



273 P NP DM73 (a)

Bureau d'audiences publiques sur l'environnement
Édifice Lomer-Gouin
575, rue Saint-Amable, bureau 2.10
Québec (Qc) G1R 6A6

Développement durable de l'industrie des gaz
de schiste au Québec

6212-09-001

Attn : Monique Gélinas
Coordonnatrice du secrétariat de commission

The Canadian Association of Petroleum Producers (CAPP) and the Canadian Society for Unconventional Gas (CSUG) thank you for the opportunity to provide our comments on sustainable development of shale gas in Quebec as a part of the Bureau d'audiences publiques sur l'environnement (BAPE) hearing process.

Canadian Association of Petroleum Producers

Kerry Guy
Manager, Natural Gas Advocacy
2100, 350-7th Ave S.W.
Calgary, Alberta T2P 3N9
kerry.guy@capp.ca
(403)267-1188

Canadian Society for Unconventional Gas

Kevin Heffernan
Vice-President
Suite 420, 237 - 8 Ave. S.E.
Calgary, AB T2G 5C3
kheffernan@csug.ca
(403)233-9298



Développement Durable de L'industrie des Gaz de Schiste au Québec

Sustainable Development of the Shale Gas Industry in Quebec

November 2010

A joint Submission of:

The Canadian Association of Petroleum Producers

And

The Canadian Society for Unconventional Gas

The **Canadian Association of Petroleum Producers (CAPP)** represents companies, large and small, that explore for, develop and produce natural gas and crude oil throughout Canada. CAPP's member companies produce about 90 per cent of Canada's natural gas and crude oil. CAPP's associate members provide a wide range of services that support the upstream crude oil and natural gas industry. Together CAPP's members and associate members are an important part of a \$110-billion-a-year national industry that provides essential energy products. CAPP's mission is to enhance the economic sustainability of the Canadian upstream petroleum industry in a safe and environmentally and socially responsible manner, through constructive engagement and communication with governments, the public and stakeholders in the communities in which we operate.

The **Canadian Society for Unconventional Gas (CSUG)** is a not for profit association formed in 2002 with a focus on broadening the understanding of unconventional natural gas resources and the technology to develop those resources among industry, governments, regulators and the public. CSUG encourages constructive dialogue among all unconventional gas stakeholders based on a foundation of informed technical understanding. CSUG's membership includes natural gas exploration and production companies, service and engineering companies, research organizations and universities, and other organizations.

CAPP's and CSUG's Interest in the Proceedings

Our understanding is that the BAPE Commission of Inquiry will propose a legal and regulatory framework for responsible and sustainable development of shale gas in the Province of Quebec. Furthermore, the Commission will hear from interested stakeholders who have concerns about the development of this new resource in Quebec and seek input from experts on the issues identified.

CAPP and CSUG engages in dialogue with governments, industry and the general public to enhance the economic sustainability of the natural gas industry and promote a business and regulatory framework that acts in the public interest.

The natural gas industry in Canada has a long history of responsible development of Canada's natural gas resources. Throughout this developmental history, industry practices and associated regulations have evolved which:

- protects the environment,
- effectively conserves resources,
- allows economic development, and
- protects public health and safety.

We fully support regulation that meets these objectives.

The stability and predictability of the policy and regulatory system in any jurisdiction is a key consideration for investors. It is important that Quebec develop a regulatory system for natural gas that is competitive so as to encourage investment, while ensuring responsible environmental and social outcomes.

There are local environmental and social implications arising from any form of industrial development, natural gas included. These may be seen as more acute in cases where there is no prior experience with activity of this nature. However, industry, policy makers and regulators have a well-established track record in successfully mitigating these issues in many other Canadian jurisdictions. At the same time, there are local benefits (employment, tax revenue, provision of goods and services, etc.) that are derived from natural gas activity. Regulators must also take into consideration other broader public interests, the latter of which, in the case of natural gas, includes economic benefits, energy security and reliability benefits and the opportunity to expand the supply of a lower carbon fuel.

Development of natural gas will require a balance between energy needs, the economy and environment. Quebec will need to consider natural gas' benefit as the cleanest burning fossil fuel when addressing environmental measurements as part of upstream environmental policy and regulations. This positive environmental effect is also relevant.

Sustainable Development of Quebec's Shale Gas Resources

The sustainability of development of Quebec's shale gas resources is reliant on a robust and efficient regulatory framework and the commitment of industry to advance technology and operating practices to improve environmental and safety performance. Existing producing jurisdictions in Canada have successfully maintained the social license to operate in an environment of increasing stakeholder expectations.

Broadly, there are several areas where industry, government and regulators must focus to ensure that natural gas resources are developed responsibly:

1. Stakeholder Consultation

In both Alberta and British Columbia, there are industry regulations and best practices to conduct consultations with landowners and occupants and other stakeholders before projects are undertaken. In Alberta, any affected stakeholder may voice concerns about a proposed project and there are regulatory requirements of industry to deal with such concerns as a pre-requisite to project approval. Industry works closely with stakeholders to analyze, monitor, and address the consequences of its activities.

2. Ground Water Protection

Protection of Quebec's groundwater resources is of paramount importance to the natural gas industry. This sentiment is equally evident in all areas of natural gas development in Canada. There are strict industry regulations and practices relating to the drilling and construction of natural gas wells to ensure that deep gas bearing zones have no adverse contact with shallow potable water resources. These practices include the installation and cementing of steel casing, usually two layers of casing and cement, to isolate shallow water zones from deeper shale gas zones. All future operations in natural gas wells take place inside this casing which is strong enough to contain the anticipated pressures from any future operations which would be contemplated.

Hydraulic fracturing is a proven technology that has been used to safely access oil and natural gas reserves across the world for more than 60 years and is an essential process to release natural gas from the shale deposits in which it is stored. Worldwide, hydraulic fracturing is now the most widely used and successful stimulation technique and is usually applied to wells drilled in low permeability reservoirs in order to increase the production rate. Without horizontal drilling and hydraulic fracturing, it would be impossible to produce significant quantities of gas from shale.

Hydraulic fracturing of shale gas zones which are hundreds and even thousands of meters deeper than shallow potable water bearing zones has been shown, through the use of micro-seismic monitoring, to not extend upwards into any sources of potable groundwater. Furthermore, there has been no evidence in the history of hydraulic fracturing to indicate that such upward migration can happen over a long period of time.

In western Canada, hydraulic fracturing has been conducted in tens of thousands of wells with very, very few negative incidents. To the extent that incidents have occurred, they are almost always related to well construction issues where there is a loss of wellbore integrity causing fluids to migrate from one geological zone to another. In such wellbore construction circumstances, companies are required, by regulation, to undertake necessary repairs. A combination of sound industry practices and industry regulation has made hydraulic fracturing a very safe procedure used in the recovery of natural gas from shale deposits.

3. Land Use

Industry best practices call for land-use practices that integrate environmental, low-impact techniques, species conservation and biodiversity considerations in the planning and development of Canada's natural gas resources. Canada's thorough and longstanding regulatory system for energy development, combined with industry best practices, ensure that land is returned to an acceptable state after use. Advancements in resource finding and extraction technology help reduce the natural gas industry's environmental footprint on the land, especially for the production of Canada's abundant supply of unconventional natural gas.

Additionally, natural gas companies are also changing from a well-by-well approach to a project- or area-based planning approach. By working in this way, companies improve operational efficiency and streamline industrial activities in an area. An example of companies working together to manage development is the Horn River Basin Producers Group. Eleven oil and gas companies currently developing in the Horn River Basin in British Columbia have come together to ensure that this area is responsibly developed, and that cumulative impacts on the land are minimized. The group works together to coordinate access and infrastructure development, to collaborate on research and to share information.

The natural gas industry is continually assessing its land-use practices and adopting new technologies to improve the efficiency and effectiveness of its work. Industry is always moving toward new ways of exploring for natural gas that lessens the environmental footprint on the land.

4. Stewardship of Fresh Water Resources

In addition to the protection of groundwater resources, the industry is also cognizant of the intensity of use of fresh water in shale gas development. Both operators and service companies are evaluating and progressively implementing new water management strategies in recognition of the water use and waste water disposal needs for some types of shale gas development. These strategies include the use of non-potable groundwater water instead of potable water, the recycling of used frac fluids and produced water to reduce the use of potable water and in some situations the use of fluids other than water in the hydraulic fracturing process. In most cases it is not practical to implement these strategies during testing and evaluation or pilot stages of shale gas development; however, commercial resource development brings economies of scale that improve the potential for application of water treatment, desalination, and re-use of water.

Shale Gas Development: Significant Economic Opportunity for Quebec

The oil and gas sector in Canada is a vital part of the economy, both nationally and regionally. It is a key component of Canada's energy system, critical to the security and reliable access to energy supply by all Canadians. Crude oil and natural gas and their by-products are enmeshed in every aspect of our lives. The sector and supply chain employs Canadians in every part of the country, offering highly-skilled and well-rewarded employment. It has been estimated that, for every \$1 of investment in the oil and gas industry, \$3 dollars of economic benefit is realized in the form of direct (natural gas development industry), indirect (supply and services industry) and induced (restaurants, hotels, retail, etc.) impacts. The emergence of a successful natural gas industry in Quebec affords the Province with the opportunity to bring these benefits to its citizens.

Furthermore, the oil and natural gas industry is a significant source for revenues for governments. In 2009, payments to governments in Canada at all levels was \$15 billion.

Competitive Challenges to Shale Gas Development in Quebec

Underlying these economic opportunities, however, is the increasingly competitive nature of natural gas development in North America. The emergence of huge shale gas plays in the United States and western Canada has afforded a great deal of optionality in capital markets. Investment opportunities in Quebec, and, indeed, in the rest of Canada, must be very cognizant of the competition amongst natural gas investment opportunities. Competition is forcing investors to scrutinize opportunities more closely on all factors bearing on rate and risk of return, including above-ground risks. Competitiveness in the initial exploration and evaluation phase is critical in increasing industry's interest in a particular play and is paramount in creating opportunities for any jurisdiction. The regulatory framework must work for investors.

Regulatory Stability and Competitiveness

The stability and predictability of the policy and regulatory system in any jurisdiction is a key consideration for investors. It is important that Quebec develop a regulatory system for natural gas that is competitive so as to encourage investment, while ensuring responsible environmental and social outcomes.

The competitiveness of a regulatory regime is largely influenced by the following factors:

- **Jurisdictional Arrangements and Coordination**
Effective coordination within government (i.e., across government departments and regulators) and between governments (i.e. between the federal and provincial governments) is critical if sound policy and regulatory decisions are to be produced in a timely manner without compromising Quebec's investment competitiveness or environmental and social performance expectations.
- **Regulatory Process Performance**
A critical determinant of competitiveness is the time lapse between exploration success and commercial production. This applies, not only to large complex projects, but also to medium and smaller projects which are very sensitive to incremental costs and delays arising from inefficiencies in the regulatory review process.
- **Regulatory Complexity**
In other producing jurisdictions in Canada, regulatory complexity has arisen from new laws of general application, largely aimed at improving environmental performance, which have overlain the oil and gas regulatory regime with new requirements and restrictions. Associated administrative and regulatory processes have impacted business practices, reducing competitive advantage and eroding the viability of projects. Access to lands has also been restricted as a consequence of policy or planning that does not take into account resource interests and investment implications. Greater coherence is needed between environmental policy and the realities of the business decisions required to maintain a competitive Quebec natural gas industry. It is this balance that will provide the opportunity to realize the economic benefits of the emerging natural gas industry in Quebec while protecting the environment, addressing social impacts and protecting public safety.

British Columbia's recent experience in reviewing its regulatory framework can be cited as an example of the necessity to keep industry regulations competitive while at the same time enhancing environmental performance, increasing industry development activity, and responding to ongoing changes in industry practices and technology. (See Attachment 1).

Regulatory Enhancement

CAPP and CSUG understand that the Province of Quebec has thoroughly studied other regulatory regimes to determine best practices for implementation in Quebec. We also understand that there has been an examination of cases where issues have arisen due to perceived failures of regulation.

Alberta and BC have established regulations that have been tested by natural gas resource play development. Regulations in both provinces have addressed shale gas exploration, evaluation, and development activities. Efforts by both industry and government on an ongoing basis seek to identify and capture opportunities to reduce industry impacts and improve regulatory efficiency while providing for sustainable development in the public interest.

All three western Canadian provinces have many years of experience and success in forming a regulatory framework which serves to protect the environment, ensuring the safety of the general public and its industry workforce while allowing the economic development of natural gas resources for the public good. These three jurisdictions have a high level of regulatory harmonization which allows exploration companies to efficiently dispense services, maximizing the economic competitiveness in all areas.

In recent years BC has moved substantially toward a single regulatory body to approve and provide oversight of exploration and production activities. Alberta is undertaking a broad review of its regulatory framework for the oil and gas industry, and is considering a variety of options including a move toward a single regulator. BC and Alberta both regularly review the appropriateness of regulations and amend or change to reflect new resource types, technology, and industry practices.

Summary and Recommendations:

The Province of Quebec is uniquely positioned to benefit from the established and proven regulatory approach and requirements in Western Canada related to unconventional natural gas exploration and development. This provides the opportunity for Quebec to develop a modern regulatory framework that acts in the public interest, ensures protection of the environment, and leads to a sustainable shale gas industry.

CAPP and CSUG, therefore make the following recommendations for the Commission's consideration:

1. Changes to the regulatory oversight of the natural gas industry in Quebec should meet several important criteria:
 - protection of the environment,
 - effective resource conservation,
 - permit economic development, and
 - protection of public health and safety.

The stability and predictability of the policy and regulatory system in any jurisdiction is a key consideration for investors. It is important that Quebec develop a regulatory system for natural gas that is competitive so as to encourage investment, while ensuring responsible environmental and social outcomes.

2. Where changes to, or implementation of, new regulations is necessary to provide oversight to Quebec's natural gas industry, strive to streamline and align with the existing

frameworks of existing gas producing jurisdictions in Canada, particularly Alberta and B.C.

The three western Canadian provinces have many years of experience and success in developing and implementing a regulatory framework which protects the environment and ensures the safety of the general public and its industry workforce, while encouraging the economic development of natural gas resources in the broader public interest. These three jurisdictions have a high level of regulatory harmonization, which allows industry to efficiently conduct its activities, thereby enhancing economic competitiveness in all areas.

Additionally, the Canadian natural gas industry has established a long history of sound best practices which are designed to protect human health and safety as well as the environment.

With the benefit of these learnings and a progressive approach to regulation of the emerging shale gas industry in Quebec, CAPP and CSUG are of the view that Quebec's shale gas resources can be developed in a manner that concurrently advances environmental performance, economic growth and energy security and reliability.

Attachment 1: BC Oil & Gas Commission Structural Reform

In the late 1990's, The Province of British Columbia identified it's regulatory systems as one of several key barriers to investment in the Province's oil and gas sector (BC Oil and Gas Initiative). The system at that time could be described as a multiple agency regulatory structure characterized by conflicting mandates, practices and duplicative decision making processes.

In May of 1998, the Government of British Columbia (GoBC) initiated the establishment of a new regulatory agency, the British Columbia Oil and Gas Commission (OGC), to consolidate oil and gas authorities within one organization. The OGC was legislatively established through the Oil and Gas Commission Act (Act), July 30, 1998, which set out the purpose and mandate. The Act included a number of specified enactments that transferred responsibilities for oil and gas regulation from other BC Government Agencies (Ministry of Environment, B.C. Lands, Ministry of Forestry, Ministry of Energy, etc.) to the OGC. In practice, this allowed for a transfer of existing regulatory review processes and the people who had been administering them into one agency with a mandate for effective and efficient regulatory oversight of the Province's oil and gas resources.

The Act also established responsibility for consultation with Aboriginal with the OGC. The OGC administered this consultation process through a Memorandum of Understanding, which had been negotiated with Treaty Eight Aboriginal (MOU). The MOU established timelines and processes for consultation on OGC oil and gas applications and a process for providing financial capacity to Aboriginal signatories of the MOU to establish human and technical resources to manage consultation within their First Nation communities.

The OGC became operational in November of 1999, approximately 6 months after the decision to initiate a new regulatory framework by the GoBC (in advance of the winter drilling season in Northeast BC). The relatively short time frame for legislatively and operationally establishing the OGC was made possible by the specified enactments that transferred authorities, human resources, systems and processes into this new structure.

Results of BC Regulatory Enhancement Initiative

The establishment of the OGC in conjunction with a more structured Aboriginal consultation process and enhancement to BC's royalty system played a critical role in a significant increase in oil and gas investment in British Columbia in the last decade. While the decision to change the structural makeup of BC's regulatory system through the establishment of the OGC contributed to a more consistent and predictable regulatory environment, it did not resolve numerous inefficiencies in the existing regulatory functional processes (authorizations, compliance, etc.) which were transferred through the specified enactments to the OGC. Like most oil and gas

regulatory agencies, the BC OGC has initiated ongoing business process improvements since its establishment in 1998.

As a result of this review, the Petroleum and Natural Gas Act was largely replaced with the Oil and Gas Activities Act. As outlined on the Oil and Gas Commission website; "The Oil and Gas Activities Act (OGAA) reflects a shift toward the future of oil and gas activity in British Columbia. Technological advances, interest in unconventional gas, and increased social and environmental expectations are driving the industry forward. In response, the province developed a new regulatory framework. A process that started with extensive consultations with communities, landowners, First Nations, environmental groups and industry ended with streamlined, enhanced legislation reflecting the needs of the people, environment, industry and government"

New regulations governing all oil and gas activity, including Consultation and Notification requirements for non aboriginal groups, environmental regulations, as well as regulations governing drilling and construction were implemented on October 4, 2010.