
From: Matthews, Jennifer <jennifer.matthews@capp.ca>
Sent: Wednesday, October 22, 2014 10:39 AM
To: Office
Cc: Barnes, Paul
Subject: CAPP submission to the Law Amendments Committee in regards to Amendments to Bill No. 6 – Petroleum Resources Act
Attachments: CAPP_submission_to_NS_Law_Amendments_Committee_re_changes_to_the_Petroleum_Resources_Act_high_water_fracking_ban.pdf;
CAPP_Appendix_A_for_submission_to_Law_Amendments_Committee_re_HF.pdf

Dear Mr. Hebb:

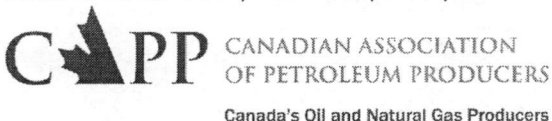
On behalf of Paul Barnes, Manager Atlantic Canada and Arctic with the Canadian Association of Petroleum Producers (CAPP), I am writing to provide a written submission to the Law Amendments Committee in response to amendments to Bill No. 6 – Petroleum Resources Act prohibiting high volume hydraulic fracturing.

Unfortunately, Mr. Barnes cannot present to the Law Amendments Committee in person and should committee members have questions following the review of this submission, please do not hesitate to contact Mr. Barnes at 709-724-4200 or via email.

Kind regards,

Jennifer Matthews for Paul Barnes

Jennifer Matthews | HSE Policy Analyst



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CANADIAN ASSOCIATION
OF PETROLEUM PRODUCERS

Canada's Oil and Natural Gas Producers

October 22, 2014

Mr. Gordon Hebb
Chief Legislative Counsel
Office of the Legislative Counsel
CIBC Building, Suite 802
1809 Barrington Street
P.O. Box 1116
Halifax NS B3J 2X1

Dear Mr. Hebb:

Re: Amendments to Bill No. 6 – *Petroleum Resources Act*

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 approximately 90 per cent of Canada's natural gas and crude oil and 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 national industry with revenues of about \$110 billion a year. CAPP's mission, on behalf of the Canadian upstream oil and gas industry, is to advocate for and enable economic competitiveness and safe, environmentally and socially responsible performance.

Unfortunately, I am unable to present to the Law Amendments Committee in person and I am writing to express our opposition to legislation prohibiting hydraulic fracturing activity, specifically, high volume hydraulic fracturing.

Our members support lifting the two-year ban on Hydraulic Fracturing and proceeding in a staged and measured way to permit the development of Nova Scotia's onshore natural gas resource and the existing legislation does not need to be amended to do that.

CAPP continues to support dialogue between all interested parties that builds further understanding of the technology, practices and processes that our members use to safely explore for and develop onshore hydrocarbons. This same dialogue helps CAPP and its members to continually improve its practices and management systems. It also helps us understand what Nova Scotians want to know and what issues need to be addressed.

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CAPP have been responsive to Expert Panel process on Hydraulic Fracturing and provided input on all 10 Discussion Papers and understand the need for an open, respectful, and transparent process. Unfortunately, however, recent public sessions have not been conducive to supporting a respectful, balanced discussion regarding the work of the Expert Panel and deprived those who came to learn more about hydraulic fracturing.

CAPP is working actively to engage in dialogue with governments, industry and the general public to enhance awareness of the safe, environmentally responsible and economic opportunities of the natural gas industry to promote a business and regulatory framework that acts in the public interest. The advancement of a well-informed, balanced approach that serves Nova Scotia's needs is at a critical juncture. The proposed amendments to the existing legislation prohibiting hydraulic fracturing activity, specifically, high volume hydraulic fracturing sends the wrong message to industry that the Province is indeed closed for business when it comes to developing its onshore resources and that the technologies and regulations in place in other Canadian jurisdictions are not suffice. We encourage the Province to carefully weigh the economic, social and energy security / reliability outcomes in order to establish the policy and regulatory framework to address potential shale gas development in a staged and meaningful approach versus banning a certain aspect of development.

As part of this approach, Nova Scotia must consider the benefits of expanding its supply of natural gas as clean burning fossil fuel alternate to higher emitting energy sources, as part of its environmental policy and regulations.

The stability, predictability and efficiency of the policy and regulatory framework in any jurisdiction is a key consideration for investors. The Canadian natural gas industry has established a long history of sound practices designed to protect human health and safety as well as the environment. With the benefit of decades of unconventional gas development in western Canada, and a progressive approach to regulation of the onshore natural gas industry in Nova Scotia, CAPP views that Nova Scotia's onshore natural gas resources can be developed in a manner that concurrently advances environmental performance, economic growth and energy security and reliability to the benefit all Nova Scotians.

The path forward announced by the Nova Scotia government is a missed opportunity for the people of the province. The Wheeler report has outlined the potential economic benefits responsible onshore natural gas development could generate in Nova Scotia. The report's "lower medium case" estimates that about \$1 billion annually would be invested in Nova Scotia if hydraulic fracturing were allowed to proceed, and that as many as 1,500 direct jobs would be created in the development phase. About one third of this \$1 billion in annual investment would be spent on what the report calls "local content." This is a significant economic benefit to a province with an unemployment rate higher than in many other parts of Canada.

Building on Nova Scotia's long track record of responsible resource development, the development of natural gas from shale rock utilizing hydraulic fracturing can and should be a part of Nova Scotia's economic and energy future.

Protecting the health and safety of the public, our employees and the environment is of paramount importance to industry. We want to attract workers to our industry, and the industry as a whole has an excellent and world class reputation for its safety training, work practices and tools, all of which are continually being refined

In closing, we look forward to working with government and various stakeholders to develop a measured and responsible path forward to realize the benefits of developing Nova Scotia's onshore natural gas resources.

Yours truly,

A handwritten signature in cursive script that reads "R. Paul Barnes".

Paul Barnes
Manager, Atlantic Canada and Artic

Attachment (CAPP's Key Points about Hydraulic Fracturing in Canada)

Appendix A – CAPP’s Perspectives on Hydraulic Fracturing in Canada

The opportunity for sustainable development of Nova Scotia’s onshore natural gas resources is reliant on a robust and efficient regulatory framework and the commitment of industry to ensure a high standard for environmental and safety performance through continuous advancement of technology and operating practices. In existing producing jurisdictions in Canada, our industry successfully operates in an environment of increasing expectations among stakeholder and aboriginal groups expectations.

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

1. Ground Water Protection

Protection of Nova Scotia’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 government regulations and industry 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 fully isolate shallow water zones from deeper onshore natural gas zones.

Hydraulic fracturing of onshore natural gas zones, which are several hundred to thousands of meters deeper than shallow potable water bearing zones, has been shown, through the use of micro-seismic monitoring, to be well isolated from and 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 upward migration of hydraulic fracture or formation fluids to potable water bearing zones can happen over a long period of time.

More than 175,000 wells have been hydraulically fractured in British Columbia and Alberta over the past 60 years safely. Similarly, companies in New Brunswick have operated safely and responsibly and there have been no reports of drinking water contamination related to the 49 hydraulic fracturing operations that have taken place since 1985. Currently in New Brunswick, 29 natural gas wells are producing in the Sussex area and 18 oil wells are producing in the Stoney Creek area near Moncton.

Further, in New Brunswick, the University of New Brunswick studied the groundwater and water wells near the McCully field. The study was released by the Geologic Survey of Canada in 2013 (ftp://s5-bsc-faisan.cits.mcan.gc.ca/pub/geott/ess_pubs/292/292762/of_7449.pdf) and concluded: “there is no indication that development and production at the McCully gas field has affected the water wells.” A presentation featuring highlights of this study can be found on the website of the New Brunswick Energy Institute (NBEI).

<http://nbenergyinstitute.ca/sites/default/files/files/Tom%20AI%20RT%20Nov%2021%202013.pdf>

To the extent that any incidents have occurred, they are almost always related to well construction issues where there has been a loss of wellbore integrity causing gas and/or 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 Canadian industry practices and industry regulation has made hydraulic fracturing a very safe procedure used in the recovery of natural gas from onshore resources.

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Comprehensive government regulations and industry operating practices for shale gas exploration and development are already in place in Canada and throughout North America to ensure public safety and protection of the environment. Where areas for improvement are identified in the recent Canadian Council of Academies (CCA) report, entitled "Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction" we expect regulators to modify regulations and industry to change operating practices accordingly. <http://www.scienceadvice.ca/en/assessments/completed/shale-gas.aspx>

This has always been the case and will continue to be the manner in which our industry operates. We can and should continue to seek improvement from a sound baseline. Industry has a sound track record of safety and performance and it is one that is continuously improving based on sound science.

Industry supports a responsible approach to hydraulic fracturing and water management. Protecting water resources during sourcing, use and handling is a key priority for our industry. We support and abide by all regulations governing hydraulic fracturing operations, water use and water protection. In addition, we commit to following these guiding principles.

1. Safeguard the quality and quantity of regional surface and groundwater resources, through sound wellbore construction practices, sourcing fresh water alternatives where appropriate, and recycling water for reuse as much as practical.
2. Measure and disclose our water use with the goal of continuing to reduce our effect on the environment.
3. Support the development of fracturing fluid additives with the least environmental risks.
4. Support the disclosure of fracturing fluid additives.
5. Continue to advance, collaborate on and communicate technologies and best practices that reduce the potential environmental risks of hydraulic fracturing.

2. 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 oil and natural gas resources. Canada's thorough and longstanding regulatory system for energy development, combined with industry best practices, ensure that land is reclaimed and returned to an acceptable state after use. Advancements in resource finding and extraction technology help reduce the 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.

3. 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 natural gas development. Both operators and service companies alike are evaluating and progressively implementing new water management strategies in recognition of the water use and waste water disposal needs for some types of onshore natural gas development. These strategies include the use of non-potable groundwater water instead of potable water, the recycling of used fracture 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 natural 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. For example In New Brunswick the new *Rules for Industry*, launched in February 2013 have outlined the preferred sources for water as (from most to least preferred):

1. Treated/recycled wastewater from municipal sources, including flowback and produced water from oil or gas wells;
2. Ocean water;
3. Non-potable groundwater (e.g., from deep, saline aquifers);
4. Dugouts or catchments or other man-made features that capture run-off or rainwater;
5. Lakes or water courses (including municipal water supplies drawn from lakes, watercourses or impoundments); and
6. Potable ground water (including municipal supplies drawn from ground water).

As part of the approval process, industry must develop a water management plan that includes an assessment of proposed water sources to be used that must be approved by the regulator.

4. Management of Waste Water Fluids

Waste water management is a necessary component of oil and natural gas development, and its management represents a significant portion of drilling expenses. Water handling and disposal can impact operations substantially because the costs associated with it (e.g., acquisition, transportation, and disposal) can vary significantly from region to region. Therefore, the effective treatment for reuse or disposal is a critical aspect for industry development. In mature jurisdictions, waste water fluids are dealt with in one of several ways; including, but not limited to: disposal by underground injection, treatment followed by disposal to surface water bodies, or recycling (with or without treatment) for use in future hydraulic fracturing operations. Each of these solutions offers safe handling and disposal options for waste water.

As regulators and industry look to the future, the necessary regulations, infrastructure and support mechanisms must be put into place to steward and enable resource development in Nova Scotia. With a longstanding history of expertise, innovation and success in Canada, best practices from more mature producing jurisdictions can be leveraged to provide industry with a means to safely and responsibly treat and dispose of fluids from hydraulic fracturing operations.

5. Health-Risk Assessment

We understand that the public and health officials have concerns and want a greater understanding about how the natural gas industry operates and which processes industry uses, and we support steps that increase the understanding of our industry. Protecting the health and safety of the public, employees and the environment is of paramount importance to industry.

CAPP is not aware of adverse health impacts as a result of natural gas development from shale. However, we recognize that the Chief Medical Officer of New Brunswick, Dr. Elish Cleary, issued a report in 2012 *Executive Summary Chief Medical Officer of Health's Recommendations Concerning Shale Gas Development in New Brunswick* (<http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/HealthyEnvironments/ExecutiveSummary.pdf>) containing recommendations regarding potential health and socio-economic impacts of industry development in the province. To this end, Dr. Cleary will be undertaking a further detailed review, but the specific details of the review and its timeline have not been made public at the time of this correspondence.

The Government of British Columbia has also commissioned a health-risk assessment of oil and natural gas development. The Ministry of Health identified the following categories for potential concern: personal health issues, environmental pathways of exposure, related environmental issues, changes to community, community service issues, oil and gas operational issues, and institutional framework issues. The report is expected to be completed early in 2014 and will consist of a health risk assessment and scientific review of evidence.

CAPP's *Operating Practices for Hydraulic Fracturing* already address several of the recommendations included in the aforementioned health-risk reports from New Brunswick and British Columbia (<http://www.capp.ca/canadaIndustry/naturalGas/Pages/default.aspx>)

6. Technology and Innovation

Technology innovations are a key cornerstone of this industry. Recently a group of University of Calgary researchers was awarded funding for their *Hydraulic Fracturing Innovation (HFI) Initiative research project to build a multidisciplinary research cluster that will become a world-leading centre for the advancement of hydraulic fracturing science, engineering, policy, and industry practice*. (<http://www.ucalgary.ca/utoday/issue/2014-05-07/researchers-bring-unique-canada-perspective-hydraulic-fracturing>)

Nova Scotia is home to world class research institutions which are strategically positioned to carry out research and development based on the existing research model that was applied to the offshore Play-Fairway Analysis. During this program, new and preexisting offshore data was collected; processed and analyzed using new technology and innovative techniques to analyze Nova Scotia's offshore research potential with direct involvement of Nova Scotia researchers. This is a collaborative model that could be applied to further examining Nova Scotia's onshore resource potential.

In conjunction with the release of Nova Scotia's onshore petroleum atlas in 2015 we encourage the government to permit onshore exploratory drilling to include the use of hydraulic fracturing that would accelerate research and development under terms similar to those outlined in the offshore Play Fairway Analysis. This type of partnership would allow local and international researchers equipped with hands-on knowledge to liaise effectively with public and private groups affected by hydraulic fracturing.

7. Stakeholder Consultation

Industry works closely with stakeholders and aboriginal groups to analyze, monitor, and address the consequences of its activities. As an example in the Western Canadian provinces of Alberta and British Columbia, there are government regulations and industry best practices to conduct consultations with landowners and occupants and other stakeholders before projects are undertaken. For example, in Alberta, there are requirements to address stakeholder or aboriginal group concerns as a pre-requisite as part of the environmental assessment process.

Industry supports respectful, effective and meaningful public dialogue and engagement. CAPP and its members developed a "*Guide for Effective Public Involvement*" in 2003 that is widely used to this day

within industry to help foster positive and productive relationships with all stakeholder with whom companies interact. Key stakeholders must be engaged for technical discussion, such as those who possess the unique technical expertise, knowledge and on-the-ground experience (e.g. CAPP, industry members, suppliers, etc.).

The process of public consultation must be undertaken in an appropriate manner, using professional methods and mediums for execution to facilitate stakeholder and aboriginal group engagement, which manage expectations and help, avoid misunderstandings and disagreements about perspective outcomes or decisions on the Hydraulic Fracturing in the Province of Nova Scotia.

Further, we will industry continues to work collaboratively with governments and any other stakeholders to help increase the understanding of our industry, but also to ensure continued advancement of new technologies and innovations to mitigate potential environment and health impacts.

8. Onshore Natural Gas Development: Economic Opportunity for Nova Scotia

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 of and reliable access to energy supply by all Canadians. Crude oil and natural gas and their by-products are a part of almost every aspect of our lives. The sector and its supply chain employs Canadians in every part of the country, offering highly-skilled and well-rewarded employment. The emergence of a successful natural gas industry onshore in Nova Scotia affords the Province with the opportunity to localize these benefits for its citizens.

In 2013, the upstream oil and natural gas industry supported more than 550,000 jobs across Canada; represented \$67 billion in capital spending; and paid \$18 billion in taxes and royalties to governments (Statistics Canada). For additional statistics on the impact of Canada's upstream oil and natural gas sector, please see: <http://www.capp.ca/library/statistics/basic/Pages/default.aspx>.

If we look at regional impacts from activity in Nova Scotia and Newfoundland since 1996:

- employs more than 6,000 directly and thousands indirectly;
- supports more than 800 local service companies;
- cumulative expenditures: \$37 billion in Newfoundland and Nova Scotia; and
- GDP contributions: oil accounts for 28% of GDP in Newfoundland, and mining, oil and gas accounts for 2.5% of GDP in Nova Scotia.

Similarly, onshore natural gas represents a significant opportunity for New Brunswick according to a 2013 study conducted by Deloitte on behalf of the New Brunswick Business Council. According to the study, one well development costs include (direct, induced and indirect):

- total gross output of \$21 million
- total impact to New Brunswick GDP of \$9 million; and
- total of 75 full-time equivalent jobs.

9. Competitive Challenges to Onshore Natural Gas Development in Nova Scotia

Underlying these economic opportunities, however, is the increasingly competitive nature of natural gas development in North America. The emergence of huge onshore natural gas plays in the United States and Western Canada has afforded a great deal of optionality in capital markets. Investment opportunities in Nova Scotia, 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 is critical in attracting industry's interest in exploration and evaluation of resource potential and is

paramount in creating business opportunities for any jurisdiction. The fiscal and regulatory framework must work for investors.

In particular, the stability and predictability of the policy and regulatory system is a key consideration for potential investors. It is important that Nova Scotia develop a regulatory system for development of its onshore natural gas that is effective, efficient and predictable as to process, 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 (e.g., across government departments and regulators) and between governments (e.g., between the federal and provincial governments) is critical to ensure sound policy and regulatory decisions are delivered in an effective and efficient manner.

To this end, CAPP strongly recommends Nova Scotia leverage the proven experience of other oil and gas regulatory jurisdictions such as (New Brunswick and Western Canada), and also the exhaustive research recently conducted by the New Brunswick government, which resulted in their incorporation of best practices found within industry.

- **Regulatory Process Performance**

A critical determinant of competitiveness is the timeliness of regulatory reviews and decisions (e.g., the regulatory timelines from exploration success to 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 some companies business practices, reduced their competitive advantage, and impacted their investment opportunities. Access to land 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 Nova Scotia natural gas industry. It is this balance that will provide the opportunity to realize the economic benefits of the emerging natural gas industry in Nova Scotia while protecting the environment, addressing social impacts and ensuring public safety.

- **Regulatory Enhancement**

CAPP understands that the Province of Nova Scotia has studied other regulatory regimes to determine best practices for implementation in Nova Scotia and has provided this information to the Expert Panel.

Alberta, BC, and Saskatchewan have established regulations that have been tested by natural gas resource play development. Regulations in both provinces have addressed onshore natural gas exploration, evaluation, and development activities. Efforts by both industry and government on an ongoing basis seek to identify and capture further 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 and Alberta have moved substantially toward a single regulatory body to approve and provide oversight of exploration and production activities. Also, BC and Alberta both regularly review the appropriateness of regulations and amend or change to reflect new resource types, technology, and industry practices.

In 2013, New Brunswick concluded a review of its regulatory regime and launched their *New Rules for Industry* on February 15, 2013. These rules encompassed a broad spectrum of issues and concerns raised in recent years by the public about the practice of Hydraulic Fracture Stimulation. Industry now has a direction to move forward, but will continue to work with government as these rules are implemented and as they transition into the final regulations to create an operating environment that is efficient, effective and competitive in New Brunswick.

Furthermore, industry, in all jurisdictions, encourages regulatory frameworks that are based on sound science, eliminate duplication and overlap, are predictable and stable, and ensure efficient and timely decision making. The regulatory framework must also consistently deliver responsible environmental outcomes. These considerations avoid placing undue process and related costs on resource exploration and development opportunities, and help to attract investment capital. Experience consistently demonstrates that investors avoid jurisdictions with costly, unnecessary and uncertain regulations.