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Tuesday, February 1, 2011

Chair

Mr. Leon Benoit

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● (1535)

[*English*]

The Chair (Mr. Leon Benoit (Vegreville—Wainwright, CPC)): Good afternoon, everyone. It's good to see everybody back.

We are of course doing a study on energy security in Canada. The committee began the study a few months ago. We're looking at what the federal role is in unconventional oil and gas development, such as deepwater offshore drilling, shale gas exploration, and oil sands development. We're also looking at the regional economic impacts of the oil and gas development on conventional oil and gas, and at the National Energy Board's role in the development and export of unconventional resources. Today we are looking at the shale gas component.

We have with us today, on our one panel, three individuals. We have Dr. Gerry Angevine, a senior economist from the Fraser Institute, and Dr. Anthony Ingraffea, Dwight C. Baum Professor of Engineering from Cornell University.

Professor Ingraffea's flight was cancelled this morning, so he will be with us by video conference. If he isn't on...we'll have until the others have presented, so we'll have him last in the group.

As well, we have the Honourable Bruce Northrup, Minister of Natural Resources with the Government of New Brunswick. He's appearing by video conference from Fredericton.

Welcome, everyone. We'll get right to the panel. We have just one panel for the full two hours.

We'll start with Dr. Angevine, please, for up to ten minutes.

Dr. Gerry Angevine (Senior Economist, Global Resource Centre, Fraser Institute): Thank you very much, Mr. Chairman.

Good afternoon, ladies and gentlemen. Thank you for the opportunity to speak about the Fraser Institute's research pertaining to energy security and how it relates to the committee's study.

I understand that the study includes reviewing the roles of the federal government and the National Energy Board with respect to the development and export of unconventional oil and gas resources, and this will be part of my focus.

I assume that, in the context of the study, energy security refers to an assured supply of energy for Canadians under normal market conditions. From this perspective, the greater the Canadian oil and gas production is and the more opportunities there are to freely export and import these resources, the less Canadians should be concerned about oil and gas supply difficulties.

Concern that North America's energy resources are not being developed as quickly and extensively as they could be in order to allow the citizens of Canada, the United States, and Mexico to reap the maximum employment income and social benefits led us to initiate a continental energy strategy project two years ago.

As explained in a 2008 Fraser Institute paper by former premiers Klein and Tobin, the envisaged strategy would require North American energy policies at the national, provincial, and state levels to be aligned in support of efficient and as rapid development of the continent's energy resources as possible in light of free market conditions, science-based environmental concerns, competition from oil and gas imports, and petroleum investment opportunities abroad.

Clearly, increased development and production of the continent's energy resources would bolster the security of oil and gas supplies as well as provide economic and social benefits. Because market forces will determine the most efficient allocation of North America's energy resources, development of a continental energy strategy does not encompass identifying energy investment, production, and trade targets. Rather, the focus is on ensuring that government policies and regulations pertaining to energy resource investment, development, and trade are stable, fair, and appropriate.

Governments must avoid intervening in energy investment decisions, as these are best left to those who are motivated by market forces, have an in-depth knowledge of the technologies involved, and are prepared to take risks based on their understanding of how energy requirements are likely to change.

In the continental energy strategy program, at the institute we recently released two papers, which are available on the institute's site, free of charge. One is *Towards North American Energy Security: Removing Barriers to Oil Industry Development*, and the second is *North American Natural Gas: Reducing Investment Barriers*.

These studies review the oil and gas supply potential and requirements in Canada, the U.S., and Mexico and prospects for national and continental supply-demand balances for both oil and gas.

One of the conclusions from this research is that, with continued technological improvements, there is potential to significantly increase the volume of oil liquids that is produced in North America relative to domestic demand. Along with continued development of the oil sands, increased offshore production, commercialization of gas to liquids, and coal gasification technologies will contribute to improvement in the continental oil liquids balance.

Eventually, when we get there, the technology that allows us to commercialize oil that's found in shale—the oil in the U.S. that's been indicated to exist in large quantities locked in the kerogen in oil shale—will also contribute.

With regard to natural gas, technological improvements have made the production of gas from shale formations viable. That has transformed the long-term outlook for continental gas supply and demand from one of increasing dependency on LNG imports to near self-sufficiency.

An indication of this is the plan to export gas to overseas destinations from Kitimat instead of importing gas at that location, as originally planned. Because of what's been termed the shale gas revolution, the security of gas supply should not be a matter of concern for Canada in the foreseeable future.

With regard to the impact that shale gas is having on the outlook for U.S. gas supply, the upward revisions contained in the U.S. Energy Information Administration's 2011 long-term forecast are telling.

● (1540)

This is gas production from shale formations reaching almost 8 trillion cubic feet in 2020, compared with 4.5 trillion cubic feet in the administration's previous forecast just 13 months ago. That compares with actual 2009 production of 3.3 trillion cubic feet. More remarkably, the projected volume of U.S. shale gas production in 2035, when total gas production is forecast to reach 26 trillion cubic feet, has been doubled from 6 trillion cubic feet to 12 trillion cubic feet. As a consequence, U.S. gas production from other sources—not all other sources, but some, including coalbed methane—and imports of gas from Canada and abroad are projected to shrink.

The Fraser Institute studies that I referred to and the U.S. Energy Information Administration's most recent long-term outlook underscore the fact that the continent has a strong oil and gas resource position; however, non-market barriers stand in the way of achieving the goals and objectives of a continental oil and natural gas strategy. Because these obstacles prevent oil and gas production from increasing as rapidly as they could, they also impinge upon oil and gas security. There are a number of barriers that Canada is in a position to address because of its jurisdiction over oil and gas exploration in the north and in the Atlantic and west coast offshore regions, and also on account of responsibilities that Canada has with regard to environmental protection.

First, the government needs to ensure that royalties or production taxes on conventional oil and gas in the areas for which it has jurisdiction are competitive, not only with those in the provinces but with those in competing jurisdictions around the globe.

Second, it needs to ensure that royalties in relation to higher costs of production because of deep offshore or remote far north locations or other factors, as with some of the unconventional sources, reflect those higher costs. If royalties don't do this, investment will be allocated to regions promising more attractive returns.

Third, the government needs to remove the cloud of uncertainty overhanging the oil and gas industry in relation to the timing and specifics of environmental policy changes that could significantly impact the capital costs of oil and natural gas projects and energy pipeline construction. Necessary changes to environmental regulations need to be defined and implemented as quickly as possible. If potential investors don't know what changes will be made and can't estimate the cost of compliance with accuracy, major projects will be lost to other regions.

Fourth is the issue of moratoria on offshore exploration, which are standing in the way of development of petroleum resources—offshore British Columbia, for example. Moratoria on exploration and production in offshore areas should be lifted once the authorities are satisfied, having examined the cause of the disastrous oil leak in the U.S. Gulf of Mexico last year, that the environmental risk can be mitigated. This will open new areas for development and in turn contribute to Canada's energy security.

Fifth, regulatory process and procedures that threaten to delay the approval of oil and gas pipeline construction that will be required to transport new supplies of bitumen, shale gas, and other petroleum resources to market hubs need to be made more efficient. The National Energy Board has self-imposed standards regarding time schedules with regard to the release of decisions following the completion of public hearings. But these are arbitrary and serve only as guidelines, not hard and fast rules that must be achieved. Moreover, there are no such standards with respect to the time required from when an application is received until a public hearing commences or with the maximum time to be allowed for public hearings. To ensure a more rapid response to pipeline construction applications, more may be required than simply tightening the NEB's self-imposed service standards. In fact, the National Energy Board Act may need to be revamped to limit the board's involvement in the construction permitting process to non-commercial aspects such as safety, environmental impacts, and other matters of public importance.

Finally, there is the land claims issue. Means for settling aboriginal and other claims expeditiously and in a fair and appropriate manner need to be found to prevent unnecessary delays in the construction of pipelines required to transport oil and gas to markets. A matter that should be of concern to the federal government is that investors regard the Northwest Territories as relatively unattractive for investment in oil and gas exploration and development.

● (1545)

According to the Fraser Institute's global petroleum survey, in 2010 the NWT ranked 74th of 133 jurisdictions worldwide. This was worse than any of the other Canadian jurisdictions that were ranked, other than Quebec. In fact, the NWT appears to be less attractive for investment than almost all of the U.S. states and offshore regions, all of the Australian states and territories, New Zealand, Chile, the United Kingdom, Norway, the Netherlands, and many other jurisdictions around the globe.

Now, according to survey respondents, the Northwest Territories' poor performance in the global ratings is due to a number of factors, but most important is the land claims dispute issue. On this factor, the NWT was deemed to be the least attractive for petroleum investment of all 133 jurisdictions around the globe that we were able to rank. The Northwest Territories also scored poorly in relation to the availability of infrastructure, regulatory duplication, and uncertainties in relation to protected areas. If the federal and NWT governments wish to attract petroleum investment to the north and thereby advance energy security, these matters need to be addressed.

As I've mentioned, Canadians are fortunate in not having to worry much about the security of oil and gas supplies given our fortunate position as a net exporter of both commodities. However, those parts of the country that are mainly dependent on imported crude oil and refined petroleum products would be disadvantaged by any lengthy interruption in the usual marine supply channels. The government may therefore wish to investigate the extent of the risk exposure of that sort and how it might be lessened.

The Canadian government has a role to play in ensuring that the laws and regulations that define the conditions within which the petroleum industry operates are conducive to free market competition, and also in working to lower non-market barriers to petroleum investment such as those that I've identified, so that development of Canada's oil and gas resources, including oil sands, bitumen, and shale gas, can proceed quickly where production is viable in light of the rigours of competition, free trade, and the costs of compliance with necessary environmental protection policies.

Thank you, Mr. Chairman.

The Chair: Thank you, Dr. Angevine.

We have next Dr. Anthony Ingraffea. His flight was held up due to a snowstorm, and I want to thank our clerk for doing some stellar work to arrange the video conferencing. It just got completed in time. So thank you for that.

Go ahead, please, Dr. Ingraffea.

Dr. Anthony R. Ingraffea (Dwight C. Baum Professor of Engineering, Cornell University, As an Individual): Good afternoon, and thank you very much for giving me this opportunity to present testimony to your committee. I do apologize for not being there, and I also compliment your staff for setting up this video conference on short notice.

I want to make it clear that all of my testimony this afternoon is on point, that is, unconventional natural gas development from shale formations. I'm going to limit my time to just a few comments right now, because I understand we have a whole two hours and I would rather spend my time with you answering your questions. But I am going to spend a few moments and suggest some lines of questions based on my reading of all the testimony on the issue of unconventional natural gas from shale formations that your committee has received to date from various speakers over the last few months.

As I've read that testimony, I've noted some inaccuracies and some misleading statements, so I hope today to help to clarify those for you. There are five main comments that I'd like to suggest right now that perhaps we could follow up on during Q and A.

The first is, don't make the same mistake that's been made in the U.S. by framing and naming the issue of unconventional natural gas production from shale fracking. It is not just fracking; it is the entire process, the whole system of producing unconventional gas from shale formations that you should be investigating. So don't develop too narrow a focus.

The second point is that the most important aspect of developing unconventional gas from a resource like shale is the scale of an operation. By that I mean two things. It takes between 50 and 100 times more fluids to develop a shale gas well than to develop a conventional gas well. That implies that a concomitant amount of waste products is produced in the stream. I emphasize 50 to 100 times the amount of fluid necessary over a conventional gas well. That's one aspect of what I refer to as scale. The second aspect is this. The nature of the geology of shale is such that to produce the vast quantities of gas that are being forecast by the industry will require a very high well density compared to conventional gas development. By that I mean on the order of three wells per square kilometre. Those two issues of scale need to be absorbed and digested: the large amounts of fluid necessary, which implies much transportation and much waste disposal; and many more wells per square kilometre than previously experienced.

The third point is that the technology to do this kind of unconventional development is, surprisingly, relatively new. There are four elements of that new technology, and they did not come together in the United States until about eight years ago. So this is not the hydraulic fracturing of the 1950s, 1960s, and 1970s. It's not conventional gas development of that era. It's a relatively new combined technology.

Fourth, because it's relatively new—in the U.S. certainly, and in the western provinces where it's going hot and heavy in Canada—regulations and the enforcement of the regulations have not kept pace with the technology in the U.S. I'll repeat that. The regulations and the enforcement of those regulations have not kept pace with this new technology. It is unlikely, based on the experience that we're seeing in the eastern part of the United States—Pennsylvania, Ohio, and West Virginia, where shale gas development is under way—that your eastern provinces are ready for similar development. I emphasize that it is unlikely because we have similar geologies, similar surface uses, and similar population densities, and, as I said previously, the regulations and the enforcement of those regulations in that kind of environment. Your eastern provinces, I claim, are not yet ready.

Finally, the fifth point I want to make is to follow the waste streams. If there's one lesson we have learned already in the eastern part of the United States where shale gas development is undergoing tremendously rapid expansion, it is that the ability to note how much waste is being produced in each well is important—and by waste I mean solids, liquids, and gases. It's important to know what's being produced, in what volume and when, and where every waste stream winds up in the environment.

● (1550)

Those are the five points I would like to make in my opening comments. I hope we have ample time during Q and A that you might want to ask me to expand on all of them.

Thank you very much for your attention.

The Chair: Thank you, Dr. Ingraffea.

We go now to our final witness, the Honourable Bruce Northrup, Minister of Natural Resources from the Government of New Brunswick. Welcome, sir. Go ahead with your presentation for up to 10 minutes. Thank you for being with us.

Hon. Bruce Northrup (Minister, Department of Natural Resources, Government of New Brunswick): Thank you very much, Chairman Benoit.

Good afternoon, everyone.

I want to thank you for the opportunity to appear before the committee today, and I appreciate that you have made it possible to do it via video conferencing.

The Government of New Brunswick is very pleased to present its views on the energy security in Canada and how our province can contribute to our country's energy needs.

I understand I have 10 minutes for my opening remarks, so I'll use this time to share where we are now and where we want to go.

Today we are in the very early stages of what could be a very substantial natural gas industry in our province. This is a very exciting prospect, and we are very optimistic that this could be a major part of the New Brunswick economy if managed in a responsible manner. In just the Sussex area where I live, there is an estimated 60 trillion cubic feet of natural gas trapped in shale formations deep underground. For comparison purposes, just one trillion cubic feet of gas could power 10,000 homes for 1,000 years. So you see there is enormous potential from an economic development and energy security perspective.

Today, 11 companies have rights to explore for oil and natural gas on almost 1.5 million hectares of land in New Brunswick. Two of these are large American companies with extensive experience in shale development in the United States and Canada. Exploration companies have invested $350 million in our province over the past decade, looking for natural gas and oil, and they plan to spend at least another $200 million over the next two years. So the exploration phase alone is creating employment and pumping significant dollars into the New Brunswick economy through the purchase of goods and services.

But it's the next stage that has the potential to substantially change our province's future. If shale gas is discovered in commercial quantities, then we're looking at a game changer for our great province. A large-scale natural gas industry would generate millions of dollars in royalties, create many new direct and indirect jobs, and expand our tax base to help fund services we all count on, such as health, education, and senior care.

Just last week I returned from a fact-finding mission to the State of Arkansas with my colleagues, the Minister of Energy and the Minister of Environment. We were joined on this trip by Stephanie Merrill from the Conservation Council of New Brunswick, who also appeared before this committee. During our visit we met with landowners, environmentalists, regulators, and politicians, including the Governor of Arkansas. It was a very eye-opening experience. What we saw is how the shale gas industry has ignited the economy of Arkansas. As Governor Beebe told us, the shale gas industry has transformed Arkansas from a have-not state to a have state. Thousands of new jobs have been created directly by the shale gas industry, or indirectly as companies have moved to Arkansas to take advantage of the secure and relatively inexpensive energy source.

We believe a significant natural gas industry would have the same positive economic impact in New Brunswick. What our government is determined to do is to realize the benefits of this resource without suffering any negative consequences—and I just want to repeat that: without suffering any negative consequences.

We know there have been environmental problems in some parts of the United States. While the impact sometimes can be exaggerated, we do not take these concerns lightly. That's why our government support is based on the responsible expansion of the natural gas sector. The development of this resource must be done right. It is imperative that the social and environmental fabric of our rural communities continues to be substantial in the future. We won't sacrifice the safety and security of homeowners and their groundwater supply to make this happen.

Today we are confident that our present legislative framework is more than adequate to deal with the current level of activity. This activity is primarily at the exploration stage with very few wells drilled. In addition to our existing legislation, we have introduced a phased environmental impact assessment, an EIA process, as a tool to enable the proper planning for what lies ahead. The phased EIA is unique in Canada, and we feel it will address many of the issues raised by concerned citizen groups and other groups.

We also realize that if this industry moves forward as hoped, we must adapt our legislation and human resources accordingly. We feel this can be done right and that we have the necessary time to ensure this happens.

● (1555)

We are in the fortunate position of being able to learn from other jurisdictions like Arkansas that are a decade or so ahead of us in developing shale gas reserves. In some states, development outpaced the regulatory regimes, and the environment was the big loser. In New Brunswick we believe we have a strong regulatory framework, and we're willing to make it even stronger if that's what it takes. Our objective is to be a leader in this area, and we feel we are in an ideal situation to achieve this goal. Consequently, our government is now re-examining legislation and regulations governing the exploration and extraction of minerals, oil, and natural gas. We see this as part of a continuous improvement process. We also believe in the close collaboration with people, communities, and interest groups to ensure they are engaged in the process.

It is the position of our government that we engage the public and conduct our business in a completely transparent manner. Just this weekend I hosted an open house in my hometown of Sussex, so that anyone with questions on shale gas development could get the answers directly from government officials or industry representatives. This was the first of what I anticipate will be a series of information sessions in different parts of the province as exploration and development activity picks up in other areas.

We are planning at least one additional fact-finding mission. This time we plan to go to northern British Columbia to see first-hand shale gas development there and to meet with residents and regulators. I also believe the hearings this committee is holding will help focus public attention on shale gas development and what it could mean for Canada's energy security.

It is well understood that the natural resources of New Brunswick belong to the people of our province and the responsibility to manage those rests with us. I believe we are up for the task. But New Brunswick is a team player, and I recognize there may be areas where cooperation with the federal government and our sister provinces and territories may prove mutually beneficial. Areas of cooperation that come to mind include the environment, economic development opportunities, research and development, investigation of value-added opportunities, and human resource development. These are all the areas where cooperation may lead to enhancing opportunities this industry brings to New Brunswick and the rest of Canada. This ultimately may lead to a very secure energy future for us all.

Again, I appreciate the opportunity to appear here today, and I look forward to answering questions from committee members.

Thank you very much.

● (1600)

The Chair: Thank you, Minister Northrup.

We'll go now directly to questions and comments, starting with Monsieur Coderre from the official opposition.

Go ahead, sir.

[*Translation*]

Hon. Denis Coderre (Bourassa, Lib.): Thank you, Mr. Chair. Good afternoon, gentlemen. I will start with you, Mr. Angevine.

The issues of energy security and economic impacts are certainly hot topics. Your comments gave me the impression that there need to be fewer barriers. But I did not sense that you felt the need for some kind of monitoring. Talking about energy security implies making sure that we are working with people because of the environmental situation and climate change.

With respect to balance, the Fraser Institute is talking about monitoring and regulation. What role does a government play when it comes to regulations to ensure that there are, in fact, fewer barriers to better economic functioning? Since there may be downsides, what can we do to protect the public as well?

[*English*]

Dr. Gerry Angevine: The position of the Fraser Institute would be that regulation that is needed is important and protection of the environment is important. That's the bottom line. Regulation, however, needs to be as efficient as possible and needs to be changed in accordance with technologies and kept up to date. But in some cases there is a tendency for regulators to add functions to their roles that increase the cost of their organizations.

As I've mentioned, regulations sometimes need to be updated. If you look at the National Energy Board Act and why and when it was put into place, the world is different today, and some of the concerns that were foremost at that time are not something, perhaps, the National Energy Board needs to be concerned about. For example, if we're looking into whether a proposed pipeline project is necessary from a commercial and economic point of view, certainly the proponents wouldn't be applying to construct a pipeline if it wasn't viable, and they're the risk takers, so that's something the National Energy Board likely doesn't need to spend much, if any, time on.

On the other hand, there are new developments and concerns as we get more into unconventional oil and gas recovery. The institute certainly is in support of necessary and continually updated regulation.

● (1605)

Hon. Denis Coderre: Mr. Ingraffea, thanks for your five points.

I come from the province of Quebec. We are living right now with a situation with shale gas. Of course, I'm a federal politician, so I know that everything is a matter of jurisdiction there. It's a Quebec provincial issue, but I'm sensitive anyway to the situation in the field, and I believe the NEB has a role to play at a certain level, specifically on environmental assessment.

Because of the uncertainty, which you've been talking about in your five points, would you suggest to the Government of Quebec that they implement a moratorium first before going ahead on the situation of the shale gas?

Dr. Anthony R. Ingraffea: My direct answer is yes, emphatically.

Let me support that by saying a few things about a moratorium that exists in my home state of New York. At the same time that Pennsylvania, a sister state, and Ohio, a sister state, and West Virginia, a near sister state, began full-scale development of their shale gas resources four or five years ago, New York State had the wisdom to stop and say, wait a minute, this is substantially different technology than has been used in the past, it's relatively new technology, and we do not have in place adequate environmental regulations, we do not have in place adequate numbers of regulators, and we do not have in place an adequate number of inspectors; therefore we need to study the problem some more, and not just in an academic sense, but we need to learn from the mistakes that are being made today in our sister states, and we would really like to wait until the federal government completes its study under the Environmental Protection Agency to determine, hopefully once and for all, what really are the risks.

No one is saying this is risk-free. No one is saying it's accident-free. No one is saying that one cannot develop an acceptable level of risk in the technologies. What New York State is saying with its moratorium is that we do not have adequate scientific information on which to base adequate regulation and enforcement.

Hon. Denis Coderre: Thank you.

Minister Northrop, the reason I asked the first two questions of the other witnesses is because of course you're the politician and you're stuck with the decision-making process.

There is, I believe, the necessity in Canada to have a national energy strategy, because it seems that you have some problems at the regulation level on what the role of the NEB should be. For the sake of the people of New Brunswick, do you believe it is more appropriate, before taking a stand, to say to the enterprise, well, take a break, we'll go through all the processes first because of the technology issues and all that? Are you putting in place a kind of moratorium?

There is an issue with people, of course—the fear of the unknown, with all the information coming from everywhere. How do you manage your own decision-making process?

● (1610)

Hon. Bruce Northrup: We have been very clear since we took government in October that the moratorium was not in place for the Province of New Brunswick. We felt, and we know and we have had time to explore and come up with.... We have good regulations in place now. Since taking over as government, we have phased in the EIA process, the environmental impact assessment process. There were a couple of wells that had been drilled by Apache in the Elgin area in New Brunswick. They've drilled the wells. They're finished, and they've taken all their criteria back to Calgary. They won't be drilling any wells for quite a while. Our other major one here, Southwestern Energy from Arkansas, is just in the preliminary stages.

That's why we went to Arkansas, to get the positives and negatives from that state. That's why we're going to Alberta and B.C., especially Horn River. They've been in operation there for quite a few years, so we want to go talk to the regulators there, the environmental people. Actually, when we went to Arkansas, we took a lady with us who was part of the Conservation Council of New Brunswick. She went to every meeting we went to with landowners, with regulators, and with environmental groups.

We feel we're in the early stages here right now, and as a minister and with my staff, we don't feel, working with the Department of Environment, that we have time to enforce our regulations more. In New Brunswick, that's the position we are in as of today.

Hon. Denis Coderre: Thank you.

The Chair: *Merci, monsieur Coderre.*

Madam Brunelle, you have up to seven minutes. Go ahead, please.

[*Translation*]

Ms. Paule Brunelle (Trois-Rivières, BQ): Thank you, Mr. Northrup. I'll continue with you.

I am from Quebec. I find it interesting that you spoke about consulting the public. It is clear that natural resource development is the responsibility of the Government of Quebec, and Mr. Coderre was perfectly correct in saying so. The Government of Quebec made a huge blunder by forgetting to inform the public and establishing with the public what could be called a social contract before starting any type of extraction or exploration. We are now in a situation where water use is a major issue.

When you said that you are going to consult people elsewhere in Canada and the United States, I wondered whether things would really compare. The scenarios are completely different. In Quebec, we want to extract shale gas in densely populated agricultural regions. This has a great impact on people's quality of life. It seems to me that an agricultural region is not the same as the northern reaches of a province where there are fewer inhabitants.

Certainly we are talking about energy security. That being said, in Quebec, where hydroelectricity is abundant, do we really need shale gas? That's why Quebeckers are now agreeing to issue a moratorium while we are taking a closer look at the environmental consequences.

Do you think that you can draw from Quebec's experience and mistakes in this situation? Do you think that things in the United States, Quebec and elsewhere in Canada can be equally compared?

[*English*]

The Chair: Go ahead.

Hon. Bruce Northrup: What we are doing here in the province of New Brunswick is putting the best practices and standards in place.

You mentioned consulting with the public. We've done that since day one. I mentioned in my brief 10-minute spiel that we had an open house in my backyard in Sussex last weekend. We had over 400 people who came in and talked to three different industries. We had the Department of Environment there. We had the Department of Natural Resources there, with all the people who were experts in different fields, just to explain to them how the process works from A to Z.

We were quite happy with the outcome. At the very first part, we had the mayors and council people in, along with LSDs. In the next hour, we had concerned citizens groups come in for an hour to express their views. What we heard loud and clear was that while we accomplished what we did that last Saturday, they want a public forum so that they and the general public can come and make their views known to us. That's exactly what we'll do within the next month or so. We'll have industry there, we'll have government there, and people will be coming in, probably with a facilitator to make sure everything runs well.

We've been very up front with the people of New Brunswick. We've been very up front with the industry here. Just last week, the environmental impact assessment that we phased in was explained to industry. We met for over three hours. The environment people explained the EIA process. That's how we're being up front with industry, so that if this does go through, they know 100% where the Province of New Brunswick stands.

We feel that we have ample time to do that with industry and ample time to do that with the concerned citizens groups and the citizens. That's basically why we did not put a moratorium on here.

● (1615)

[*Translation*]

Ms. Paule Brunelle: Thank you.

I want to move on to Professor Ingraffea.

[*English*]

Dr. Anthony R. Ingraffea: Yes.

[*Translation*]

Ms. Paule Brunelle: Good afternoon.

You talked to us about the importance of water use. The use of water on shale gas production sites has become a major environmental issue.

The city of Trois-Rivières, which is my constituency, had to treat water from shale gas generation at its water treatment plant. Now, the *ministère de l'Environnement* is giving a conflicting opinion, saying that it can no longer do this.

Has enough research been done to determine all the appropriate environmental measures that should be adopted? Are we not playing sorcerer's apprentice a little by trying to produce shale gas without really knowing all the ins and outs of producing it?

[*English*]

The Chair: Go ahead, Dr. Ingraffea.

Dr. Anthony R. Ingraffea: My answer is yes. I wouldn't exactly call it magic. I'd call it black magic, not in the sense that more scientific investigation needs to be done, but that more technology needs to be developed.

Let me be very specific. In regard to the liquid waste stream, the fluids, the flowback fluids and so-called brines and produced waters, which the industry uses interchangeably to describe the liquid waste—flowback water, brine, produced water—it is different from what is produced from an oil well or from a conventional well. It cannot be taken to a public waste water treatment plant and then dumped into a river. It contains something more than salt. It contains heavy metals. It contains some amount of naturally occurring radioactive materials, which are signatures of shale gas. Public waste water treatment plants are not equipped to remove those materials from the waste stream. There are no facilities in the State of New York currently licensed to remove such materials from the waste stream from an unconventional shale gas well. That is one of the reasons why we have a moratorium in New York.

New York will not issue a permit for the development using high-volume slick-water hydraulic fracturing of gas from shale in New York until the permit holder can show where the waste stream will be disposed of properly. So until the technologies are developed—and they are developing—where high volumes of this waste stream can be treated correctly for what's in it, we stand by our moratorium.

[*Translation*]

The Chair: Thank you, Ms. Brunelle.

[*English*]

Mr. Cullen, go ahead, please, for up to seven minutes.

Mr. Nathan Cullen (Skeena—Bulkley Valley, NDP): Thank you, Chair.

Thank you to our panellists today.

Mr. Ingraffea, I'll stay with you.

We've heard from industry people involved with this technology, and they tell us essentially to relax; they've been at it for years, and there should be no concerns over the fracking or the waste waters. I'm wondering why that assuages some within the industry. You say in New York it wasn't...but in Pennsylvania, West Virginia, and the western part of Canada, that seems to have worked.

What is so fundamentally different about what the industry is up to with this non-conventional source of natural gas compared with its other drilling operations in the oil and gas sector?

● (1620)

Dr. Anthony R. Ingraffea: That's an excellent question.

I'll amplify on the comment I made earlier. It's all about the scale of an operation. It takes upwards of 30,000 cubic metres of water to hydraulically fracture a shale gas well. That's 50 to 100 times more water than has traditionally been used in conventional wells. That also implies that the waste stream coming back from that well is going to be equally large.

When the industry says that they've had vast experience, 60 years of experience, with hydraulic fracturing, what they fail to say is that they've had fewer than 10 years of experience on a large scale using these unconventional methods to develop gas from shale.

It comes down to two things—one, the larger volume of fluids being used and fluid waste being produced, and two, the absolute necessity, because of the geological differences between gas distribution and shale and gas trapping in traditional wells, that it take a large number of wells per square kilometre, three wells per square kilometre. That means thousands and thousands, or tens of thousands, of wells for a particular place.

Mr. Nathan Cullen: So the—

Dr. Anthony R. Ingraffea: Multiply the tens of thousands of wells by the high volume per well and you get astronomically large numbers, which the industry hasn't shown it's able to dispose of yet.

Mr. Nathan Cullen: So a two-part question with respect to the... because we've asked for what's in this fluid that they're putting down the well site to force the gas back out, and it ranges.

First, can you mention a few of the chemicals that are used in this compound that's sent down the well? And what percentage is typical for industry to recover back? If they put 30,000 cubic metres down a well, what is typical?

Second, we've heard from Minister Northrup that in New Brunswick at least—-I'm not sure if you've necessarily studied New Brunswick in particular, but you get his points, I think, from his testimony—they're trying to incorporate different regulations that allow for more stringent observation of the industry so that the fears of landowners and people concerned about contaminated water will be assuaged by the way in which New Brunswick is setting up their industry. Does that not give you comfort?

First, then, can you talk about the fluids that are going down and what's in them, and what kind of recovery we likely will see in terms of the percentage? Lastly, is what New Brunswick is setting up, from what you've heard today at least, not moving the ball forward or progressive in terms of protecting the public and the environment?

Dr. Anthony R. Ingraffea: I'll try to answer those three questions very quickly.

In a typical high-volume slick-water hydraulic fracturing operation in a shale gas formation, there are roughly five types of chemicals that are necessary. I won't give you their chemical names—one can look those up—but one needs to add a lubricant to the water so that pumping the high volume used under very high pressure over a very long distance can be done with a reasonable amount of horsepower at the surface. That lubricant is typically a hydrocarbon derivative. There is a biocide necessary to kill the bacteria that otherwise would grow in the well and clog the well. There is an anticorrosive to prevent rusting of the all-important steel casing—that's the first line of defence for the entire life of a well that's expected to last 20 to 50 years. There's an antifouling agent to stop scaling—that is, deposits of hard minerals on the inside of the casing in the well that would otherwise clog it. And there is an acid that is used to clean out perforations right before the hydraulic fracturing process and immediately after the start of it.

Those are the general categories of chemicals. Some of them are relatively benign, even though you would not want to be drinking them or having them in your trout streams. Others are known to be toxic, carcinogenic, and don't belong in the human environment. But I should also emphasize that once the fluid comes back—and I'm trying to answer your second question now—it contains not only the chemicals that were put in on the way down but the material that was picked up from the shale. As I mentioned before, notably, in black shales, shales containing gas, the most dangerous of those are the heavy metals—strontium, barium, uranium, and radium—some of which are also naturally occurring radioactive materials.

The industry is fond of saying that most of what they pump down stays down. What they fail to talk about is the timeframe in which they're counting. Typically, the returned fluid, after the fracturing process, is counted as returned fracturing fluid only during about the first week or two of flowback operations. However, all shale gas wells continue to produce fracturing fluid and brine containing heavy metals for the entire life of the well. One has to be very careful. One cannot say that on average, 50% of the fluid comes back. One has to say under what timeframe one is making that measurement. Typically almost all of the fracturing fluid comes back during the life of the well.

In answer to the third question, whether I take comfort from my friends in New Brunswick saying they're trying to keep up with regulations, I don't know. I don't know what their starting point was for their regulations. I don't know what the current, perhaps modified, set of regulations looks like. I would only suggest that they go to perhaps the closest match to New Brunswick, which I would say is Pennsylvania, and take a look at the substantially revised regulations that have been put in place just in the last year as a result of only three years of substantial development.

● (1625)

Mr. Nathan Cullen: Thank you for that.

In my remaining time, I'm sorry, I'm not going to get to you, Mr. Northrup, but I am curious about some questions, so hopefully I will get to you in round two.

Quickly to you, Mr. Angevine, with respect to the Fraser Institute, and I'm sorry you're here more on economic issues today than you are on necessarily the specifics we're talking about, which is this particular alternative oil and gas industry, various institutes in Washington have been calling on the President to remove subsidies from the oil and gas industry—heritage and other groups that are hardly tree huggers. I'm curious as to whether the Fraser Institute holds a similar view, in terms of the distortion of the market, of the current subsidies that go towards the oil and gas industry to enhance production and give them a leg up, if you will.

Secondly, why is there urgency to develop extremely large amounts of natural gas reserves at a time when prices are at near historical low levels? I don't understand. In your testimony, you talked about the need for speed. It seems to me that if prices are where they're at, if government doesn't offer up any subsidy to the industry, the market will simply decide that at $3, this isn't worth doing.

The Chair: Could you make your response brief, Dr. Angevine?

Dr. Gerry Angevine: Yes.

On the question of subsidies, certainly the Fraser Institute position would be that subsidies on all forms of energy should be removed so that there's a level playing field and resources, including renewable resources, get developed on their economic merit. Is that sufficient at this point? To expand on that would really simply underscore the fact that there's no role that the institute sees, in general, for subsidizing oil and gas or any other form of energy resource development.

On the matter of urgency, the Continental Energy strategy research is being carried out on the premise that if market conditions, competitive forces, could lead to more rapid development of Canadian oil and gas resources, then anything that's non-market standing in the way of that development that cannot be justified and isn't necessary should be removed or reduced. That's why I spoke to the non-market barriers. Certainly we see the market today developing natural gas with some very low price levels, and we find that people who have looked and compared the shale in different parts of the U.S. have noted that some shale development is more economic than others. They're speaking to prices, and in some cases our cost for a thousand cubic feet is below $4, so this gas development may proceed, but other more costly sources will not.

The Chair: Thank you.

Thank you, Mr. Cullen.

We go now to the government side. Mr. Allen, for up to seven minutes. Go ahead, please.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you, Chair, and thank you to our witnesses for being here. I especially want to note my friends from New Brunswick. It's always good to have New Brunswick folks here at the natural resources committee.

I want to start, Mr. Northrup, with one of your comments with respect to New Brunswick regulation at least keeping up with where we are at this point in time. You said you will continue to develop that regulation and that Apache has done some test drills in the Elgin area of New Brunswick. How far out, realistically, is your department seeing the actual development of these wells before, if everything goes well, we would see everything go into a production state to sync up with your comments about the regulation making sure it stays ahead of that?

● (1630)

Hon. Bruce Northrup: Thank you, Mike. It's always a pleasure to hear your lovely voice and see your half-body on TV.

It's a pleasure to be here.

We've done very well as far as the EIA process, phasing it in, in the Apache, in the Elgin area, as far as the process goes from beginning to end. They have drilled two wells there. They've completed two wells there, and they've been very up front with the people around the area as far as communication goes. They put flyers out to the people around that area as to what they're doing that day, what they're doing the next week, and what they're doing in the next two weeks. They've also gone into the community as far as hiring the local fire department to do security for them. This is all about community involvement, and Apache has done a great job there.

As far as a timeframe for Apache goes, we're probably looking at around 18 months, approximately a year and a half, and with Southwest Energy, which is at the very, very early stage, we're probably looking at about three years there.

Mr. Mike Allen: I just have a couple of questions on your trip to Arkansas.

The first one is this. What did you learn about the regulatory environment down there? The Environmental Defense Fund and Southwest, of course, had a little bit of a meeting—I think it was at the University of New Brunswick—a couple of weeks ago, and it was actually quite productive. They were talking about the use of water. What did you see about Arkansas...? Was there any specific mention there of some states having a better regulatory environment than others?

The second question is this. What did you learn about the advances in technology with respect to chemicals and water usage and the recovery of those?

Hon. Bruce Northrup: As soon as we landed in Arkansas, in Little Rock, as soon as we got to the motel, we had three or four groups waiting for us there to have a meeting. These folks have been involved with the industry for probably 9 to 10 years, and we talked to them for a good two and a half hours. By the end of the conversation, we understood they weren't really against the industry itself, as far as industry goes; they were just a little upset with some of the things that had gone on in the past, and one of the things, Mike, was the sound of everything that was going on. We sat down in a lady's kitchen and they had six compressors about a half a mile from her house. And we all know how jets take off. It just sounded like a jet taking off, and that's 7 days a week, 24 hours a day, 365 days of the year.

We wanted to see the opposite of these compressors, so we went to a place where six compressors were housed inside a building, with four inches of insulation, and we stood outside that building and could hardly hear the compressors on the inside.

Southwestern promised the lady that they were in the process of putting a building over these compressors.

That's one of the things that we brought back to New Brunswick. Even before these compressors are turned on, they'll be inside a building and they'll be well insulated so that the noise is not heard by the neighbours around there. A lot of these compressors were not really out in remote areas; they were around different housing places. That was probably the number one concern, and we really appreciated the people talking to us and giving us their experiences, which we brought back to Canada. The sound was one of the main things.

As far as technology goes, it was interesting that Calfrac, from Calgary, Alberta, were there doing most of the fracking and drilling. So it was interesting to talk to them on a one-on-one basis.

They were happy employees. It was nice to see. They work seven days on, seven days off. We had some good conversations with Calgary-based Calfrac. What we want to do when we put this EIA process in—and we talked about chemicals before. We're going to make sure, Mike, that full disclosure of these chemicals is brought in. I know the doctor mentioned three or four of them, and that's exactly what Apache did. They disclosed. They had a really nice pamphlet made up and they disclosed exactly what they put into the ground. The recovered water is stored in storage tanks right around the area and then it's transported to an approved industrial water plant within a couple of hours of these wells.

● (1635)

Mr. Mike Allen: Have there been any incidences about water and spills? One of the folks from the Environmental Defense Fund talked about that. One of the biggest challenges they have is not necessarily the fracking and the contamination of the aquifer, but spills and some contamination. Have they experienced anything like that in Arkansas, and if not, what principles have they used to prevent that?

Hon. Bruce Northrup: We didn't experience any spills or anything in Arkansas. You can imagine in your mind where you have six or seven 18-wheelers in one spot with a drill rig, and it's all computerized, and they actually had tar ponds out on the ground so that if anything did happen they would recover it very quickly. That was very impressive.

Another thing we brought back for New Brunswick...we want to make sure that if anything does happen, if water does come up and leak outside this well, that it is contained for sure. I just want to emphasize that water is our number one priority here, along with the environment and the people around the area. And the “keep it simple” attitude is that if we can do this, we're going do it and we're going to do it right. If we can't do it and it's going to be done wrong, we won't do it.

The Chair: Thank you, Mr. Allen.

We go now to the second round, to five minutes of questions and comments, starting with Mr. Tonks, and Mr. Andrews, if there is some time left.

Mr. Alan Tonks (York South—Weston, Lib.): Thank you very much, Mr. Chairman.

Again, thank you to our witnesses.

My first question is to Professor Ingraffea.

You've given us a really comprehensive characterization of both the flowback and the chemicals that remain in the ground, which are part of the hydraulic fracking process. I can only infer that the level of uncertainty about matching that issue—not to mention the propane, methane, and other chemicals and gases that are created—has given the State of New York cause to take a step back and have a look at it.

Can you give us any insights on the level of technology and the research that exists, in terms of now getting an opportunity from this moratorium to match the degree of uncertainty and risk with technology that can counterbalance that? Are you aware of what is happening, and can you share that with the committee?

Dr. Anthony R. Ingraffea: I'll try to.

Accidental spills and discharges happen daily in Arkansas and Pennsylvania—not the blowouts experienced in the Gulf of Mexico, but truck accidents, valve failures, tank leaks, and pipeline failures. These are daily occurrences in shale development activities. Perhaps the most important area of technological development that could diminish those risks is recycling as much of the return fluids as possible so the total volume of waste fluids that need to be transported from a drilling pad to the ultimate site of disposal can be reduced. It's all a matter of risk. If you reduce the truck traffic, you reduce the total volume and the risk of accidents.

Recycling in the U.S. is in its infancy. There are two types of recycling. One can hopefully reuse some of the return fluids in subsequent wells. Very few of the companies operating in New York, Pennsylvania, Arkansas, and Texas are doing that right now because it's an enormous additional expense.

Recycling also takes the form of transporting the waste fluids away from the well pad to specially designed new technologies that can remove most of the waste from the fluid. What you're left with is a smaller volume of more highly concentrated waste that can then be transported for safe disposal to underground injection wells, for example—which by the way probably will not work in your eastern provinces, just like they won't work in Pennsylvania and New York. But they do work in Arkansas and Texas.

One has to be very careful what you compare your future to. Arkansas is not New Brunswick. Come to Pennsylvania.

● (1640)

Mr. Alan Tonks: Thank you, Mr. Chairman.

Do I have a little more time?

The Chair: You have a minute and a half, Mr. Tonks.

Mr. Alan Tonks: Perhaps Mr. Andrews can ask his question.

The Chair: Go ahead, Mr. Andrews.

Mr. Scott Andrews (Avalon, Lib.): Thank you.

My question is for Professor Ingraffea as well.

In your opening statement you talked about downstream environmental concerns. Outside of the water concerns, are there any other downstream environmental concerns? Do you want to elaborate on that, or when you made that statement were you just talking about the water?

Dr. Anthony R. Ingraffea: No, I was not just talking about the water. I dropped the hint that there are solids and gases downstream, with potential impacts on the environment and human health. On a small scale, around a development near a compressor station, near a pad, in addition to sound there are gaseous emissions. Some of them are purposeful and some of them are accidental. You know now that most shale gas wells leak small amounts or large amounts of methane. That's the nature of the beast. It has always been that way and will always be that way. So there are leakages of gases on a small scale.

On a large scale, remember that natural gas is a non-renewable fossil fuel. When it is burned it produces carbon dioxide in the atmosphere. When you produce it, store it, and transport it through gathering lines, transmission lines, and distribution lines, in the United States—I'm not aware of the figure in Canada—somewhere between 3% and 5% of all the natural gas produced leaks into the atmosphere. Natural gas is a much more potent greenhouse gas than carbon dioxide, so even a relatively small percentage leak on a very large volume of gas results in a very significant impact on greenhouse gas emissions, and therefore potentially on climate change. So there are other effects one should consider on human health, the environment, and climate—not just from water, but also from solids and gases.

The Chair: Thank you, Mr. Tonks and Mr. Andrews.

We'll go now to Mr. Anderson, for up to five minutes.

Mr. David Anderson (Cypress Hills—Grasslands, CPC): Hello, witnesses. Glad to have you here.

Minister Northrup, I'd like to actually invite you to come to southwestern Saskatchewan, instead of Pennsylvania, and you can actually see the benefits of oil and gas development.

I'm just wondering in your travels if you've focused on the significant benefits that come to local communities in terms of the local employment, the local service providers that are given opportunities, and those kinds of things. Have you spent some time looking at that? Are you inviting those folks, or folks who benefited from that, to come to your public meetings to explain the benefits to communities?

Hon. Bruce Northrup: I guess that's why we had the open house last Saturday morning, because the first people who came in at 9 o'clock in the morning were the mayors, councillors, LSDs, and representatives from the area. We let them talk to industry. We had three industry representatives there: Southwestern, Apache, and Corridor. We had the government there, including Environment and the Department of Natural Resources.

This is something that we try to get out into the general public. When we were down in Arkansas, we saw the benefits of the areas down there. They were just opening up a brand new office down there. It was a “go green” office. We were there on Sunday and they were opening it up Monday morning. There were over 500 employees there with different areas of expertise. These are good paying jobs too.

Around the area you could see a lot of new houses going up and enerventures out in the rural part. Outside of Conway and outside of Little Rock you could see what had happened around that area because of that shale gas industry. They have 3,000 wells there, in the Arkansas area.

Obviously, there are other things that are attributed to the gas wells, as far as the shale gas goes, and the benefits are just overwhelming.

But at the end of the day, we just have to make sure that it's done right and done in the right way. Just one example: when we met with the governor on Sunday night, he was saying that in the educational system, where a lot of the money was put in, where they get the royalties from shale gas, they went from 40th to 6th in the 10-year program.

So we are trying to bring all the positive aspects back to the area in southern New Brunswick. Our biggest job is communication and educating the people on the benefits.

● (1645)

Mr. David Anderson: Well, I'm glad you're seeing them. I think the further you go out into the rural areas where there is this activity, the more the impact is on it. Because you've got smaller companies of two or three or four people who are doing the welding, or the service industry, or checking the wells and those kinds of things, this actually keeps them in the rural communities, which we are all working hard to do.

I just wanted to ask you another question about the phased EIAs. Can you explain a little bit more about how that would work? How do you perceive that working? You also talked about re-examining your approval process. I'm just wondering, do you have any timeline on that—a timeline on your examination, not on the approvals, actually?

Hon. Bruce Northrup: Even before they start drilling, they have to disclose everything, basically what they're doing from A to Z. That's even before they do anything. They're going to have to give full disclosure of all the chemicals they're going to use and what they're going to do day in and day out. That's what the EIA process is all about. It's well structured, as far as what they're going to use through the process. That's where communication has to come in, where government has to monitor that through the EIA process.

That's kind of where everything's going to go day in and day out. It takes approximately 30 days to do this review—about a month—and the objective is to approve a significant number of wells and sites beforehand, before they even get started. That's why when Apache was drilling two wells in the Elgin area, even before they started, we piloted and phased in the EIA process with Apache. There's an MLA down in that area and I contact him two or three times a week. He said that everything was going well down there and they didn't have any problems.

So it's a strategic EIA process that both government and industry have to work through. At the end of the day, if they're not doing it right, it's plain and simple, we'll shut them down.

The Chair: Thank you, Mr. Anderson.

We go now to the Bloc Québécois, Monsieur Pomerleau, for five minutes.

[*Translation*]

Mr. Roger Pomerleau (Drummond, BQ): Thank you very much, Mr. Chair.

Thank you to our three witnesses for your presentations and comments about the issue we're discussing.

Mr. Angevine, my first question is for you. One of the arguments we hear most often—and you made it like many others before you—to promote exploration and, eventually, extraction of shale gas is to tell us that we could get rid of a large part of our reliance on imported petroleum or natural gas. That's absolutely true in some cases.

However, don't you think that, in Quebec, given that we produce electricity, we could get exactly the same economic effect by relying less on petroleum and more on electricity by, for example, deciding to replace our current automobiles with electric cars over 20 or 25 years?

● (1650)

[*English*]

Dr. Gerry Angevine: To examine the benefits of increased hydroelectric development in Quebec and compare that to the benefits of shale gas development, the two options, two possibilities, for reducing the dependence on imported crude oil into eastern Canada, is not something we've done at the Fraser Institute. There would be economic benefits, of course, from both, but I'm sorry, I can't tell you an answer. I haven't compared the employment income and GDP impacts of both possibilities.

[*Translation*]

Mr. Roger Pomerleau: That would be worth studying.

[*English*]

Dr. Gerry Angevine: It would be an interesting study to do, yes.

[*Translation*]

Mr. Roger Pomerleau: You talked about land claims and aboriginal land rights. You know that, in Quebec, to build the large hydroelectric networks in the far north, it was absolutely necessary to come to an agreement with First Nations, specifically, the Cree, Inuit and Attikamek. We were able to come to an agreement with these people, and the James Bay Agreement was created.

At that time, Mr. Bourrassa was premier of Quebec. He understood perfectly well that we could not build something belonging to us on a neighbour's land. So he had to establish very strict land ownership rules. He had to buy property rights.

When you say that Canada must come to an agreement with aboriginal nations for land claims, are you referring to something like that?

[*English*]

Dr. Gerry Angevine: I think in my remarks looking at non-market barriers, I was simply observing that if we have, and where we have, land claims issues, we need to resolve those. I think a greater effort needs to be made to ensure that they are resolved in a reasonable amount of time; otherwise the cost benefits that could be had from the development may not occur, or may not occur for a long time. There's no easy solution.

We've seen, for example, in the Northwest Territories the great difficulty to get agreement with respect to the possibility of a pipeline coming from the Mackenzie Delta through the territories because of difficulties with various local groups. We certainly wouldn't say that those rights that people have need to be disregarded, but there need to be solutions found to overcome these problems. It may be, for example, that one looks at the amount of land that's impacted and the amount of tax, so to speak, that would normally be levied by a municipality on that amount of land. If a generic formula of some sort could be found at least to start negotiations, that would help.

[*Translation*]

Mr. Roger Pomerleau: But do you agree that we do not have the right to build something on a neighbour's land? We are trying to get pipelines through land that doesn't fully belong to us. Do we have to at least acknowledge that the land doesn't fully belong to us, and do we need to come to an agreement with the people who have claims on it?

● (1655)

[*English*]

Dr. Gerry Angevine: I think if we have a group of individuals who oppose development, then it's up to the local government to determine the best way to go ahead and to try to get the parties together to resolve a solution.

We've seen different approaches in recent years. For example, with the Mackenzie pipeline, we see the Aboriginal Pipeline company being put in place and the aboriginal groups being given an equity position in the pipeline through that process. We see that Enbridge, I think, is looking at a similar approach with regard to their Northern Gateway pipeline proposal.

So there have been different versions of that approach, but again, it has to be something that the parties agree to.

[*Translation*]

The Chair: Thank you, Mr. Pomerleau.

[*English*]

We go now to Mr. Harris, please, for up to five minutes.

Mr. Richard Harris (Cariboo—Prince George, CPC): Thank you, Mr. Chair.

Thank you, gentlemen.

In listening to the testimony today, I'm getting two distinct pictures of shale gas extraction. One is being given by Mr. Ingraffea, who describes it, as I understand him, as somewhat of a reckless endeavour that is fraught with the danger of spills, truck accidents, bursting valves, and every other kind of mishap you can imagine, and as something that we maybe shouldn't even be looking at up here because of all these potential hazards.

On the other hand, I'm hearing from Mr. Northrup, from New Brunswick, that prior to any development of shale gas extraction or exploration in his area, the regulatory people will set some standards and some criteria that must be.... After their study on how to do this safely and efficiently, the rules would be put in place so that this indeed would not be a fast and loose, reckless endeavour, but rather a very carefully monitored, efficient, safe, and environmentally friendly way of extracting shale gas.

So we have these two pictures. I wish we had more time to get an explanation from each one of you.

My question is this. Given the potential economic benefit to this type of gas development, I would assume that unless you have a fairly delinquent regulatory environmental body overseeing it, in fact there have to be prudent ways of extracting this, where all due diligence has been done, environmental safety has all been put in place, and we're good to go, providing all of this is adhered to. I think we do a pretty darn good job of that in Canada—maybe not in other jurisdictions outside our borders, but in Canada I think we have some of the toughest environmental regulations.

I'm wondering, Mr. Northrup, would you like to comment on my little dissertation there?

Hon. Bruce Northrup: My first comment is that you're exactly right. I couldn't agree with you more. We here in New Brunswick cannot ignore the potential of what it could mean for this province, but at the end of the day, we have to make sure it's done right. I do take this personally. A lot of this activity is being done in my backyard. I represent the people around that area as their MLA. I take this very seriously, and I've said to many people that if we can't do this right, then we won't do it. But we just can't ignore the potential for this province to help pay down our $9 billion debt, to help pay for education and health costs, which are a burden in all the provinces.

We want to make sure we do it right. We actually have a committee, with industry, first nations, and government, that meets all the time. We just want to make sure at the end of the day that we do this right. We feel we have time to do this right. That's why we're going to B.C., and we've also talked about going to Pennsylvania at the end of February or the first week in March, talking to the regulatory people down there, getting the regulations, seeing why they have a moratorium down there. They can always make a positive out of a negative. Maybe it's not a nice thing to say, but you learn from people's mistakes. That's what we want to do here in the province.

● (1700)

Mr. Richard Harris: Okay.

Mr. Ingraffea, given what Mr. Northrup has said and the map they intend to follow, notwithstanding what you saw south of the border, what issue can you take with the approach Mr. Northrup is suggesting?

Dr. Anthony R. Ingraffea: What I've heard so far in your characterizing of the seemingly disparate viewpoints voiced by the three of us today is, to put it mildly, a somewhat pie-in-the-sky naive view of how everything is going to work out just fine, thank you.

Mr. Richard Harris: Sorry, is Mr. Northrup being naive?

Dr. Anthony R. Ingraffea: I don't think adequate background research has been done. There's a boom and bust cycle associated with resource developments, as you know.

I haven't heard anybody today say anything about the detrimental side in the social, economic, and infrastructure levels to what will be an overwhelming industrialization of your region.

In order to get this gas out effectively—I'm repeating myself again—using unconventional methods, a large number of wells per square kilometre is required. One or two test wells in New Brunswick should tell you absolutely nothing at this point. Talk to me in ten years when you have 50,000 wells in New Brunswick and your roads and bridges need to be reconstructed, the local cost of living has gone through the roof, you can't find a hotel room—

The Chair: Mr. Harris, I'm sorry, your time is up.

Professor, thank you.

We do have to go to the next questioner, who is Monsieur Coderre, and Mr. Tonks, if there's time.

Hon. Denis Coderre: Gentlemen, you realize that was from the Conservative side. We don't talk like that, necessarily. We believe in expertise.

Mr. Ingraffea, one of the issues, of course, is.... You're saying the technology is not accurate right now to address all those issues, and that we should take a break instead of going too fast. Is that what you're saying?

Dr. Anthony R. Ingraffea: Yes.

Hon. Denis Coderre: Mr. Angevine, what do you think of that? Another expert.

Dr. Gerry Angevine: I'm not an engineer or a technologist, but if a jurisdiction decides that it needs to go more slowly than some of the neighbouring jurisdictions that have shale gas potential, the gas will stay in the ground, and someday it may be worth more money.

Hon. Denis Coderre: Someday—like the oil sands.

Dr. Gerry Angevine: Yes.

Hon. Denis Coderre: I want to come back to royalties and maybe talk a little bit about the fiscal incentives regarding energy. Do you believe right now as an economist that we should invest more in R and D, instead of having those fiscal incentives? What would be the best, economically?

Dr. Gerry Angevine: You're referring to shale gas in particular?

Hon. Denis Coderre: Well, it can be shale, it can be oil sands, it can be unconventional.

Dr. Gerry Angevine: When you say “we invest”, do you mean government incentives?

● (1705)

Hon. Denis Coderre: I mean the government.

Dr. Gerry Angevine: I don't think there's a role for government incentives. If, economically speaking, it should be developed, let the risk takers determine that.

Hon. Denis Coderre: So it's the free market and that's it?

Dr. Gerry Angevine: Yes. It's the government's role to set the framework, to ensure that if you want shale gas to go ahead, the royalties are competitive.

There will be, and there are, environmental concerns. If the government wants to have shale gas developed, then it's up to the government to determine that the people, the environment—

Hon. Denis Coderre: I have a problem understanding, for two reasons. First, of course, when we're talking about energy sufficiency, that's also about a kind of ownership, right? The bottom line of monitoring is that we need to, of course, enhance the quality of life; we need to protect the quality of life. We don't want to be at the mercy...so that other countries can suck it up.

It's also a transformation. How can we have a more balanced way of protecting people's wealth while at the same time being for free enterprise? There is a balance there, but I have a feeling what I'm hearing from you is that it's a free market, enjoy yourself, and that's it.

In the 1950s, Duplessis was good at that, with iron, but I'm not sure that's the way in the 21st century. We can have the same result without necessarily saying no government at all.

Dr. Gerry Angevine: Certainly, I wouldn't argue for no government at all. You need government. Governments have a role to play. But in terms of resource development, you have to listen to the people, to what's best for the people of Quebec and Canada, and have the regulations in place that are required.

Hon. Denis Coderre: Okay.

You have a question?

Mr. Alan Tonks: Yes. How much time is left?

The Chair: You have a minute. We may have another round, though.

Mr. Alan Tonks: Minister Northrup, you've heard the concerns that have been raised by Professor Ingraffea. You undoubtedly will hear these concerns as you proceed in a more evidence-based way through what you've described as your EIA process.

Can you describe just a little more how that process differs from the environmental assessment process that conventionally we've been used to applying to these kinds of activities?

Hon. Bruce Northrup: As far as our EIA process goes, it involves social issues and different other issues. I guess as the industry grows, the EIA process will also grow. Obviously, this is a very difficult decision we have to make here, and we have to take it seriously, but I just can't emphasize enough that our number one concern is the water and the environment.

I can't emphasize enough too that as the industry grows and more wells are being put through—and I don't know about 10,000 wells in 10 years; Arkansas has had 3,000 wells in 10 years. I can't emphasize enough that we are taking this slowly. We're not jumping into this overnight. We want to take logical and technological advice to go down this path. It's not easy. It's day in and day out of getting things right. As I said before, we're not going to do this unless we're going to do it right. So we do take it seriously.

When you talk about royalties, we're talking about a three-phase royalty system whereby a royalty will go to the landowner, a royalty will go to the province, and a royalty will go to infrastructure around the area. We've been in informal talks with industry as far as royalty rates to the province, to the landowner, and to infrastructure go.

The Chair: Thank you, Mr. Tonks.

Mr. Anderson, go ahead for up to five minutes.

Mr. David Anderson: Thank you, Mr. Chair. I appreciate it.

I might share my time with Mr. Hoback if I run out here.

Professor Ingraffea, I think it would be safe to say that you're not an unbiased participant in this discussion. If we go online, we see that you've been working on this issue politically for quite some time. Is that fair to say? From what I read of most of the presentations, when you've been giving them, they've been at political events, and then there has typically been an urge for the people who have attended them to write to their politicians to get them to ban unconventional drilling. Is that accurate?

● (1710)

Dr. Anthony R. Ingraffea: No, that's not accurate.

Mr. David Anderson: This is more politics than science, I think. Is that accurate?

Dr. Anthony R. Ingraffea: No, not at all. I'm not a politician. I don't have any conflict of interest here. I'm not running for office; I don't hold office. I'm a professor at Cornell University and a licensed professional engineer. I have tremendous experience in oil and gas well development, hydraulic fracturing, pipeline safety.

So when I make presentations in public—some of which you have probably seen on the Internet—they're in public fora, they're not in political fora, and I never say to anybody that they should write anybody to say to stop something.

What I usually say—in fact what I always say in conclusion—is think, act, do what you think is right.

Mr. David Anderson: Typically, the people who have been organizing the functions you've appeared at seem to be pretty seriously—

Hon. Denis Coderre: A point of order.

The Chair: A point of order, Mr. Coderre.

[*Translation*]

Hon. Denis Coderre: Mr. Chair, the witnesses have shared with us their points of view and expertise. Just because someone doesn't agree with you, that doesn't mean you can intimidate them and try to make them see things your way.

When witnesses testify before us in good faith and give us their point of view, I find it absolutely unacceptable that some committee members crucify them publicly because they do not agree with them. I find it unacceptable, and I ask that you prevent such things from happening again.

[*English*]

The Chair: Mr. Coderre, of course that is not a point of order.

It is up to each member of the committee to determine how they conduct their questioning, and Mr. Anderson is completely in order.

Go ahead, please, Mr. Anderson.

Mr. David Anderson: Actually, this goes back to something maybe a little bit earlier. Mr. Coderre is a bit defensive on this because he was the one who asked a U.S. witness—a federal politician asking a U.S. witness—to tell the Quebec provincial government what they should do on shale gas. I don't think Mr. Coderre can give us any lectures. I think he should be minding provincial jurisdiction and paying a little bit of attention there—

Hon. Denis Coderre: A point of order.

The Chair: Mr. Coderre, is that on another—

Hon. Denis Coderre: It's another point of order. My line of questioning was to ask an expert about his point of view on an issue that's important for every Canadian here. So I'm not going to let him—

The Chair: Order, please. You've made the point before.

Mr. Anderson, carry on, please.

Mr. David Anderson: Thank you.

I guess I understand now why Mr. Coderre is so defensive about this, but that's all right.

I'll go to Mr. Angevine. You talked about some of this—

Hon. Denis Coderre: [*Inaudible—Editor*]

Mr. David Anderson: Pardon? You have something else to say that's important? Everything you say is important, isn't it?

The Chair: Order, please.

Mr. David Anderson: Mr. Angevine, you talked earlier about some of the specific regulatory hurdles that you identified that stand in the way, and you mentioned the NEB and some of the things around them. I'm just wondering if you have some other things that you could identify that would be regulatory hurdles that this committee could address in our report later.

Dr. Gerry Angevine: Those six that I identified were the main areas. Did you want me to drill down into the NEB situation a little more?

Mr. David Anderson: Sure. You've talked about the NEB. I'm just wondering if there are other areas that you have concerns about. You could talk about that, if you have some specifics you'd like to mention.

Dr. Gerry Angevine: Is it with respect to the NEB itself? Yes.

I think just as a casual observer, I see the NEB doing things like quarterly reviews of the energy outlook in Canada, for example, that are useful. Things like that are things really left to the marketplace, to consultants. I don't think the NEB needs to have a core of people providing reports on the energy outlook on a regular basis.

The NEB's role as a regulator under the NEB Act is to look at what is specified in the act. I alluded to the fact that the act itself calls on the NEB to determine if a project is feasible and to look at the economic impacts and things of that sort. I'm not sure that's something the NEB needs to worry about. I think its role should be to look at matters of public safety and environmental issues and things that are in that sort of area, not to be concerned with the viability of a project. That should be left to the risk-takers.

● (1715)

Mr. David Anderson: Natural resources, as most of us know, are under provincial jurisdiction. I'm just wondering if you see any complications in terms of jurisdictional issues faced in the development of this industry.

I guess exploration permits are the responsibility of the provinces....

Dr. Gerry Angevine: Certainly, when you look at the moratoria on offshore drilling in British Columbia, there are two governments involved. In a way, there are more than two: there are the first nations, the Haida, who have a strong interest because of where they reside. In the north, the overlapping regulations between the different —

Mr. David Anderson: Do you have any solutions for that?

The Chair: Mr. Anderson, your time is up.

A short answer, please.

Dr. Gerry Angevine: The governments have to work together from a single window that prospective investors can deal with, rather than from a maze of windows with many officials from several levels of government.

The Chair: Thank you, Mr. Anderson.

Thank you, Mr. Angevine.

Mr. Hoback, welcome to our committee. It's great to see you here. Go ahead.

Mr. Randy Hoback (Prince Albert, CPC): Thank you, Chair. I look forward to working with this committee. It looks like a great group of people here.

First of all, I want to welcome the witnesses to the committee. I appreciate your testimony and your interest in the topic we are discussing today.

This past year, I had the luxury of going to a fracking in process at the EnCana site just outside Dawson Creek. I talked to people in the community. We went to an opening of their local arena. EnCana had provided a substantial amount of money to build that arena in Dawson Creek. Without EnCana they wouldn't have been able to do it. We talked to some of the local people about the impacts and their concerns. There were concerns. There's no question about that.

There are concerns with everything we do. There are concerns when a farmer puts a seed in the ground, but you have to weigh that against the benefits. You talk to people about what they think and you move forward.

It was interesting to go to that fracking site to see the safety and security and the process. I get a little confused here today because I hear testimony about broken valves and stuff, as Mr. Harris talked about, and yet I never saw anything like that. In fact, what I saw was something that was very tightly controlled, very highly regulated; it is something where not just anybody is going to walk onto that site and not be accounted for. In fact, I looked at their safety systems and the monitoring, and it was very impressive.

That was my first site, so I'm not an expert on the topic. There might be more to it, I don't know, but I'd encourage the committee to at least look at these things before you start making judgments on what you're going to do in your own province.

Mr. Northrop, you're doing the right thing. You're actually going out and talking to the people in the field. You're going to the areas and getting the information first-hand and learning from other people's mistakes. That is a wise thing to do. I just hope you won't be scared away by extremists. When I look at what's happening in the communities and what they told us there, it is a very positive thing.

In Saskatchewan we had an NDP government for quite a few years, and they had this theory that we would let the gas stay in the ground. That was a good theory. We let the oil stay in the ground while the kids all got educated and moved off to Calgary, which became the biggest city of Saskatchewan people who weren't in Saskatchewan. You have to look at what's best for your communities and what's best for your province before you start making decisions.

That is going to lead into where David stopped. When we look at provincial jurisdictions and what barriers are in place, Mr. Angevine, what are those barriers? Where are we overlapping? On the agriculture side, we see overlap all the time, and it's more than frustrating. There must be a tremendous amount of overlap that could be removed. Could you identify some of those overlaps?

Dr. Gerry Angevine: You mean between provinces?

Mr. Randy Hoback: I was thinking between the federal and the provincial.... You have the federal government coming in and doing a regulatory process, and then you see the province doing a regulatory process of their own. A lot of times, there are two different people doing the exact same thing.

Dr. Gerry Angevine: It's worse than two different people. In some cases, you have different facets of the same government. You could have the Department of Fisheries and Oceans. You could have Environment Canada. You could have Natural Resources Canada. You could have Alberta Environment. You could have Alberta Energy. You can have five or six government departments involved in a particular project. In some provinces, at least, there has been an effort to reduce that by bringing the provincial parties together in a single window.

Today, we see more of an effort, because of the importance of environmental issues, to form joint panels, joint hearings, as we see now with regard to the Gateway project in British Columbia, with the province and the NEB coming together. You see joint panels with NEB and parties from the Canadian Environmental Assessment Agency, but we need to see more of that across the country to streamline the regulatory process and shorten the time it takes to get approval of a project if it's worthy of being approved.

● (1720)

Mr. Randy Hoback: You said that within the province you'll even see different departments come to a site. Of course, they must have different issues. There must be a reason why they're doing that.

Do you know why?

Dr. Gerry Angevine: They have different issues, but if they can come together through a single window kind of approach, it does make it easier, and sometimes I would think it would reduce the time and the cost of processing applications.

Mr. Randy Hoback: So if you're giving advice to the Minister of Natural Resources from New Brunswick, who happens to be here today, how would you have him arrange his bureaucracy in such a way that you could see the systems or the technology move forward in an efficient manner, in a competitive manner? Any advice to give to him?

Dr. Gerry Angevine: I think he's doing the right thing, certainly, going out and seeing what is taking place in Arkansas, B.C., and other jurisdictions, and learning from the mistakes that have been made and hoping to take a best practices approach. There certainly is a benefit in being able to see what has gone before. The difficulty for New Brunswick will be to find a market for that gas. How will that gas compete economically? But that's a bit off your question. That's another issue.

I think that most likely the regulatory apparatus in New Brunswick will need to be expanded to have the expertise to look at these new issues of shale gas. They'll have to have excellent, on-the-mark regulation, but they'll have to have regulators who are capable. They'll have to have inspectors and so on.

There'll be a number of changes, but I think industry welcomes good sensible regulation, and enforcement as well, because if people are allowed to violate regulations and get off the hook easily without much penalty, it damages the reputation of the industry and hurts the whole process.

So the industry is onside, I would think, ensuring that the regulations from square one are appropriate from a technical point of view, to protect people, to protect the environment, but also ensuring that enforcement is strong and realistic, in the sense that no one can get away with floating, so to speak.

The Chair: Thank you, Mr. Hoback.

We go now, finally for today, to Mr. Cullen, for up to five minutes.

Mr. Nathan Cullen: Thank you, Chair.

First, Mr. Ingraffea, I apologize on my colleague's behalf for the earlier line of questioning. I'm sure you're quite used to that with American-style politics. In Canada we're just growing accustomed to it, with a new direction from the current government.

The last thing Mr. Angevine said was with respect to—

The Chair: A point of order, Mr. Anderson.

Mr. David Anderson: Chair, if Nathan wants to apologize, he can apologize for himself. He doesn't need to apologize for me.

I just wanted to point out that Mr. Ingraffea has been involved politically on this issue for quite some time. He can check that on the Internet. I think we just needed to know that.

● (1725)

The Chair: Okay, Mr. Anderson. That isn't a point of order.

Go ahead, please, Mr. Cullen.

Mr. Nathan Cullen: Well, Mr. Ingraffea, I had some questions for you with respect to industry, so-called, being onside, according to Mr. Angevine, but let me change tack, just to follow-up on Mr. Anderson's comment.

Mr. Angevine, can you confirm whether the Fraser Institute receives any money from U.S. foundations?

Dr. Gerry Angevine: The Fraser Institute, as you know, is a non-profit organization. It's not a consulting organization. It receives no money for consulting work. It's not a consultant and receives no money from government. It operates strictly from donations from individuals, companies, and foundations.

Mr. Nathan Cullen: So just specifically to my question, do you receive money from U.S. foundations?

Dr. Gerry Angevine: I believe it may...I think it does, but I'm not absolutely certain.

Mr. Nathan Cullen: Let me apply some certainty. Are you familiar with the Koch Foundation?

Dr. Gerry Angevine: I'm not familiar with them. I've heard of them.

Mr. Nathan Cullen: They are the primary funders of the Tea Party in the U.S. They also help fund you folks.

The question I put to you is that nine of your directors who currently sit on the Fraser Institute board are involved in the oil and gas industry. They are also heavy contributors to your foundation. The government has raised its concerns about witnesses in the past to the effect that if they receive money from industry or if they receive money from across the border, that may taint any of their testimony or research in front of this committee. The government has seen that as a problem for anybody who ever raises a concern about the oil and gas industry, but it seems to have no problem with anyone who comes here to defend the oil and gas industry.

I find the lack of questioning by my Conservative colleagues with respect to any potential bias on the part of those who support the oil and gas industry somewhat troubling and a little weak on logic.

Mr. Ingraffea, the general fear raised by the public is with respect to water contamination and then the liability that follows any contamination that happens. We saw recently that Talisman—and this is for Mr. Hoback, who hasn't seen any incidence of spills—recently shut down continent-wide drilling for more than a week. Canbriam Energy is leaking in Quebec right now, and, according to the Quebec minister, “the industry is not in control of the situation”, and I am quoting.

Am I typifying the concerns of the general public correctly, that is that it's both water contamination and supply, and then who's responsible, who's on the hook, if any contamination does occur, once it begins?

Dr. Anthony R. Ingraffea: Yes, you are on both counts.

I hinted in my opening comments that I wanted to have the opportunity to correct some of the earlier testimony that your committee has received. In particular, I noted that during a previous meeting, the senior vice-president of Talisman was quoted as saying "We have been fined in Pennsylvania three times in the last three years a total of $21,000. None of it was for contaminating surface water." With respect to your second point, about whether regulations are in place that are adequate, I should point out that he failed to point out that his company has been cited for violations of regulations in Pennsylvania 285 times in the last three years. The fine was only $21,000 because the fines hadn't been assessed yet for the 285 regulation violations.

I should also quote someone that you would do well to invite to a future meeting, and this is the outgoing director of the department of environmental preservation in the State of Pennsylvania, John Hanger. Right now the department really has very questionable authority when telling a company that it operates so badly that the department is not going to give it permission to get any more permits. He's also quoted as saying "the maximum fines that environmental regulators can issue to violators of the state's oil and gas law are...'scandalously low'". He goes on to say that currently a gas company like Talisman operating in Pennsylvania pays a $25,000 bond to cover as many wells as that company would ever develop in the state, and that's one quarter of the cost to the state of plugging an abandoned well, of which there are 100,000 in Pennsylvania.

So the point I made before, to look before you leap, to go slowly, and to study what's already been done wrong in other places.... The gentleman from New Brunswick is right on target. He just needs to expand a little farther and ask more questions in more places. Don't count on hearing from just the industry people in one location as to how to proceed. Ask people like him, the director of environmental preservation in Pennsylvania. He'd be glad to come up and talk to you. By the way, he was charged with both promoting—which he did—and regulating shale gas development in Pennsylvania, and he did both jobs very well. But he is very realistic about the current state.

● (1730)

The Chair: Thank you very much.

Thank you, Mr. Cullen.

Thank you all for your questions and comments today, members of the committee.

To all the witnesses, thank you very much for coming today and for giving information that's very helpful to the committee. Thank you very much for your input.

We are finished with the meeting for today.

The meeting is adjourned.

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