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B.C. COMPETITION COUNCIL

Oil and Gas Industry Advisory Committee

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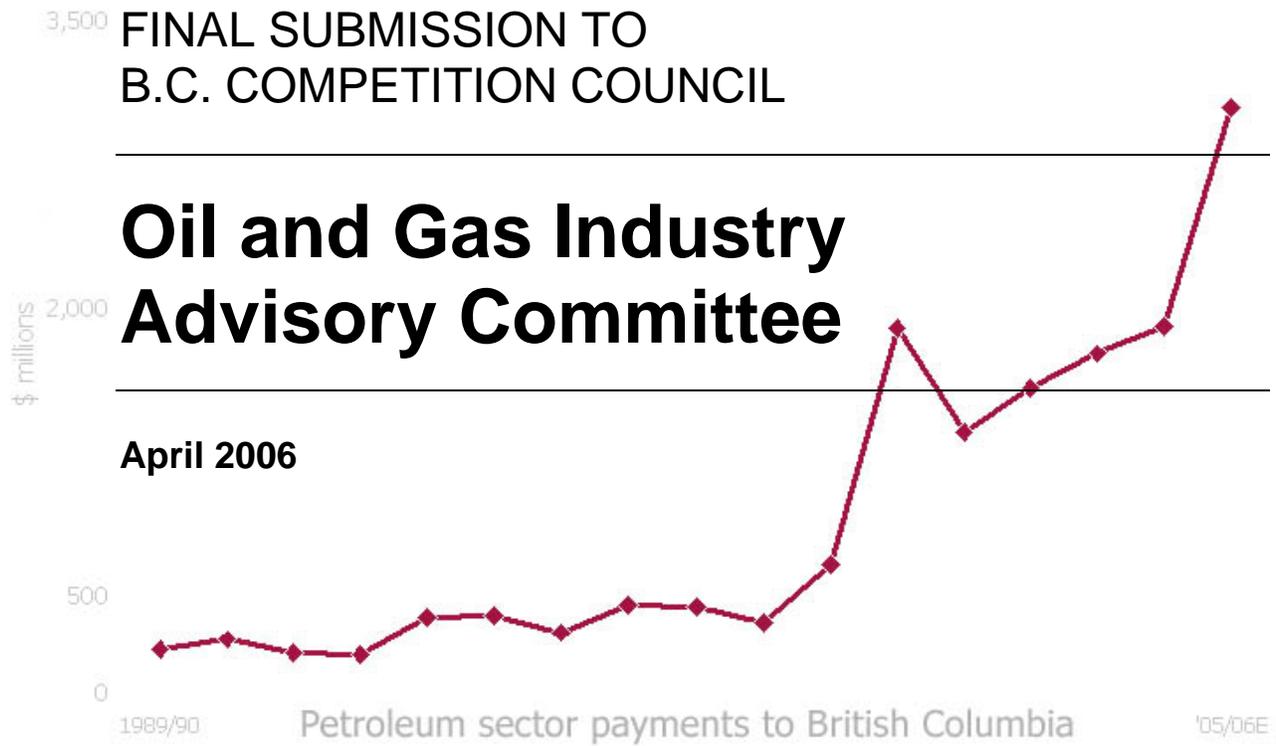
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Petroleum sector payments to British Columbia

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1 Summary

In this report, the B.C. “oil and gas sector” consists of upstream (exploration and production—principally natural gas) and gathering and transmission infrastructure (major pipeline systems—natural gas and other petroleum products). It does not include crude oil refining or issues relating to the sale or distribution of gasoline and natural gas to consumers.

Background

North American demand for natural gas is forecasted to increase at an annual compounding rate of 0.7 per cent through 2030¹. However, much of the longer term supply lies in lower grade, unconventional sources (including natural gas from coal and tight formations) or new large-scale, remote supplies, including the North and offshore.

Natural gas production, processing and transmission have become a vital part of the B.C. economy. Direct revenue to the Crown from upstream oil and gas now exceeds direct revenue from the forestry sector. Virtually all of this natural gas production occurs in Northeast B.C.

Key statistics for 2005 regarding the B.C. oil and gas industry illustrate its substantial significance to the province²:

- Canada’s second largest natural gas producer
- 2.9 billion cubic feet per day of marketable gas (bcf/d)³
- 11,400 jobs (direct)
- \$3.9 billion annual capital investment
- \$10.3 billion per year in additional economic activity⁴ (using an accepted multiplier of 2.66)
- Estimated \$3 billion in direct revenue to Crown in 2005/06
- Largest direct contribution to Crown in the natural resource sector
- The value of natural gas exports in October 2005 exceeded solid wood exports⁵.

Government revenues generated from oil and gas activity in Northeast B.C. are reinvested by government across B.C. in a broad range of government priority areas, including health care and education.

To maintain growth in the oil and gas sector, B.C. needs to continue to pursue policies that ensure

- Access to resources
- Global competitiveness
- Access to markets

Factors Affecting Industry Investment and Competitiveness

Competition for Capital

Investment capital is extremely mobile. Investors must earn a rate of return that is competitive with other jurisdictions. Projects that do not demonstrate a competitive return are usually discontinued and the investment and related economic benefits flow to another jurisdiction. Due to the increasing global nature of the oil and gas industry, this is an ever-increasing pressure faced by energy companies.

Returns and Certainty

In evaluating potential investments in B.C. and elsewhere, upstream and transmission companies focus on

- ability to earn a required return on investment
- certainty of completing and operating the project successfully including
- stability of government regulations and policies
- clarity of regulatory requirements to obtain project approvals

High Costs are Eroding B.C.'s Competitive Position

B.C. producers do not control the selling price for natural gas. Natural gas prices in B.C. are determined by the North American market which is influenced by continental supply and demand factors. Therefore, cost becomes a key variable that companies assess in making investment decisions relative to other jurisdictions.

Input costs in the oil and gas sector are estimated to be increasing at 15 per cent or more per year. Finding and development costs are increasing at an even greater rate. Companies note anecdotally that cost increases in other jurisdictions are not as significant. This results in a reduction in return on investment in B.C. compared to similar projects in other parts of North America.

Building on Existing Initiatives

Government initiatives such as the Oil and Gas Development Strategies, service sector strategy, infrastructure royalty credit program and regulatory changes have had significant impact. These programs need to continue and to build upon successes to date. Many of these initiatives have been identified and developed through collaborative efforts between industry and government. The industry applauds the government's vision and execution in this regard.

A progressive and supportive government policy environment has helped make B.C. more competitive and attractive.

The oil and gas industry recognizes the role it too has to play in ensuring that B.C. remains an attractive climate for investment.

Accordingly, the industry is participating in or has undertaken initiatives on its own in B.C. to enhance the viability of oil and gas activities. These include:

- Actively supporting the province's Service Sector Initiative to increase participation by B.C.-based service providers through actions such as supporting sector trade fairs in B.C. and Alberta and participating in the development of a strategy for expanding the B.C. service sector;
- Providing approximately \$10 million in capital and operating expense to the Centre of Excellence at Northern Lights College in Fort St. John for the training of skilled workers in the oil and gas sector;
- Contributing approximately \$1 million per year to the Oil and Gas Commission's Science, Community and Environmental Knowledge Fund;
- Purchasing goods and services in excess of \$100 million annually from First Nations businesses in BC;
- Providing \$5,800 direct funding on each application to First Nations through Memoranda of Understanding;
- Retaining elders to provide traditional knowledge on the location and nature of cultural and traditional use sites;
- Arranging supportive terms and conditions for the Fort Nelson First Nation to acquire an interest in a drilling rig.

Policy Principles to Encourage Investment

Government policy should continue to focus on ensuring that projects generate attractive economic returns and provide certainty in realizing those returns.

This report groups challenges to competitiveness and recommendations for improving the competitive position of B.C. in three categories:

- Access to resources
- Global competitiveness
- Access to markets

A. Access to Resources

Government should ensure access to resources across B.C. by prioritizing policy initiatives on

- Development in Northeast B.C.
- Pursuit of future opportunities outside of Northeast B.C.

Development Focus on Northeast B.C.

Government should continue to ensure that its initiatives focus on encouraging further exploration and development in Northeast B.C., for both conventional and unconventional natural gas resources.

Key elements of this focus include

1) Clear, consistent regulatory requirements and sufficient review capacity

Government should strengthen the regulatory environment by:

- Implementing a simplified and streamlined regulatory framework that provides efficiency in administration and greater certainty and focuses regulatory effort according to risk and complexity. Government should build on its continuing efforts to increase clarity, consistency and certainty regarding the regulatory requirements and process. In particular, B.C. requires clear policy direction, regulatory requirements and operational standards regarding environmental practices that reflect risk, encourage companies to use appropriate “best practices” and balance economic and environmental values.

This suggestion is consistent with the core tenets of the Oil and Gas Regulatory Improvement Initiative (OGRII) being undertaken by the Ministry of Energy, Mines and Petroleum Resources and the Oil and Gas Commission. OGRII should continue to establish, where appropriate, regulations that measure performance according to standards and take into account relative complexity and risk.

- Ensuring that agencies' staffing roles and expertise complement the new regulatory model.
- Ensuring that regulatory agencies have the capability to attract and retain the required human resources through competitive compensation and benefits programs. This includes continuing the initiative to exempt the Oil and Gas Commission from the Public Service Act.

2) Certainty through key First Nations initiatives

We encourage government to:

- Continue the New Relationship initiative and address matters relating to the oil and gas sector;
- Complete Treaty 8 revenue sharing and related “set aside” matters;
- Renew the Memoranda of Understanding between Treaty 8 bands and the provincial government.
- Continue to support government’s initiatives to develop First Nations’ capacity to consult and participate in the oil and gas sector.

3) Co-ordinated environment and land use policy development

Government should:

- Strengthen the central co-ordination of policies involving land use management and the environment.
- Obtain input from the oil and gas sector on how the sector plans and operates on the land base.

4) Improved community understanding of the oil and gas sector

Government and industry should further develop a stakeholder engagement program to:

- Demonstrate to communities and stakeholders that tangible, incremental improvements in their quality of life are attributable to oil and gas activities.
- Provide communities with the capacity and background to engage in dialogue regarding potential development of production and transmission systems.

Pursuit of Future Opportunities Outside of Northeast B.C.

Government resources and effort should focus primarily on Northeast B.C. However, government should begin work on strategies relating to the future development of resources outside of Northeast B.C. such as the Interior basins, natural gas from coal and offshore.

For natural gas from coal and all potential sources in the Interior basins, government should:

- Conduct thorough technical assessments to update government data on these basins to increase understanding of the resource potential and the technical risks in order to provide a foundation for exploration. These assessments would generate updated basic data on the sub-surface geology, similar to the work done previously in government geological surveys.
- Subsequent to these studies, ensure the appropriate infrastructure and regulatory framework is aligned with exploration activity that may be prompted by this work.

To facilitate offshore development, the province should:

- Work with the federal government to lift the moratorium.
- Resolve uncertainty regarding First Nations consultation and accommodation.
- Complete appropriate environmental assessments and studies to identify potential constraints and the nature, extent and timing of exploration and development that could occur.
- Establish a workable regulatory environment.

B. Global Competitiveness

- 1) *Alternative tax treatments to encourage development of unconventional gas and other frontier opportunities*—B.C. should collaborate with the federal government and other provinces to develop alternative tax treatments to ensure that proposed projects for unconventional low grade and frontier development generate higher levels of investment.
- 2) *Managed cost structure*—Government and industry should, on an annual basis, jointly review the net aggregate impact of government programs to ensure that the overall policy framework presents a cost structure competitive with other jurisdictions.
- 3) *Development and implementation of a labour strategy*—The B.C. government, in conjunction with the other western provinces and the oil and gas industry, should implement a strategy to address the human resources shortage. This includes recruitment and training programs.
- 4) *Improved quality of place infrastructure in northern communities*—Communities are growing rapidly in Northeast B.C., resulting in significant strain on local infrastructure. Government should take steps to enhance the supply of housing and quality of schools, hospitals and other infrastructure in Northeast B.C. necessary to recruit and retain a qualified workforce.
- 5) *Reduced overlap in federal/ provincial regulatory responsibilities*—The B.C. government and upstream and mid-stream industry should work proactively with federal agencies such as the National Energy Board, Department of Fisheries and Oceans and Environment Canada to reduce overlapping processes and responsibilities and co-ordinate their respective responsibilities. This initiative would cover all areas of the province pertaining to oil and gas development, including offshore.

C. Access to Markets

- 1) *Pipeline royalty credit program for undeveloped areas of Northeast B.C.* — The program to tie-in stranded wells continues to be a success. Government should revise criteria so the pipeline royalty credit program is broadened to stimulate construction of trunk and gathering line systems in undeveloped sections of Northeast B.C. The program should continue to provide opportunities to tie-in stranded wells.
- 2) *Sulphur handling capacity in the Lower Mainland*—Government should ensure that sufficient terminal capacity in the Lower Mainland is maintained for handling, storing and exporting sulphur.

3). *Regulatory capacity*—Government should ensure it is prepared with sufficient regulatory capacity to oversee major pipeline and facility projects while maintaining the ability to process permits relating to upstream activity.

2 Overview of Sector

In this report, the B.C. “oil and gas sector” consists of upstream (exploration and production—principally natural gas) and gathering and transmission infrastructure (major pipeline systems—natural gas and other petroleum products). It does not include crude oil refining or issues relating to the sale or distribution of gasoline and natural gas to consumers.

The upstream and gathering and transmission components of the industry are interdependent. Producers depend on pipeline capacity provided by transmission companies to move gas to market. Transmission companies need a continued growth in the upstream industry to keep their pipeline volumes near capacity.

The natural gas market in North America is largely self-contained. This is due to high and growing demand for gas produced on the continent, an extensive continent-wide transmission system and the limited inroads made by liquefied natural gas to date.

2.1 Upstream Oil and Gas Production

North American demand for natural gas is forecasted to increase at an annual compounding rate of 0.7 per cent through 2030⁶. However, much of the longer term supply lies in lower grade, unconventional sources (including natural gas from coal and tight formations) or new large-scale, remote supplies, including the North and offshore.

Growth in demand for natural gas has occurred primarily due to:

- Attractiveness to consumers as a clean burning fuel;
- Security of supply from North American sources.

In the past five years, B.C. has experienced significant growth in its upstream natural gas sector. Current production is approximately 2.9 bcf / d⁷. As well, B.C. is the only Canadian jurisdiction where annual reserves replacement exceeded production. Due to this unprecedented growth and strong commodity prices, oil and gas production has become an integral part of the B.C. economy with direct revenue to the Crown from upstream oil and gas now exceeding direct revenue from the forestry sector.

Consistent with other areas of North America, most of B.C.’s future gas supply will come from unconventional sources (tight gas formations, natural gas from coal, shale gas) and from new undeveloped onshore and offshore basins.

2.2 Transmission

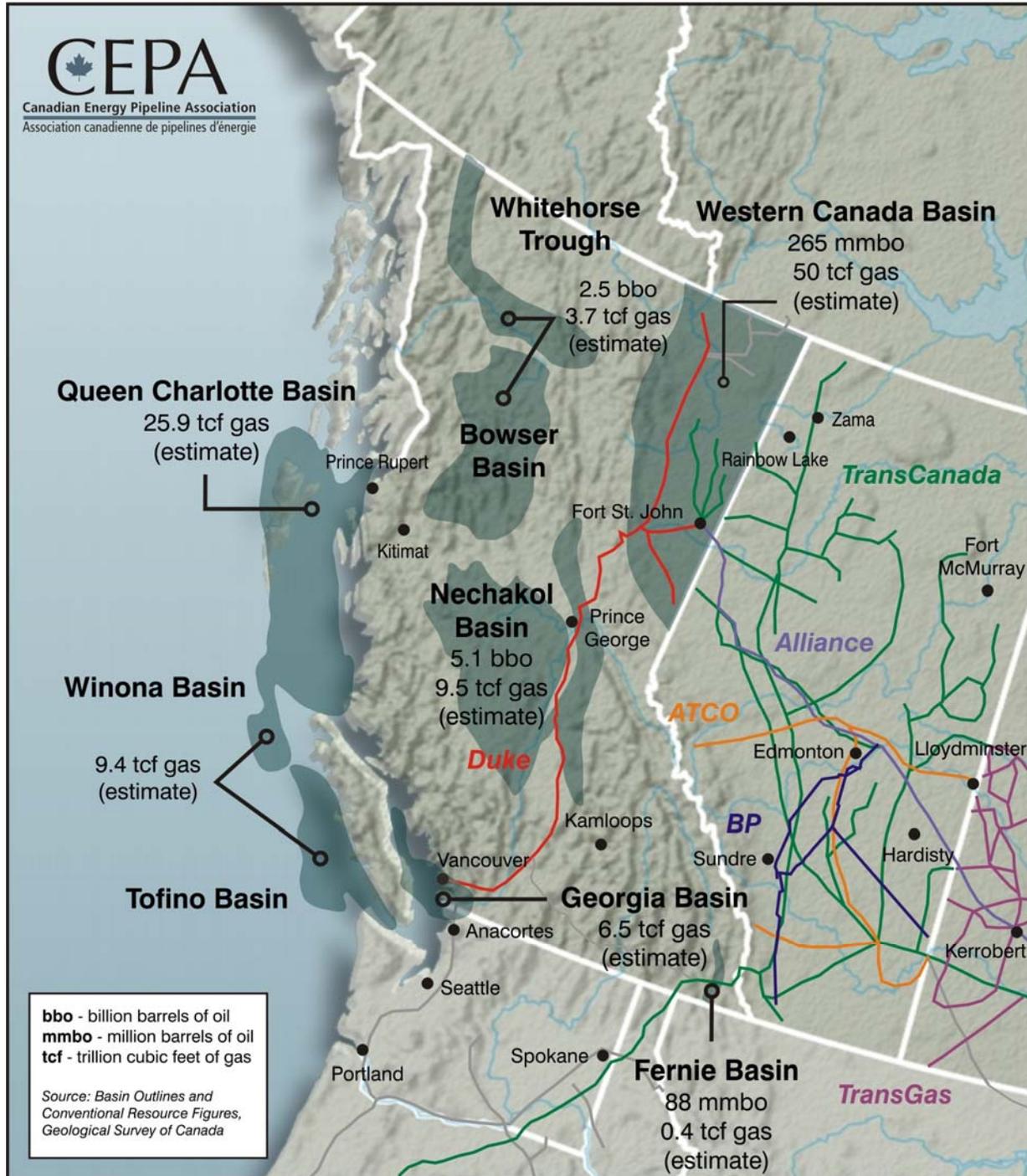
A variety of oil and gas products are moved across British Columbia, particularly natural gas produced in Northeast B.C.

The natural gas transmission systems in B.C. can be broadly characterized as gathering and processing systems and the major pipeline systems that deliver gas from Northeast B.C. to markets (both internal and external to B.C.)⁸.

Initially, transmission systems in B.C. focused on moving natural gas southwest to markets in the Lower Mainland and beyond to the U.S. Pacific Northwest and then onto California. In recent years, industry has expanded infrastructure to ship B.C. gas eastwards through Alberta into the U.S. Midwest and, ultimately, the eastern seaboard. These two major pipeline transmission systems are illustrated in Figure 1⁹.

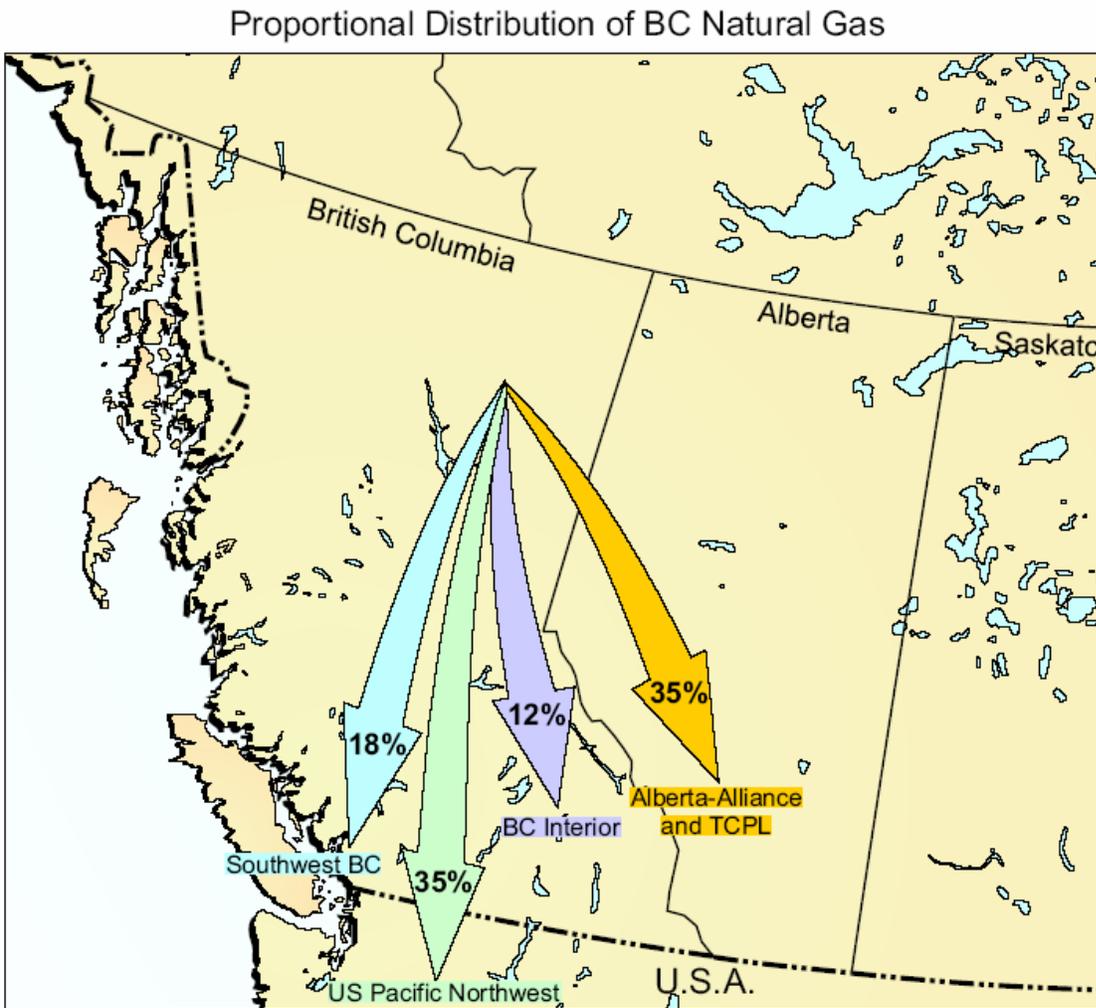
B.C. producers are now seeking increased access to eastern pipelines, to ensure that they can more fully penetrate the entire North American market.

Figure 1 – Existing pipelines in British Columbia



The U.S. is largest market for B.C.'s natural gas. Figure 2 illustrates the current relative proportional distribution of B.C. gas by destination.

Figure 2



B.C. already plays an important role in transporting oil and gas products via pipeline and rail and the future is even brighter. B.C. is poised to be a major player in proposed new pipeline projects that will enable the movement of petroleum products (including condensate for oil sands and transportation of oil sands production to market) across the province.

Key proposals include:

- The Enbridge Gateway pipeline to move condensate from Kitimat to the oil sands and oil sands product to Kitimat.
- The Kinder-Morgan Trans Mountain Expansion (TMX) pipeline upgrade to move oil from Alberta to the Pacific Northwest.
- The Alaska Natural Gas Pipeline to move gas into Midwestern markets.

Figure 3 identifies the proposed locations of these projects.

Figure 3 – Proposed Major Pipeline Projects in B.C.



Additionally, some proponents have identified B.C. as a potentially important entry point for liquefied natural gas (LNG). While the marketplace will determine the ultimate viability of these projects, they nevertheless could represent considerable capital investments in the B.C. to markets.

B.C. also provides key transportation and port capacity for sulphur, a major by-product generated through the processing of sour gas produced in B.C. and elsewhere.

Rail systems transport sulphur to coast facilities. B.C. has two port facilities that handle approximately 6.5 million tonnes of sulphur per year and operate close to capacity. Developers have proposed that one facility, Vancouver Wharves, be converted into residential sites. Vancouver Wharves is owned by the Crown and handles 2.1 million tonnes per year. The second facility, Pacific Coast Terminals, does not have the capacity to accommodate the closure of Vancouver Wharves.

Investors require certainty that these major transmission and shipping systems and facilities will be approved and approvals maintained (when it is a Crown responsibility to do so).

2.3 Opportunities

B.C. is well positioned to take advantage of the natural gas growth opportunity. B.C.'s competitive advantages include:

- A supportive government policy environment that has helped make B.C. more competitive through recent initiatives including the Oil and Gas Development Strategies, infrastructure royalty programs, service sector strategy and regulatory changes such as those enabling commingling¹⁰. Many of these initiatives have been identified and developed through collaborative efforts between industry and government.
- Significant unconventional resources in place—according to B.C. government data, B.C. has an estimated 250 to 500 trillion cubic feet (tcf) of tight gas resources in place, 60 tcf of potential natural gas from coal resources in place in Northeast B.C. and 250 to 1000 tcf of shale gas potential¹¹.
- Relatively less exploration and development of the core producing area compared to other jurisdictions. Much of Northeast B.C., which covers 194,000 square kilometres, remains unexplored. Typically, B.C.'s density of development in Northeast B.C. is one-tenth that of Alberta. Although large areas are unexplored, the industry has a good understanding of the underlying geology and technical aspects from development elsewhere in the Northeast formations.

2.4 Challenges

While opportunities abound, B.C. faces some significant challenges that will require continued close co-operation between industry and government to address.

Challenges can be grouped into three categories:

- Access to resources
- Global competitiveness
- Access to markets

2.4.1 Access to Resources

Producers and transmission companies face considerable uncertainty in accessing the potential resources.

Northeast B.C.

- A regulatory environment that lacks the capacity for timely response to emerging issues and increased activity.
- Lack of clarity regarding timing, nature and extent of government consultation and accommodation with First Nations.
- Lack of government co-ordination in addressing key environmental and land use policy matters.
- Stakeholder resistance stemming from limited public understanding of the benefits of oil and gas development.

Locations Outside Northeast B.C. including Offshore

There are potential new basins, such as the Bowser and Nechako, over an area of 140,000 square kilometres. These basins have potential resources in place of approximately 16 tcf of gas according to B.C. government estimates. Unlike Northeast B.C. however, government and industry do not have extensive understanding of the geology and other technical aspects. As well, government has not yet developed a regulatory framework in these areas.

There is also a lack of certainty regarding regulatory responsibilities, First Nations consultation and parameters on development in offshore areas.

2.4.2 Cost Competitiveness

B.C. faces a number of factors that increase the cost of projects including:

- The location and complex geological structures in Northeast B.C. Low grade unconventional resources require significant front-end costs to develop and recover.
- Anecdotal evidence would suggest that exploration, development and production costs continue to rise faster in B.C. than in other North American jurisdictions.
- A shortage of skilled labour.
- A lack of adequate schools, housing and hospitals in northern communities reduces the ability to attract and retain oil and gas industry workers.
- Overlapping responsibilities and requirements between federal and provincial agencies.

2.4.3 Access to Markets

To realize its full potential, B.C. gas must be able to fully penetrate the North American market. Producers and transmission companies face a number of barriers moving product to market:

- Extensive areas of Northeast B.C. not serviced by gathering pipelines.
- Potential loss of terminal capacity for storing and handling sulphur in West Coast ports.
- Lack of sufficient regulatory capacity to oversee major pipeline and facility projects while maintaining the ability to process permits relating to upstream activity.

3 Factors Affecting Industry Investment and Competitiveness

Investment capital is extremely mobile. Investors must earn a rate of return that is competitive with other jurisdictions. Projects that do not generate a competitive return are usually discontinued and the investment and related economic benefits flow to another jurisdiction.

In evaluating potential investments in B.C. and elsewhere, upstream and transmission companies focus on:

- ability to earn a required return on investment.
- certainty of completing the project and realizing production including:
- stability of government regulations and policies; and,
- clarity of regulatory requirements to obtain project approvals and continue operation.

A project's return represents the difference between net revenues after royalties and full costs exploration, development and production.

B.C. producers do not control the selling price for natural gas. Natural gas prices in B.C. are determined by the North American market which is influenced by continental supply and demand factors. Therefore, cost becomes a key variable that companies assess in making investment decisions relative to other jurisdictions.

Input costs in the oil and gas sector are estimated to be increasing at 15 per cent or more per year. Finding and development costs are increasing at an even greater rate. Companies note anecdotally that cost increases in other jurisdictions are not as significant. This results in a reduction in return on investment in B.C. compared to similar projects in other parts of North America.

Where uncertainty or risk exists, companies will quantify that risk, thereby pushing a number of potentially positive projects below the point where they would be considered economic. This means that where uncertainty exists, B.C. could lose that investment to another jurisdiction.

The ability to achieve a desired return on investment and certainty in project execution are discussed below.

3.1 Ability to Earn a Desired Return on Investment

Companies evaluate potential projects based on the project's ability to earn a desired or threshold return on investment. Projects that do not meet this hurdle are not pursued.

Assuming satisfactory transmission connectivity to markets, gross natural gas prices are the same across North America. Accordingly, the variables in determining the economic attractiveness of a project are:

- Geological opportunity (the potential volume of production).
- Costs of completing the project and getting the gas to market.

Costs are driven by:

- Economic rent (income tax, royalties and other forms of economic rent levied by the federal and provincial governments).
- Full cycle costs (considering all labour and material costs associated with finding, developing and producing gas).
- Costs of moving product to market, particularly as B.C.'s resources are located near the outer fringes of the transmission infrastructure in North America.

As noted above, in the last few years, upstream producers have incurred significant across-the-board average increases. As gas prices fluctuate, margins can be squeezed as these costs are not elastic and do not decrease in concert with commodity price reductions.

Although B.C. has significant low grade reserve potential, the alignment of economic rent to the nature of the reserve and the ability to control project costs are critical for companies making investment decisions in the province.

B.C. has a number of underlying cost pressures that tend to decrease the potential return further:

- B.C. has extensive potential for growth but most of the potential resources are found in low grade unconventional forms. Government reports estimate the province has 250 to 500 tcf of tight gas resources in place, 60 tcf of potential natural gas from coal resources in place in Northeast B.C. and 250 to 1000 tcf of shale gas potential¹². Most of these resources are located in areas that are either lightly developed or undeveloped. These resources tend to require greater front-end capital costs to develop and operate than conventional gas formations due to the complex geology and steps required to extract the gas.
- Government programs have contributed to the doubling of summer drilling activity. However, due to terrain and climate, much of B.C. activity is winter access only. This tends to increase costs due to the compressed season.
- Due to its geographical position, B.C. gas has a comparatively long way to move to market. This increases transmission costs.
- The B.C. infrastructure, to support oil and gas expansion, is relatively undeveloped. Producers are facing significant front-end costs to construct roads, build pipeline gathering systems¹³ and install communications systems.
- The aggregate cost of government fees, levies and taxes from programs in various ministries and programs at a provincial and municipal level.

3.2 Certainty of Project Execution

To proceed with a potential investment, companies require more than an adequate relative rate of return. They require reasonable certainty that they will be able to execute a project as planned: that the well will be drilled and gas will be produced or that a pipeline will be completed and opened.

Where uncertainty or risk exists, companies will quantify that risk, thereby pushing a number of potentially positive projects below the point where they would be considered economic. This means that where uncertainty of any sort exists, B.C. could lose that investment to another jurisdiction.

Certainty of project execution is driven by a number of factors including:

- Ability to obtain government project approvals within the required time frame and with reasonably consistent and clear rules.
- Access to sufficient human resources, equipment and supporting infrastructure to carry out the project.
- Political certainty regarding broader policy matters at all levels of government, including First Nations and communities.

4 Current Status of the B.C. Investment and Competitiveness Climate

B.C. has made significant strides in recent years to improve the competitiveness and attractiveness of its investment environment. These enhancements are illustrated by significant increases in investment and continued positive performance ranking relative to other jurisdictions according to the B.C. Progress Board 14. Between 1999 and 2004, real GDP per capita increased by 2.1 per cent per year in B.C., giving the province a higher growth rate than Alberta, Ontario and the national average¹⁵.

B.C.'s oil and gas sector has grown dramatically in the last five years as illustrated by the growth in provincial revenues from oil and gas in Figure 4 and the growth in number of wells drilled in Figure 5¹⁶.

Figure 4 – Growth in Provincial Revenues from Oil and Gas

Growth in Provincial Revenues from Oil and Gas (CAPP data; 1999/00 and 2005/06 estimate)
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It is important that B.C. continue to pursue the following strategies with further enhancements to address the challenges that are limiting further growth from the oil and gas sector in the province.

Figure 5 – Increase in Wells Drilled

Number of Wells Drilled in British Columbia (CAPP data; 1999/00 and 2005/06 estimate)
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4.1 Successes to Date

The oil and gas industry recognizes the role it has to play in ensuring that B.C. remains an attractive climate for investment.

Accordingly, the industry is participating in or has undertaken initiatives on its own in B.C. to enhance the viability of oil and gas activities. These include:

- Actively supporting the province's Service Sector Initiative to increase participation by B.C.-based service providers through actions such as supporting sector trade fairs in B.C. and Alberta and participating in the development of a strategy for expanding the B.C. service sector;
- Providing approximately \$10 million in capital and operating expense to the Centre of Excellence at Northern Lights College in Fort St. John for the training of skilled workers in the oil and gas sector;
- Contributing approximately \$1 million per year to the Oil and Gas Commission's Science, Community and Environmental Knowledge Fund;
- Purchasing goods and services in excess of \$100 million annually from First Nations businesses in B.C.;
- Providing \$5,800 direct funding on each application to First Nations through Memoranda of Understanding;
- Retaining elders to provide traditional knowledge on the location and nature of cultural and traditional use sites;
- Arranging supportive terms and conditions for the Fort Nelson First Nation to acquire an interest in a drilling rig.

As well, government and industry have worked collaboratively to develop a policy framework that improves the potential return on investment in B.C. and increases the certainty of industry completing projects as planned. Some of the major successes to date are listed below.

4.1.1 Access to Resources

- The New Relationship initiative with First Nations.
- Streamlining of application processing within the Oil and Gas Commission.
- Local service sector development—training, education, and increasing First Nations' capability to participate.

4.1.2 Cost Competitiveness

1) *Targeted royalty programs*—provide for the appropriate economic rent in marginal, complex and deep oil and gas formations. The summer drilling royalty program helps smooth workload pressures and builds stronger community and service sector support.

2) *Infrastructure development program*—royalty credits allow for shared industry/government risk-taking in developing new areas.

3) *Commingling regulation*—this is a leading-edge regulatory innovation that creates opportunities for companies to optimize production from a given well bore and maximize production from low grade geological zones. This reduces the environmental footprint of a project while increasing royalty revenue to the Crown.

4) *Service sector strategy*—has increased the capacity and the competitiveness of service providers in B.C., including First Nations businesses.

5) *Oil and gas regulatory harmonization with Alberta*—improvements have occurred in a number of areas. For example, equipment standards are now more closely aligned. This reduces the costs to the service sector as companies can operate in both provinces with the same equipment.

4.1.3 Access to Markets

Establishment of infrastructure royalty credits for pipeline construction to tie-in stranded gas.

4.2 Challenges

By continuing to work together, industry and government have the opportunity to further improve B.C.'s relative investment attractiveness and competitiveness in the following areas:

4.2.1 Access to Resources

British Columbia's oil and gas industry is relatively immature. As a result, investors face uncertainty in a number of key areas:

A. Northeast B.C.

Government and industry have fairly current and extensive information on the viability of the resources in the unexplored areas of Northeast B.C. In addition to high finding and development costs, uncertainty in the following areas represents an impediment to further activity:

- *Regulatory environment lacks capacity for timely response*—The current regulatory framework is stretched by attempting to accommodate increased

activity and address emerging environmental and land use matters. This leads to uncertainty regarding regulatory requirements and timeliness of approvals;

- *Need to continue with New Relationship initiative*—The industry looks to the New Relationship initiative to provide certainty regarding government consultation and accommodation requirements and the participation of First Nations in the planning of oil and gas development;
- *Lack of co-ordination between ministries in policy development*—A number of provincial ministries and agencies are involved in the development of potential environmental and land use policies and the related decisions. These agencies tend to operate in isolation from each other as well as from the oil and gas sector. As a result, key policies do not always appear to account for or reflect some of the features of the pattern, timing and sequencing of the oil and gas industry footprint. These elements often differ significantly from the forestry, mining and tourism industry.
- *Stakeholder resistance due to lack of public understanding of economic benefits of oil and gas development*—Virtually all oil and gas projects are geographically removed from the major population centres in B.C. Most of the public do not see the direct correlation between increased oil and gas activity, the generation of revenue to the Crown and the related improvements in government services such as health care and education. This contributes to instances of stakeholder resistance to proposed oil and gas development, which in turn leads to delays and uncertainty regarding project approvals.

B. Areas Outside of Northeast B.C. Including Offshore

Lack of Current and Comprehensive Technical Data in the Interior Basins—Existing technical data on resource potential in the Nechako and Bowser basins and for natural gas from coal (outside of Northeast B.C.) requires further updating and assessment by government to provide industry with a basis for conducting exploratory work. In addition, further research and analysis is required to develop the scientific rationale for potential constraints on development and its nature, extent, timing and location.

Lack of Clear Regulatory and Policy Framework for Operating Offshore—In addition to the moratoria on development, the industry faces an unclear regulatory and policy framework regarding federal and provincial government roles, First Nations consultation and the parameters on the nature, extent and timing of development.

4.2.2 Global Competitiveness

Notwithstanding current high commodity prices, companies assess investments on a relative basis as capital and operational resources (equipment, personnel) are limited and must be allocated in a manner which yields the highest return. B.C. possesses five major factors that constrain the potential return on investment:

1) *High relative cost of developing low grade unconventional resources in place*—B.C. has extensive resources in place and considerably more known potential in Northeast B.C. However, many of these resources in place exist in low grade unconventional and complex formations. B.C.'s future in gas production lies in these low grade sources such as tight gas, shale gas and natural gas from coal which means that it will inherently be a high cost producer. To extract the resources, companies need to go through more extensive and costly steps. Previously, such resources in place in B.C. and elsewhere were bypassed due to the higher cost.

B.C. has introduced beneficial policies, such as the targeted royalty program. Government should monitor existing royalty structures to ensure that the economic rent is appropriate and takes into account further shifts into higher cost development.

Further opportunities, such as alternative tax treatments, should be considered in order to ensure that these projects earn a viable rate of return. Such treatments would be conceptually similar to those granted to deep or frontier wells for exploration costs.

2) *Aggregate net cost of government programs*—Government economic rent and program fees, levies and charges represent a significant cost to the industry. In B.C., due to the inherently higher costs of finding, developing and producing gas, the net economic rent and other levies are particularly important. Government should review the aggregate impacts of these costs to ensure that B.C. is competitive with other jurisdictions in North America.

3) *Human resources shortage*—B.C. has a shortage of skilled workers for its oil and gas industry. This increases project costs and reduces the certainty of completing projects in a timely manner. Compared to other provinces which also face labour shortages, the problem is exacerbated in B.C. due to the relative remoteness of project sites and the related difficulty of attracting workers.

4) *Inadequate community infrastructure in northern communities*—The impact of the labour shortage in the oil and gas industry is compounded by the location and amenities of communities that service the oil and gas industry in B.C. Industry workers are reluctant to move to or remain in communities with a lack of adequate schools, housing and hospitals and related community infrastructure.

5) *Overlapping regulatory responsibilities*—B.C. continues to face unclear and often overlapping responsibilities between federal and provincial agencies, particularly on environmental matters. This can translate into much higher front-end costs and decreased certainty of completing the project due to delays in approval and increased constraints.

4.2.3 Access to Markets

B.C. oil and gas faces three major challenges regarding access to markets:

1) *Extensive undeveloped areas without pipeline access*—Most of the major pipelines in Northeast B.C. are concentrated in the core producing areas with the outlying areas tending to be under-serviced by these gathering lines. This includes large areas of Northeast B.C. such as the Liard basin.

Pipeline companies face extensive capital investments to build this infrastructure. As well, these companies have different risk profiles than upstream producers because their return on investment is influenced strongly by regulators. Shareholders tend to invest in transmission companies with an expectation of lower risk as an offset to higher potential returns. Hence, these companies tend to avoid building extensive capacity until reasonable certainty around the volume of production and level of demand exists.

Upstream producers are reluctant to explore and develop new areas due to the uncertainty of accessing the market should they discover viable gas resources. Producers could face delays of several years in accessing gathering lines and moving their product to market. This adversely affects the project's projected level of return.

As a result, government needs to undertake policies to stimulate more gas exploration and gathering line construction in these undeveloped areas, particularly in Northeast B.C.

2) *Potential loss of handling and storage terminal capacity for sulphur*—Vancouver Wharves, on the north shore of the Vancouver harbour, handles about one-third of all sulphur shipped to the Lower Mainland from Northeast B.C. and Alberta. The B.C. government, through residual companies it retained after the sale of B.C. Rail, owns the facility.

Due to its prime location, property developers have approached the government to sell the site for residential development. The only other facility, Pacific Coast Terminals, is operating at capacity and cannot be readily expanded.

Closure of Vancouver Wharves would not only limit the potential for increasing capacity but would leave the industry exposed in the event of any disruptions in service at the Pacific Coast Terminal facility.

The Lower Mainland has few, if any, viable potential new sites. Establishment of a sulphur processing facility in Prince Rupert or other ports may not be economic.

3) *Shortage of regulatory capacity to oversee major infrastructure projects*—B.C. has a key role to play as the transmission route for oil and gas products. Western Canada requires extensive investment in major pipelines such as the Gateway, TMX upgrade, and Alaska Natural Gas Pipeline projects.

B.C. requires the regulatory infrastructure for effective and concurrent approval and oversight of these large projects while maintaining the capacity to process permits for seismic activities, wells and related pipelines between wells and facilities.

5 Opportunities to Attract Investment and Improve Competitiveness

It is important that the government and industry continue to work together to pursue new and existing strategies that are effective in attracting additional investment to, increasing activity in and improving the competitive position of B.C.

Recommendations to improve B.C.'s competitiveness in the oil and gas sector are grouped into these areas:

- Building on existing initiatives
- Pursuit of new initiatives
 - Access to resources
 - Global competitiveness
 - Access to markets

Within each area, recommendations are presented in their relative order of significance.

5.1 Building on Existing Initiatives

A progressive and supportive government policy environment has helped make B.C. more competitive and attractive. Initiatives such as the Oil and Gas Development Strategies, service sector strategy, infrastructure royalty credit program and regulatory changes are significant. These programs need to continue and to build upon successes to date. Many of these initiatives have been identified and developed as a result of collaborative efforts between industry and government. The industry applauds the government's vision and execution in these areas.

5.2 Pursuit of New Initiatives

By working together, industry and government have the opportunity to continue to improve B.C.'s competitiveness in the following areas.

5.2.1 Access to Resources

Government should ensure access to resources across B.C. by prioritizing policy initiatives and effort on:

- Development in Northeast B.C.
- Pursuit of future opportunities outside Northeast B.C.

A. Development Focus on Northeast B.C.

Government should continue to ensure that its initiatives focus on encouraging further exploration and development in Northeast B.C., for both conventional and unconventional natural gas resources.

Key elements of this focus include:

1) Clear, Consistent Regulatory Requirements and Sufficient Review Capacity

- Implement a simplified and streamlined regulatory framework that provides efficiency in administration and greater certainty and focuses regulatory effort according to risk and complexity.
- Ensure that agencies' staffing roles and expertise complement the new regulatory model.
- Ensure that regulatory agencies have the capability to attract and retain the required human resources through competitive compensation and benefits programs. This includes continuing the initiative to exempt the OGC from the Public Service Act.
- Government should build on its continuing efforts to increase clarity, consistency and certainty regarding the regulatory requirements and process. In particular, B.C. requires clear policy direction, regulatory requirements and operational standards regarding environmental practices that reflect risk, encourage companies to use appropriate “best practices” and balance economic and environmental values.

This suggestion is consistent with some of the core tenets of the Oil and Gas Regulatory Improvement Initiative (OGRII) being undertaken by the Ministry of Energy, Mines and Petroleum Resources and the Oil and Gas Commission. OGRII should continue to establish, where appropriate, regulations that measure performance according to standards and take into account relative complexity and risk.

Overall, these changes should provide companies with a better understanding of the time and resources required to secure approvals well in advance of the preparation and submission of applications. This increases certainty that companies will be able to complete projects and realize production.

In addition, government needs to ensure that as the regulatory framework evolves, the role, structure and composition of agencies, particularly the Oil and Gas Commission, also changes in a consistent manner.

2) Certainty Through Key First Nations Initiatives

We encourage government to:

- Continue the New Relationship initiative and address matters relating to the oil and gas sector.
- Complete Treaty 8 revenue sharing and related “set aside” matters.
- Renew the Memoranda of Understanding between Treaty 8 bands and the provincial government.
- Continue to support government’s initiatives to develop First Nations’ capacity to consult and to participate in the oil and gas sector.

With this in place, companies will have greater certainty that they can acquire land holdings and develop and complete projects. Application processes will be simplified and approvals issued on a timelier basis. Clarification and confirmation of the First Nations consultation and accommodation requirements are critical to providing industry with certainty regarding the ability to obtain approvals and complete projects.

Completion of the New Relationship initiative will also provide other resource sectors with greater certainty regarding project approvals.

3) Co-ordinated Environment and Land Use Policy Development

Government should:

- Strengthen the central co-ordination of policies involving land use management and the environment.
- Obtain input from the oil and gas sector on the manner in which the oil and gas sector plans and operates on the land base.

In particular, key initiatives such as land use planning and zonation decisions and cumulative impacts management should reflect key aspects of all resource sectors and enable government actions in Northeast B.C. to be consistent with the provincial context. This approach has been successfully applied in managing species at risk policies through the Species at Risk Co-ordination office and the concept should be applied to other aspects of environmental management and land use planning.

4) Improved Community Understanding of the Oil and Gas Sector

The Ministry of Energy, Mines and Petroleum Resources and oil and gas companies need to demonstrate to communities and stakeholders that tangible, incremental improvements in their quality of life are attributable to oil and gas activities. Improvements include transportation, health care, education and broad band infrastructure in communities near oil and gas development as well as elsewhere in the province. This means explaining the economic benefits government provides such as Fair Share, a program that ensures that resource

communities receive a portion of the economic rent collected from the oil and gas sector.

Government should also provide communities with the capacity and background information to engage in dialogue on potential development. These efforts are important not only in Northeast B.C. but throughout the entire province.

Accurate information regarding the benefits of oil and gas activities provides stakeholders with a more complete basis on which to comment on proposed oil and gas development. This in turn will bring greater clarity to the public engagement process for the industry and increased certainty regarding the time requirements and key decision factors in the government's project review process.

Ministries responsible for other resource sectors could also carry out similar communications initiatives to illustrate the benefits of those industries to communities.

B. Pursuit of Future Opportunities Outside of Northeast B.C.

Government resources and effort should focus primarily on Northeast B.C. However, government should begin work on strategies relating to the future development of resources outside of Northeast B.C. such as the Interior basins, natural gas from coal and offshore.

For natural gas from coal and for all potential sources in the Interior basins, government should conduct thorough technical assessments. Existing government technical data and assessments of these basins need to be updated and focused on understanding the resource potential and the technical risks and uncertainties in order to provide the foundation for exploration. These assessments would generate updated basic data on the sub-surface geology, similar to the work done previously in government geological surveys. Subsequent to these studies the government should ensure that the appropriate infrastructure and regulatory framework is aligned with exploration activity that may result.

To facilitate offshore development, the province should:

- Work with the federal government to lift the existing moratorium;
- Resolve uncertainty regarding First Nations consultation and accommodation;
- Complete appropriate environmental assessments and studies to identify potential constraints on the nature, extent and timing of potential exploration and development that could occur;
- Resolve federal / provincial jurisdictional issues.

Government, as the custodian of the oil and gas resource, has a key role to play in gathering more data and conducting more current analysis of the viability of the resources. Industry can then incorporate this information into its own assessment of the potential and determine the nature and timing of exploration.

5.2.2 Global Competitiveness

Opportunities relating to global competitiveness include:

- Alternative tax treatments to encourage development of unconventional gas and other frontier opportunities.
- Managed cost structure.
- Development and implementation of a labour strategy.
- Improved quality of place infrastructure in northern communities.
- Reduced overlap in federal/provincial regulatory responsibilities.

A. Alternative Tax Treatments to Encourage Development of Unconventional Gas Opportunities

The federal and B.C. governments, in conjunction with other provinces, should establish an appropriate taxation regime to encourage unconventional (tight) gas exploration and development. These alternative tax treatments could include accelerated capital cost allowance (CCA) or tax credits based on existing incentives for exploration and development.

Such treatments could draw upon ideas contained in provisions for deep or exploratory wells in Canada, oil sands development and existing U.S. provisions for unconventional resources.

Tight gas resources in place will be costly to develop. Companies allocate capital investments based on relative rate of return, after factoring in costs associated with uncertainty. Alternative tax treatments have the potential to increase the after-tax return from projects focusing on lower grade resources in place. With this higher project return, projects that are otherwise below the investment threshold may become sufficiently economic.

Capital investment in the oil and gas industry is highly mobile and is allocated to projects that generate the highest relative after-tax rate of return.

Alternative tax treatments provide the opportunity for federal and provincial governments to share both the initial fiscal impact of the tax reductions and the longer term multiplier effects generated by the additional projects. Income tax treatments share the fiscal impact more evenly between the federal and provincial governments compared to the cost of royalty programs, which are borne by provincial government.

B. Managed Aggregate Impact of Government Charges

B.C. has taken significant steps to be competitive in attracting investment, particularly with regards to oil and gas policy managed by Energy, Mines and Petroleum Resources. Several other ministries continue to levy charges to the industry that appear to shift a disproportionate cost burden to the oil and gas

sector. Such charges and costs include the motor fuel tax paid by midstream producers and municipal tax rates for transmission companies.

Consistent with its objective of increasing the investment attractiveness of the province, government and industry should jointly review the aggregate impact on industry of these various levies on an annual basis to determine whether the costs are consistent with the level of service provided by government and fair in terms of the proportionate share borne by the oil and gas sector.

These charges increase costs to industry, often unexpectedly and after project investment has occurred.

C. Labour Strategy Development and Implementation

Across Western Canada, the oil and gas sector faces a human resources shortage. Projects in these provinces and territories compete for workers and drive up compensation. In B.C., the problem is worsened by the challenges of attracting labour in this tight market to locations that are relatively more remote and isolated.

B.C., Alberta and Saskatchewan are undertaking separate reviews of oil and gas labour issues. In B.C., a joint government, oil and gas industry and education sector initiative has identified a number of key recommendations including:

- Create more awareness of careers in the oil and gas industry and encourage more people to select the oil and gas industry for practicing their trade. Build on existing efforts such as the B.C. Business Council education videos, including *The Third Option*.
- Support development of more flexible and innovative ways to deliver upgrading and retraining programs to adults and increase opportunities for continuous learning by existing employees and those transferring to oil and gas from another resource sector.
- Identify and develop opportunities for companies and educational institutions to partner with Aboriginal communities by building on best practices and lessons learned in recruiting and retaining Aboriginal people.
- Review and improve training for heavy equipment operators and truck drivers to ensure graduates have the skill levels to meet oil and gas industry needs.

The Centre of Excellence in Fort St. John provides a strong foundation for training and education.

To be effective, B.C. must work with other Western Canadian jurisdictions, particularly Alberta, the oil and gas sector and training and education institutions, to develop and implement such recommendations. This will ensure that the overall supply of appropriate labour is increased.

Alberta and B.C. have taken steps to work more closely together through a memorandum of understanding signed in 2004. However, to date, this agreement has not generated significant progress towards active engagement of the upstream and transmission sectors in both provinces and the two provincial governments.

B.C. continues to face a significant shortage in skilled labour. This represents a major impediment to increased investment because higher costs and lack of appropriate labour limit the certainty of completing projects within reasonable timelines. Initiatives to increase skilled labour supply will reduce project costs and increase certainty of completion.

D. Improved Quality of Place Infrastructure in Northern Communities

Communities are growing rapidly in Northeast B.C. and this has resulted in significant strain on local infrastructure. Quality of place is a key determinant in attracting and retaining skilled workers and their families.

Potential employees often cite lack of community infrastructure in northern communities as the reason for not pursuing or continuing work in Northeast B.C. This includes the supply of housing and quality of schools and hospitals and supporting resources such as doctors, nurses and teachers.

Government should further pursue programs to enhance quality of life infrastructure.

E. Reduced Overlap in Federal/Provincial Regulatory Responsibilities

Federal agencies continue to play a key role in regulatory approvals, particularly on major facility and pipeline projects. The B.C. government and upstream and midstream industry should work proactively with federal agencies such as the National Energy Board, Department of Fisheries and Oceans and Environment to synchronize processes and responsibilities. This review would apply to all oil and gas activities across the province, including offshore.

To the greatest extent possible, the province should continue to request that the federal government delegate responsibilities for review to provincial agencies. This model is working effectively with the development of species at risk strategies through the agreement with the federal government.

Once the processes are synchronized and streamlined, agencies at both levels of government can set staffing levels and structure to meet their respective roles.

Often, companies face parallel and overlapping review processes with each level of government. This increases project costs and also uncertainty. The recommended changes will reduce project approval costs and provide certainty regarding the requirements and extent of the regulatory process.

With greater certainty and reduced front-end project approval costs, these changes will facilitate the advancement of major projects and the development of additional areas in B.C.

B.C. can also use the 2004 memorandum of understanding with Alberta as the basis for working together to address areas of mutual interest regarding overlap of federal and provincial responsibilities.

5.2.3 Access to Markets

Key opportunities relating to access to markets include:

- Pipeline royalty credit program for undeveloped areas of Northeast B.C.
- Sulphur handling capacity in the Lower Mainland.
- Regulatory capacity.

A. Pipeline Royalty Credit Program for Undeveloped Areas of Northeast B.C.

For the most part, the current pipeline royalty program is focused on the shorter term opportunity of tying-in stranded wells in areas in or close to existing systems of gathering lines. Government should expand the eligibility criteria and emphasis to allow a greater focus on longer term and potentially more significant opportunities relating to projects that develop the pipeline gathering lines in the undeveloped areas of Northeast B.C. Credits will continue to be available for the tie-in of stranded wells.

Through this concentration of its investment in royalty credits, the government should be able to realize a significant return from land sales and royalties in areas that, in the absence of pipeline development, would remain undeveloped.

By extending major pipeline access into additional areas of Northeast B.C., extensive new resources in place can be brought into production. Upstream producers will have greater certainty of bringing their product to market and their development costs and discounting of potential returns from the project will be reduced.

Transmission companies will have sufficient certainty of capacity utilization which will support their decision to participate. As well, the cost-sharing through the credit program reduces their risk to levels more consistent with expectations of their shareholders.

This recommendation also provides an opportunity for producers, transmission companies and the B.C. government to share the costs of building pipeline capacity in undeveloped parts of B.C.

B. Sulphur Handling Capacity in the Lower Mainland

Government should defer any closure or sale of the Vancouver Wharves facility unless a viable alternative site can be identified and constructed. The loss of this facility would place significant constraints on the ability of the industry in B.C. and Alberta to ship this key and valuable by-product to market.

C. Regulatory Capacity

B.C. agencies will likely be involved in the review of a number of major pipeline and related infrastructure projects in the near term. B.C. and industry should work together to plan and co-ordinate the development of major pipeline projects. This will ensure that scarce personnel, equipment financial resources from government and the private sector can be assigned to projects in a co-ordinated manner. As well, it will provide additional capacity so that agencies can oversee these large-scale new projects while continuing to process well, pipeline and seismic applications in a timely manner.

Co-ordination efforts should not only involve B.C. agencies but involve closer co-operation between Alberta and B.C.

The development of clear, co-ordinated processes will reduce overall project costs, particularly in avoiding “compression” costs associated with accelerating project efforts when they fall behind schedule. As well, this recommendation will provide greater certainty that application workloads can be processed in a timely manner.

Appendix A Oil and Gas Industry Advisory Committee Members

Doug Haughey, Duke Energy, Co-chair

Kathy Sendall, Petro-Canada, Co-chair

Pierre Alvarez, Canadian Association of Petroleum Producers

Ross Curtis, B.C. Oil and Gas Commission

Richard Dunn, EnCana Corp.

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Don Herring, Canadian Association of Oilwell Drilling Contractors

Ian Kilgour, Shell Canada

David MacInnis, Canadian Energy Pipeline Association

David Pryce, Canadian Association of Petroleum Producers

Greg Reimer, Ministry of Energy, Mines and Petroleum Resources

Appendix B References

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- ² Canadian Association of Petroleum Producers website
- ³ Ministry of Energy, Mines and Petroleum Resources web site – “Production and Distribution of Natural Gas in B.C.” – December 2005
- ⁴ Ministry of Energy, Mines & Petroleum Resources - CERI Report
- ⁵ B.C. Progress Board – November 2005 report
- ⁶ U.S. Energy Information Administration – 2006 Annual Energy Outlook – December 2005 – Table 2A
- ⁷ Ministry of Energy, Mines and Petroleum Resources web site – “Production and Distribution of Natural Gas in B.C.” – December 2005
- ⁸ This report identifies two types of pipelines: smaller dimension “gathering” upstream raw gas lines that tie in individual wells to facilities and larger scale transmission lines that ship saleable (“sales or marketable gas”) product from Northeast B.C. to markets in the Pacific Northwest and Alberta and eastward.
- ⁹ Canadian Energy Pipeline Association
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- ¹² Ministry of Energy, Mines and Petroleum Resources – Oil and Gas Brochure – “Oil and Gas Production and Activity in British Columbia – Statistics and Resource Potential – 1994 to 2004” - 2005
- ¹³ This report identifies two types of pipelines: smaller dimension “gathering” upstream raw gas lines that tie in individual wells to facilities and larger scale transmission lines that ship saleable (“sales or marketable gas”) product from Northeast B.C. to markets in the Pacific Northwest and Alberta and eastward.
- ¹⁴ B.C. Progress Board – November 2005 Report
- ¹⁵ Statistics Canada – Provincial Economic Accounts - 2004
- ¹⁶ Canadian Association of Petroleum Producers, both figures – Figure 4 data source B.C. Ministry of Finance and CAPP; Figure 5 data source B.C. Oil and Gas Commission