

***Ministry of Natural Gas  
Development***

***British Columbia Royalty  
Programs***

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***Program Goals & Performance Measures  
2016 Report***

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*Policy and Royalty Branch,  
Upstream Development Division  
December 2016*

## *Message from the Assistant Deputy Minister*

British Columbia has an enviable position in the North American energy picture. Abundant and diverse resources are transforming the Province into a clean energy powerhouse. Natural gas has a key role to play in this context. As the cleanest burning fossil fuel, natural gas is poised to replace other sources of energy worldwide, thus reducing greenhouse gas emissions and contributing to better local air quality in developing countries.

In 2003, the Province introduced a series of natural gas royalty programs aimed at ensuring British Columbia's fiscal regime remains competitive with other jurisdictions, encourages development of natural gas and, in turn, increases direct revenue to the Province. A positive investment climate is also key to job creation in the sector, revenues to the Province and the provincial economy.

BC royalty programs include lower royalty rates to encourage marginal and ultra-marginal natural gas wells, royalty credits for deep gas exploration, and royalty credits for infrastructure development. Since 2003, the Province also introduced royalty programs aimed at developing unconventional natural gas resources, which include the net profit royalty program, modification of the deep well program, amendment of the *Petroleum and Natural Gas Act* to allow the Province to enter into long-term royalty agreements with upstream natural gas producers, and a pilot program for royalty credits for upstream infrastructure that reduces upstream vented methane emissions (Clean Infrastructure Royalty Credit Program).

In response to an Office of the Auditor General's recommendation in 2010 to divulge more information on the impact of BC royalty programs, the Ministry of Natural Gas Development (MNGD) committed to prepare a Performance Measures Report every year to follow-up on the goals of the current royalty regime. This is the seventh report of its kind.

The Performance Measure Report shows how British Columbia's royalty regime maximizes value to the Province, treats producers with equity, is easy to administer, and contributes to long-term investment.

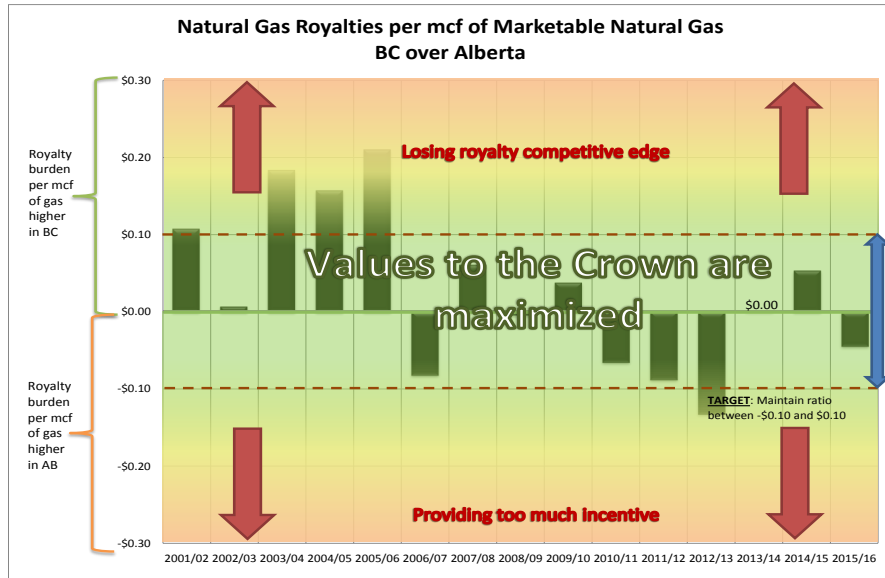
The report also shows how BC royalty programs are helping to facilitate the development of the Province's natural gas industry through promoting long-term investment in BC and supporting new job creation in the Province.

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

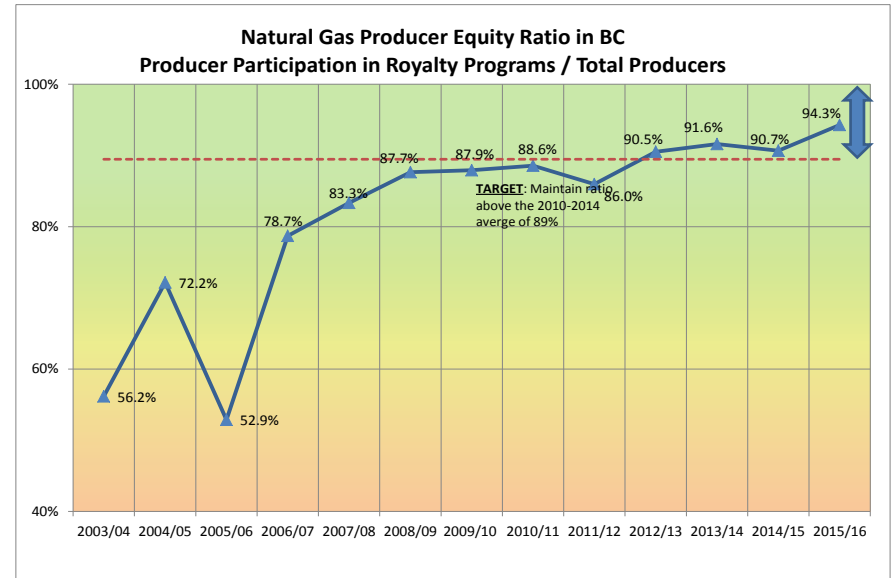
Inés Piccinino  
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Upstream Development Division  
Ministry of Natural Gas Development

# At a Glance: BC Royalty Programs' Performance Measures

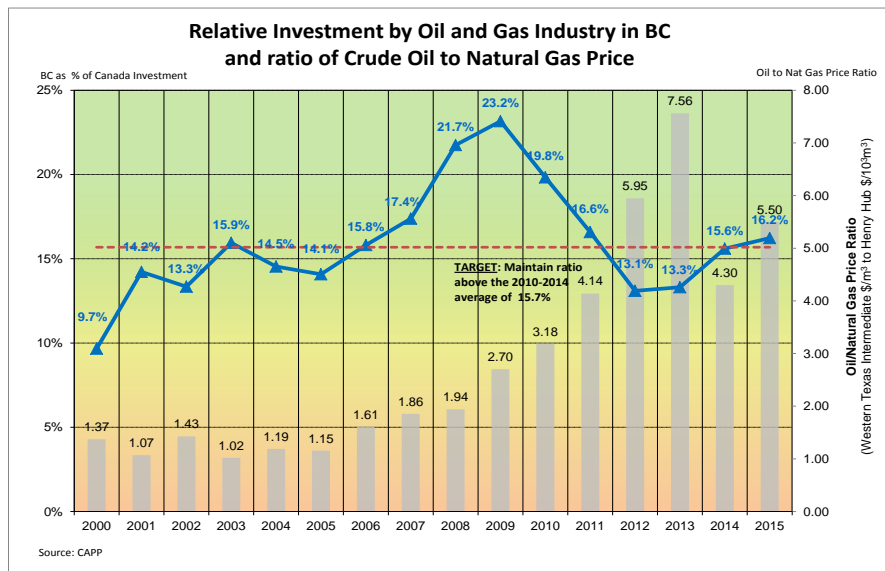
**Performance Measure #1: Values to the Crown are Maximized**



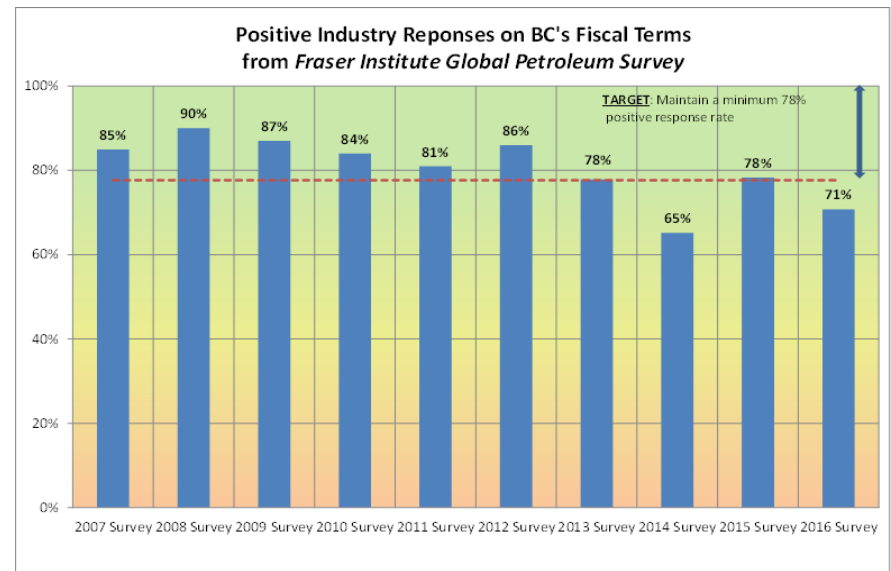
**Performance Measure #2: Equity**



**Performance Measure #3: Long-Term Investment**



**Performance Measure #4: Administrative Ease**



# BC Royalty Programs

## Goals & Performance Measures – 2016 Report

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### Introduction

British Columbia collects royalties on oil and natural gas produced from Crown leases. The royalty regime is structured to maximize the amount of economic rent collected from produced oil and natural gas, while ensuring that producers are able to earn a fair return on their investment. BC strives to maintain a competitive royalty regime compared to other jurisdictions in Canada and the United States.

The goals of the current royalty regime are:

- *Values to the Province are 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*: simple to administer and verify for government and industry.

Starting with the Oil and Gas Development Strategy in June 2003, the Province has introduced special royalty rates to encourage marginal and ultra-marginal natural gas wells, royalty credits for deep gas exploration, and royalty credits for infrastructure development. Specific programs aimed at developing unconventional resources, like the net profit natural gas royalty program, have also been introduced. More recently, the Province amended the *Petroleum and Natural Gas Act* to allow the Province to enter into long-term royalty agreements with upstream producers. A long-term royalty agreement (LTRA) specifies the royalty rate owed to the Province by a producer as well as a minimum amount of production that must occur each year, providing certainty for the Province and producers with regard to royalty payments.

All of these programs ensure that BC's fiscal regime remains competitive with other jurisdictions, encourages development of natural gas and oil and, in turn, increases direct revenue to the Province. A positive investment climate is also key to job creation in the oil and gas sector and helps the provincial economy.

### Performance Measures Reporting

In response to a 2010 Auditor General's recommendation to divulge more information on the impact of BC royalty programs in oil and gas activity in BC to the public, MNGD has committed to prepare a Performance Measures Report every year to follow-up on the four goals of the current royalty regime.

Though it is possible to use a variety of indicators to report on the four goals, the selection of indicators in this report are based on three conditions:

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

**Table 1: Performance Measures Indicators<sup>1</sup>**

Goal	Indicator	Explanation	Data Availability & Source
<b>Values to the Province are maximized</b>	Royalties paid per thousand cubic feet (mcf) of natural gas marketed in BC over Alberta	To maximize values to the Province, BC's royalty policy must find a balance between incenting investment and providing a fair return to the Province. If royalty rates are too high, investment will migrate to other jurisdictions: no drilling = no production = no royalties. If royalties are too low, the value to the Province from oil and gas resource is not maximized.	Natural gas royalty information for BC and Alberta is readily available through respective Energy department websites. Natural gas production is available as part of the Canadian Association of Petroleum Producers website.
<b>Equity</b>	Number of companies participating in royalty programs/Number of Royalty Payers	A high ratio of companies participating in the royalty programs demonstrates equity, as programs are accessible to all companies.	Available through MNGD databases

<sup>1</sup> Many of the indicators and comparisons in this report are relative to Alberta. While BC competes with other jurisdictions in North America, such as Saskatchewan and the United States, because of the geological characteristics of the Western Canadian Sedimentary Basin, industry activity in Saskatchewan leans more towards oil production, while activity in BC is more natural gas based. Developing relative indicators to the US is also a difficult comparator because the royalty framework can vary considerably from state to state. Most land rights in the US are held by individuals, and companies can negotiate different royalty rates with different land owners. This is different from BC, where more than 90 percent of the land is owned by the Province.

Goal	Indicator	Explanation	Data Availability & Source
<b>Long-term investment</b>	Industry Investment in BC /Industry Investment in Canada (excluding oil sands)	By providing a BC/Canada ratio, all price considerations are taken care of as North American jurisdictions face a similar price environment. This indicator provides some indication of the relative attractiveness of BC's natural gas resource and programs. However, it is impacted by relative oil to natural gas prices and hence investment swings between the two commodities.	Information available in Canadian Association of Petroleum Producers Statistics Handbook (publicly available)
<b>Administrative ease</b>	Fraser Institute Global Petroleum Report BC's score in "Fiscal Terms" indicator.	The report provides an evaluation – generated by surveying oil and gas companies – of the fiscal framework of jurisdictions around the world. Though not specifically designed to determine administrative ease of a royalty system, the indicator captures the effect of broader fiscal requirements on companies' willingness to invest in BC.	Document is available online for no cost

## Performance Measure #1: Values to the Province are maximized

### *Rationale*

Goal 1 of BC's royalty programs calls for the maximization of values to the Province; more specifically: "encourage resource development to the benefit of the Crown in terms of maximizing royalties and taxes."

The indicator is aimed at capturing the balance between generating incentives for investment in BC's oil and gas industry and receiving a fair return for Crown resources.

### *Indicator*

The indicator is called "Relative Royalty per thousand cubic feet of marketable production in British Columbia (BC) over Alberta" [RR(mcf)]. It is built using publicly available information:

- Natural gas royalties received by BC and Alberta, in millions of Canadian dollars, by fiscal year (available from government websites) –  $R_{BC}$  and  $R_{AB}$ .
- Marketable (commercially sold) natural gas production in BC and Alberta, in billions of cubic feet, by calendar year<sup>2</sup> (available from Canadian Association of Petroleum Producers) – Called  $P_{BC}$  and  $P_{AB}$ .

The indicator is built in the following manner:

- (1) Royalties per thousand cubic feet of marketable gas in BC:

$$R_{BC}(mcf) = R_{BC} / P_{BC}$$

- (2) Royalties per thousand cubic feet of marketable gas in AB:

$$R_{AB}(mcf) = R_{AB} / P_{AB}$$

- (3) Absolute difference between two factors ("Relative Royalty per thousand cubic feet of marketable production in BC over Alberta"):

$$RR(mcf) = R_{BC}(mcf) - R_{AB}(mcf)$$

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

In the 2012 to 2016 reports, this indicator was built differently than in the 2011 report. Instead of calculating the ratios of royalties per thousand cubic feet of marketable gas of the two provinces, the differences between the royalties per thousand cubic feet of marketable gas of the two provinces were used as the indicators.

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<sup>2</sup> 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 2013 paid royalties to the Province in March 2013. By lagging royalty payments, the calculation matches the royalties received to the associated gas production.

This indicator reflects the absolute differences between the amounts of royalties per thousand cubic feet of marketable gas collected by the two provinces.

### Results

Royalties per thousand cubic feet of production in BC [ $R_{BC}(mcf)$ ] have moved in the range of \$0.09 and \$1.95 between 2000/01 and 2015/16 (which means that depending on the year, producers have paid royalties to BC of between \$0.09 and \$1.95 per thousand cubic feet of natural gas produced and sold to markets). In Alberta, this range has moved from \$0.13 to \$1.74 per thousand cubic feet.

Most of the variability in both jurisdictions is explained by changes in the market price environment that the provinces face (see Chart 1 below). The rest of the difference can be attributed to the differences in the market price hubs they can access (see Chart 3 below) and the effective royalty rates that both provinces charge for the development of their natural gas resources.

Chart 1 shows the evolution of  $R_{BC}(mcf)$  and  $R_{AB}(mcf)$  from 2000/01 to 2015/16. The chart also includes natural gas prices at Henry Hub (green column) to demonstrate the evolution of  $R_{BC}(mcf)$  and  $R_{AB}(mcf)$  follow the general natural gas price trend in North America, as expected.

**Chart 1: Royalties per thousand cubic feet of Marketable Natural Gas Production in BC and Alberta**

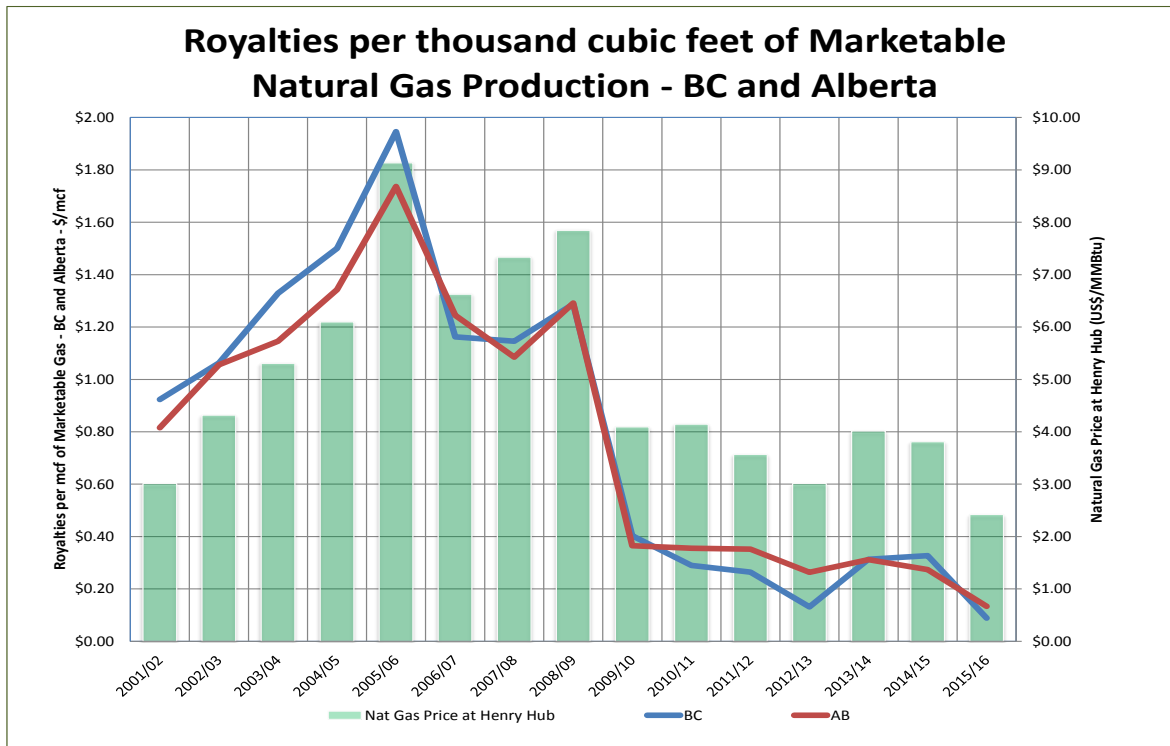
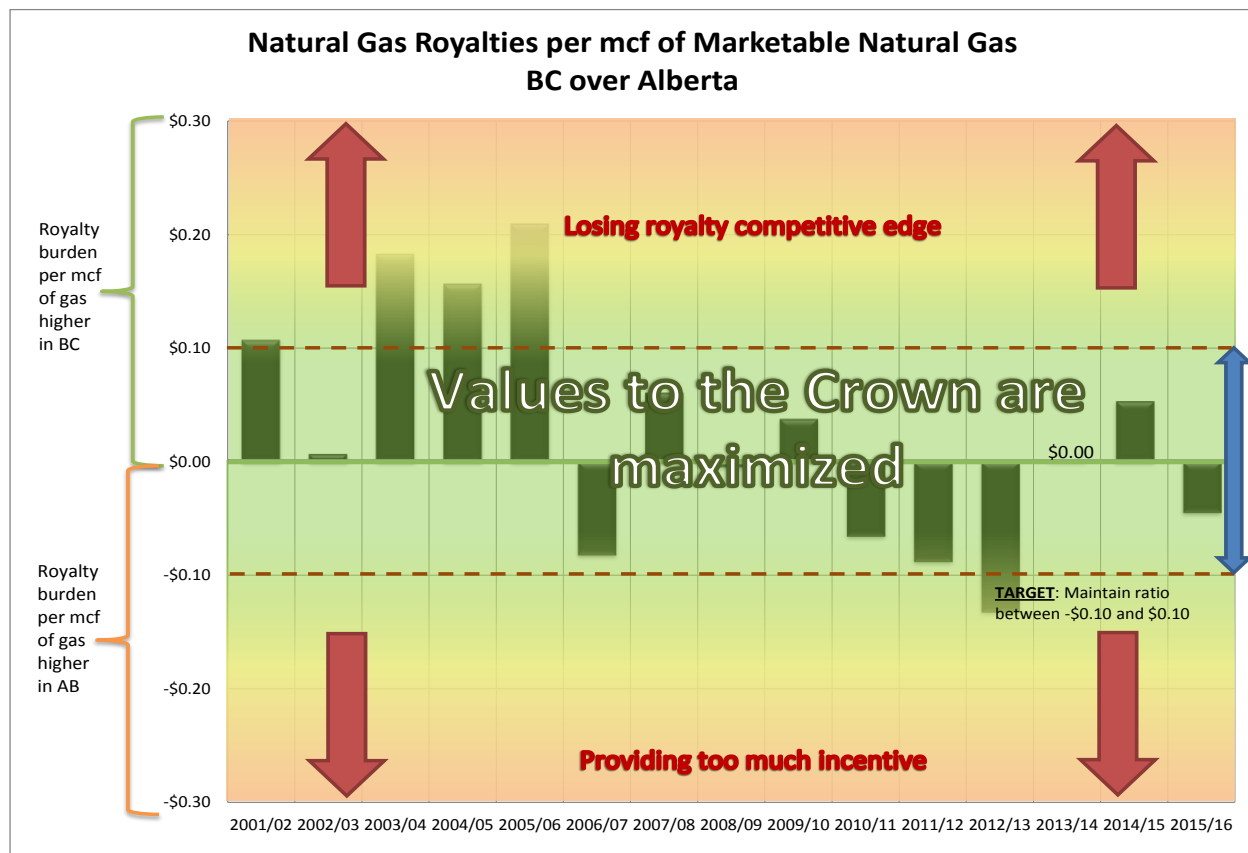




Chart 2 below summarizes the results through time of the selected indicator. If BC and Alberta had identical royalty burdens per thousand cubic feet of marketable production then RR (mcf) = 0. If RR (mcf) > 0, then BC is charging higher effective royalties than Alberta on a per mcf basis. If RR (mcf) < 0, then BC is charging lower effective royalties than Alberta on a per mcf basis.

The data shows that RR(mcf) has moved in a range of -\$0.13 and \$0.21 in the period under analysis. In most of the years, the indicator has been positive, indicating BC was receiving slightly more royalties per mcf of marketable production than Alberta.

***Chart 2: Indicator - Relative Royalty per thousand cubic feet of marketable gas production***

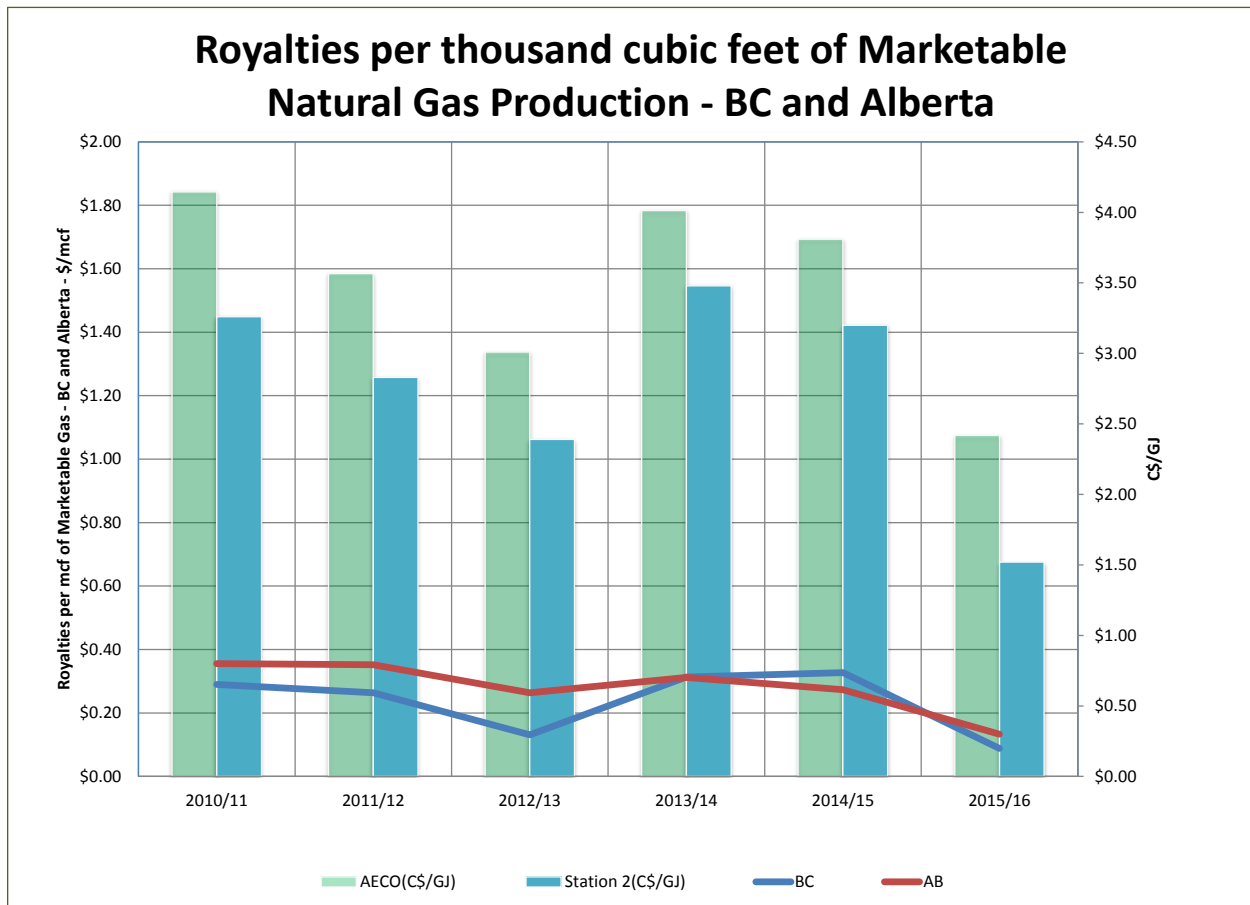


As discussed earlier in this section, the Province has to find a balance between charging too much (thus deterring investment), and charging too little (thus not generating optimal royalty revenues). The target chosen for this indicator is -\$0.10 to \$0.10.

Chart 3 below demonstrates the correlation (and differences) between natural gas prices at natural gas hubs in Alberta (AECO) and BC (Station 2) and the amount of royalties per thousand cubic feet of marketable natural gas collected in BC as compared to Alberta. From 2010/11 to 2012/13  $R_{AB}$  was higher than  $R_{BC}$  partly due to the fact that AECO prices were higher than Station 2 prices. In 2013/14 and 2014/15, despite slightly higher AECO prices,  $R_{BC}$  was the same as and higher than  $R_{AB}$ . This change may also be in part due to BC's implementation of a three per cent minimum natural gas royalty that became

effective on April 1, 2013. The three per cent minimum royalty on gross royalty applies to deep wells when the net royalty payable would otherwise be below 3 percent for a production month. In 2015/16, AECO prices were on average much higher than Station 2 prices (approximately \$1/Giga Joule (GJ) higher), which in turn contributed to the lower  $R_{BC}$  than  $R_{AB}$ .

**Chart 3: Royalties per thousand cubic feet of Marketable Natural Gas Production in BC and Alberta, and AECO vs. Station 2 Natural Gas Prices**



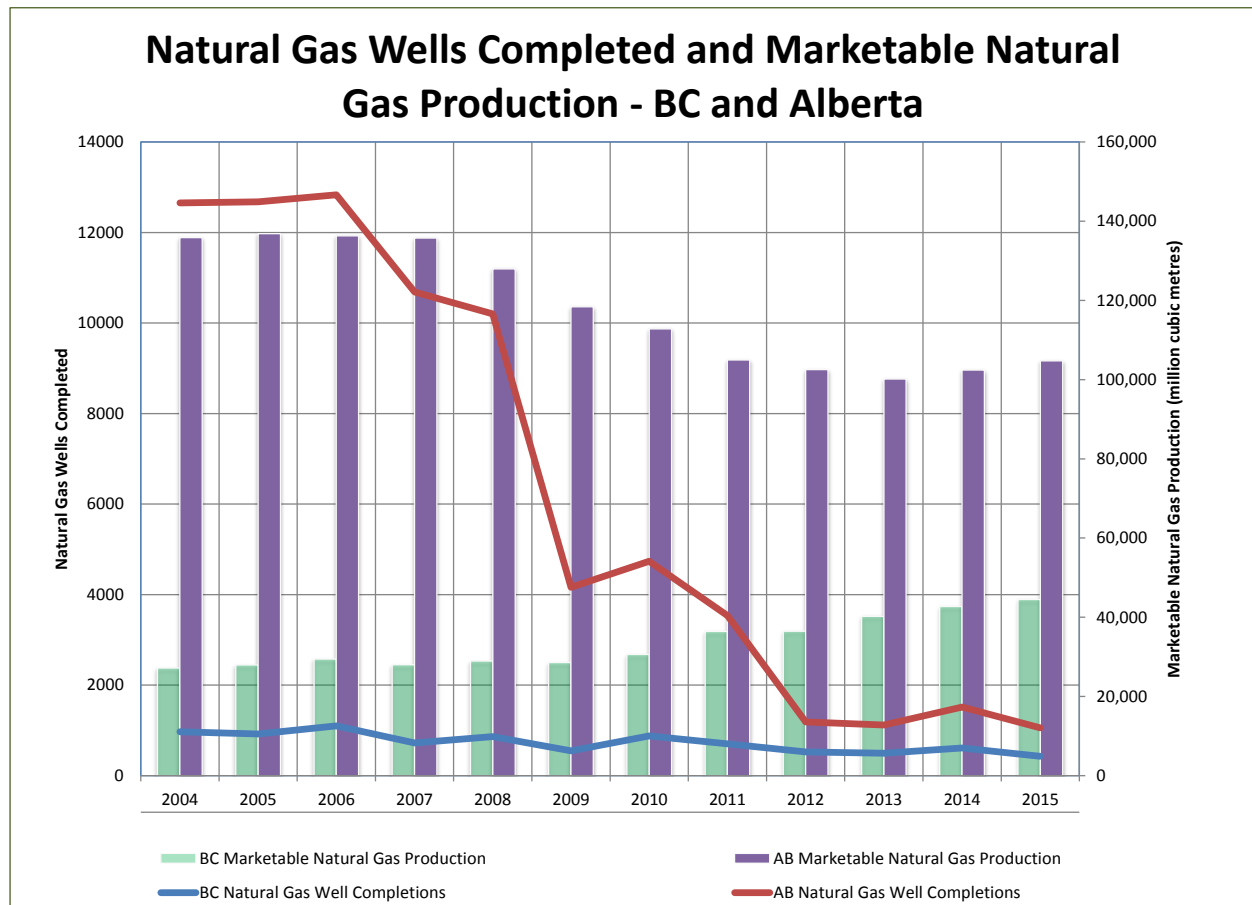
With regards to the impacts of effective royalty rates on  $R_{BC}$  and  $R_{AB}$ , there are a number of interrelated factors to consider, including (but not limited to) marketable natural gas production and number of natural gas wells completed (see chart 4 below). Increasing natural gas production in BC in the last 5 years, despite the slow decline in the number of annual natural gas wells completed during the same period, reflects the fact that unconventional natural gas wells for shale and tight gas have emerged as the primary new source of production. Unconventional natural gas wells typically produce more natural gas than conventional natural gas wells.

In Alberta, natural gas production generally declined over the last decade due to the large decline in the number of natural gas wells completed in the same period, but has begun to rise in the last few years because of increased unconventional natural gas activity.

Both Alberta and BC have seen an increase in natural gas liquids production as a result of the rise in unconventional natural gas wells completed in both provinces.

The above factors, combined with respective royalty programs in BC and Alberta and effective royalties rates, contributed to the variability of royalties charged per thousand cubic feet in BC as compared to Alberta beyond what price changes alone would suggest.

***Chart 4: Natural Gas Wells Completed and Marketable Natural Gas Production in BC and Alberta***



As with any indicators dealing with maximization in the real world, the indicator shown in Chart 2 has some challenges:

- The indicator measures BC’s “maximization” of revenues using a relative measure (comparison with Alberta). Thus, it is as susceptible to BC’s royalty policy changes as to Alberta’s. The

introduction of Alberta in the analysis tries to capture the fact that BC does not move in an isolated world in which it can determine royalty rates without consequences. Capital is mobile, and as such, investors can decide to move their capital to other jurisdictions.

- Alberta is the historical competitor in terms of BC's upstream investment. As unconventional development has become more important, BC is now also competing more and more with other United States and Canadian jurisdictions. The indicator does not capture those changes, but provides a framework for further analysis.
- The indicator assumes that both jurisdictions receive basically the same price for their natural gas. Though this could be a topic of discussion (proximity to consumer markets, transportation tariffs, and different heat value of gas composition can distort this assumption), it is widely accepted that United States and Canadian jurisdictions face a very similar price environment. Chart 1 demonstrated that both provinces royalties charged per unit of gas generally move almost in unison against the benchmark natural gas price used in North America – Henry Hub). However, as Chart 4 illustrated, there are years, like 2015/16, where the market prices between relatively close price hubs (AECO in Alberta and Station 2 in BC) can yield very different absolute market prices, and hence impact royalties per mcf of natural gas produced.

Regardless of its challenges, the indicator Relative Royalty per thousand cubic feet of marketable gas production (shown in Chart 2), is a good performance measure because it captures the final result of the interaction of both BC and Alberta's royalty policies. It is important to emphasize, though, the indicator should not be used in isolation to conclude that BC should increase/decrease royalty rates. As with any ratio, the same results can be obtained using different absolute numbers, which means this indicator should be looked at in conjunction with market share and investment indicators to be able to draw significant conclusions about BC's competitiveness<sup>3</sup>. The differences in the cost of extracting different natural gas resources, flow rates, reservoir characteristics, etc. are not captured by this indicator.

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<sup>3</sup> Consideration was given to the possibility of using a return on investment (ROI) concept as a performance measure for maximizing revenues, and comparing BC's ROI with that of other jurisdictions. However, this concept would misrepresent the value of all the natural gas royalty programs because not all programs have explicit "dollar investments" (i.e. deductions) associated with them (e.g. the marginal and ultra-marginal programs are rate reductions, not royalty deductions). Furthermore, ROI evolves over time as there is a lag in terms of companies receiving the royalty reduction and realizing the full potential of their drilling programs, which would distort results in the near-term.

## Performance Measure #2: Equity

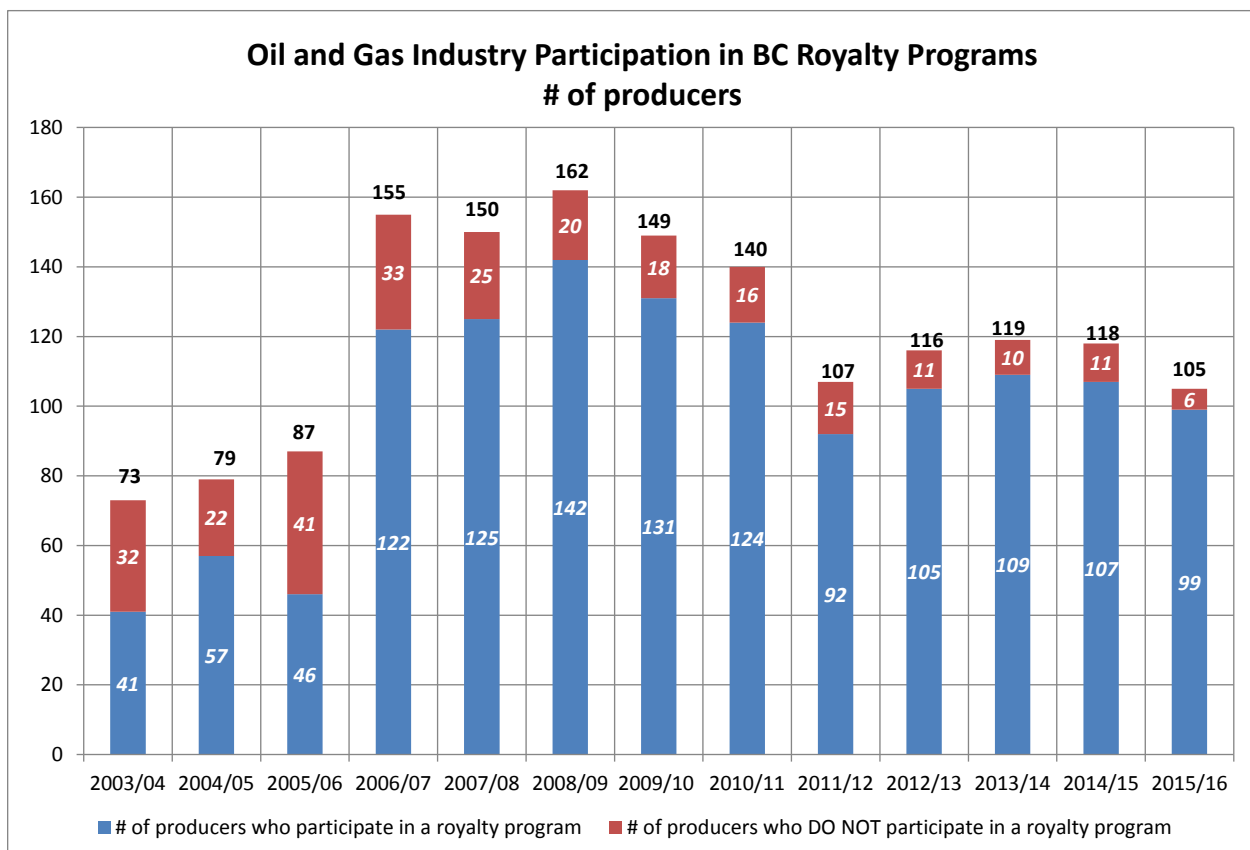
### Rationale

Goal 2 of BC's royalty programs calls for ensuring equal access to royalty programs; more specifically: "producers, large and small, are treated equally under the regime."

BC's royalty programs uphold the values of fairness and equal access to create 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 direct industry application.

Chart 5 shows the number of producers that have participated in BC's royalty programs from 2003/04 to 2015/16.

**Chart 5: Participation in BC Royalty Programs by Industry**



## *Indicator*

The selected indicator is called “Producer Equity Ratio in BC” [PER<sub>BC</sub>]. It is built using MNGD’s internal databases:

- Total number of producers paying royalties, by fiscal year – TP<sub>BC</sub>
- Number of producers who participate in at least one of the following royalty programs (marginal, ultra-marginal, deep, infrastructure, or net profit) – PP<sub>BC</sub>

The indicator is built in the following manner:

(1) Total number of royalty payers in BC: TP<sub>BC</sub>

(2) Producer participation in royalty programs in BC: PP<sub>BC</sub>

(3) Ratio of both factors:

$$PER_{BC} = \{ PP_{BC} / TP_{BC} \} \times 100$$

This ratio tells us the percentage of royalty payers in BC that have accessed BC’s royalty programs<sup>4</sup>. A high ratio of companies participating in royalty programs demonstrates equity, as programs are accessible to all companies. A low ratio does not necessarily mean that producers are not being treated equally. Some companies have drilled wells that do not meet the qualification criteria established for any of the royalty programs.

## *Results*

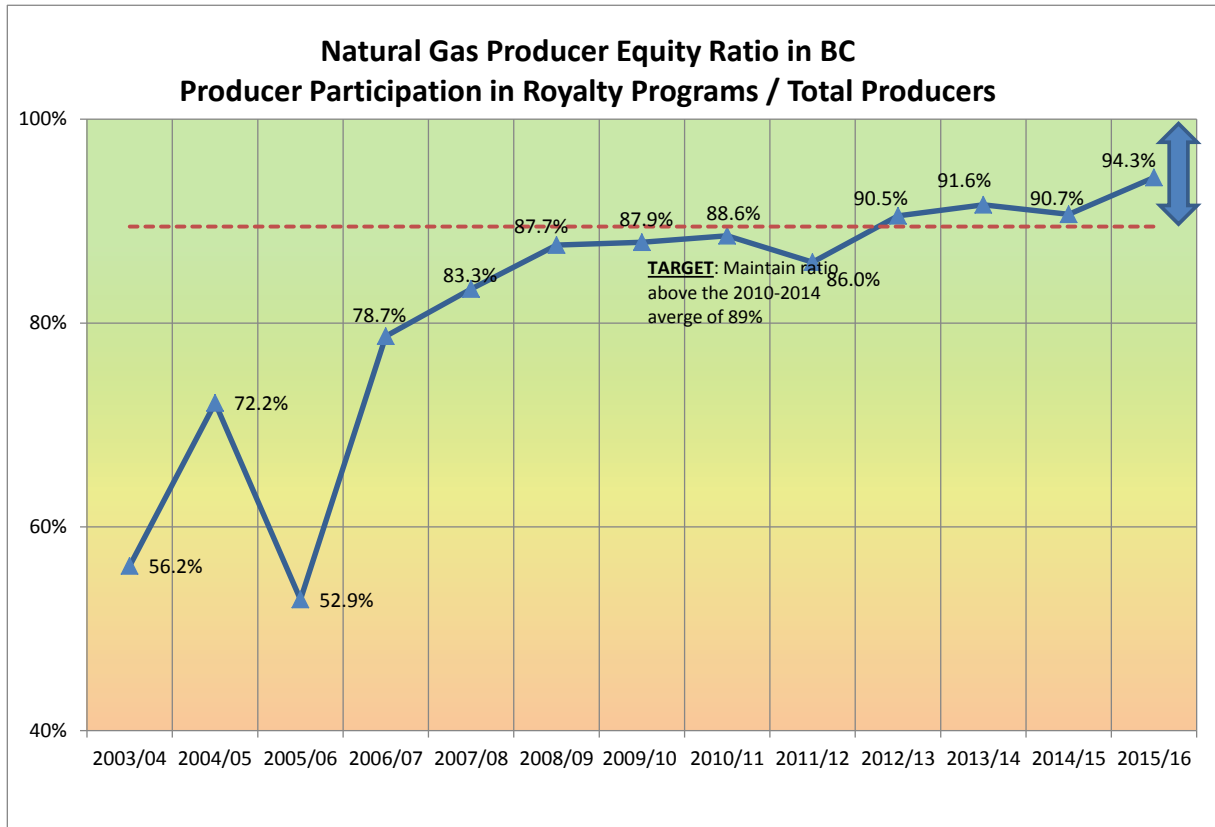
Since the inception of BC’s royalty programs that started in 2003, more than 50 percent of all royalty payers have participated in a royalty program. In 2003/04, the producer equity ratio (PER<sub>BC</sub>) was 56.2 percent, which means that out of the 73 companies paying royalties, 41 companies accessed a royalty program. This ratio has increased to over 90 percent in the last five fiscal years, and was 94.3 percent in 2015/16 (out of the 105 companies paying royalties, 99 accessed at least one royalty program).

While a low PER<sub>BC</sub> could occur in any given year (e.g. if companies do not meet the qualification criteria of at least one royalty program), maintaining PER<sub>BC</sub> above the most recent five-year average (2010-2014) of 89 percent is considered to be a reasonable target for this indicator.

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<sup>4</sup> Please note the Summer Royalty Credit Program was terminated effective April 1, 2013.

**Chart 6: Producer Equitable Access to Royalty Programs in BC**



A company’s participation in a royalty program depends on the characteristics of their wells and infrastructure. Table 2 summarizes how a determination is made regarding whether a company participates in each of BC’s natural gas royalty programs.

**Table 2: Industry Access to BC Royalty Programs**

Natural Gas Royalty Program	Accessibility
<b>Low productivity</b>	MFIN automatically determines eligibility and calculates rates based on producer well information.
<b>Marginal</b>	MFIN automatically determines eligibility and calculates rates based on producer well information.
<b>Ultra-marginal</b>	MFIN automatically determines eligibility and calculates rates based on producer well information.
<b>Deep</b>	MFIN automatically determines eligibility and calculates rates based on producer well information.
<b>Infrastructure</b>	Company must submit application following a Request for Applications issued by MNGD. MNGD determines eligibility based on pre-determined criteria through a competitive process.
<b>Net Profit</b>	Company must submit application following a Request for Applications issued by MNGD. MNGD determines eligibility based on pre-determined criteria through a competitive process.

Note: The Ministry of Finance (MFIN) is responsible for collecting BC’s oil and gas royalties and administration of the natural gas royalty programs.

The goal of ensuring producers have equal access to BC’s royalty programs is key to building investor confidence. The producer equity ratio shown above in Chart 5 provides a good indication of how many producers have participated in BC royalty programs, and maintaining this ratio above the historical 89 percent average is a good measure of success.

### **The Infrastructure Royalty Credit Program**

Through the Infrastructure Royalty Credit Program, upstream oil and gas producers, regardless of their size, can apply for a deduction from the royalties they pay to the Province. The purposes of the program are to facilitate increased upstream oil or natural gas exploration and production in under-developed areas; and extend the drilling season to allow for year-round activity. This credit can be as much as 50 percent of the cost of constructing roads or pipelines. The program operates through a competitive Request for Application process that evaluates road and/or pipeline applications and has a rigorous evaluation process.

Between 2004 and 2016, British Columbia’s Infrastructure Royalty Credit Program has been offered through 15 different installments to oil and gas companies resulting in more than 235 new or upgraded all-season roads and pipeline projects in BC. The Infrastructure Royalty Credit Program is in direct support of British Columbia's Natural Gas Strategy. Approved annually up to 2015, in 2016 the Province approved annual installments for each of 2016, 2017 and 2018 to enhance competitiveness and increase investment certainty by industry.

Since the program operates through a competitive application process and has a limit each year in terms of a maximum amount of royalty deductions available, and just under half of the applications between 2006 and 2014 were not approved, there is data available to test the accessibility and participation in this program comparing small, medium and large producers. Internal MNGD data was used to examine the proportion of applications submitted between 2006 and 2016 that were approved, comparing producers of different sizes<sup>5</sup> on the basis of their company’s total BC production. In summary, small producers saw 44% of all their applications approved, medium producers 50%, and large producers 38%. In terms of the dollar amount of credits into approved projects and their overall share, small producers accounted for 32%, medium producers 26%, and large producers 42%.

Overall, small, medium and large producers have seen equitable access and participation to the Infrastructure Royalty Credit Program over the period of 2006 to 2016.

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<sup>5</sup> Large Producer                      % of Total BC marketable natural gas production greater than 8%  
Medium Producer                    % of Total BC marketable natural gas production between 2% and 8%  
Small Producer                      % of Total BC marketable natural gas Production less than 2%



## Performance Measure #3: Long-term Investment

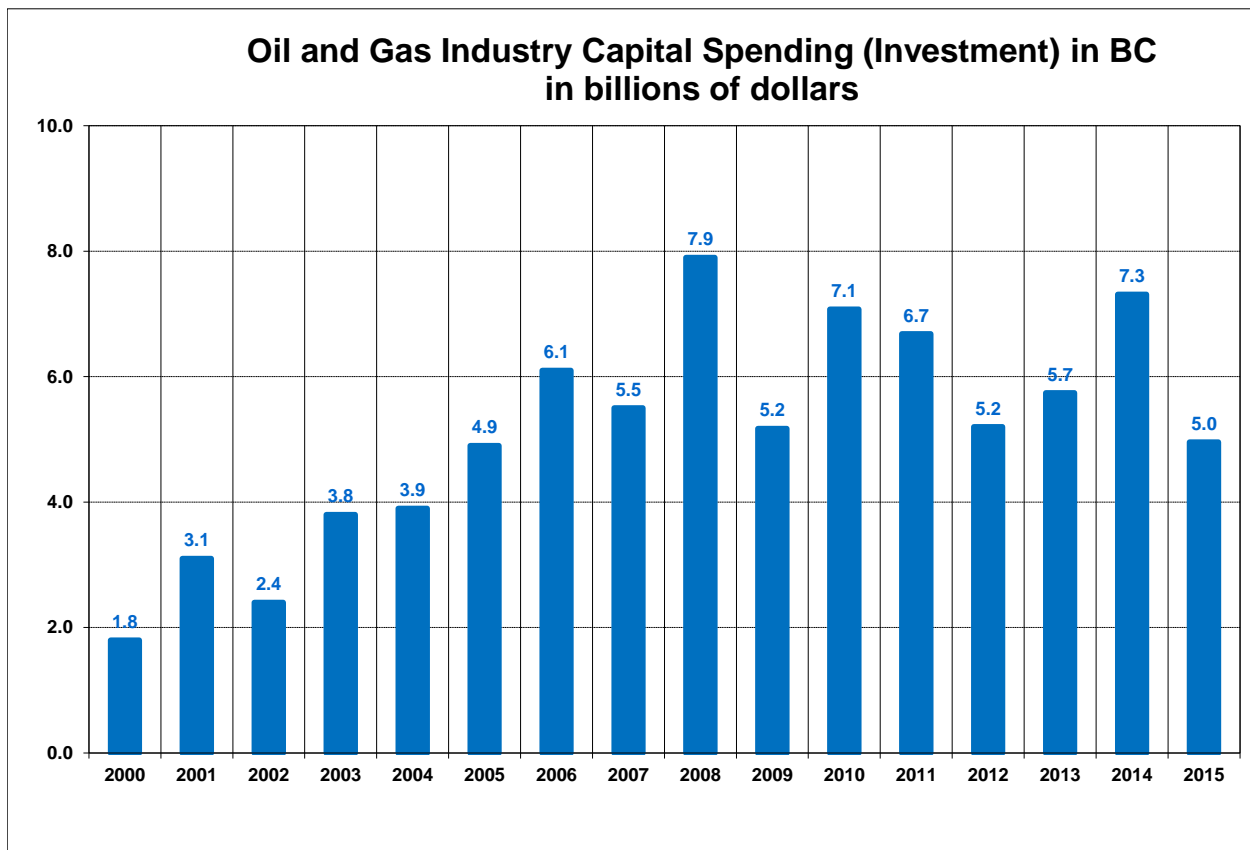
### *Rationale*

Goal 3 of BC's royalty programs calls for ensuring long-term industry investment in BC; more 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 budget. Some of those factors include geological characteristics of the resource, closeness to markets and business climate. While there are some factors the government cannot control (e.g. resource characteristics or geographic proximity to markets) the one thing a jurisdiction can impact is its business climate. Royalty regimes fall under the category of business investment – having a competitive royalty regime is key to maintaining industry investment levels in the Province.

Chart 7 shows the oil and gas industry's capital spending (investment) on exploration and development in BC from 2000 to 2015.

***Chart 7: Capital Investment on Exploration and Development in BC  
by the Oil and Gas Industry***



## Indicator

The selected indicator is called “Relative Investment in BC” [ $RI_{BC}$ ]. It is built using publicly available information:

- Cash expenditures (capital investment) of the upstream petroleum industry in BC and Canada, in billions of Canadian dollars, by calendar year, excluding oil sands (available from the Canadian Association of Petroleum Producers) –  $II_{BC}$  and  $II_{CAN}$ .
- Capital investment is the sum of two components:
  - exploration investment – which includes expenditures on geological and geophysical, drilling and land (i.e. bonus bids); and
  - development investment – which includes expenditures on drilling and well completions, field equipment, enhanced oil recovery (EOR) and gas plants.

The indicator is built in the following manner:

- (1) Industry capital investment in BC:  $II_{BC}$
- (2) Industry capital investment in Canada:  $II_{CAN}$
- (3) Ratio of both factors:  
$$RI = \{II_{BC} / II_{CAN}\} \times 100$$

By evaluating investment as a ratio, impact of price on exploration and development is removed as all jurisdictions in Canada and the United States face a similar natural gas price environment. However, since the measure and data includes investment in both oil and natural gas, changes in the relative price between crude oil and natural gas will have an impact. Some provinces like BC have mainly natural gas resources, while Saskatchewan has mainly oil resources. Alberta, the largest producer of both oil and natural gas respectively in Canada, has more equal endowments of oil and natural gas resources.

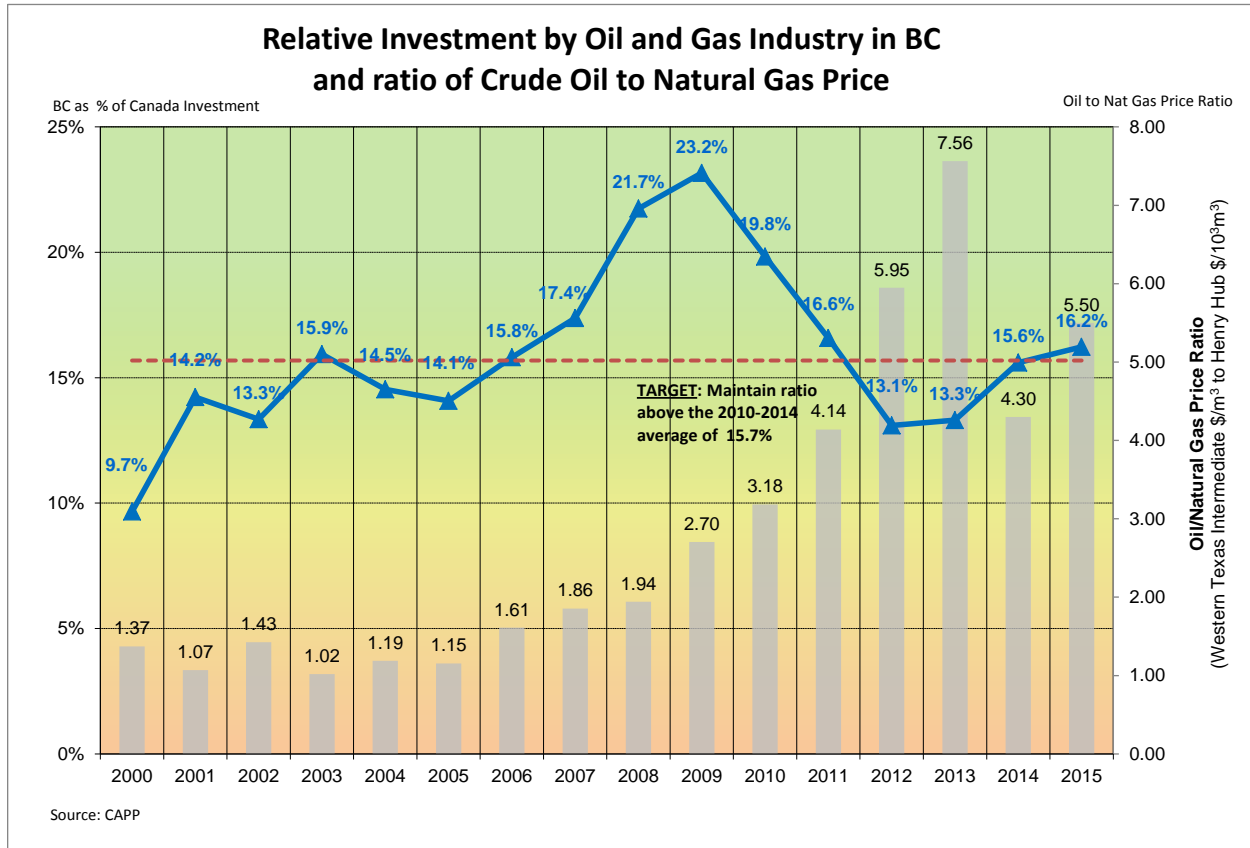
## Results

As seen in Chart 8, BC’s market share of upstream industry investment has remained consistently above 10 percent since 2001, and while it varied between 2000 and 2005, this percentage then increased steadily from 2005 to 2009. In 2000, relative investment in BC [ $RI_{BC}$ ] was 9.7 percent, which means BC attracted 9.7 percent of total investment by the petroleum industry in Canada that year. By 2009, relative investment in BC had risen to 23.2 percent but eased to 16.6 percent in 2011, 13.1 percent in 2012 and 13.3 percent in 2013. This was mostly due to the unusually high crude oil to natural gas prices ratios in those three years, in which oil and gas industry investment in Canada clearly shifted from natural gas to crude oil to benefit from the relatively higher oil prices. From 2013 to 2015, relative investment in BC increased from 13.3% to 16.2%, in part due to decrease in the ratio of crude oil price to natural gas price seen since 2014.

The *BC Natural Gas Strategy*, released in 2012, envisioned BC as becoming a global leader in secure and sustainable natural gas investment, development and export. Over the next 20 years, global demand for natural gas is expected to rise dramatically, fuelled by rapid economic growth in Asia. BC is positioned

to compete for a share of that market through the development of liquefied natural gas (LNG) and value added opportunities. BC's market share of upstream natural gas industry investment is expected to reflect that growth in the future.

**Chart 8: Investment on Exploration and Development in BC**



One of the concerns with using industry capital investment as a performance measure for royalty regimes is that the government does not have “direct” control over industry investment decisions, nor endowments of oil resource versus natural gas resource. All the government can do is to facilitate a competitive investment environment to attract dollars to BC, with a target to maintain the relative investment indicator at or above its 2010-2014 average of 15.7 percent. While this indicator is considered to provide fair evidence of the relative attractiveness of BC's resource and royalty regime, a measure that isolates only natural gas investment would be preferable. At this time, the means to generate such a measure does not exist.

## Performance Measure #4: Administrative Ease

### *Rationale*

Goal 4 of BC's royalty programs calls for ensuring administrative ease of the royalty regime; more specifically: "simple to administer and verify for government and industry."

From government's perspective, the importance of having a royalty regime which is simple and easy to administer 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. Knowing the rules in which the activity is to be undertaken is important for companies in deciding if investing in a particular jurisdiction will hinder or enhance their investment activities. Complex regulatory or royalty frameworks which are not clearly documented or explained create uncertainty for industry.

### *Indicator*

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 around the world regarding barriers to investment in various jurisdictions. The last study, entitled Fraser Institute Global Petroleum Survey 2016 (Survey)<sup>6</sup>, received responses from 381 individuals, providing sufficient data to compare 96 jurisdictions worldwide.

For Canada, eight provinces and two territories were included in the latest survey. The survey was distributed to managers and executives in the upstream petroleum and natural gas industry (processors, marketers and distributors of oil and natural gas were not surveyed) and was administered between May 24, 2016 and August 12, 2016.

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 about. 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. For example, the survey's "Taxation in general" factor includes personal, corporate, payroll, and capital taxes, and the complexity

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<sup>6</sup> The 2016 survey is available on the Fraser Institute website at <https://www.fraserinstitute.org/sites/default/files/global-petroleum-survey-2016.pdf>.

of tax compliance, but excludes petroleum exploration and production licenses and fees, land lease fees, and royalties and other charges directly targeting petroleum production.

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. While not specifically designed to determine administrative ease of a royalty system, this factor is most closely related to the administrative ease performance measure.

For the Fiscal terms 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 a high score for 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.

## *Results*

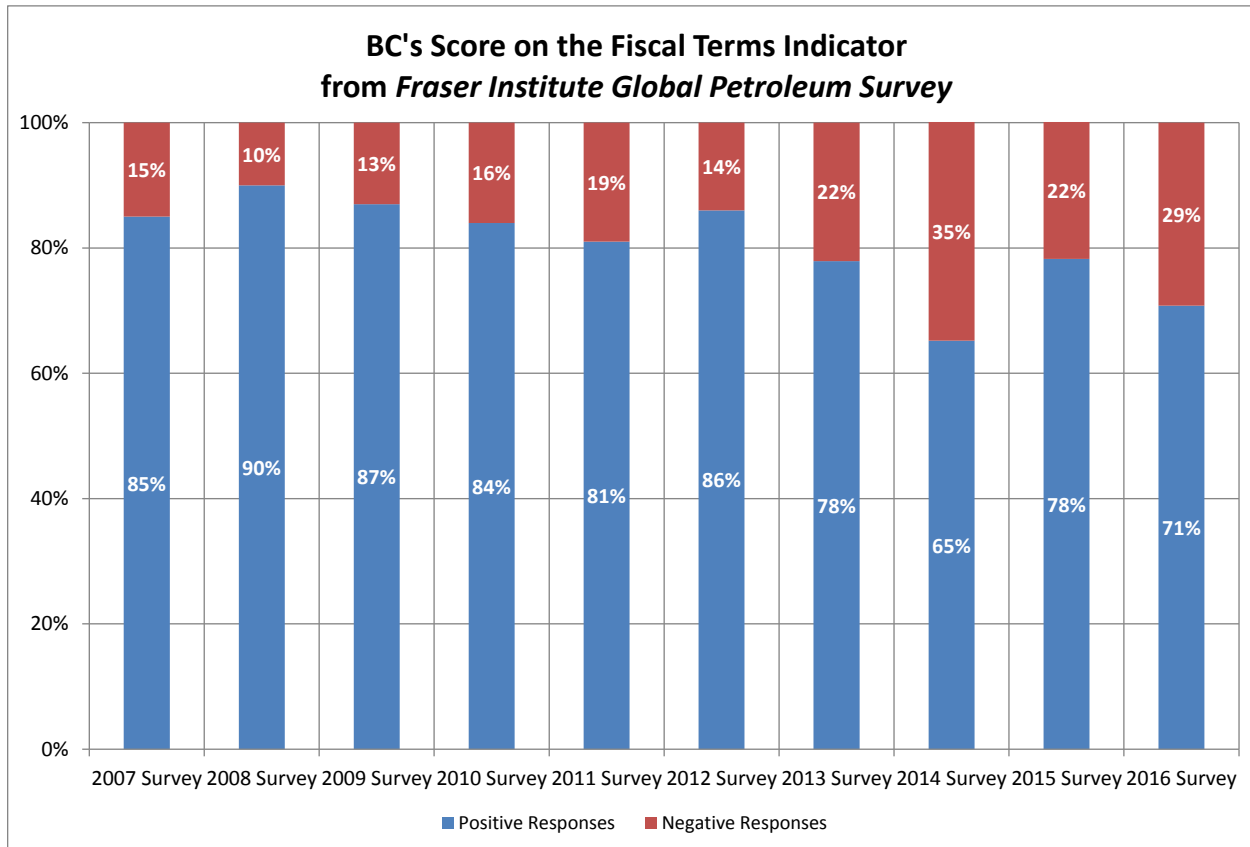
The oil and gas industry considers BC to be less favourable in terms of fiscal terms in the latest survey, with a 71 percent positive response in 2016 versus 78 percent in 2015. For BC, the percentage of positive responses has ranged between 65 percent and 86 percent in the last five annual surveys conducted by the Fraser Institute. Among Canadian jurisdictions,

- In 2010, BC ranked fifth (84 percent positive response) behind Manitoba (100 percent positive response), Saskatchewan (97 percent positive response), Nova Scotia (85 percent positive response) and Quebec (85 percent positive response);
- In the 2011 survey, BC ranked fifth (81 percent positive response) behind New Brunswick and Ontario (both 100 percent positive response), Saskatchewan (94 percent positive response) and Manitoba (87 percent positive response);
- In the 2012 survey, BC ranked third (86 percent positive response) behind Saskatchewan (98 percent positive response) and Manitoba (93 response);
- In the 2013 survey, BC ranked sixth (78 percent positive response) behind Saskatchewan (99 percent positive response), Manitoba (90 percent positive response), Alberta (86 percent positive response), Northwest Territories (83 percent positive response) and Yukon (83 percent positive response);
- In the 2014 survey, BC ranked sixth (65 percent positive response) behind Saskatchewan (94 percent positive response), Manitoba (93 percent positive response), Alberta (86 percent

positive response), Newfoundland and Labrador (74 percent positive response) and Northwest Territories (73 percent positive response); and

- In the 2015 survey, BC ranked sixth (78 percent positive response) behind Saskatchewan (95 percent positive response), Manitoba (89 percent positive response), Yukon (83 percent positive response), Newfoundland and Labrador (81 percent positive response) and Ontario (79 percent positive response).
- In the 2016 survey, BC ranked third along with Newfoundland & Labrador (71 percent positive response) behind Saskatchewan (98 percent positive response), Manitoba (100 percent positive response). Alberta had a 47 percent positive response.

**Chart 9: Industry Perception of BC's Fiscal Framework**



It should be noted the percentage of positive responses for the fiscal terms factor dropped for almost all Canadian jurisdictions including Alberta, Newfoundland & Labrador and BC, but not Manitoba and Saskatchewan, in the 2016 survey compared to the 2015 survey results.

In their 2016 report, the Fraser Institute suggests that decisions to invest in upstream exploration and development are heavily conditioned by the size of the oil and gas resources that are generally recognized to be available for exploitation. The report divides jurisdictions in three groups for purposes of comparison of investment policy perception indicators. Jurisdictions with relatively small proven oil and gas reserves and relatively small production (Saskatchewan and Manitoba are in this group) may be recognized as very attractive for investment as reflected by more favorable policy perception indicator survey scores.

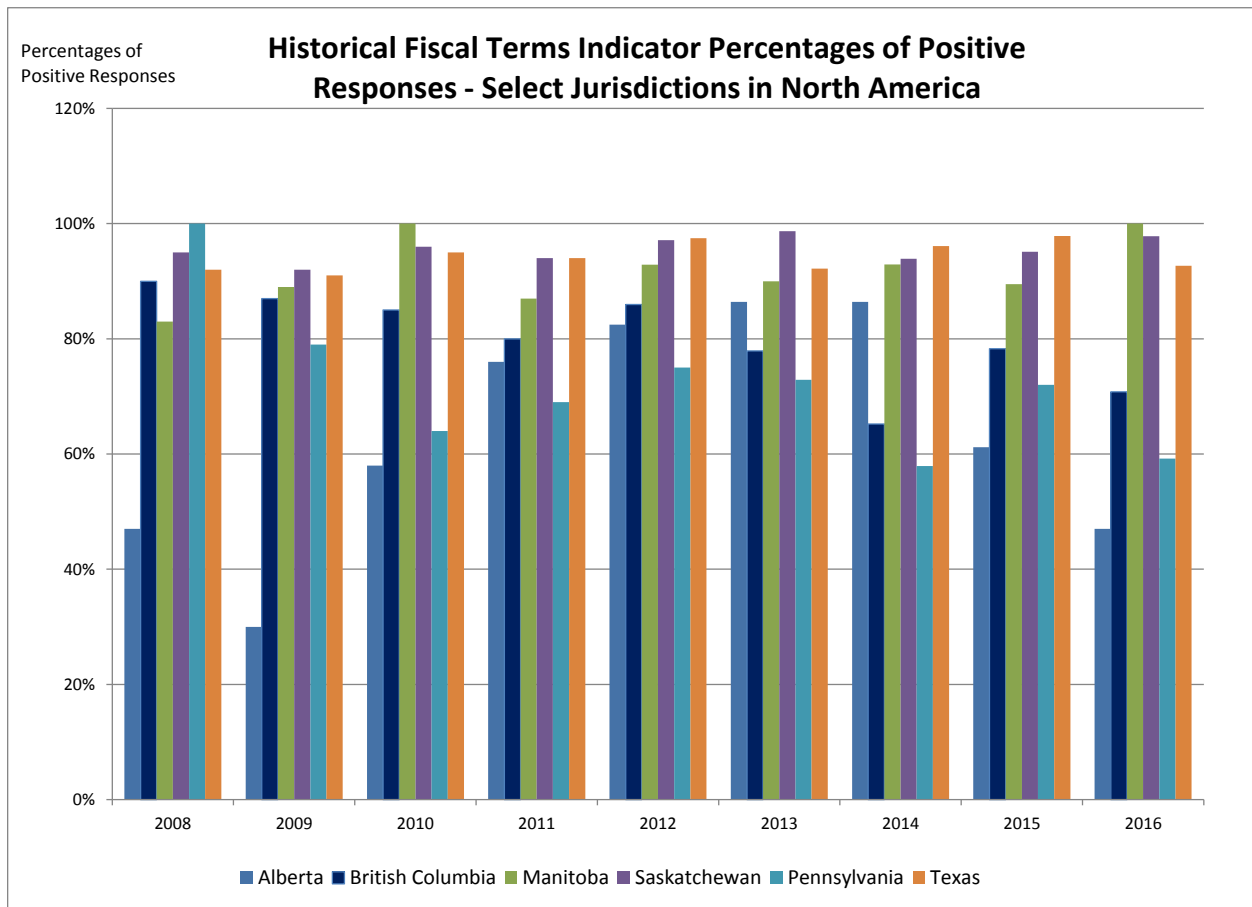
The 2016 Report makes an interesting observation (found on page 17) that "... some jurisdictions with relatively small or even no reserves may rank more highly on the basis of the respondents' perceptions of 13 factors surveyed covering business conditions, regulatory regimes, and other factors, than some jurisdictions with significant reserve holdings."

It is possible that jurisdictions with small resource endowments may not receive as much investment attention (good and bad) by survey respondents as those with relatively large undeveloped oil and gas resources, such as Alberta (oil sands, oil and natural gas), and medium undeveloped natural gas resources, such as BC.

Continued on page 21

Chart 10 below displays the percentage of positive responses in fiscal terms for select North American jurisdictions, including key competitor jurisdictions to BC in natural gas production and sales. In both 2015 and 2016, BC's percentage of positive responses for the fiscal terms factor was higher than Alberta and Pennsylvania, but below Texas. These three jurisdictions are key natural gas producer competitors to BC in terms of natural gas, while Saskatchewan and Manitoba are mainly only crude oil producers and are relatively small in terms of resource endowment and production. Pennsylvania and Alberta (both with a large undeveloped petroleum resource bases) have tended to see wide variation and movement over time in terms of degree of positive responses to the fiscal terms indicator, when compared to BC who has seen more moderate change over time.

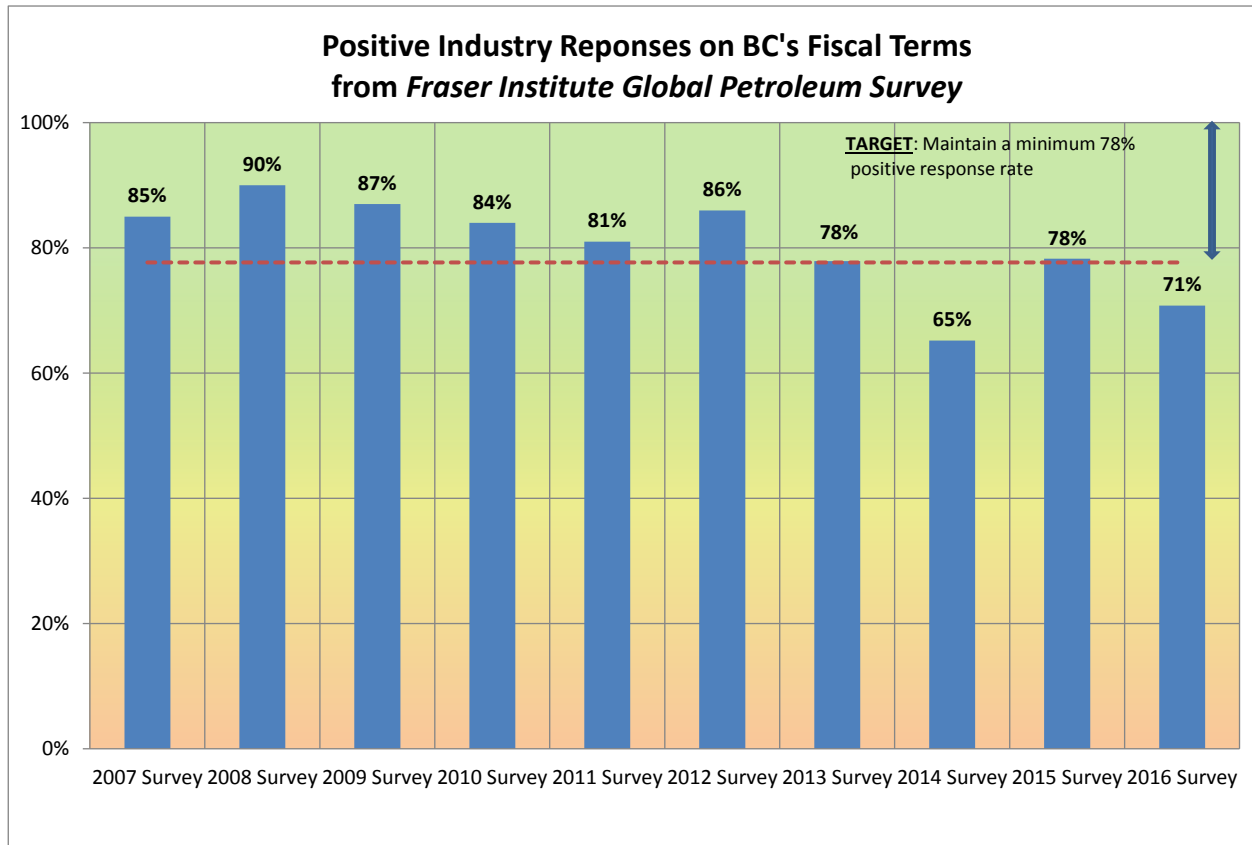
***Chart 10: Historical Fiscal Terms Indicator Percentages of Positive Responses - Select Jurisdictions in North America***





The goal of a royalty regime that is simple to administer and verify for government is important for attracting capital and building investor confidence. While the Fiscal terms indicator (see Chart 11) is not specifically designed to measure this goal, it is a relatively good measure to use and a reasonable target for the indicator is a positive response rate of 78 percent, which is the average rate of the last five years (from 2011 to 2015).

***Chart 11: Indicator for Administrative Ease of BC's Oil and Gas Royalty Regime***



### **Conclusion**

The purpose of this Performance Measures Report is to provide details about the four goals of BC's current royalty regime, and to establish measurable indicators and targets to demonstrate success. This is in response to the Auditor General's recommendations to share more information with the public about the impact of the province's programs.

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:

Richard Grieve, Executive Director,  
 Policy and Royalty Branch at [Richard.Grieve@gov.bc.ca](mailto:Richard.Grieve@gov.bc.ca).