



British Columbia Oil and Gas Royalty Programs

Program Goals & Performance Measures 2010 Report

Royalty Policy Branch, Oil and Gas Division

October 2010

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 generation worldwide, thus reducing greenhouse gas emissions.

In 2003, the Province introduced a series of royalty programs aimed to ensure that 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 Crown and revitalizing the provincial economy.

The Ministry of Energy, Mines and Petroleum Resources (MEMPR) consistently evaluates royalty program objectives and performance measures. Until now, those evaluations have been conducted for internal purposes only.

In response to an Office of the Auditor General's recommendation to divulge more information on the impact of royalty programs, MEMPR has committed to prepare a Performance Measures Report every year to follow-up on the goals of the current royalty regime.

This is the first Performance Measures Report released to the public. The report shows how British Columbia's royalty regime maximizes value to the Crown, treats producers with equity, is easy to administer, and contributes to long-term investment.

This Performance Measures Report is a work in progress. Indicators will be improved with time and as more information becomes available. MEMPR welcomes feedback, comments and suggestions.

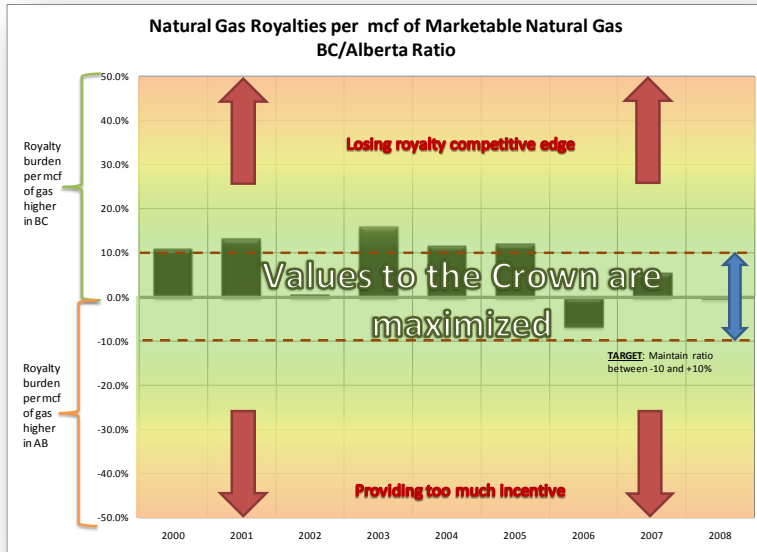


Graeme McLaren

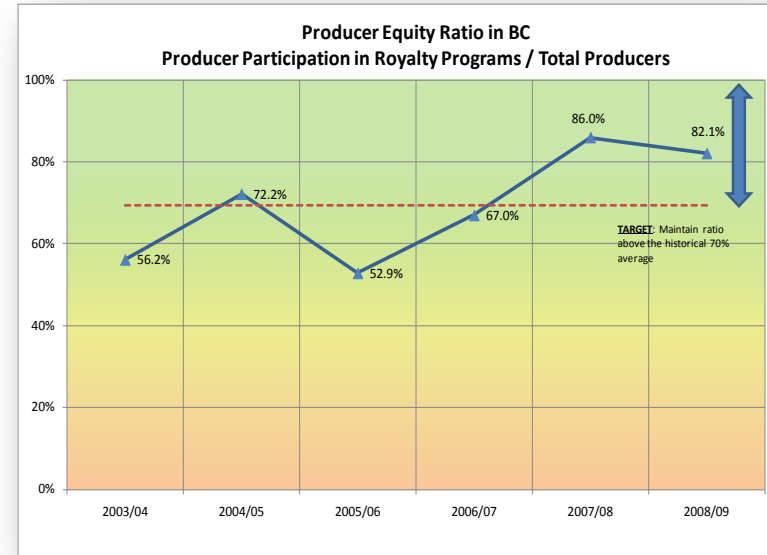
Assistant Deputy Minister

At a Glance: BC Royalty Programs' Performance Measures

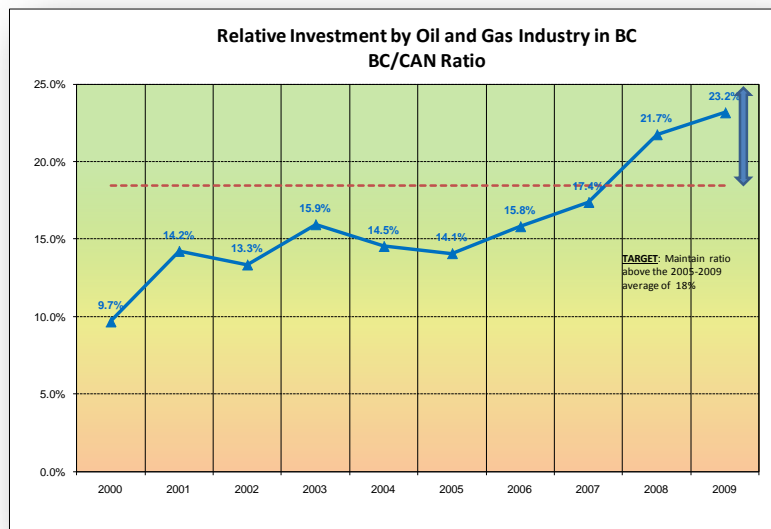
Performance Measure #1: Values to the Crown are Maximized



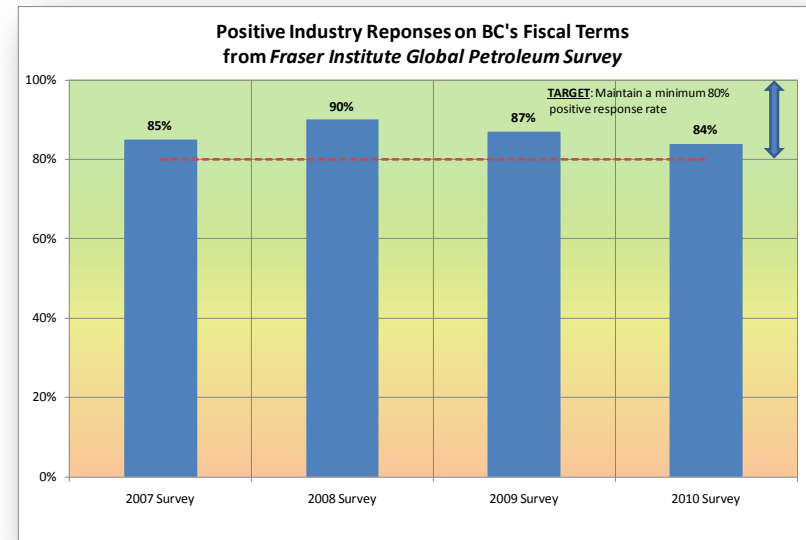
Performance Measure #2: Equity



Performance Measure #3: Long-term Investment



Performance Measure #4: Administrative Ease



BC Oil and Gas Royalty Programs

Goals & Performance Measures – 2010 Report

Introduction

British Columbia (BC) 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 Crown are maximized*: encourage resource development to the benefit of the Crown 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 rational, 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, summer drilling and infrastructure development. Specific programs aimed at developing unconventional resources, like the coalbed gas program, and the net profit royalty program, have also been introduced. 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 revitalize the provincial economy.

Performance Measures Reporting

As mandated by Treasury Board, the Ministry of Energy, Mines and Petroleum Resources (MEMPR) prepares an internal report (three times a year, as part of the forecast reporting process) to Treasury Board Staff, detailing cumulative incremental revenues generated by all royalty programs. Since 2008, MEMPR also prepares a bi-annual comprehensive technical review on the different impacts of royalty programs that is also sent to Treasury Board Staff.

In response to an Auditor General's recommendation to divulge more information on the impact of royalty programs in oil and gas activity in BC to the public, MEMPR 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 back on the four goals, MEMPR staff recommended four indicators; one per goal. The selection of these indicators by MEMPR staff was 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 Indicators¹

Goal	Indicator	Explanation	Data Availability & Source
Values to the Crown are maximized	Royalties paid per thousand cubic feet of natural gas marketed in BC in relation to Alberta	To maximize values to the Crown it is necessary to balance BC’s royalty policy to be able to provide enough incentive to attract investment 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 Crown does not maximize revenues (i.e. could be making more money in royalties by charging more).	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 (CAPP) website.
Equity	Number of companies participating in royalty programs/Number of Royalty Payers	A high ratio of companies participating from the royalty programs demonstrates equity, as programs are accessible to all companies.	Readily available through MEMPR databases

¹ 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, industry activity in Saskatchewan leans more towards oil production, while activity in BC is more natural gas based, because of the geological characteristics of the Western Canadian Sedimentary Basin in these provinces. 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 Crown.

Goal	Indicator	Explanation	Data Availability & Source
Long-term investment	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 good evidence of the relative attractiveness of BC's natural gas resource and programs	Information available in CAPP Statistics Handbook (public access)
Administrative ease	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 level of oil and gas fiscal requirements of Canadian jurisdictions.	Document is available online (free)

Performance Measure #1: Values to the Crown are maximized

Rationale

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

MEMPR staff built an indicator aimed at capturing the delicate balance between generating incentives for investment in BC's oil and gas industry and receiving adequate revenues for our Crown resources.

Indicator

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

- Natural gas royalties received by BC and Alberta, in million 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 billion of cubic feet, by calendar year² (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) Ratio of both factors:

$$RR(mcf) = \{ [R_{BC}(mcf) / R_{AB}(mcf)] - 1 \} \times 100$$

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

Results

Royalties per thousand cubic feet of production in BC [$R_{BC}(mcf)$] have moved in the range of \$0.92 and \$1.95 between 2000/01 and 2008/09 (which means that depending on the year, producers have paid royalties to the Crown of between \$0.92 and \$1.95 per thousand cubic feet of natural gas produced and sold to markets). In Alberta, this range has moved from \$0.82 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 adjudicated to the differences in the effective royalty rates that both Provinces charge for the development of their natural gas resources.

Chart 2 shows the evolution of $R_{BC}(mcf)$ and $R_{AB}(mcf)$ from 2000/01 to 2008/09. 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 price trend in North America, as expected.

² Royalties are expressed in fiscal years, while production is expressed in calendar years, as there is a lag (two to three months) for the Crown to receive the royalties corresponding to a certain production period. For example, natural gas production generated in January 2010 pays royalties to the Crown in March 2010. By lagging royalty payments, the calculation becomes closer to reality.

Chart 2: Royalties per thousand cubic feet of Marketable Natural Gas Production in BC and Alberta

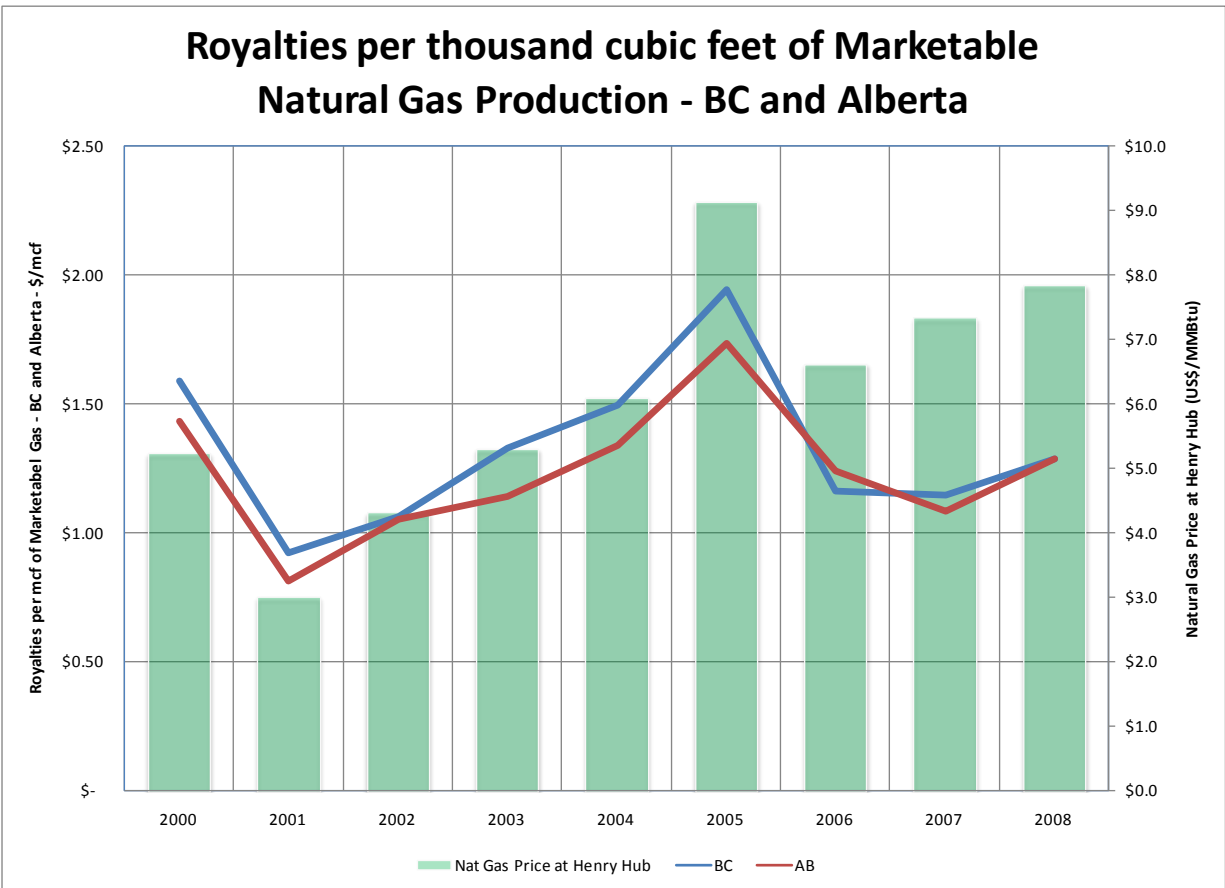
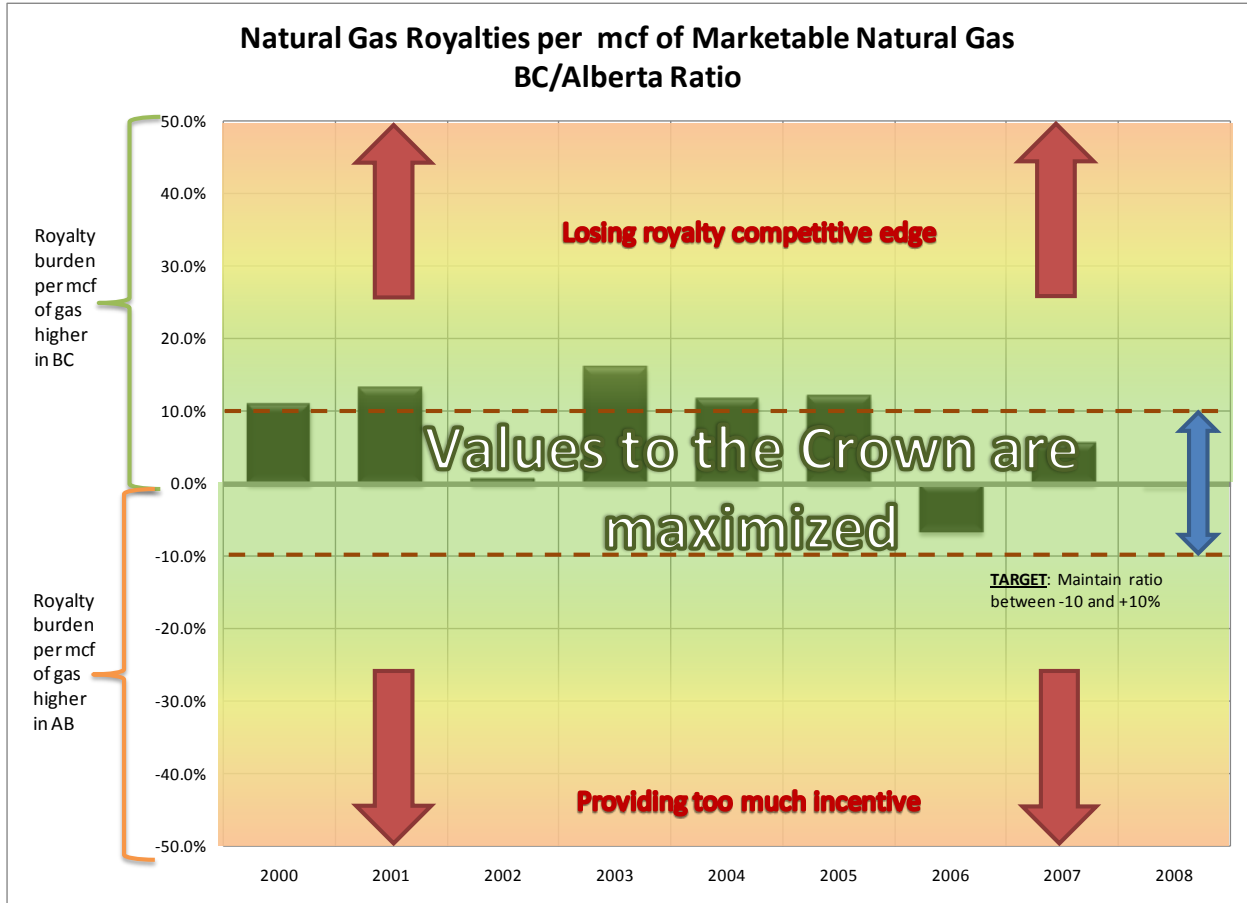


Chart 3 summarizes the results through time of the proposed indicator. If BC and Alberta had identical royalty burdens per thousand cubic feet of marketable production then $RR(mcf) = 0\%$. If $RR(mcf) > 0$, then BC is charging higher effective royalties than Alberta on a per mcf basis. If $RR(mcf) < 0$, 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 -6.6% and 16.0% 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 3: Relative Royalty per thousand cubic feet of marketable 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). MEMPR has chosen a target of -10%/+10% for this indicator.

RR(mcf) peaked at 16.0 percent in 2003. It was in mid-2003 that BC announced its Oil and Gas Development Strategy that introduced most of the existing royalty programs. The last data available shows RR(mcf) is practically identical in both jurisdictions.

As with any indicators dealing with maximization in the real world, this one 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 becomes more important, BC will be competing more and more with other United States and Canadian jurisdictions, like Texas, Louisiana, or even Quebec. The indicator does not capture those changes, but provides a framework for future 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/Canada jurisdictions face a very similar price environment. Chart 2 also demonstrated that both provinces move almost in unison against the typical natural gas price used in North America – Henry Hub.

Regardless of its challenges, the indicator is a good performance measure because it captures the final result of the interaction of both jurisdictions royalty policies. It is important to emphasize though, that 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 competitiveness³. The differences in the cost of extracting different natural gas resources, flow rates, reservoir characteristics, etc. are not captured by this indicator.

Performance Measure #2: Equity

Rationale

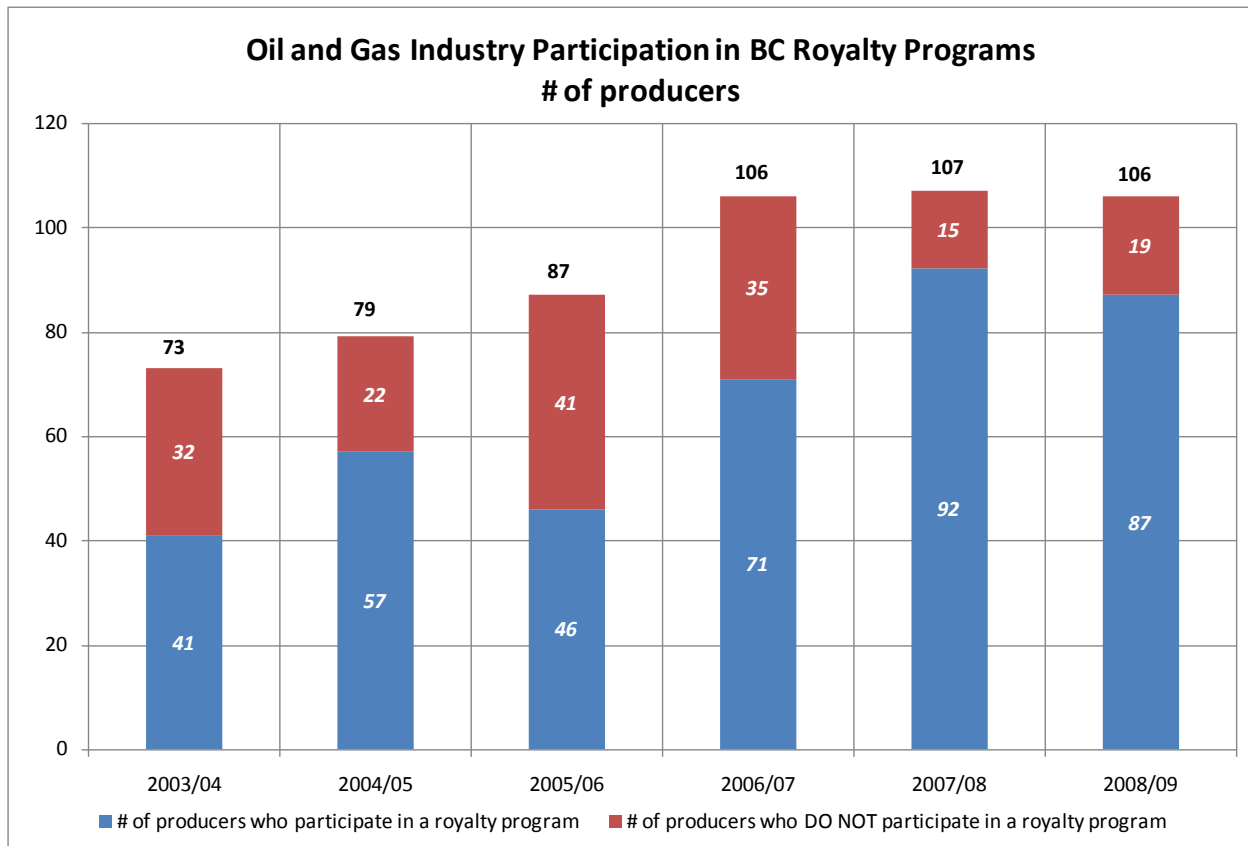
Goal 2 of BC's Oil and Gas Royalty Programs calls for ensuring equal access to royalty programs; more specifically: "producers, large and small, are treated equally under the regime."

BC's royalty programs for oil and gas 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 4 shows the number of producers that have participated in BC's royalty programs from 2003/04 to 2008/09.

³ 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 royalty programs because not all programs have explicit "dollar investments" (i.e. credits) associated with them (e.g. the marginal and ultra-marginal programs are rate reductions, not credits). Furthermore, ROI evolves over time as there is a lag in terms of companies receiving the credit and realizing the full potential of their drilling programs, which would distort results in the near-term.

Chart 4: Participation in BC Royalty Programs by the Oil and Gas Industry



Indicator

The selected indicator is called “Producer Equity Ratio in BC” [PER_{BC}]. It is built using MEMPR’s internal databases:

- Total number of producers paying natural gas royalties, by fiscal year – TP_{BC}
- Number of producers who participate in at least one royalty program (either low productivity, marginal, ultra-marginal, summer, deep, infrastructure, SYD, or net profit) – PP_{BC}

The indicator is built in the following manner:

- (1) Total number of royalty payers in BC: TP_{BC}
- (2) Producer participation in royalty programs in BC: PP_{BC}
- (3) Ratio of both factors:

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

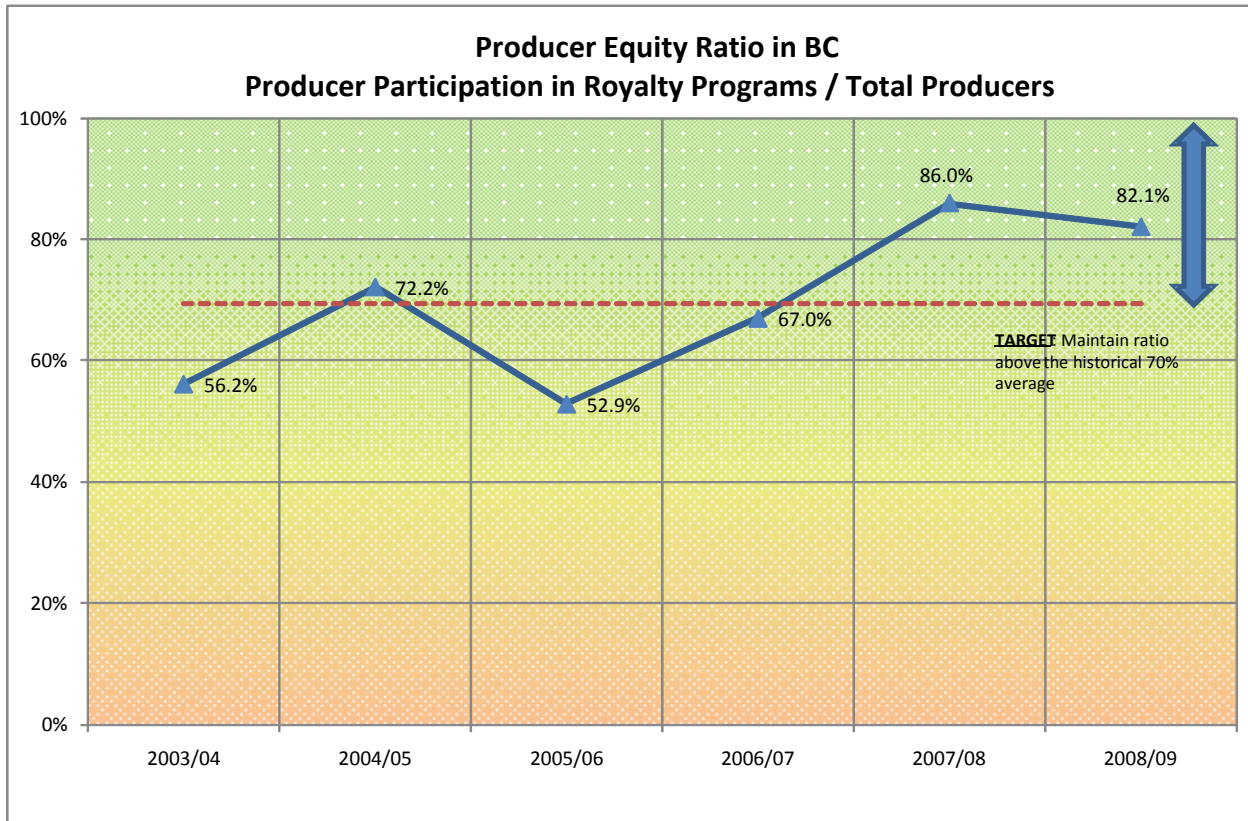
This ratio tells us the percentage of royalty payers in BC that have accessed BC's royalty programs. A high ratio of companies participating in royalty programs demonstrates equity, as programs are accessible to all companies. A low ratio does not necessarily mean that producers are not being treated equally. Some companies have drilled wells that do not meet the qualification criteria established for any of the royalty programs. Another option could be to conduct a survey of the oil and gas industry asking them to rate their perception of whether companies are treated equally under BC's royalty programs; however, given limited time and resources, MEMPR staff are unable to conduct such a survey at this time.

Results

Since the inception of BC's royalty programs, more than 50 percent of all royalty payers have participated in a royalty program. In 2003/04, the producer equity ratio (PER_{BC}) was 56.2 percent, which means that out of the 73 companies paying natural gas royalties, 41 companies accessed a royalty program. This ratio has increased to well over 80 percent in the last two fiscal years, reaching 82.1 percent in 2008/09 (out of the 106 companies paying natural gas royalties, 87 companies accessed a royalty program).

While a low PER_{BC} could occur in any given year (e.g. if companies do not meet the qualification criteria of the royalty programs), maintaining PER_{BC} above the historical average of 70 percent is considered to be a reasonable target for this indicator.

Chart 5: Producer Equitable Access to Royalty Programs in BC



All companies (large and small) have access to BC’s royalty programs. 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 royalty programs:

Table 2: Industry Access to BC Royalty Programs

Royalty Program	Accessibility
Low productivity	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.
Summer	Companies must submit application form to MFIN.
Deep	MFIN automatically determines eligibility and calculates rates based on producer well information.
Infrastructure	Company must submit application following a Request for Applications issued by MEMPR. MEMPR determines eligibility based on pre-determined criteria through a competitive process.
Net Profit	Company must submit application following a Request for Applications issued by MEMPR. MEMPR determines eligibility based on pre-determined criteria.

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

The goal of ensuring producers have equal access to BC’s royalty programs is key to building investor confidence. MEMPR staff believes that the producer equity ratio provides a good indication of how many producers have participated in BC royalty programs, and maintaining this ratio above the historical 70 percent average is a good measure of success.

Performance Measure #3: Long-term Investment

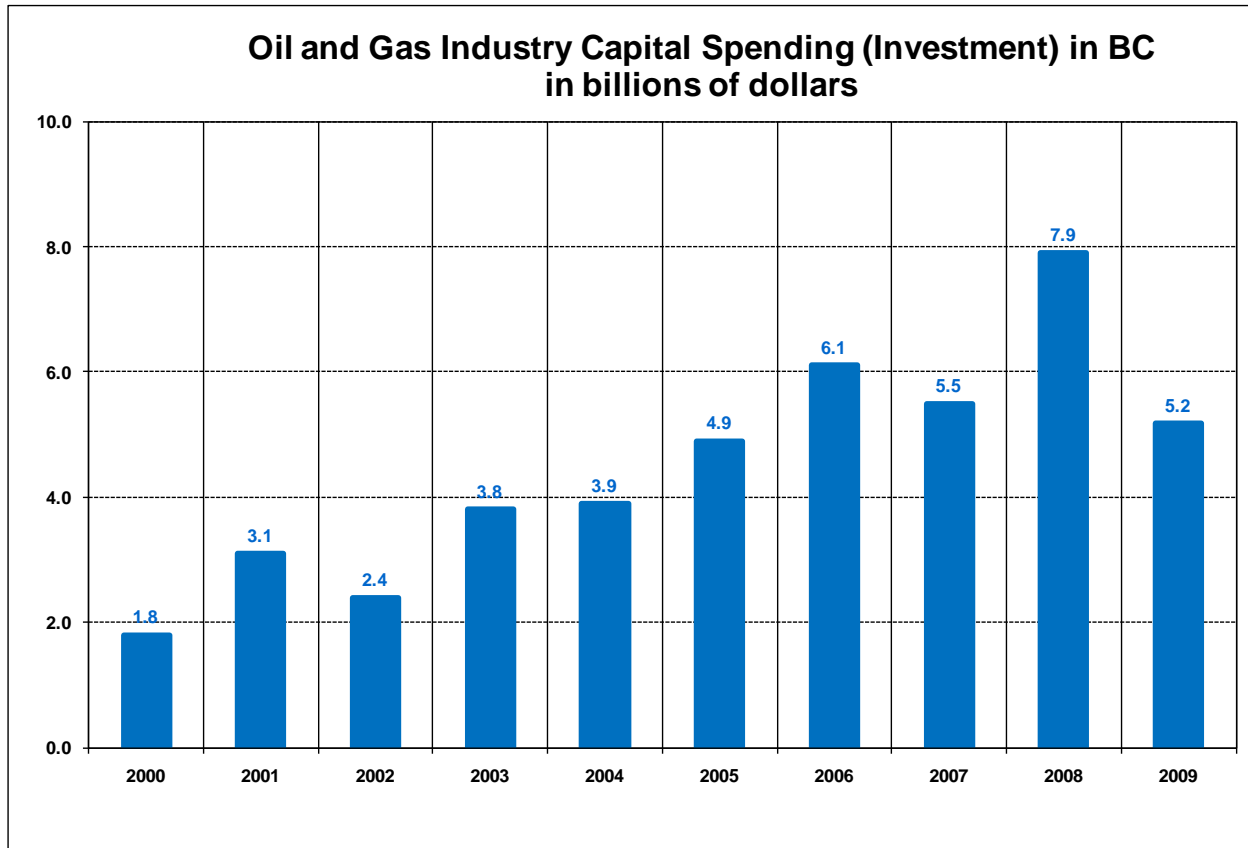
Rationale

Goal 3 of BC’s Oil and Gas Royalty Programs calls for ensuring long-term industry investment in BC; more specifically: “the royalty regime is aimed at rational, 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 Crown 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 2009.

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) of the 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, 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: I_{CAN}

(3) Ratio of both factors:

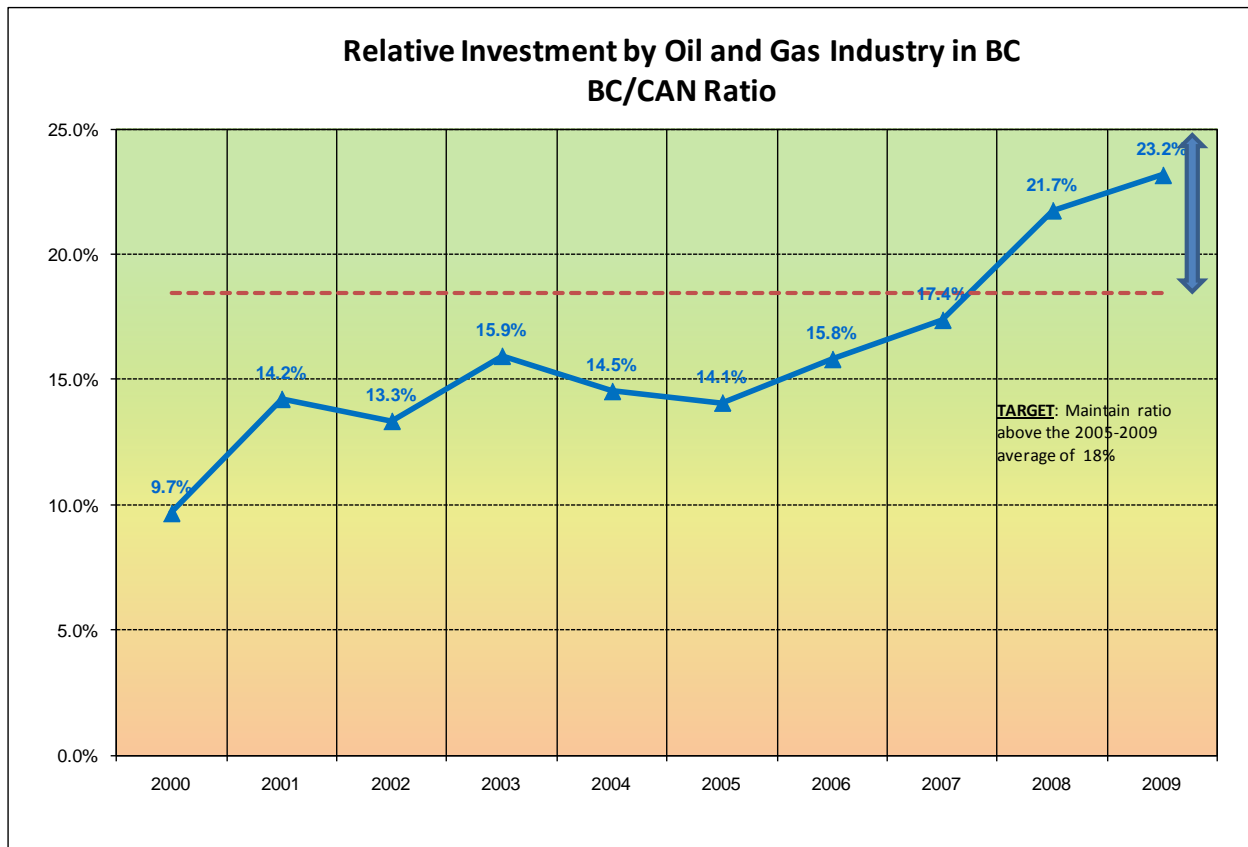
$$RI = \{I_{BC} / I_{CAN}\} \times 100$$

By evaluating investment as a ratio, we are in effect taking the price impact out of the equation – all jurisdictions in Canada and the United States face a similar natural gas price environment.

Results

BC's market share of 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 percent⁴.

Chart 7: Relative Investment on Exploration and Development in BC



⁴ Interest in shale gas development fuelled land sales in 2008 and 2009. An attractive investment environment for natural gas development helped BC “weather” the 2008-09 recession better than other jurisdictions.

One of the concerns with using industry capital investment as a performance measure for royalty regimes is that the Crown does not have “direct” control over industry investment decisions. All the Crown can do is facilitate a competitive investment environment to attract dollars to BC, with a target to maintain the relative investment indicator above its 2005-2009 average of 18 percent. MEMPR staff believes this indicator provides evidence of the relative attractiveness of BC’s resource and royalty regime.

Performance Measure #4: Administrative Ease

Rationale

Goal 4 of BC’s Oil and 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: (1) to ensure Crown royalties can be calculated and forecast accurately; and (2) 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 in. Oil and gas activities are major projects which involve millions 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 and/or royalty frameworks which are not clearly documented or explained, creates 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 latest study, entitled Fraser Institute Global Petroleum Survey 2010 (Survey)⁵, received responses from 645 individuals representing 364 companies and covered 133 jurisdictions worldwide. For Canada, eight provinces and two territories were included in the survey. The survey was distributed to managers and executives in the upstream petroleum industry (processors, marketers and distributors of oil and natural gas were not surveyed) and was conducted between February 10, 2010 and April 30, 2010.

⁵ The 2010 Survey and previous surveys (2007, 2008 and 2009) are available on the Fraser Institute website at <http://www.fraserinstitute.org/researchandpublications/publications/search.aspx?Page=1&title=&author=0&keyword=&date=0&topic=0&formatid=93&sort=date>

The survey was designed to capture the opinions of oil and gas companies regarding the level of investment barriers in jurisdictions with which they were familiar about. Respondents were asked to rate how 17 different factors influence company decisions to invest in various jurisdictions. These factors included areas such as taxes, regulations, security, political stability, etc.

While not specifically designed to determine administrative ease of a royalty system, the indicator called “Fiscal Terms” captures the level of oil and gas fiscal requirements of jurisdictions. The Survey, defines Fiscal Terms as:

- “Government requirements pertaining to royalty payments, production shares, and licensing fees”.

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

1. Encourages investment.
2. Is not a deterrent to investment.
3. Is a mild deterrent to investment.
4. Is a strong deterrent to investment.
5. Would not invest due to this criterion.

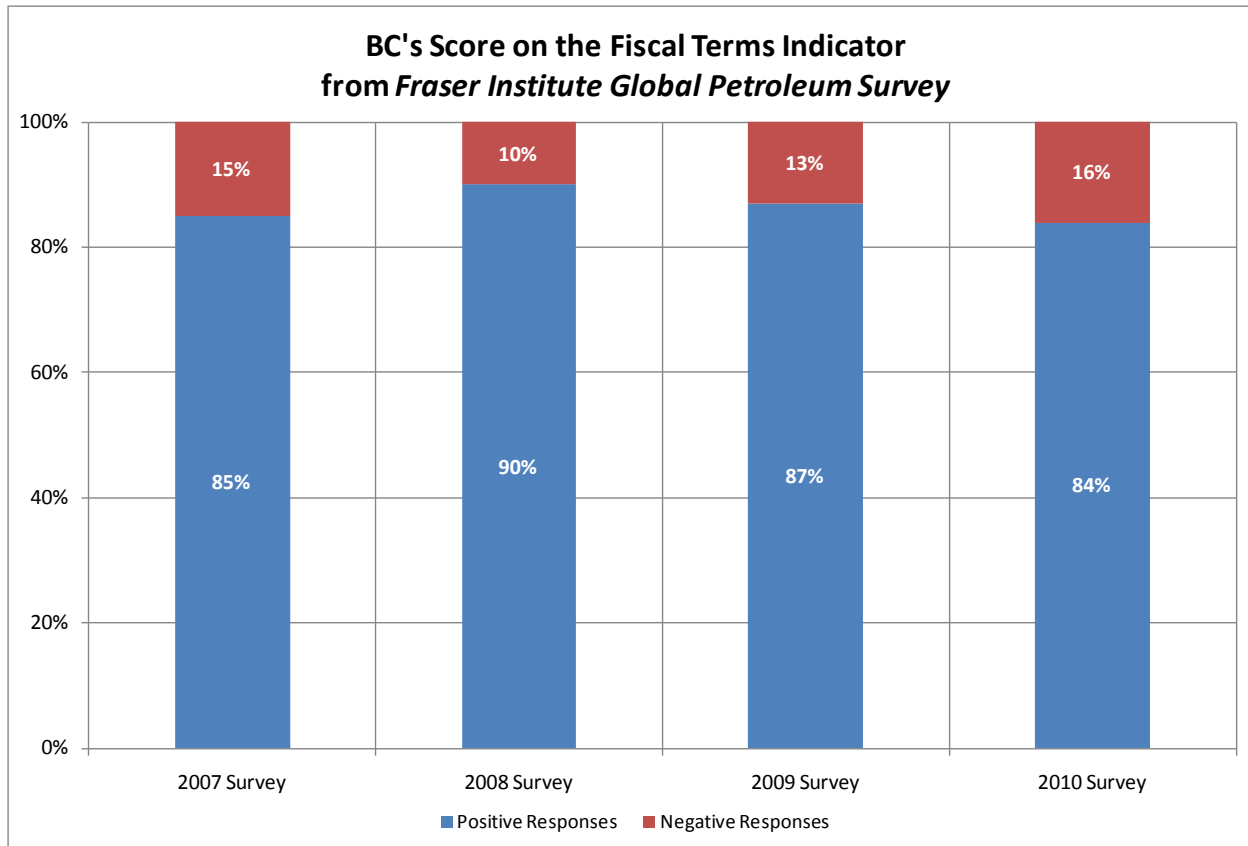
If a jurisdiction has a high score for responses 1 and 2, this means the jurisdiction has a positive fiscal environment, which could be interpreted as having a positive royalty framework (it is simple and easy to administer) from an investment perspective. That is, the jurisdiction would be more attractive for oil and gas investment.

The selected indicator for Goal 4 is BC’s score on Fiscal Terms from the Fraser Institute Global Petroleum Survey. MEMPR staff recognize some of the limitations this survey presents, particularly the fact that it is administered by an external organization. When time and resources permit, one option may be for MEMPR to conduct a more comprehensive survey of both industry and government.

Results

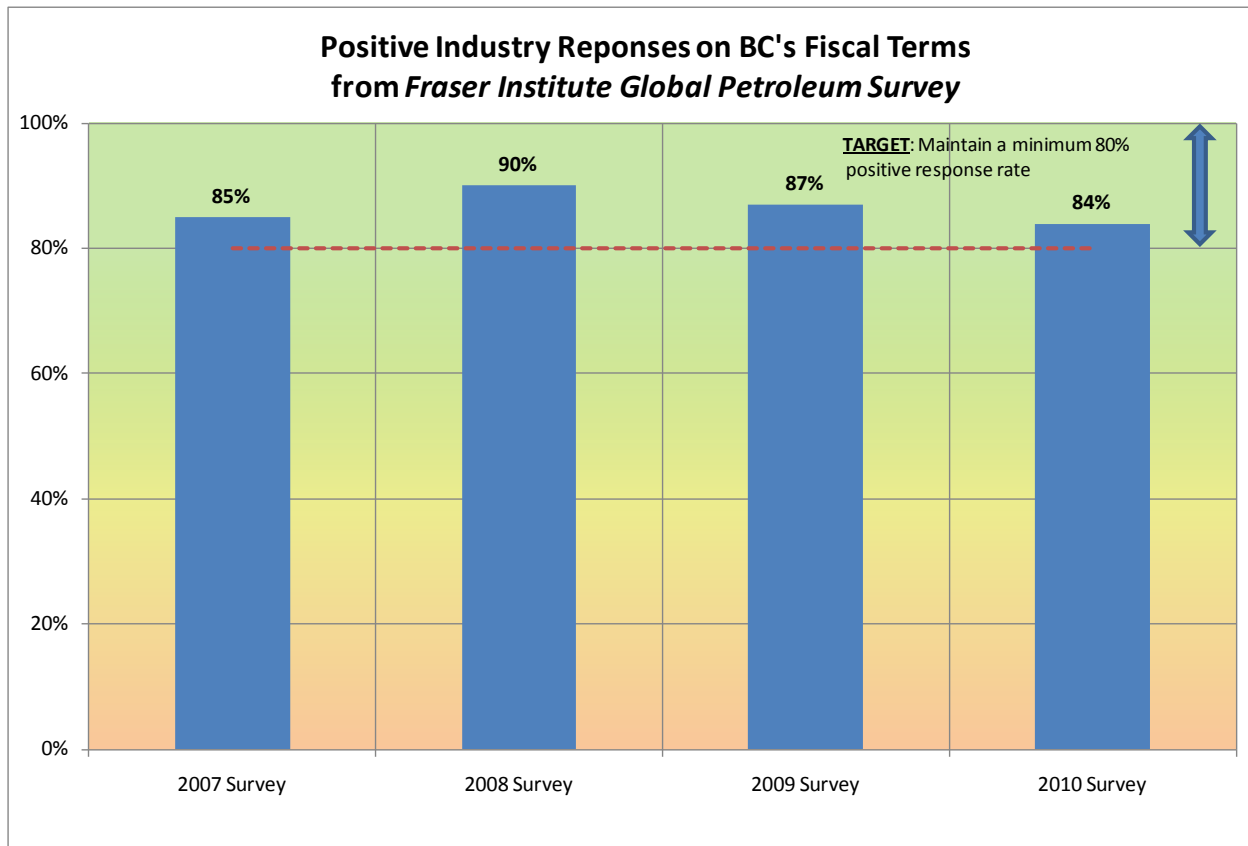
The oil and gas industry considers BC to be very favourable in terms of fiscal terms. The percentage of positive responses has been above 75 percent in the last four surveys conducted by the Fraser Institute. Among Canadian jurisdictions, BC ranked second in the 2007 and 2008 surveys with respect to fiscal terms; in 2009, BC ranked third (87 percent positive response) behind Saskatchewan (92 percent positive response) and Manitoba (89 percent positive response); and 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).

Chart 8: Industry Perception of BC's Fiscal Framework



The goal of ensuring the government and oil and gas sector operate in a system where the royalty regime is easy to administer and simple to understand is important for attracting capital and building investor confidence. While the Fiscal Terms indicator is not specifically designed to measure this goal, MEMPR staff believe it is a relatively good measure to use. MEMPR staff also believe a reasonable target for the indicator is a positive response rate of at least 80 percent.

Chart 9: Target for Administrative Ease of BC's Royalty Regime



Conclusion

The purpose of this Performance Measures Report is to provide details about the four goals of BC's current oil and gas 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 royalty programs.

MEMPR staff is aware these indicators will evolve and improve through time and consider them a good representation for measuring the success of BC royalty programs.

This is the first report of its kind. Our commitment is to generate these reports every year, in early Fall. As this is a work in progress, suggestions and comments are welcome, and can be sent to Ines Piccinino, Executive Director, Royalty Policy Branch at ines.piccinino@gov.bc.ca.