

***Ministry of Natural Gas  
Development***

***British Columbia Natural Gas  
Royalty Programs***

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***Program Goals & Performance Measures  
2015 Report***

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*Policy and Royalty Branch,  
Upstream Development Division  
December 2015*

## *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.

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.

The Ministry of Natural Gas Development (MNGD) consistently evaluates natural gas royalty program objectives and performance measures.

In response to an Office of the Auditor General's recommendation in 2010 to divulge more information on the impact of natural gas royalty programs, MNGD has committed to prepare a Performance Measures Report every year to follow-up on the goals of the current royalty regime. This is the sixth 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 natural gas royalty programs are helping to facilitate the development of the Province's natural gas industry through promoting long-term investment in BC and supporting jobs creation in the Province.

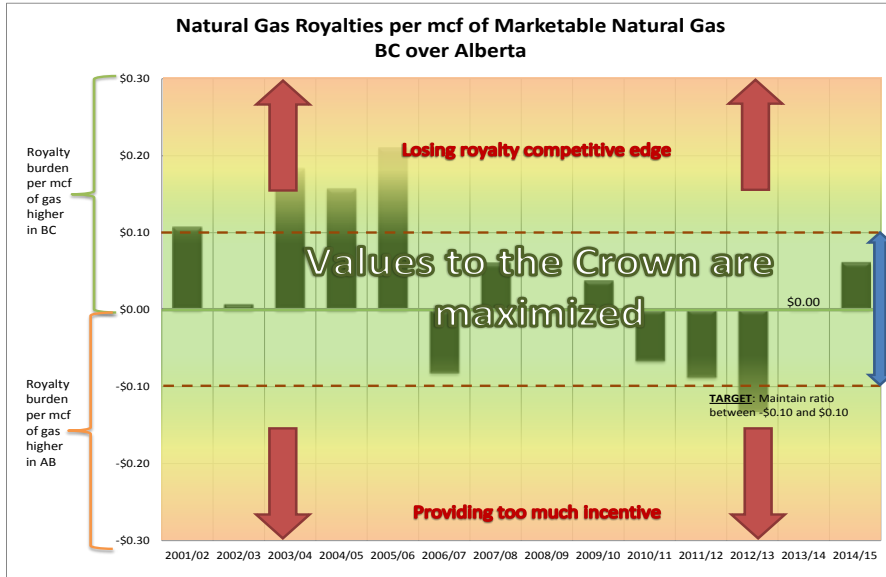
This Performance Measures Report is not intended to be a static document. MNGD welcomes feedback, comments and suggestions.

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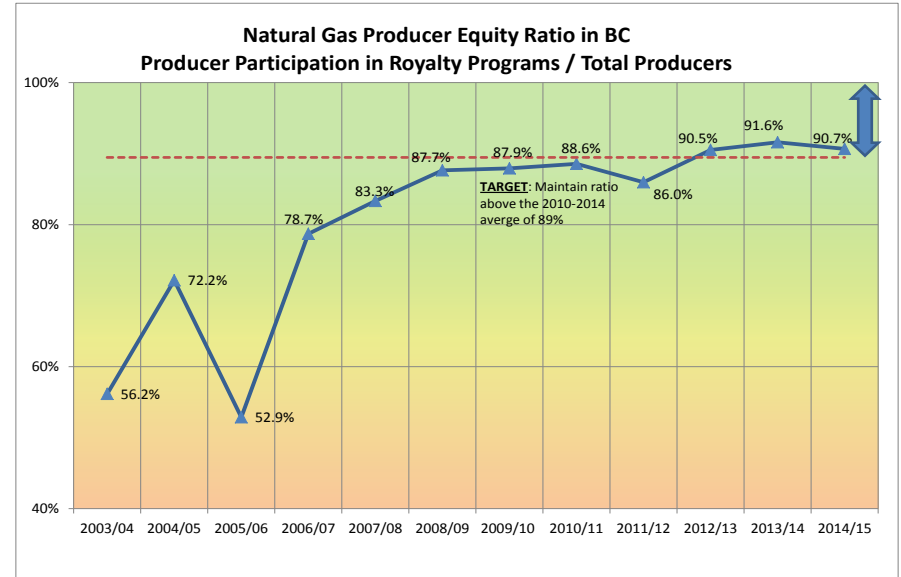
Assistant Deputy Minister  
Upstream Development Division  
Ministry of Natural Gas Development

# At a Glance: BC Natural Gas Royalty Programs' Performance Measures

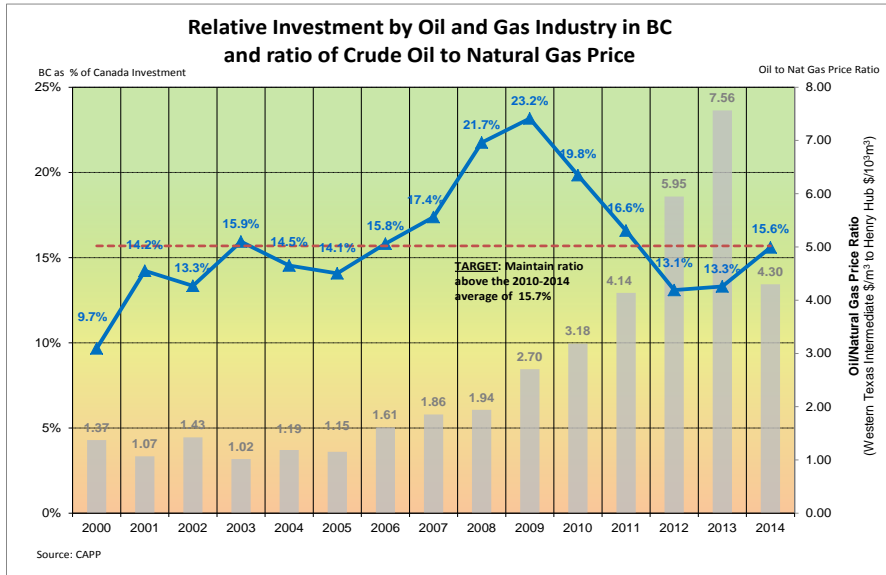
## Performance Measure #1: Values to the Crown are Maximized



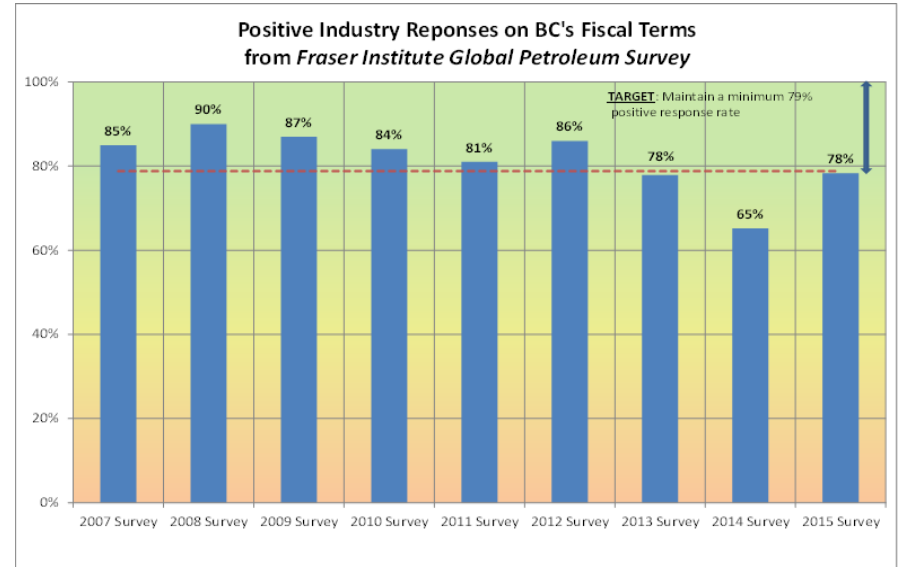
## Performance Measure #2: Equity



## Performance Measure #3: Long-Term Investment



## Performance Measure #4: Administrative Ease



# BC Natural Gas Royalty Programs

## Goals & Performance Measures – 2015 Report

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### Introduction

British Columbia collects royalties on oil and natural gas produced from a Crown lease. 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 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. Most recently, the Province amended the *Petroleum and Natural Gas Act* to allow the Province to enter into long-term royalty agreements with natural gas 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, 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.

BC natural gas royalty programs promote long – term investment in the BC natural gas industry and support job creation in the Province by ensuring a reliable, abundant supply of natural gas and maintaining competitiveness of the fiscal regime in BC.

### Performance Measures Reporting

In response to a 2010 Auditor General's recommendation to divulge more information on the impact of natural gas 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 natural gas royalty programs/Number of Royalty Payers	A high ratio of companies participating in the natural gas 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 natural gas 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 2015 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 pays 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 [ $R_{BC}(\text{mcf})$ ] have moved in the range of \$0.13 and \$1.95 between 2000/01 and 2014/15 (which means that depending on the year, producers have paid royalties to BC of between \$0.13 and \$1.95 per thousand cubic feet of natural gas produced and sold to markets). In Alberta, this range has moved from \$0.26 to \$1.74 per thousand cubic feet. Most of this variability in both jurisdictions is explained by changes in the price environment that both provinces face. The rest of the difference should be attributed to the differences in the effective royalty rates that both provinces charge for the development of their natural gas resources.

Disparity in the royalty measures below comparing BC to Alberta in 2011/12 and 2012/13 essentially diminished in 2013/14, perhaps due in part to BC's implementation of a three per cent minimum natural gas royalty on April 1, 2013. The three per cent minimum royalty on gross revenues applies to deep wells when the net royalty payable would otherwise be below 3 percent for a production month. In 2014/15, BC collected on average \$0.06 more in royalties per thousand cubic feet of natural gas produced compared to Alberta.

Chart 1 shows the evolution of  $R_{BC}(\text{mcf})$  and  $R_{AB}(\text{mcf})$  from 2000/01 to 2014/15. The chart also includes natural gas prices at Henry Hub (green column) to demonstrate the evolution of  $R_{BC}(\text{mcf})$  and  $R_{AB}(\text{mcf})$  follow the general price trend in North America, as expected.

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

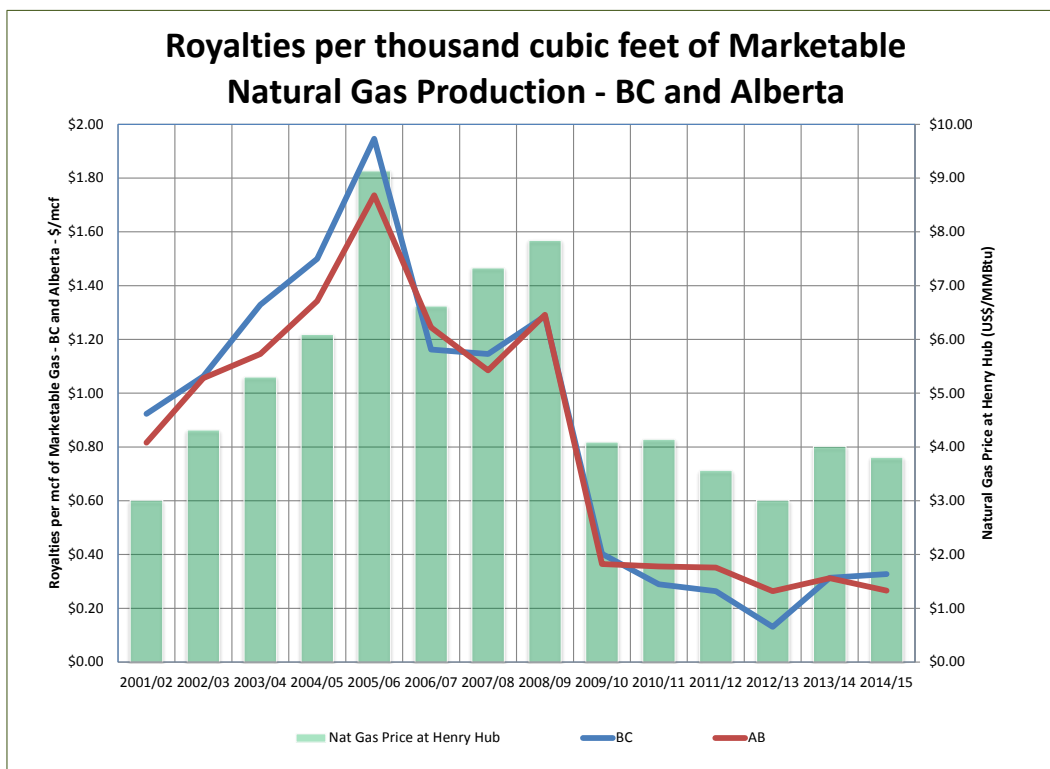
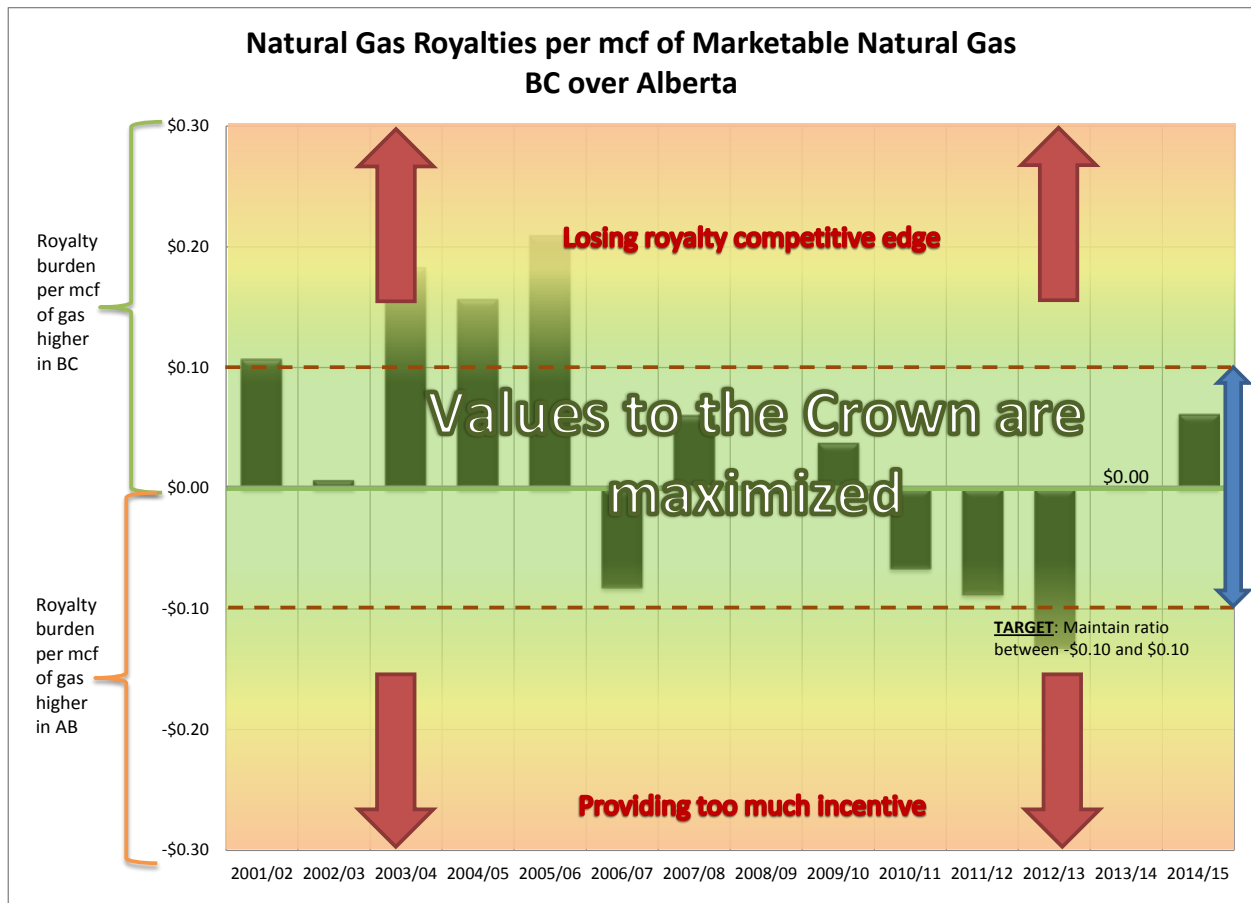




Chart 2 below summarizes the results through time of the selected indicator. If BC and Alberta had identical royalty burdens per thousand cubic feet of marketable production then RR (mcf) = 0. If RR (mcf) > 0, then BC is charging higher effective royalties than Alberta on a per mcf basis. If RR (mcf)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

In mid-2003, BC announced its Oil and Gas Development Strategy that introduced most of the existing natural gas royalty programs. These programs allowed BC to increase its market share of marketable natural gas production, active rigs, and well completions in Western Canada, creating jobs and industry activity in Northeast BC.

Comparing 2013 to 2012, the number of natural gas wells completed was about 6.3 percent lower in BC and 5.5 percent lower in Alberta. However, the lower number of wells completed did not harm production in BC. The volume of marketable natural gas production was 10.4 percent higher in BC, but 2.3 percent lower in Alberta in 2013 from a year earlier.

Comparing 2014 to 2013, the number of natural gas wells completed was about 23.5 percent higher in BC and 35.2 percent higher in Alberta. Marketable gas production was 6.1 percent higher in BC compared to 2.2 percent higher in Alberta from a year earlier.

The share of unconventional versus conventional natural gas wells in BC continues to climb and is growing in Alberta as well. Unconventional natural gas wells typically produce more natural gas than conventional natural gas wells, which has been contributing to BC's and Alberta's growth in production in 2014.

In 2013/14 the royalty burden per mcf of gas between BC and Alberta essentially disappeared, contrasted to the - on average -, aggregate relative lower royalty burden per mcf of gas for BC compared to Alberta in 2011/12 and 2012/13. In 2014/15 BC has shown a relative higher royalty burden per mcf of natural gas than Alberta.

As noted earlier on page 5, the results for 2013/14 and 2014/15 are likely due in part to BC's introduction of a 3 percent minimum royalty that began April 1, 2013. This likely also impacted the results for 2014/15 along with increased natural gas liquids (NGL) production in BC. NGL's as a component of overall natural gas royalty revenues grew in BC in 2014 owing to increased NGL production and strong prices for pentanes and condensate (two key types of NGL's).

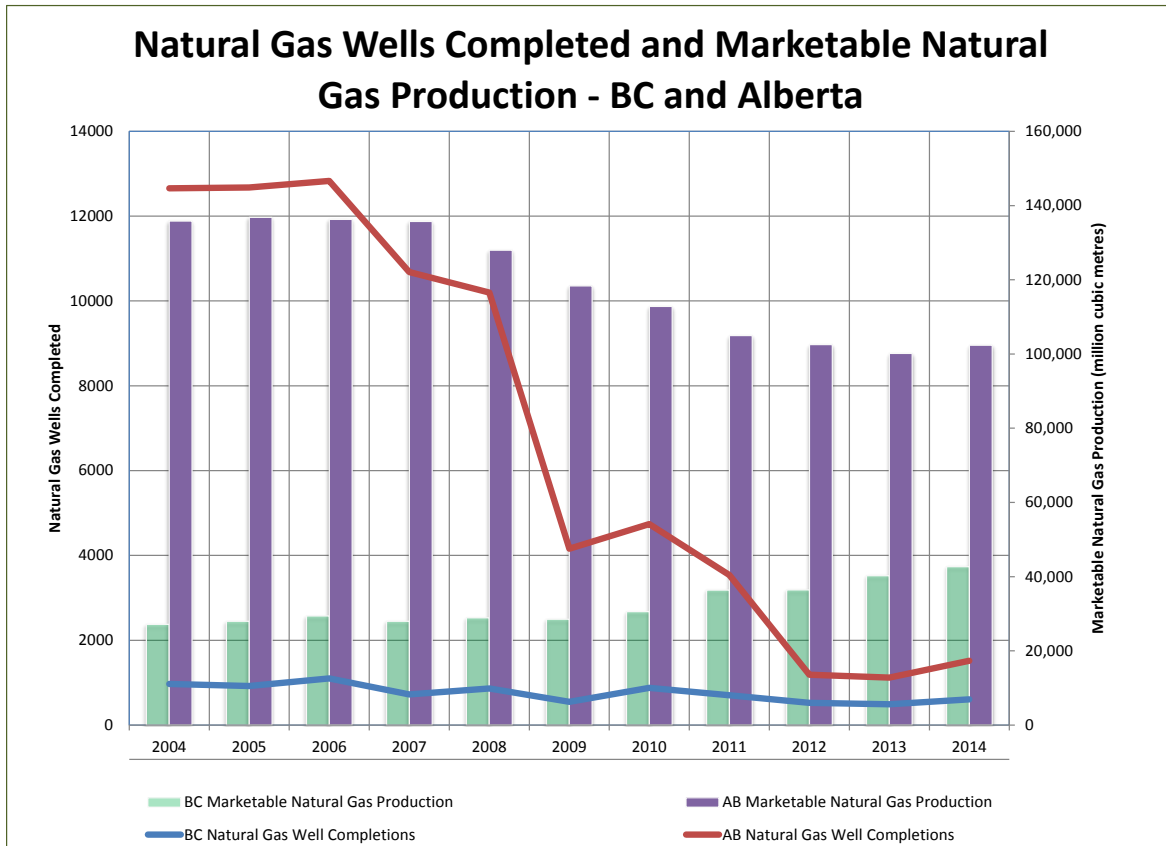
Chart 3, on the next page, provides context over time in terms of BC and Alberta natural gas wells completed and marketable natural gas production from 2004 to 2014.

Marketable natural gas production in BC has been rising since 2004, while in Alberta it has been generally falling. This trend increased since 2009, with the exception of 2014 in Alberta which saw a small increase from 2013. In recent years in both provinces, unconventional natural wells for shale and tight gas (using horizontal drilling) have emerged as the primary new source of production, and are the offset to older vintage wells that continue to see annual production declines or are taken off production at the end of their productive life. The balance between the two impacts overall total production.

The composition of Alberta production was more heavily weighted toward older vintage wells from 2010 to 2012, while in BC it was more heavily weighted to new well production as a proportion of total production. In both provinces, new well production through royalty programs, saw incentives that provide lower royalties charged in the first year of production, for example the Deep Well program in BC and the 12 month royalty holiday program in Alberta. Since Alberta saw such a decline in new wells being added, this likely also contributed to the overall result that RAB(mcf) remained steady, while RBC(mcf) was falling, and their absolute difference grew. Also at the time, Alberta had a 5% minimum royalty while BC had no minimum royalty for wells under each Province's deep well programs.

Overall, Chart 3 demonstrates that there are a number of interrelated factors to consider when interpreting the indicator shown in Chart 2 from one year to the next.

***Chart 3: 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 natural gas. 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 analysis 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 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 generally move almost in unison against the benchmark natural gas price used in North America – Henry Hub).

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

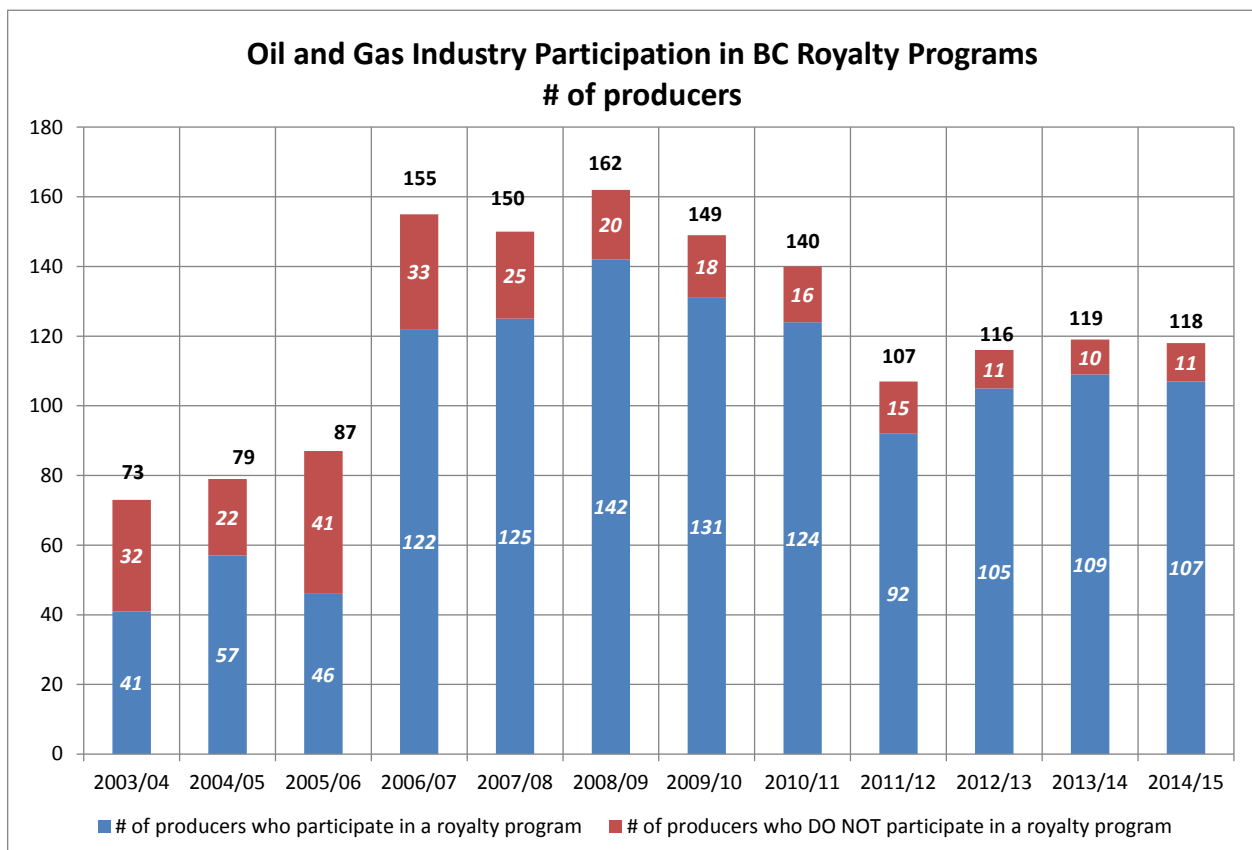
### Rationale

Goal 2 of natural gas royalty programs calls for ensuring equal access to natural gas royalty programs; more specifically: “producers, large and small, are treated equally under the regime.”

BC’s natural gas 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 natural gas royalty programs are administered. Industry participation in most natural gas royalty programs is determined automatically (based on qualifying criteria), while access to some natural gas royalty programs is determined by direct industry application.

Chart 4 shows the number of producers that have participated in BC’s natural gas royalty programs from 2003/04 to 2014/15.

**Chart 4: 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 natural gas royalties, by fiscal year – TP<sub>BC</sub>
- Number of producers who participate in at least one of the following natural gas royalty programs (marginal, ultra-marginal, deep, infrastructure, SYD, 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 natural gas 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 natural gas royalty programs<sup>4</sup>. A high ratio of companies participating in natural gas 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 natural gas royalty programs.

## Results

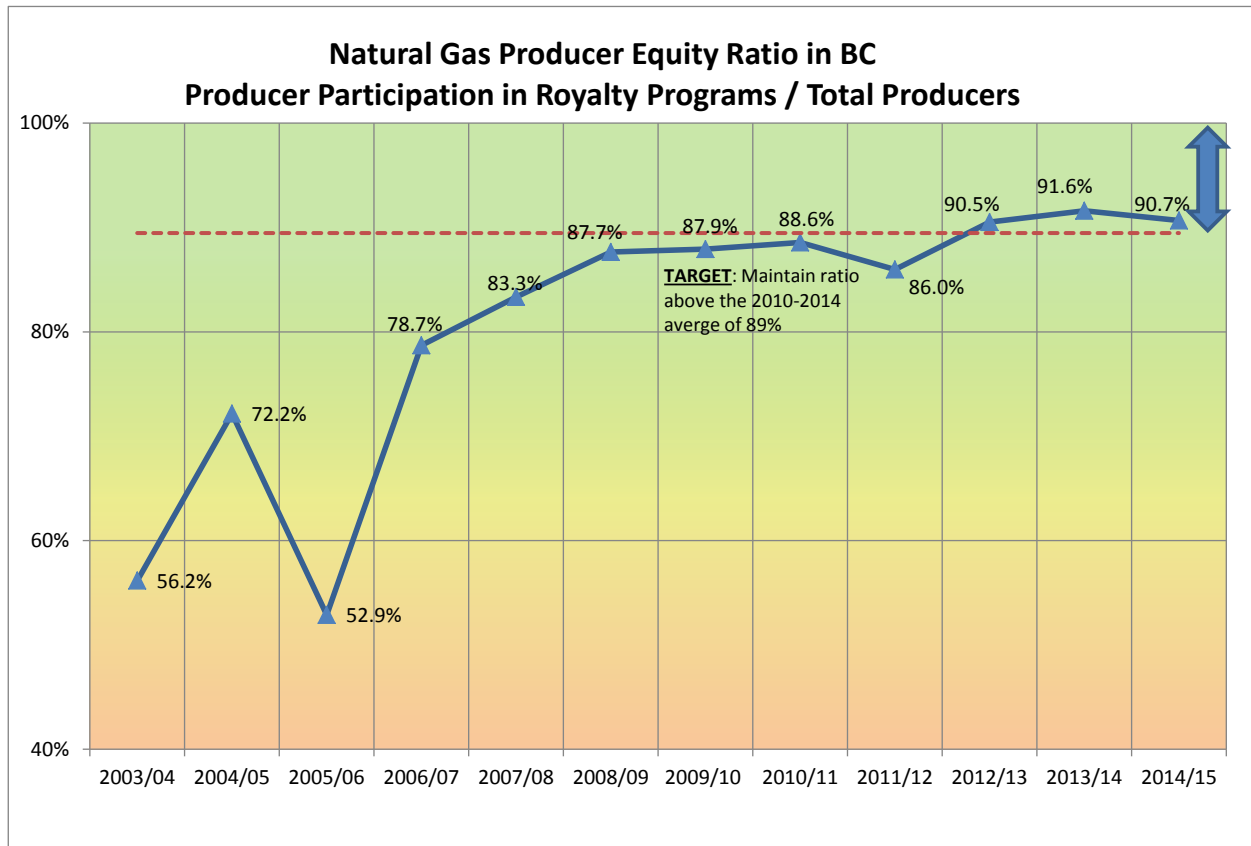
Since the inception of BC’s natural gas royalty programs that started in 2003, more than 50 percent of all royalty payers have participated in a royalty program. In 2003/04, the producer equity ratio (PER<sub>BC</sub>) was 56.2 percent, which means that out of the 73 companies paying natural gas royalties, 41 companies accessed a natural gas royalty program. This ratio has increased to well over 80 percent in the last five fiscal years, and was 90.7 percent in 2014/15 (out of the 118 companies paying natural gas royalties, 107 accessed at least one natural gas 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 the natural gas royalty programs), 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>5</sup> This indicator does not include the Low Productivity Well Program as that was introduced in 2001, prior to the bulk of the current natural gas natural gas royalty programs which started in June 2003 with the Oil and Gas Development Strategy. Also, please note the Summer Royalty Credit Program was terminated effective April 1, 2013.

**Chart 5: Producer Equitable Access to Natural Gas Royalty Programs in BC**



A company’s participation in a natural gas 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, beginning in June 2003.

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

Natural Gas Royalty Program	Accessibility
<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 80 percent average is a good measure of success.

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

Through the Infrastructure Royalty Credit Program, upstream oil and gas producer companies, 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.

Since 2004, British Columbia’s Infrastructure Royalty Credit Program has allocated over \$1 billion in infrastructure royalty deductions to oil and gas companies for projects that have been approved, resulting in over 200 new or upgraded all-season roads and pipeline projects in British Columbia. The Infrastructure Royalty Credit Program is in direct support of British Columbia's Natural Gas Strategy.

Since the program operates through a competitive application process and has a limit each year in terms of 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 2014 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 43% of all their applications approved, medium producers 48%, and large producers 38%. In terms of the dollar amount of credits into approved projects and their overall share, small producers accounted for 33%, medium producers 26%, and large producers 41%.

Overall, small, medium and large producers have seen equitable access and participation to Infrastructure Royalty Credit Program over the period of 2006 to 2014.

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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

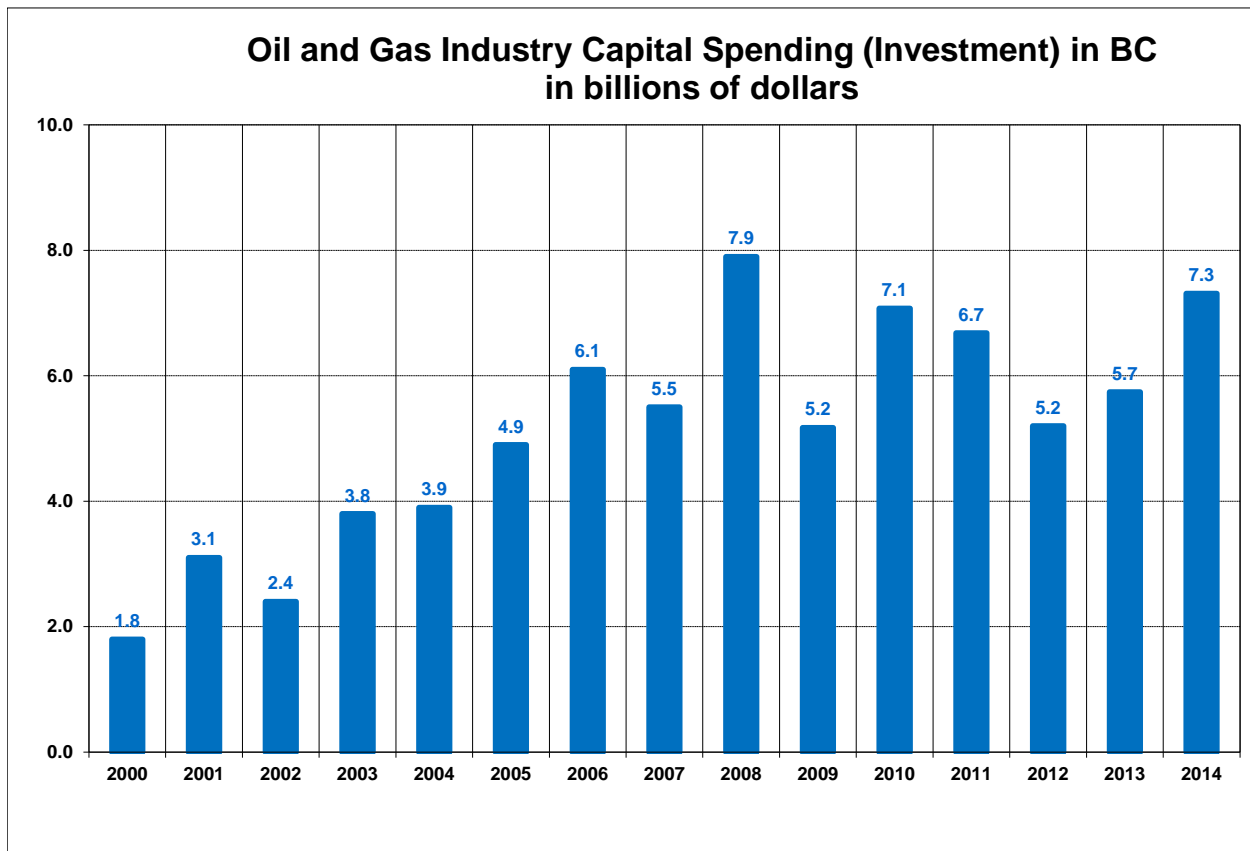
### Rationale

Goal 3 of BC's upstream oil and natural gas 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 6 shows the oil and gas industry's capital spending (investment) on exploration and development in BC from 2000 to 2014.

***Chart 6: 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) in both oil and natural gas 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.

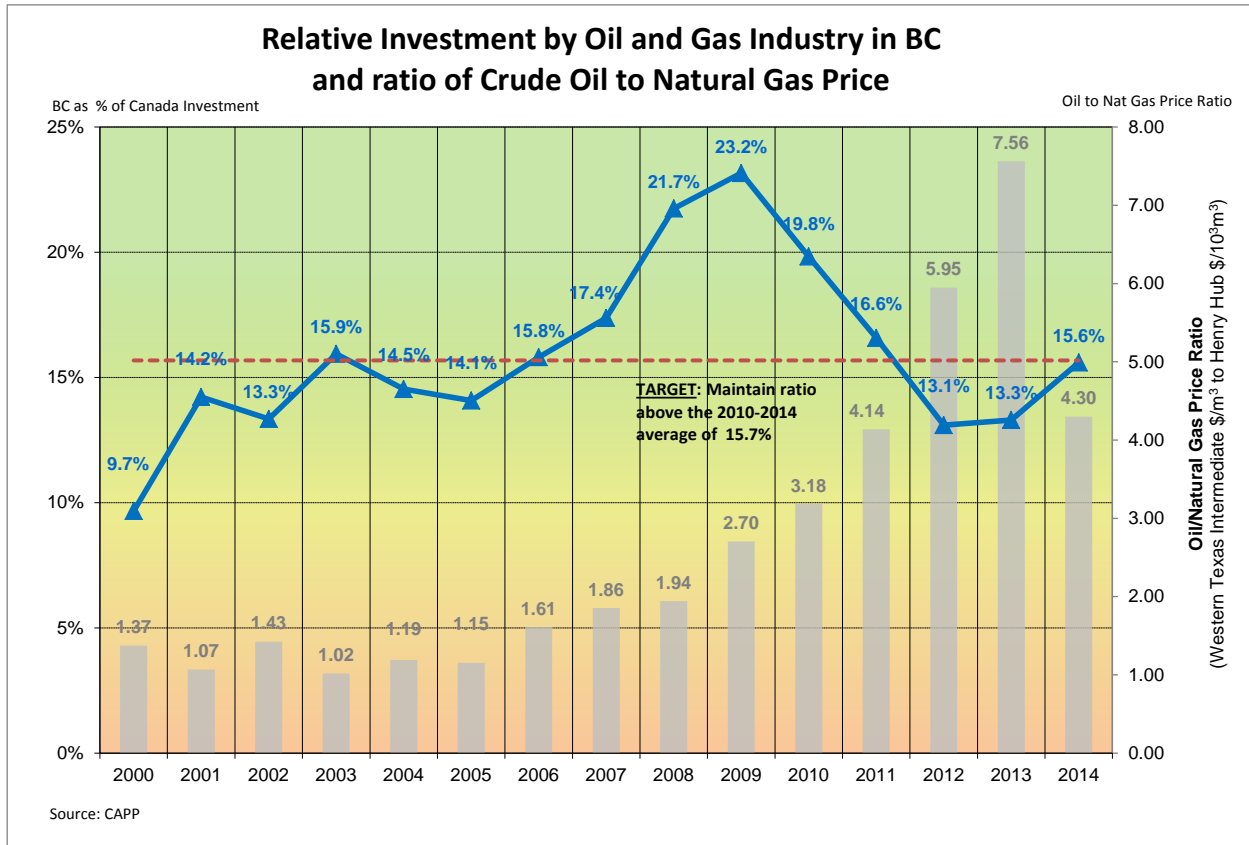
## Results

As seen in Chart 7, BC’s market share of upstream industry investment fluctuated between 2000 and 2005, remaining consistently above 10 percent since 2001, and increasing every year 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 2014, relative investment in BC increased from 13.3% to 15.6%, in part due to decrease in the ratio of crude oil price to natural gas price seen in 2014.

The *BC Natural Gas Strategy*, released in 2012, states that BC has a vision of 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). BC's market share of upstream natural gas industry investment is expected to reflect that growth in the future.

**Chart 7: 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 natural gas 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 2015 (Survey)<sup>6</sup>, received responses from 439 individuals, providing sufficient data to compare 126 jurisdictions worldwide.

For Canada, nine provinces and two territories were included in the 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 29, 2015 and July 31, 2015.

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 "general taxation" factor includes personal, corporate, payroll, and capital taxes, and the complexity of

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<sup>6</sup> The 2015 survey is available on the Fraser Institute website at <https://www.fraserinstitute.org/sites/default/files/global-petroleum-survey-2015-exec-summary-rev.pdf>.

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*

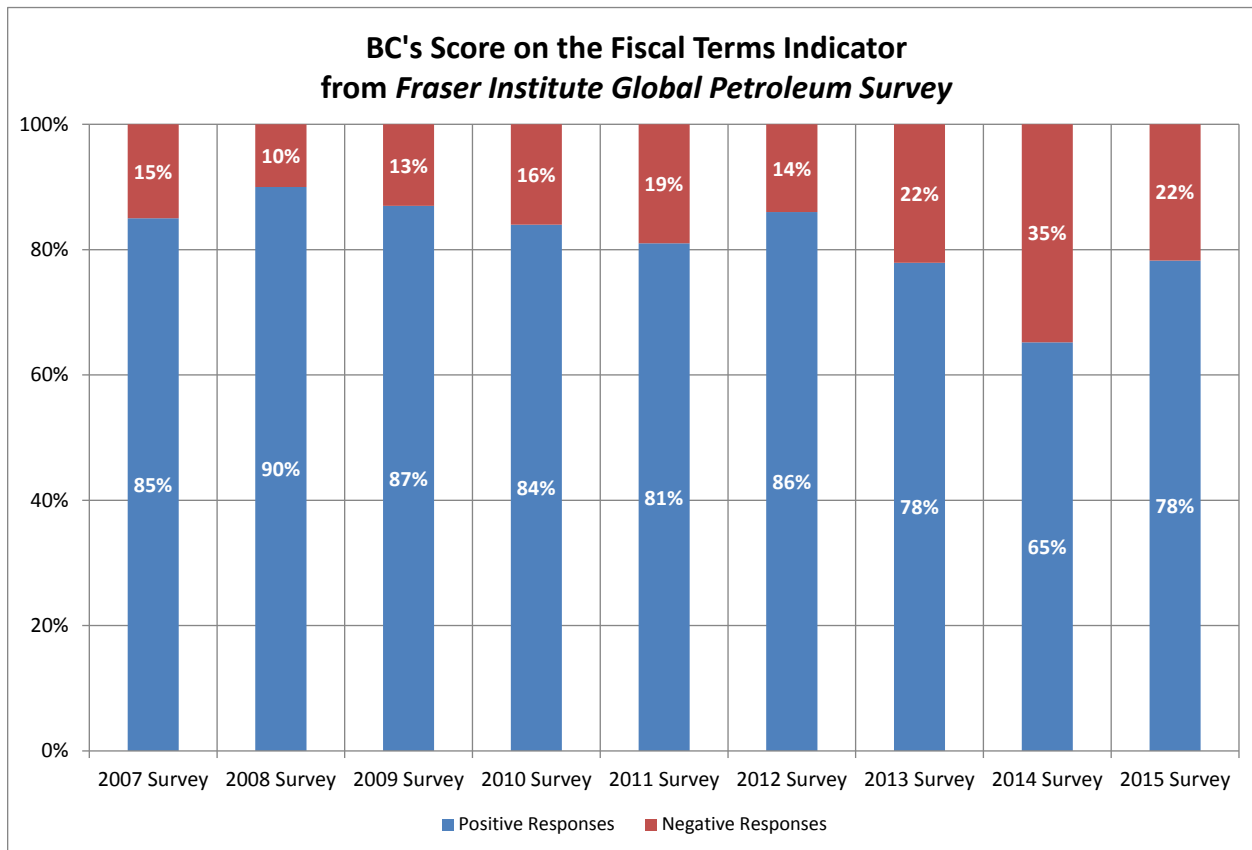
The oil and gas industry considers BC to be more favourable in terms of fiscal terms in the latest survey, with a 78 percent positive response in 2015 versus 65 percent in 2014. For BC, the percentage of positive responses has ranged between 65 percent and 86 percent in the last five annual surveys conducted 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).

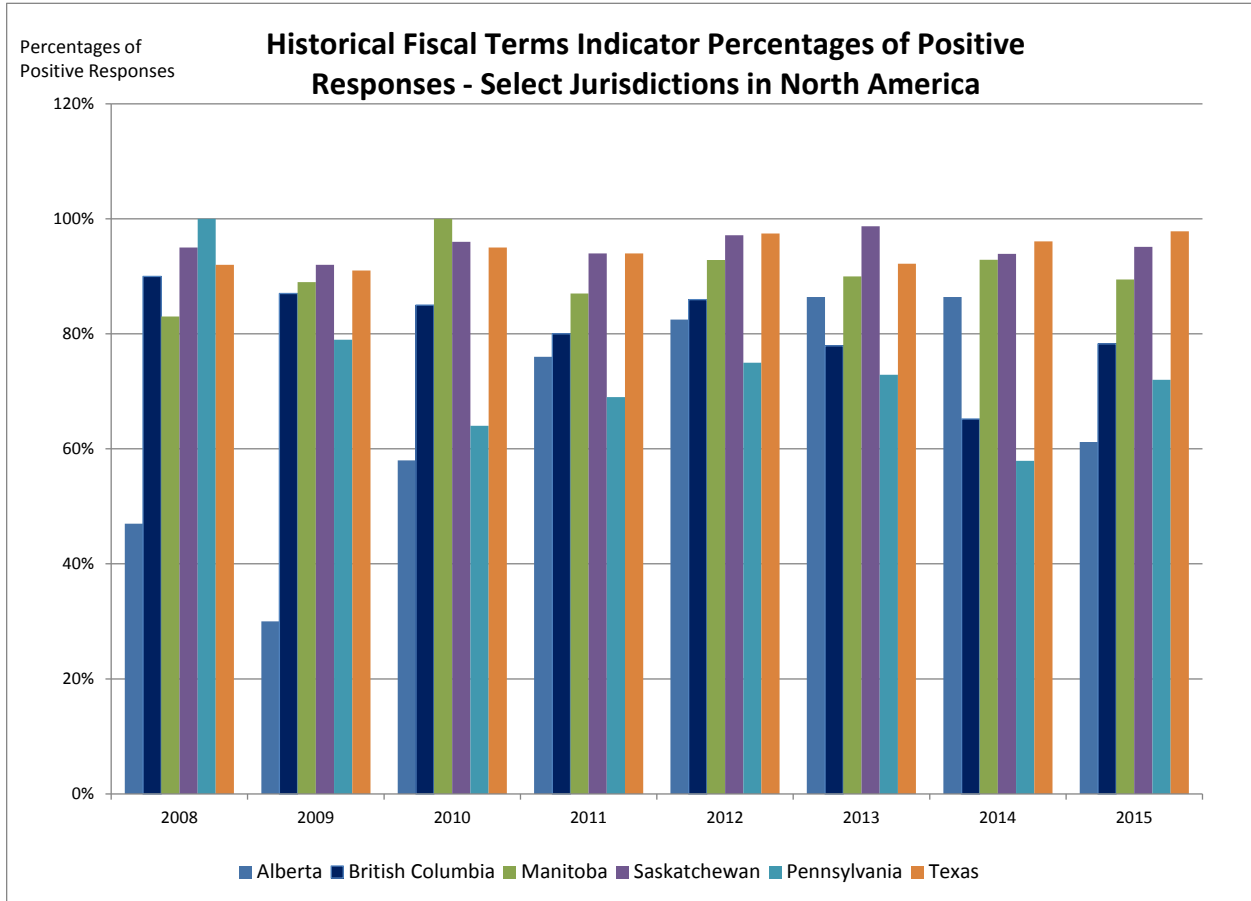
**Chart 8: Industry Perception of BC's Fiscal Framework**



It should be noted the percentage of positive responses for both the fiscal terms factor and general taxation factor for BC both increased in in the 2015 survey compared to the 2014 survey results. The percentage of positive responses for most other Canadian jurisdictions was lower in 2015 compared to 2014.

Chart 9 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 2015, 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.

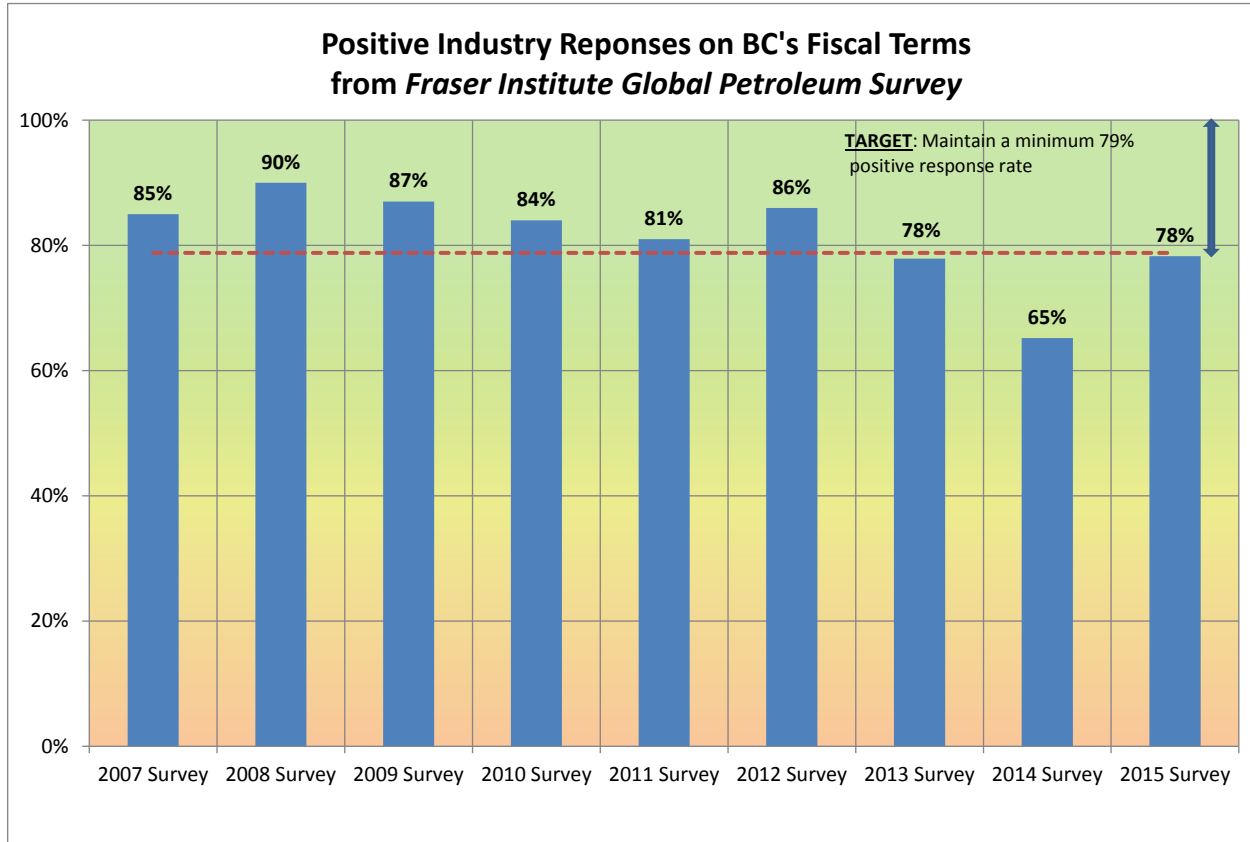
***Chart 9: Historical Fiscal Terms Indicator Percentages of Positive Responses - Select Jurisdictions in North America***



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 10) 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 78.8 percent, which is the average rate of the last five years (from 2010 to 2014).

***Chart 10: Target 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 natural gas royalty 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:

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