure, it should be noted that BC collected only 58% of the unitized royalties that Alberta did this year.

Since the collapse of natural gas prices starting in 2010/11 BC has been collecting up to 60% less unitized royalties (except for 2013/14 and 2014/15) compared to Alberta. This is mainly because BC royalty programs offer credits which are not price sensitive and also because BC natural gas production has been growing rapidly while Alberta natural gas production has been mostly flat or declining[7]. As royalty

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[6]Charts 4: AECO prices from Enerdata.

[7] See Performance Measure #2: in 2019/20 98% of new wells accessed the largest royalty program - Deep Well Program - in BC.

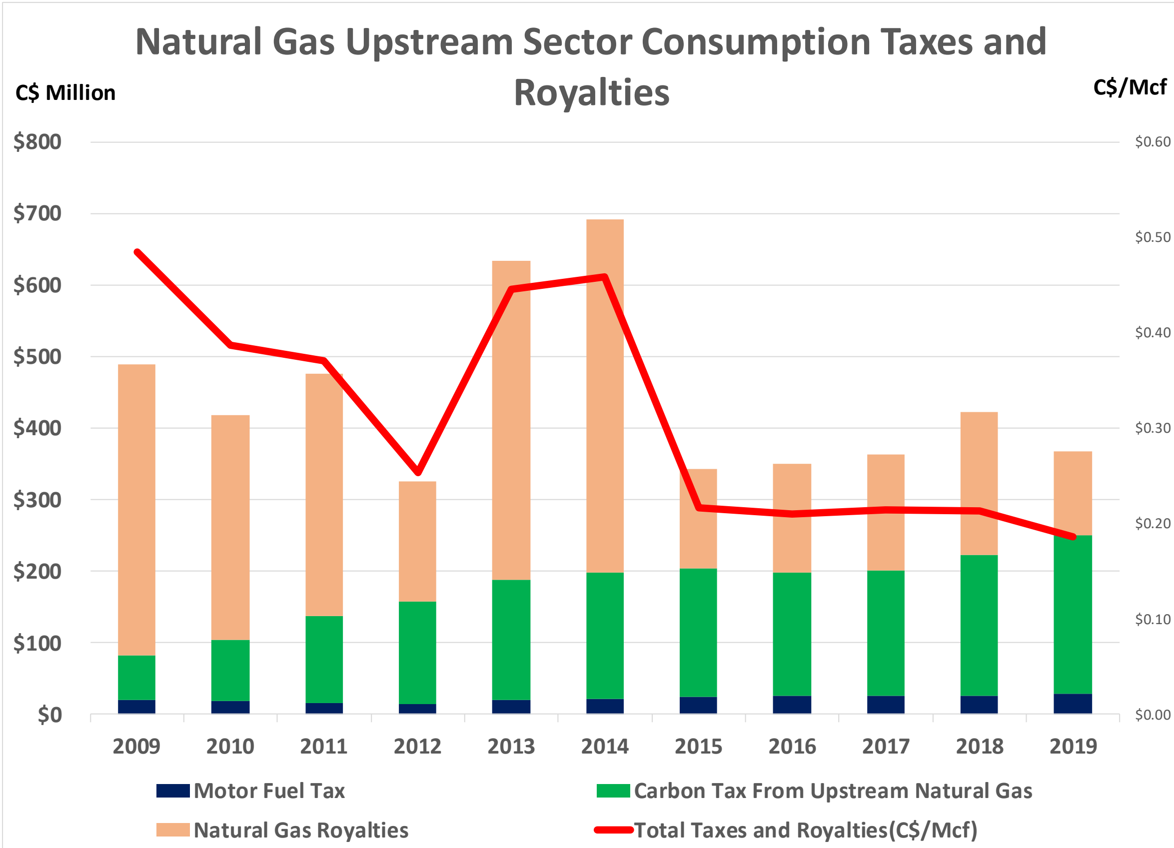
credits are deducted against low natural gas revenue, BC unit royalties collected dropped significantly compared with Alberta, which does not offer royalty credits in the same way BC does. This trend briefly reversed in 2013/14 and 2014/15 when natural gas prices experienced a surge and BC started to produce liquid-rich Montney gas, which generated more revenue.

Other factors that negatively impacted BC unit royalties collected vs. Alberta include higher infrastructure and transportation costs due to further distance to markets and higher unit processing and operation costs for the proportionally higher unconventional gas production in BC.

Royalties are not the only way that natural gas development generates revenues for the Crown. As a carbon emitting fuel, natural gas is subject to the carbon tax. Activities to develop natural gas resources, including running generators, operating compressor stations, and transportation of water and equipment all produce emissions and are subject to carbon tax in the Province. It is also subject to a separate motor fuel tax when used to develop natural gas resources for market use.

In addition to royalties, significant amounts of carbon taxes and motor fuel taxes are collected from the natural gas industry in BC:

Chart 5: Consumption Taxes and Royalties[8]



[8] Chart 5: natural gas royalties from BC government publications including annual, quarterly reports and/or public accounts https://www2.gov.bc.ca/gov/content/governments/finances/reports; motor fuel tax and carbon tax from upstream natural gas from BC Ministry of Finance.

Performance Measure #2: Equity

The second goal of BC's royalty programs call for ensuring equal access to royalty programs. Specifically, "producers, large and small, are treated equally under the regime."

Ensuring producers have equal access to BC's royalty programs is key to building investor confidence and creating an even playing field for all oil and gas companies. Equity is maintained through the process in which the royalty programs are administered. Industry participation in most royalty programs is determined automatically (based on qualifying criteria), while access to some royalty programs is determined by a competitive process through direct industry applications.

Table 1 summarizes how a determination is made regarding whether a company participates in each of BC's royalty programs[9].

Table 1: Industry access to BC royalty programs[10]

Royalty Program	Accessibility
Low productivity	Ministry of Finance (MFIN) automatically determines eligibility and calculates rates based on producer well information.
Marginal	MFIN automatically determines eligibility and calculates rates based on producer well information.
Ultra-marginal	MFIN automatically determines eligibility and calculates rates based on producer well information.
Deep	MFIN automatically determines eligibility and calculates rates based on producer well information.
Infrastructure	Companies submit an application following a Request for Applications issued by EMLI. EMLI determines eligibility based on pre-determined criteria through a competitive process.
Net Profit[11]	Companies submit an application following a Request for Applications issued by EMLI. EMLI determines eligibility based on pre-determined criteria through a competitive process.
Clean growth infrastructure	Companies submit an application following a Request for Applications issued by EMLI. EMLI determines eligibility based on pre-determined criteria through a competitive process.

[9] Please note the MFIN acts as the royalty collector and EMLI acts as the administrator for BC's oil and gas royalty programs.

[10] More information available from BC Oil and Gas Royalty Handbook https://www2.gov.BC.ca/assets/gov/taxes/natural-resource-taxes/publications/royalty-handbook-oil-gas.pdf and EMLI https://www2.gov.BC.ca/gov/content/industry/natural-gas-oil/oil-gas-royalties/royalties-royalty-programs.

[11] This program is no longer accepting new applications.

Out of all the royalty programs BC has offered over the years to support exploration and development of natural gas within the Province, the deep well program[12] is the largest program in BC in terms of total credits allocated and deducted.

Table 2 provides deep well credits associated with wells drilled each year, related revenue, prices and the associated capital expenditure by the oil and gas industry in BC:

Table 2: Deep Credits[13]

Fiscal Year	Deep wells Rig Released [#]	Total deep well credits awarded [$ millions]	Remaining deep well credits [$ millions]	Net royalty [$ millions]	Tender bonuses [$ millions]	Capital expenditures [$ millions]	Natural gas price [C$/GJ]	Oil and condensate price [US$/bbl]
2013/14	374	623.4	315.9	442.9	220.5	5,743.0	2.57	99.01
2014/15	573	809.0	498.9	484.6	334.8	7,311.0	2.49	80.71
2015/16	401	620.2	400.2	130.5	15.9	4,944.0	1.18	44.85
2016/17	318	455.4	241.1	146.4	61.2	2,709.0	1.19	47.79
2017/18	504	739.2	405.6	153.8	126.4	4,011.0	0.98	53.66
2018/19	379	572.2	359.7	194.0	50.3	3,884.0	0.88	62.92
2019/20	282	398.4	332.6	120.0	12.8	3,741.0	0.63	54.72

Rationale for Indicator #2

The selected indicator is called a "producer equity ratio in BC." This ratio is the percentage of royalty payers in BC that have accessed BC's royalty programs during the year. It is built in the following manner:

(1) Total number of producers paying natural gas royalties, by fiscal year
(2) Number of producers who participate in at least one of the following royalty programs listed in Table 1 (marginal, ultra-marginal, deep, infrastructure, net profit, etc.)
(3) (2) divided by (1).

A high ratio of companies participating in royalty programs demonstrates equity among producers as programs have been accessed by a high percentage of companies operating in BC.

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[12] Deep well royalty credits are administered on a well-by-well basis – they are only used if the well that qualified for the credit produces and generates royalties in a month.

[13] Table 2: capital expenditure from https://www.capp.ca/publications-and-statistics/statistics/statistical-handbook; other data from EMLI internal analysis.

Indicator #2 provides a good indication of how many producers have participated in BC royalty programs. Maintaining the ratio above 98 percent – the most recent 5-year average (2014-2018) – is considered as a reasonable target for this indicator.

Indicator #2 Results

In 2019/20, the producer equity ratio was 95 percent, which means that out of the 86 companies paying royalties in 2019/20, 82 companies accessed a royalty program. And out of the 82 participating producers, 41 producers accessed the deep well royalty program and 82 producers accessed a royalty program other than deep (the two numbers are not mutually exclusive)[14].

In 2019/20, out of 9,129 producing wells, 2,632 wells accessed the deep well royalty program and 7,728 wells accessed a program other than deep, while 1,231 wells accessed both deep and marginal programs. The new wells aiming at developing unconventional resources in the BC's Montney play generally qualify for the deep program and if successful in competitive applications, can also qualify for the Clean Growth Infrastructure Royalty Program (CGIRP) (see page 16 for more information). In 2019/20, 370 new wells accessed the deep well royalty program (see Table 5).

The few companies that did not participate in any of the royalty programs are mostly operating conservation gas wells or producing associated gas from oil wells; conservation and associated gas wells pay royalties at the lowest rates among wells. Oil wells do not qualify for most BC royalty programs.

Table 3: Industry participation in BC royalty programs by corporate entity[12,14]

Fiscal Years	Deep Well Participation	Marginal and other Programs Participation	Total Producers Participation	Total Producers	Participation Ratio
2005/2006	13	135	135	136	99%
2006/2007	26	156	156	156	100%
2007/2008	29	150	150	150	100%
2008/2009	41	161	161	161	100%
2009/2010	46	148	148	148	100%
2010/2011	54	141	141	141	100%
2011/2012	47	120	120	121	99%
2012/2013	47	115	115	117	98%
2013/2014	46	108	108	110	98%
2014/2015	50	111	111	113	98%
2015/2016	36	97	97	99	98%
2016/2017	43	99	99	101	98%
2017/2018	37	89	89	91	98%
2018/2019	42	84	84	87	97%
2019/2020	41	82	82	86	95%

[14]Tables 3 to 7 and Chart 6: EMLI internal data analysis.

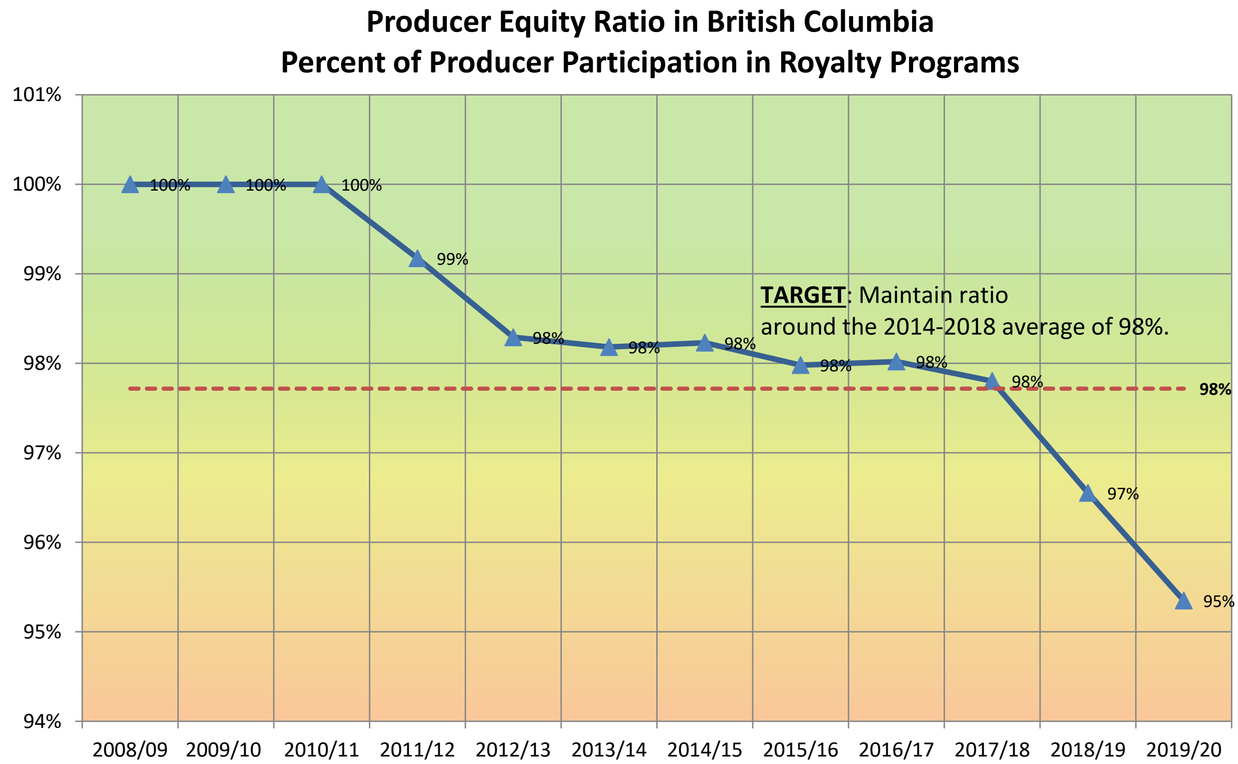
Table 4: Industry participation in BC royalty programs by wells[12,14]

Fiscal Years	# of Wells Participating in Deep Well Program	# of Wells Not Participating in Rate Reduction Programs	# of Wells not Participating in Royalty Programs	Total # of Producing Wells	Royalty Program Participation Rate (by well)
2008/2009	177	7,704	494	**8,198**	**94%**
2009/2010	378	7,785	531	**8,694**	**94%**
2010/2011	612	7,696	535	**8,843**	**94%**
2011/2012	875	7,626	551	**9,052**	**94%**
2012/2013	1,019	7,384	556	**8,959**	**94%**
2013/2014	1,249	7,232	571	**9,052**	**94%**
2014/2015	1,599	7,264	546	**9,409**	**94%**
2015/2016	1,825	7,057	503	**9,385**	**95%**
2016/2017	2,045	6,463	339	**8,847**	**96%**
2017/2018	2,498	6,188	326	**9,012**	**96%**
2018/2019	2,837	5,912	590	**9,339**	**94%**
2019/2020	2,871	5,487	541	**8,899**	**94%**

Table 5: Industry participation in BC royalty programs by new wells per year[12,14]

Fiscal Years	# of New Wells Participating in Deep Program	# of New Wells Drilled	% of New Wells Participating
2008/2009	159	626	25%
2009/2010	194	387	50%
2010/2011	304	465	65%
2011/2012	308	432	71%
2012/2013	291	397	73%
2013/2014	292	445	66%
2014/2015	493	610	81%
2015/2016	416	458	91%
2016/2017	294	323	91%
2017/2018	539	566	95%
2018/2019	434	463	94%
2019/2020	370	378	98%

Chart 6: Indicator #2[14]



The Infrastructure Royalty Credit Program

The Infrastructure Royalty Credit Program (IRCP) was initiated in 2004 and concluded in 2018. The purpose of the program was to encourage increased upstream oil or natural gas exploration and production in under-developed areas and extend the drilling season to allow for year-round activity. Oil and gas producers, regardless of their size, could apply for a deduction of up to 50 percent of the cost of constructing roads or pipelines from the royalties they pay to the Province. The program operated through a competitive application process that evaluated road and/or pipeline applications.

Between 2004 and 2018, BC's IRCP was offered through 17 installments for companies and resulted in more than 267 new or upgraded all-season roads and pipeline projects in the province. From 2006 to 2018, 45% of all applications were approved. Internal EMLI data indicates that, when dividing the applicants into small, medium and large producers[15], the following percentages of applications were approved for small, medium and large producers respectively: 47%, 49%, 42%.

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[15] The definitions for small, medium and large firms have remained consistent and are based on volume of production as a percent of total. Each large firm is responsible for over 7% of total provincial production, each medium firm is responsible for between 2% and 7% (inclusive) of total provincial production and each small firm is responsible for under 2% of total provincial production.

Table 6: Summary of IRCP applications and approvals from 2006 to 2018[14]

Producer size	Approved applications	Total applications	Percent approved
Small	76	160	47%
Medium	61	124	49%
Large	106	255	42%
Total	**243**	**539**	**45%**

The Clean Growth Infrastructure Royalty Program

The Clean Growth Infrastructure Royalty Program (CGIRP) was initiated in 2019. The purpose of the program is to encourage increased upstream oil or natural gas exploration with projects under the growth category and reduce Greenhouse Gas emissions through upstream electrification infrastructure or emission reduction infrastructure under the sustainability category. Oil and gas producers, regardless of their size, can apply for a deduction of up to 50 percent of the cost of qualifying projects from the royalties they pay to the Province. CGIRP operates through a competitive application process that evaluates applications. The CGIRP was successfully run in 2019 and 2020.

In 2019 and 2020 CGIRP received applications for 89 projects; 65 projects were approved (28 growth projects and 37 sustainability projects). In 2019 and 2020, 73% of all applications were approved. Internal EMLI data indicates that 73% of all applications from small producers were approved, 83% of medium producer applications were approved and 69% for large producers. In terms of the shares of the total deductions approved (the CGIRP program has a fixed annual allocation of royalty deductions available), small producers accounted for 20%, medium producers 39% and large producers 41%.

Table 7: Summary of CGIRP applications and approvals from 2019 and 2020[14]

Producer size	Approved applications	Total applications	Percent approved
Small	19	26	73%
Medium	15	18	83%
Large	31	45	69%
Total	**65**	**89**	**73%**

Interpretation of Indicator #2 Results

In 2019/20 Indicator #2 was 95%, which was slightly lower than the most recent 5-year average (2014-2018) of 98%, indicating slightly smaller percentages of producers are currently accessing royalty programs. However, a 95% participation ratio indicates that producers have equal and very high-level access to royalty programs in BC in 2019/20.

In addition, out of the 375 total new wells in 2019/20, 368 wells accessed the deep program. It indicates that 98% of new wells participated in the deep program, which is much higher than the 5-year average (2014-2018) of 90%. Such high level of uptake in the deep royalty program among BC producers indicates that producers are almost ensured of access to the program when they drill new wells.

In addition, the results from CGIRP in 2019 and 2020 show that producers, large and small, have high participation ratios in the program (73%, 83% and 69% for small, medium and large producers respectively).

Performance Measure #3: Long-term investment

The third goal of BC's royalty programs calls for ensuring long-term industry investment in BC. Specifically, "the royalty regime is aimed at long-term investment by industry."

Industry evaluates a variety of factors when determining where to invest their capital budgets. Factors include geological characteristics of the resource, proximity to markets (two factors which the government cannot control) and business climate. BC has significant natural gas resources in the Montney formation, Horn River and Liard basins. Development of liquids rich tight gas in the Montney is the primary factor behind BC's gas production doubling between 2006 and 2018, which also contributed to significant increases in Natural Gas Liquid's (NGL) production during the same period. Alberta has significant crude oil resources in the oil sands and abundant natural gas resources. Fluctuations in the relative prices for crude oil, natural gas and NGLs play a part in the relative investment changes in the two provinces.

The business investment climate is one factor a jurisdiction can impact. Having a competitive royalty regime is critical for maintaining industry investment levels in the Province.

Rationale for Indicator #3

The indicator selected for this measure is called "Relative investment in BC". It is built in the following manner using information that is publicly available:

- Capital investment of the upstream petroleum industry in BC divided by the total investment amount in Canada.

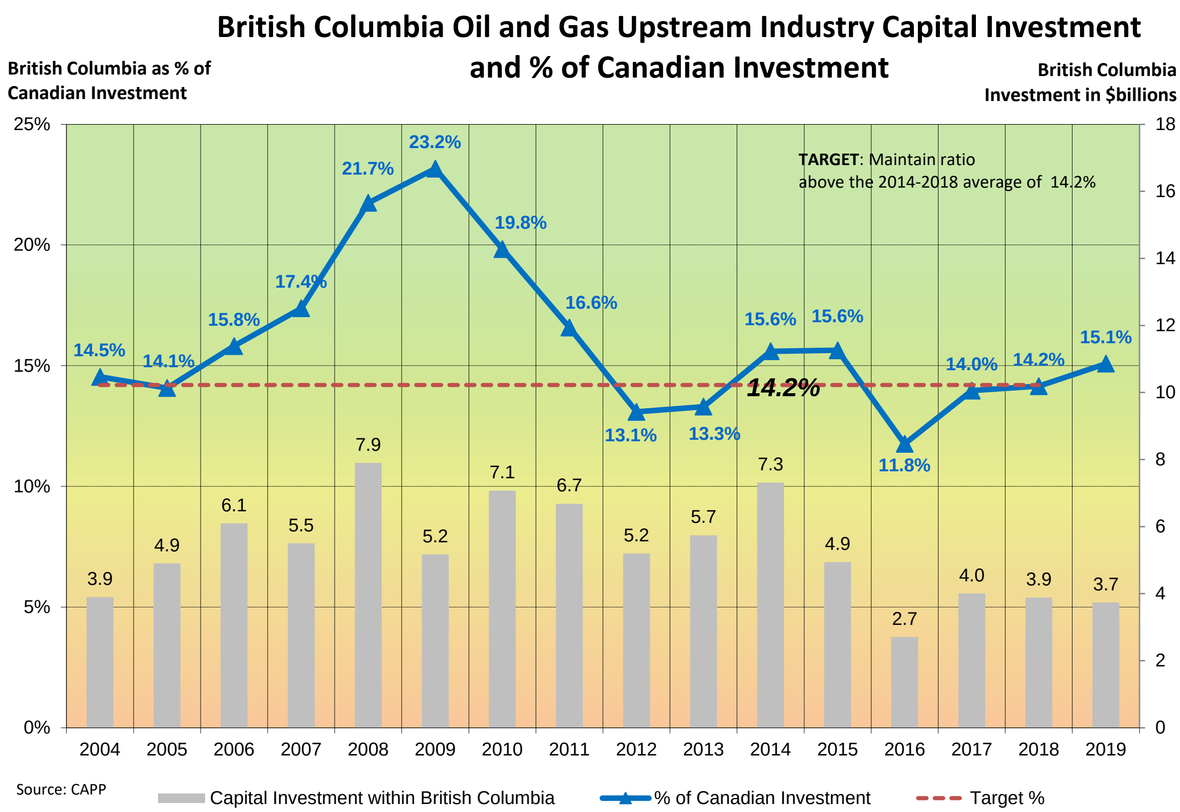
Capital investment of the upstream petroleum industry is available from CAPP. It is the sum of two components:

- Exploration investment; this includes expenditures on geological and geophysical drilling and land (i.e., bonus bids); and
- Development investment; this includes expenditures on drilling and well completions, field equipment, enhanced oil recovery (EOR) and gas plants.

Relative investment in BC indicates that royalty programs help contribute to the competitiveness of the royalty regime by attracting more investment to BC as a percentage of the Canadian total. The target for this indicator is set at or above the previous 5-year (2014-2018) average of 14.2 percent.

Indicator #3 Results

Chart 7: Indicator #3 Results[16]



Interpretation of Indicator #3 Results

As shown in Chart 7, BC's market share of upstream industry investment has remained consistently above 10 percent since 2004. In 2019 the share was 15.1%, slightly higher than the target set for this indicator. These results indicate a pattern of relative investment stability in the BC upstream. Royalty programs are one important factor in maintaining long-term industry investment in BC.

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[16] Chart 7: capital investment from CAPP https://www.capp.ca/publications-and-statistics/statistics/statistical-handbook.

Performance Measure #4: Administrative Ease

The fourth goal of BC's royalty programs calls for ensuring administrative ease of the royalty regime. Specifically, "simple to administer and verify for government and industry."

The importance of having a royalty regime which is simple and easy to administer from a government's perspective is two-fold:

- to ensure Crown royalties can be calculated accurately; and,
- to ensure stakeholders properly understand the "rules" of oil and gas investment in the jurisdiction.

From an industry perspective, it is important to fully understand the royalty and regulatory frameworks of the jurisdiction in which they are planning to do business. Oil and gas activities are major projects which involve millions to billions of dollars of investment. A royalty regime that is simple to administer and verify is important for attracting capital and building investor confidence. Complex regulatory or royalty frameworks which are not clearly documented or explained create uncertainty for industry.

Rationale for Indicator #4

One way to measure the administrative ease and simplicity of a royalty regime is to conduct a survey of oil and gas companies.

The Fraser Institute conducts an annual survey of petroleum industry executives and managers (processors, marketers and distributors of oil and natural gas were not surveyed) around the world regarding barriers to investment in various jurisdictions.

Due to lack of responses globally from jurisdictions outside of North American, the study was entitled Canada – US Energy Sector Competitiveness Survey starting in 2019. The 2020 Survey[17] was conducted from May 14, 2020 until August 7, 2020 and received responses from 86 individuals which provided enough data to evaluate five Canadian provinces and 16 American states.

The survey was designed to capture the opinions of upstream oil and gas companies regarding the level of investment barriers in jurisdictions with which they were familiar. Respondents were asked to rate how 16 different factors influence company decisions to invest in various jurisdictions. These factors included areas such as taxes, regulations and regulatory enforcement.

The survey's "fiscal terms" factor includes licenses, lease payments, royalties, other production taxes, and gross revenue charges, but not corporate and personal income taxes, capital gains taxes, or sales taxes.

[17] Charts 8 & 9 : The 2020 Survey is available on the Fraser Institute website at https://www.fraserinstitute.org/studies/canada-us-energy-sector-competitiveness-survey-2020.

For this factor, respondents were asked to select one of the following five responses that best described each jurisdiction they were familiar with:

1. Encourages investment.
2. Not a deterrent to investment.
3. Mild deterrent to investment.
4. Strong deterrent to investment.
5. Would not pursue investment due to this factor.

If a jurisdiction has high proportion of responses 1 and 2, this means the jurisdiction has a positive fiscal environment, which could be interpreted as having a positive royalty framework (it is simple and easy to administer) from an investment perspective. That is, the jurisdiction would be more attractive for oil and gas investment. While not specifically designed to determine administrative ease of a royalty system, the fiscal terms factor is most closely related to the administrative ease performance measure and is selected as Indicator #4.

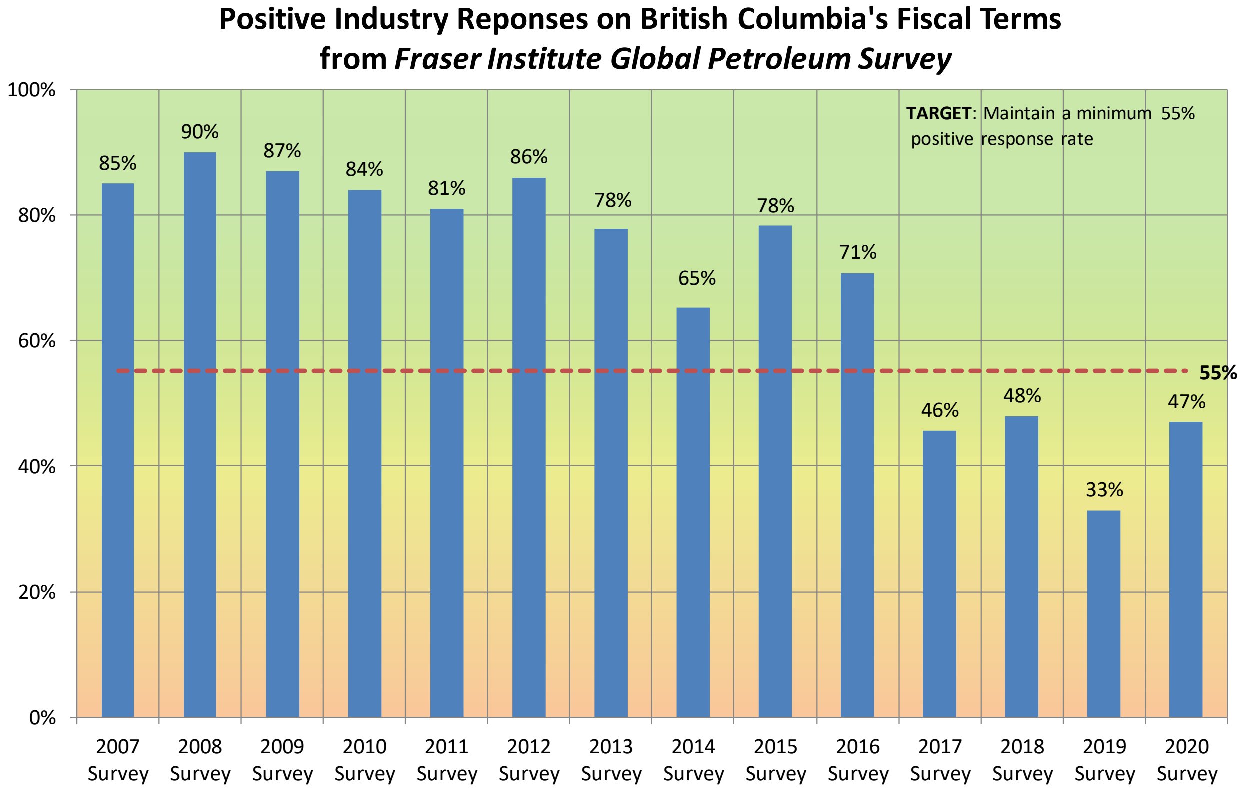
Indicator #4 is called "Positive response rates on BC fiscal terms from Fraser Institute Global Petroleum Survey." It is the percentage of responses that rate 1 and 2 for the fiscal terms factor for BC in the Survey.

A reasonable target for Indicator #4 is a positive response rate of 55 percent, which is the average rate for BC of the last five years' surveys (from 2015 to 2019).

Indicator #4 Results

The oil and gas industry considers BC to be more favourable in fiscal terms based on the latest survey, with a 47 percent positive response in 2020 versus 33 percent in 2019. For BC, the percentage of positive responses has ranged between 33 percent and 71 percent in the last five annual surveys conducted by the Fraser Institute as shown on Chart 8:

Chart 8: Indicator #4 Results[17]

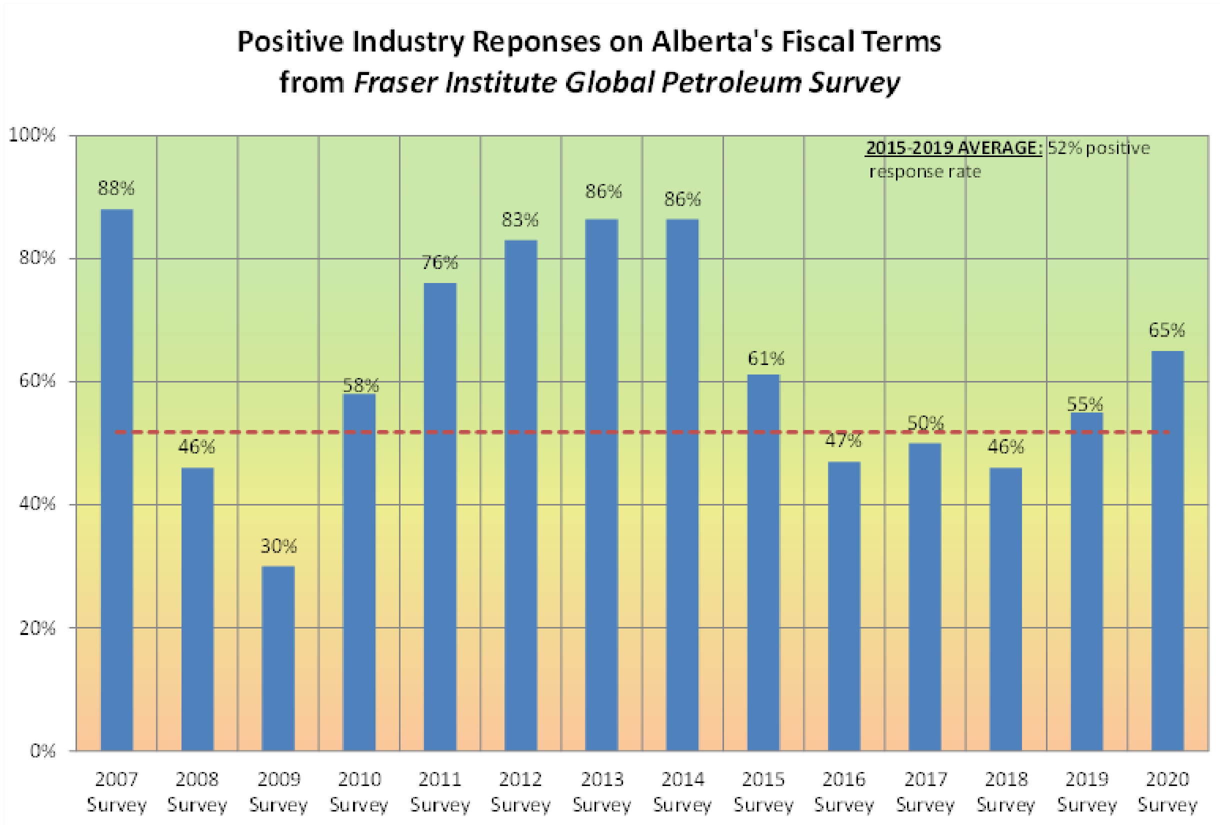


Interpretation of Indicator #4 Results

BC's fiscal framework did not go through major changes from 2017 to 2020, however, scores of Indicator #4 from 2017 to 2020 were much lower than the scores in the years before 2017. This can be explained by concerns from business leaders about the Western Canadian overall fiscal environment for oil and gas industry investment since 2016/17. This is confirmed by Chart 9 which shows the declining positive industry response rates on Alberta's fiscal terms from the same survey. That said, Alberta continues to score higher than BC in the survey – which could indicate advantages in the Alberta royalty system in terms of administrative ease.

In 2020, BC received a positive response on oil and gas fiscal terms from the Fraser Institute Survey when compared with 2019. But like in 2019, the survey respondents continue to believe BC poses the greatest barriers to investment among Canadian provinces, pointing to uncertainty concerning environmental regulations, the cost of regulatory compliance, and regulatory enforcement as major areas of concern. This indicates that during times of significant changes in markets the results of this indicator are impacted by many other factors outside of the influence of administrative ease and cannot be attributed directly to the performance of this measure but rather should be considered as part of overall effects from the performance of all government policies impacting the oil and gas sector.

Chart 9: Indicator #4 for Alberta[17]



Conclusion

This Performance Measures Report supports the following conclusions on the impacts of BC royalty programs on oil and gas activity, in accordance with the four goals of the current royalty regime:

- Is value to the Province maximized?
  The absolute differences in royalties per mcf of marketable natural gas production in BC and Alberta were less than $0.10/mcf during 9 of the last 10 years. But percentage-wise BC collected 42% less in unitized royalties in 2019/20 compared to Alberta due to factors including price insensitive royalty programs (combined with historically low prices), higher infrastructure and transportation costs, as well as higher unit capital and operating costs due to proportionally higher unconventional natural gas production. If the low price environment continues, BC will struggle to narrow the differential. The absolute difference of less than $0.10/mcf in royalties per mcf of natural gas production between the two provinces indicates that BC's royalty programs narrowly achieve the goal of maximizing the amount of economic rent collected while ensuring that producers can earn a fair return on their investment compared with investment in Alberta. While this indicator remains in the target range, BC has consistently collected less royalties than Alberta on a unitized basis over the last five years.
- Does the royalty system support equity?
  The goal is to meet the previous 5-year average ratio for companies participating in the royalty programs, which would demonstrate equity as programs would be accessible to 98 percent of producing companies in BC. This ratio was slightly lower in 2019/20 – totalling 95%. In addition, out of the 378 total new wells in 2019/20, 370 wells accessed the deep program. It indicates that 98% of new wells participated in the largest royalty program - deep program - in BC, which is much higher than the 5-year average (2014-2018) of 90%. These high levels of participation in BC royalty programs at producers and new wells level indicates that BC's royalty programs is highly accessible to producers. High level of uptake in the deep royalty program among BC producers indicates that producers are almost ensured of access to the program when they drill new wells. In addition, the results from CGIRP in 2019 and 2020 show that producers, large and small, have high percentages of participation in the program (73%, 83% and 69% for small, medium and large producers respectively).
- Does the royalty system encourage long-term investment?
  While the royalty system is only one factor in a company's decision to invest, for 2019 the ratio of investment in BC was 15.1%, achieving the goal of meeting the previous 5-year average ratio of industry investment in BC vs. industry overall investment in Canada (14.2%) and indicating that BC is positioned to attract long term investment.

- Does the royalty system provide administrative ease?
  BC's royalty system has grown more complex over time. In 2020, BC received a more positive response on oil and gas fiscal terms in the Fraser Institute Survey compared with 2019, with results in both years lower than the average of the previous five years. The main reason for this underperformance in both years is due to concerns from business leaders on the Western Canadian overall fiscal terms, taxation, environmental regulations, trade barriers, quality of infrastructure, and regulatory duplication/consistency. Overall, BC has not achieved its targets for this measure in the last four years.

Our commitment is to generate these reports every year. As this is a work in progress, suggestions and comments are welcome, and can be sent to:

Geoff Turner, Executive Director
Economics and Market Development Branch
Geoff.Turner@gov.bc.ca