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Chair

Mr. Leon Benoit

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● (1105)

[*English*]

The Chair (Mr. Leon Benoit (Vegreville—Wainwright, CPC)): Good morning, everyone. Welcome to our meeting once again, where we continue, under Standing Order 108(2), a study of energy security in Canada.

We have two panels of witnesses today. Normally I take the witnesses in the order they are on the agenda, but today we're trying to sort out some technical things, so we will start with a presentation of up to seven minutes from Talisman Energy. We have James Fraser, senior vice-president, shale division, North American operations; and Reg Manhas, vice-president, corporate affairs.

Welcome.

If you could go ahead with the presentation, then we'll go to Mr. Heffernan. Hopefully, the technical things will be sorted out by then.

Go ahead, please.

Mr. Reg Manhas (Vice-President, Corporate Affairs, Talisman Energy Inc.): Great. Thank you, Mr. Chairman.

Thank you to you and all committee members for this kind invitation and the opportunity to speak with you today. We very much welcome the chance to share the Talisman Energy success story and answer your questions on the energy sector in general.

My name is Reg Manhas. I'm vice-president of corporate affairs for Talisman Energy. I'm based in Calgary, Canada. My colleague today, Jim Fraser, is the senior vice-president for North American shale.

Before we go any further, I just want to let you know I won't be going through the advisories on our presentation this morning, so that's for all your reading pleasure at a later point.

Before I turn it over to Jim to address the specifics of shale gas, I'd like to just say a couple of things about Talisman's global footprint and our commitment to corporate social responsibility. Talisman Energy is a Canadian company headquartered in Calgary, with exploration activities in North America, Latin America, Asia, the Middle East, and Europe. We take great pride in being a Canadian company operating on the global stage.

Talisman is committed to the highest levels of corporate, ethical, and social responsibility. We have been recognized as a national and global leader in the area of corporate social responsibility. I personally was very proud to serve on the national advisory group during the Government of Canada round tables on corporate social responsibility a couple of years ago.

Talisman is a developer of oil and gas around the world, but I note that we are not involved in the oil sands projects. In fact, over the past few years, Talisman has made a strategic decision to focus its North American business on natural gas.

I'm now going to turn it over to Jim Fraser to speak specifically to our shale operations in Canada. Thank you.

Mr. James Fraser (Senior Vice-President, Shale Division, North American Operations (NAO), Talisman Energy Inc.): Thanks, Reg.

Once again, it's my pleasure to be here as well.

I would refer you to the global map on the second page of your handout. As we've mentioned before, Talisman is a worldwide independent oil and gas producer. We have operations in the North Sea, Southeast Asia, and North America. That's where the focus of the rest of my prepared comments will be, on our North America portfolio.

In the last several years, we have transitioned from a conventional gas and oil player to a predominantly shale gas player due to its significant long-term growth potential and low-cost structure. We have four shale plays in North America, each at different stages in their evolution. I'll talk about those specifically in a moment.

The fourth part of our portfolio is our exploration that handles exploration worldwide.

Referring to the next page, Talisman has approximately 1.8 million net acres of leases of shale gas portfolio in North America that consists of the four plays. Within that acreage position, we have original gas in place of 238 trillion cubic feet of gas. Referring to the pie diagram on the right part of the page, our contingent resource is estimated at 57 trillion cubic feet of gas. To put that in context, Canada consumes about 3.5 tcf, or trillion cubic feet, of gas every year, so this contingent resource from Talisman alone has the potential to fuel the country for 16 years.

As I mentioned earlier, we have four plays. The first and most mature is the Marcellus shale in Pennsylvania. We've grown that resource from basically zero production to over 270 million cubic feet of gas production in the last two years. It is one of the best returning shale plays in North America.

Second most mature is in northeast British Columbia, the Montney shale. This is a play that's distinguished by the thickness of the shale. It's up to 1,400 feet of gas-charged shale, as compared with 250 feet in the Marcellus. The project in B.C. is about 12 to 18 months behind the Marcellus, but results to date have been encouraging. To date, we've only drilled about 35 wells, and that's the major key in unlocking this play. It's to getting our costs down.

Our most recent entry is the Eagle Ford play in south Texas, because of the liquids content of the shale.

The fourth part of our portfolio is in the Utica formation in Quebec, where we have a very large acreage position of about 760,000 net acres. But I must stress, it's very early days in Quebec exploration, as there has only been a handful of wells drilled in Quebec.

You might ask, why shale gas?

The next slide actually has seven points I'd like to address.

First, shale gas provides a sustainable, long-life resource base to North America. These wells will have lives as long as 50 years.

Second, it's scalable. These are very large accumulations, some as large as 100 miles in length. Total shale production in North America in the year 2000 was essentially zero. It has ramped up to 10 billion cubic feet per day in 2010, or 15% of North America natural gas production. Analysts expect that shale gas will grow to over 25 bcf per day by 2015 and will supply as much as 50% of the total North America production by the year 2020.

Third, shale gas is developed using proven technologies of horizontal drilling and advanced fracture stimulation.

Fourth, these resources are very predictable. There is little variance in well-to-well performance.

Fifth, shale gas has a reduced carbon footprint relative to competing fuels. It emits 40% less greenhouse gases than coal, 30% less than fuel oil, and 22% less than conventional gas resources.

Sixth, it is low cost relative to other opportunities. This is because there is less geologic risk in drilling the wells, and the drilling and completion process is repeated potentially thousands of times, resulting in operational efficiencies.

The last point is the liquids potential. Recent successes in liquids-rich areas have resulted in a shift to developing liquids-rich areas to take advantage of higher commodity prices.

My last slide illustrates some of Talisman's best practices that we utilize in the development of this resource.

● (1110)

First is what we call our good neighbour program. This is where we proactively address impacts of shale development and set clear behaviours for our staff and contractors.

Second is our secondary containment and our environmental protection. We recycle 100% of the water we use in developed plays like the Marcellus. We proactively list on our website all the chemicals we use in fracture stimulation.

The last bullet point is actually probably the most important. We focus on safe operations. It's a cornerstone of our company philosophy.

In conclusion, there is a tremendous opportunity for Canada to develop its natural resources in a sustainable, responsible manner, which furthers our energy security and returns dividends to Canadians.

The Chair: Thank you very much, Mr. Fraser and Mr. Manhas.

We'll go now to Mr. Heffernan for a presentation of up to seven minutes. I see you have a slide show presentation on the screen there. Go ahead, please.

Mr. Kevin Heffernan (Vice-President, Canadian Society for Unconventional Gas): Thank you, ladies and gentlemen. I appreciate the opportunity to be here today.

The Canadian Society for Unconventional Gas is a not-for-profit association, formed in 2002, with a focus on broadening the understanding of unconventional natural resources and the technology to develop those resources among industry, governments, regulators, and the public.

Canada is blessed with a vast natural gas resource. During the past decade our resource base has grown from 390 trillion cubic feet, or tcf—about 70 years of supply—to more than 700 trillion cubic feet.

These natural gas resources include gas in conventional reservoirs, primarily in western Canada; gas in Canada's far north and in the offshore; as well as in unconventional reservoirs: coal seams, tight sandstones, and shales. The primary change during the past 10 years has been the emergence of unconventional gas resources as a major part of Canada's natural gas resource portfolio.

While Canada's conventional natural gas resources are in decline and becoming increasingly costly to find and develop, technology has evolved and been adapted to unconventional reservoirs in response to declining conventional opportunities. With a resource base of 128 tcf to 343 tcf, Canada's shale resource will have an important role in our future natural gas supply mix.

While most currently identified shale gas resources are in western Canada, important and potentially very significant resources are being investigated in Ontario, Quebec, and the Maritimes. In addition, shale gas geological trends in many parts of Canada are currently poorly defined or understood, and we expect to see growth in the resource base in many parts of the country.

Technology has unlocked unconventional gas potential. We have experienced a dramatic evolution of horizontal drilling capability with the development of custom drilling rigs and supporting technologies, resulting in significant reductions in drilling costs. Multiple wells drilled from a single surface location can reduce cumulative surface disturbance by two-thirds or more compared to single well drilling approaches.

Hydraulic fracturing of reservoirs has been practised for 60 years. The evolution of those techniques to enable multi-stage fracturing in both vertical and horizontal wells has resulted in greatly enhanced production performance.

In addition, micro-seismic monitoring and other techniques have enabled an improved understanding of where fractures go and how they behave.

At this time, all shale gas evaluation and development activity is provincially regulated. There is no activity in areas of federal jurisdiction. Although regulations can vary somewhat from one province to another, the primary functions of health, safety, and environmental protection are always addressed.

In some places water management is a particular concern to many people. It is important to recognize that through various government departments in all jurisdictions, the use and disposal of water in natural gas development is regulated, including for shale gas development.

Standard practices for well construction are designed to protect groundwater. At shallow depths, where drinking water is found in aquifers, the first stage of well construction includes the installation of steel casing and pumping cement between that steel casing and the rock to isolate the aquifers before drilling deeper. Once the well has been drilled into the shale, a second steel liner or casing is installed, and again cement is pumped between the liner and the rock, this time isolating the producing shale from all overlying formations or rock units. This approach, isolating both aquifers and the producing zone, is a standard production practice in wells around the world.

When this construction stage is complete, hydraulic fracturing operations commence. It's important to recognize that the fracturing operation is not permitted to compromise the integrity of the well construction.

Hydraulic fracturing is a process of inducing fractures in reservoirs by pumping a fluid, often containing sand or a similar proppant, down a well and into a rock formation at a predetermined location. The fluid creates cracks or fractures, or opens existing fractures, and the proppant holds the fractures open. With multi-stage fracturing, the process is repeated a number of times in a single well. For horizontal shale wells, the process is repeated at various locations in the horizontal part of the well.

● (1115)

Many kinds of fluids can be used. Although some use no water, water-based fracs are common. For shales today we refer to these as slick-water fracs.

There is a widespread recognition within industry that the hydraulic fracturing process is water intensive, and producers and the service sector are working aggressively to reduce water use, employing strategies such as recycling and the use of non-potable or non-drinkable water.

Because hydraulic fracturing requires moving water and sand at high pressure, kilometres underground and into the shale, some compounds are often added to increase the capacity of the fluid to carry sand, to reduce the interaction of water with clay minerals, to improve flow characteristics, and to eliminate bacteria. These additives are regulated, primarily through federal programs and regulations, including worker training and certification requirements. We have identified several of those acts and programs and regulations for you.

There is no question that shale gas activity and development activities create concern, especially in areas that have little or no prior experience with oil and gas development. This is understandable. Shale gas evaluation and development, like any industrial activity, can be disruptive. Activity levels are high during drilling and fracturing operations but much lower once production is under way.

Shale gas development also brings economic activity and growth. In a July 2009 report, the Canadian Energy Research Institute estimated that every dollar of oil and gas expenditure generated $3 of impact on Canadian GDP. Most of that impact occurs in the jurisdiction of activity. Through economic development, employment, property sales, and income taxes, all levels of government benefit, from municipalities to the federal government.

In closing, shale gas will be an important part of Canada's future supply mix, and there are opportunities for development of the resource in many parts of the country. Shale gas development occurs within a comprehensive regulatory environment. Health, safety, and the environment, including the protection of surface and groundwater, are primary concerns. Although development can require large volumes of water, industry is working aggressively to address this concern.

Lastly, it's important to recognize that the benefits of shale gas development, including regional economic development and employment, will accrue to all levels of government.

Thank you.

● (1120)

The Chair: Thank you, Mr. Heffernan, for your presentation.

We will go now to questions. I'd like to ask members of the committee to make sure they indicate whether they would like to ask questions. It will be much easier for the chair and the clerk if you do this so we don't have to chase you down.

We'll start with Mr. Tonks for up to seven minutes.

Mr. Alan Tonks (York South—Weston, Lib.): Thank you, Mr. Chairman. And thank you, gentlemen, for being here.

Generally, the concerns that have been raised have been around the safe fracturing technologies. You've mentioned the impact on aquifers and water tables. You mentioned that when the industry goes into a community, in the initial geological surveying and community contact, the concerns raised are often inordinately higher than those directed at other technologies having to do with liquid natural gas, natural gas, and so on.

Could you outline what that level of activity is and the concerns that communities have expressed? I'm sure you give them the overview you've given us, which explains your research on the safety of fracturing. How have communities responded?

Mr. James Fraser: The question is, how do communities respond to the impact we have when we bring industry into their area? First off, we recognize that this is an impact on the everyday lives of the citizens in an area. So what we try to do, and have done many times, is visit with the communities and tell them exactly what is going to happen. This is an industrial process. We bring in, via heavy trucks, drilling rigs and other industrial equipment.

We sit down and have community town halls, and we address any concerns the citizens have. In some cases, we've had tours in which we show them what an actual drilling rig works like, taking some of the mystery out of the process.

The oil and gas business has been drilling wells in North America for 150 years. Yes, it is an industrial process, and yes, there are risks. But through that long history, we feel we have identified those risks and mitigated them with best practices. What we share with the communities is exactly what we do, why we do it, and how we do it.

Mr. Alan Tonks: Thank you for that answer.

In one of the profiles you used you showed the steel and cement casing process as the horizontal fracturing takes place. It occurred to me that the whole process of drilling for shale gas must be very expensive. How do costs for the total exploration, the drilling or processing, and the end result, where you've extracted the gas, compare to those for natural gas and liquid natural gas?

Mr. James Fraser: It's an entirely different process than for liquefied natural gas. To give you some specifics, when we first go into an area we drill what we call exploration wells. They are typically multi-million-dollar events of $8 million to $10 million. Part of that is for the drilling process itself, and the other part is for the completion process. With shale gas, the ability for the gas to flow is very low, so we have to create a natural pathway for it to get to the surface. We use the fracture stimulation technique my colleague mentioned. The actual cost of that stimulation is the most expensive part of the process. A typical exploration well could cost as much as $10 million to drill and complete.

Once we learn more about the specific project we're in, those costs on shale plays always come down. Our history shows us that those costs will typically be cut in half or a third over the next couple of years.

A good example that our company uses is in the Marcellus shale play. We started our first well there in November 2008, exactly two years ago, and our first well cost $8 million. We typically drill and complete wells now for about $4 million, so we've cut our costs in half. At the same time, the reserves or the gas production from that well have increased with time. That's also a characteristic of the shale plays. The costs go down as we drill more, learn more, and create more efficiencies. The reserves that are produced from the wells get better and better as we learn the proper recipe for how to drill and complete the wells more effectively.

● (1125)

Mr. Alan Tonks: So your conclusion is that with the technology and research looking at mitigating the difficulties with respect to the danger and the effect on the aquifer and the environment, shale gas will be a competitive replacement price-wise for dwindling natural gas deposits, and so on.

Mr. James Fraser: That's exactly right. In the last few years there has been a real transformation in North America in going to the shale gases versus conventional gases. That's determined from what we call the finding and development cost, which is the cost per unit of production. With the conventional assets, which are dwindling, as you mentioned, it's typically twice as expensive from a finding and development cost than what we've shown in the shale gas assets in the last number of years. So they're very competitive, sir.

Mr. Alan Tonks: Thank you.

Do I have time for one more question?

The Chair: You have one minute, Mr. Tonks, so go ahead.

Mr. Alan Tonks: The production of methane gas has been cited as problematic with respect to another environmental pollution carbon imprint. How is the industry accommodating that particular environmental issue, the technology issue?

Mr. Kevin Heffernan: I think it's important to realize that shale gas is like any other natural gas resource. In some areas the emissions associated with development are higher than our traditional average conventional supply. In other places, the emissions and the CO_2 content of the gas stream are lower than in our traditional average gas supply. In that sense, shale gas is like any other natural gas supply source.

Yes, the process of producing gas is more intensive, but we also need to remember that an average shale well might produce 10 to 20 times more gas than a traditional conventional western Canadian gas well. While the emissions at the beginning of the process may be higher, associated with the completion process in particular, the amount of gas the well recovers is an order of magnitude greater than the gas that a conventional well would produce.

The Chair: Thank you, Mr. Tonks.

Madam Brunelle, please go ahead with your questions for up to seven minutes.

[*Translation*]

Ms. Paule Brunelle (Trois-Rivières, BQ): Thank you, Mr. Chairman.

Good morning gentlemen.

Mr. Fraser, Talisman Energy is a company that is very involved in Quebec. Obviously through the current BAPE hearings we have witnessed broad opposition on the part of the Quebec public to shale gas extraction. Correct me if I am mistaken, but contrary to British Columbia, in Quebec this extraction takes place in densely populated areas and in agricultural areas, and our fear is that this will create few specialized jobs. Shale gas extraction is not necessarily a priority for Quebeckers because they prefer greener sources of energy and their needs are less pressing.

Obviously water use and environmental harm are particularly problematic for us. In fact, Talisman Energy violated the rules at the end of October because this summer the company used four million litres of water in order to hydraulically fracture its well at Gentilly. Out of those four million litres of water, three million were not treated and ended up in open reservoirs. That was of great concern to the public. We're told that there are about 30 wells, but imagine if there were 1,000, 10,000 or 15,000. That would be of great concern.

Is it your intention to do any research? Do you intend to improve the treatment of this waste water after fracturing? Do you intend to reduce the amounts of water? What do you want to do in order to reassure the public?

● (1130)

[*English*]

The Chair: Mr. Fraser, do you want to answer that?

Mr. James Fraser: Absolutely, Mr. Chairman.

First, Ms. Brunelle, you're correct that there is a process now, the BAP process, which is ongoing. As a matter of fact, Talisman specifically has been very engaged in that process over the last month or so, and we understand it won't conclude until early February. Some of the issues you've brought up are being discussed in that format.

Specifically on water, everything we do is tightly regulated by the ministries of natural resources and environment in Quebec. So everything we do requires a permit. For example, we used surface water to fracture stimulate that well. We had permits to extract the amount of water we did. Conversely, we have permits from the MDDEP to take that water to a municipal treatment plant for disposal.

In the long term and on a large scale, if we hope to develop that resource, that is not what we would do with our water. There are two reasons for that. First, we try to reuse as much of that water as we can. In the example you cite, we will use that water again the next time we fracture stimulate a well, which won't be until next year. So we are keeping it, as you correctly cited, in an above-ground containment so that none of the water hits the ground. Our intent is to use that water the next time we fracture a well next spring. So reuse is a big part of our strategy.

The sewage treatment plants are not the solution for long-term treatment of water in Quebec. In other jurisdictions where there aren't very robust shale businesses, that isn't what happens. There are other technologies that exist today, such as reverse osmosis and evaporation, where this water is treated at scale. There have been two wells fracture stimulated in Quebec this year, so we are not at the scale yet to use those longer-term solutions. That's why we've used the sewage treatment plant.

But I'd like to be clear that everything we do is regulated by the MDDEP. We have permits from the MDDEP when we take that water to the disposal site. The sewage treatment plant also has to approve the treating of that water in their facility. So nothing that we've done is outside of current regulations. We really support a robust regulatory environment in Quebec, as well as any place else we operate.

[*Translation*]

Ms. Paule Brunelle: I'll thank you on one point, among other things, and I agree with you that this is a matter of provincial jurisdiction. I'm in the wrong seat to speak to you about this today but now that the committee is debating this, I have questions and I'm concerned about the health of my constituents.

Your answers indicate that the Government of Quebec is not ready. The Mining Act should be reviewed, etc. We are suggesting a moratorium to provide time to examine all environmental data.

I know that you do not support a moratorium. Can you tell us why?

[*English*]

Mr. James Fraser: Thank you, Mr. Chairman.

Yes, Madam, I will explain that.

You're correct. My company does not support a moratorium. Why we don't is because we think Quebec has a great opportunity right now to understand the resource of the province. Quebec uses natural gas today. About 10% of the energy consumption in Quebec is fuelled by natural gas that comes from western Canada, specifically Alberta. So here's an opportunity for Quebec not to have those imports of gas. The largest single use of energy in Quebec is from fuel oils. We think Quebec has an opportunity, if this gas was proved as a resource, to replace that fuel oil, which has a much dirtier carbon footprint than clean-burning natural gas.

Back to your safety question, this is a well-known process. The impacts on the environment are well known. We think it has been studied through North America and other jurisdictions for many years, and we feel that the technologies and the mitigation procedures exist today where we don't have to go through an extended period of study. We think those studies already exist in other places.

● (1135)

[*Translation*]

Ms. Paule Brunelle: Thank you.

[*English*]

The Chair: We go now to Mr. Cullen for up to seven minutes.

Mr. Nathan Cullen (Skeena—Bulkley Valley, NDP): Thank you, gentlemen, for being here.

I have a question with respect to landowner and property rights. You work in Alberta and British Columbia. If a landowner refuses or doesn't want a well, do they have the right to stop the well from being drilled?

The Chair: Mr. Fraser, do you want to answer that?

Mr. James Fraser: Yes, I'll answer that.

Are you speaking specifically in British Columbia?

Mr. Nathan Cullen: Or Alberta.

Mr. James Fraser: The law is that the crown owns the minerals and the surface owner does not have any right to the minerals.

Mr. Nathan Cullen: One question that came up was this. I was in southern Alberta a while ago dealing with folks who were impacted by what's called coal bed methane, and I know there are different terms used for different extraction processes.

Are you required, as a company, to do a baseline study of the water quality prior to any drilling operations?

Mr. Kevin Heffernan: In Alberta, in particular, and with respect to coal bed methane development, the Energy Resources Conservation Board, the oil and gas regulator, does require water well testing. There are specific geographic constraints—a lateral distance from the proposed well where water wells must be tested in advance of drilling and fracturing of the coal bed methane.

Mr. Nathan Cullen: Maybe I'll stay with you just for a second, sir.

Are you aware of any comprehensive national study of unconventional oil and gas energy going on right now in Canada?

The Chair: Mr. Heffernan, do you have an answer for that?

Mr. Kevin Heffernan: No.

Mr. Nathan Cullen: Mr. Chair, if I could just be specific, is the National Energy Board conducting such a study right now?

Mr. Kevin Heffernan: The National Energy Board, to the best of my knowledge, reviews Canada's unconventional resources from time to time.

I'd like to give some perspective. We prepared, in spring 2010, an assessment of Canada's unconventional gas resources, and that report is available on our website.

Mr. Nathan Cullen: Specifically, I want to be short. We only have a few minutes.

You're in the unconventional and gas sector. Is the NEB doing a national study right now on unconventional sources?

Mr. Kevin Heffernan: I don't know.

Mr. Nathan Cullen: Okay. I would imagine you would if they were.

This is a question with respect to the fracturing chemicals that are put down. Is your company obligated under Canadian law, provincial law, to disclose the chemicals that are used in the fracturing process?

Mr. James Fraser: Mr. Chairman, I'd like to address that.

No, by law we are not. However, our company, as I cited earlier, has taken the stance to be proactive and actually put those chemicals out on our website.

Mr. Nathan Cullen: So a change in the law that would require all companies to do what your company is doing wouldn't be offensive to you?

Mr. James Fraser: Mr. Chairman, no. We actually support public disclosure of frac fluids.

Mr. Nathan Cullen: The question of water is prevalent. It's mischaracterizing the public concern, particularly in Quebec, that it's just an unfamiliarity with your industry. It's legitimate to say people have legitimate concerns and maybe are familiar with your industry, at least through research.

On the water question, we've heard testimony that approximately 50% of the water that's injected into a well is not recovered. It does down and stays down. Is that correct?

Mr. James Fraser: Yes, that is correct.

Mr. Nathan Cullen: If that water is mixed and interlaced with chemicals, some of which we all admit we wouldn't want to drink if we didn't have to, the public's concern would be whether those chemicals then return back to the water supply. The volumes are quite extraordinary. I mean, 12 million to 32 million litres per well is a lot of water. If there's some number of tonnes of chemicals going down, some of them carcinogenic, and 50% of that, we assume, doesn't come back up, it's now in an aquifer supply that people are going to rely on for their drinking water and for basic living.

● (1140)

Mr. James Fraser: Mr. Chairman, if I could address that, that water we inject is over a mile below where aquifers are, where fresh waters are taken that people use as their drinking source. Once we put it in the ground a mile deep, some of that water, as you mentioned, does not come back. It will stay there, and it will not be part of the aquifer.

Mr. Nathan Cullen: Have we not had experiences, though, particularly in Pennsylvania, of water supplies becoming contaminated? Is the Pennsylvania and U.S. government not supplying water to residents right now who've had their water contaminated?

Mr. James Fraser: Mr. Chairman, there are two different issues there. There's been not one documented case in North America of frac water getting into an aquifer.

Mr. Nathan Cullen: So it's actually once the well is in production.

Is the methane getting into the drinking water and contaminating water supplies a concern?

Mr. Kevin Heffernan: That is a concern, but I think two things. In Pennsylvania, the issue has been gas migration. This is gas that has migrated from shallow sources in the cement or between the cement and the casing or between the cement and the rock up into aquifers. It has nothing to do with hydraulic fracturing and fracture fluids.

Mr. Nathan Cullen: It's the actual process. If those wells hadn't been drilled and producing, one would imagine that the concrete casings and all that wouldn't be in the ground and the contamination of water wouldn't have happened, I assume.

Mr. Kevin Heffernan: That's correct, but realize also that we've drilled thousands, millions in fact, of wells—

Mr. Nathan Cullen: Sure.

Mr. Kevin Heffernan: —in North America over the last 50 years, and this has not been a widespread issue.

I don't know the regulatory regime in Pennsylvania, but I can assure you that if you look at western Canada, at Alberta and British Columbia in particular, that's not a commonplace concern.

Mr. Nathan Cullen: Has Talisman ever been fined for infractions?

Mr. James Fraser: 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.

Mr. Nathan Cullen: Has it been fined at any time in Canada?

Mr. James Fraser: You know, I don't have the answer to that, sir.

Mr. Nathan Cullen: Just so we understand this, when methane gets into a drinking water supply, the water is completely undrinkable. We now have a volatile substance that can be burned right out of folks' tap water.

Mr. Kevin Heffernan: It depends on the methane concentrations in the aquifer. In fact, there's readily available technology that allows the methane to be separated from the water. It's used in western Canada and probably even in Ontario and Quebec and the Maritimes. Basically, it's a separator that separates the gas from the water.

The Chair: Thank you, Mr. Cullen. Your time is up.

We go now to Devinder Shory for up to seven minutes.

Mr. Devinder Shory (Calgary Northeast, CPC): Thank you, Mr. Chair.

And thank you to the witnesses for coming out this morning.

First of all, Mr. Chair, I'm very happy to see one thing, which is that the witnesses in this matter of our study, previous witnesses and today's witnesses, are very consistent on the issue of the contamination. They're basically consistently answering in the same manner as we heard before.

This summer, I was in Fort Mac and Dawson Creek on a visit, and I heard about the oil sands mining. I heard someone saying that it costs approximately $700 million to bring out the first drop of oil.

Anyone can answer my questions.

First, how long does it take to drill and actually produce shale gas? I heard that it costs $8 million or $20 million. Also, how does the cost of bringing shale gas to the market impact the price?

The Chair: Who would like to start?

We'll have Mr. Fraser, and then we'll have Mr. Heffernan, if you'd like to add.

You can go ahead.

Mr. James Fraser: Thank you, Mr. Chair and Mr. Shory.

I believe the question is what the cost is and how it compares with other processes.

Mr. Devinder Shory: I would say, how long does it take?

Mr. James Fraser: To drill one of these wells typically takes 30 to 60 days, depending on how deep it is. In some areas in which we operate, it's as little as 20 days; in other areas, such as British Columbia, it takes about 45 days to drill a well. Then we complete the well, whereby we fracture stimulate it. That typically can take another two weeks.

Part of the process, though, is that we use what we call pad drilling, whereby we drill multiple wells from the same surface location, and that reduces the disturbance on the surface. If we do multiple wells, then of course it's additive. It's 30 days to 45 days per well to drill a well.

We could typically be drilling wells for 90 to 120 days and then fracture stimulate for another month or so. Then that equipment moves off and that well goes on to the production phase, in which it will produce with a simple wellhead, which looks like a Christmas tree, for as long as 50 years. The surface disturbance is very minimal after the initial drilling and completion phase.

● (1145)

Mr. Devinder Shory: Do you think the cost of bringing shale gas to market impacts the price as well?

Mr. James Fraser: Absolutely. Shale gas production in North America is a supply-demand phenomenon. That's why the price of gas is down; it's the supply, due to the success of the shale plays in North America. The consumer benefits from the lower costs. But yes, the price is impacted by the cost to develop the resource, or vice versa.

Mr. Devinder Shory: I also heard, Mr. Fraser, in your presentation that shale gas is cleaner than other competing fuels; for example, coal oil or heating oil. It seems that shale gas is not an environmentally challenging issue; it seems as though it is an opportunity.

In your opinion, what is needed to increase the levels of production?

Mr. James Fraser: Mr. Chairman, a couple of things can increase production. First, you're right that the chemistry of shale gas is typically very high in methane, CH_4, and that means it's a pure source of energy. Therefore, because it contains very little CO_2, typically it is much cleaner burning than other fuel sources, such as coal, for example, and fuel oils.

As to what's required, we think a robust regulatory environment is required. In every area in which we operate, we have to be very open and transparent in the process we take. We think that is a big component of it.

Then we just let the free market operate. Our business is driven by supply and demand, and our goal is to have a fuel source that we can bring to the North American continent at a very competitive price. As a company, our goal is to get our operating costs down to the point where it's economic to do so.

Mr. Devinder Shory: You just talked about the regulations. We all understand that in Canada our provinces have jurisdiction too in regard to exploiting all natural resources, basically. Of course, admittedly, shale gas is a relatively new resource.

In your opinion, do you find that any one province is a model that other provinces should follow in issuing the licences or permits accordingly?

Mr. James Fraser: Mr. Chairman, right now the regulatory environment in British Columbia is quite robust. That is the place where shale gas is the most evolved in Canada.

Alberta would be a close second. They have a long-standing oil and gas extraction industry. They have long-standing regulation of very robust regulatory environments.

So British Columbia would be the first example I would use and Alberta the second, mainly because British Columbia is more mature in the development of shale gas than Alberta is at this point in time.

Mr. Devinder Shory: We were talking about contamination in the water. Approximately how much water do you use to trace shale gas?

Mr. Kevin Heffernan: The amount of water used varies a great deal from one place to another. Some shale gas developments use no water. Others—and Horn River is an example that people are probably familiar with—use a great deal of water. It's a function of the mineralogy, the geology, the depth, the length of the well, and the number of fracture stages that are being completed in each well. So there probably is no answer. We say that typically shale gas development requires something between 3,000 cubic metres and 60,000 cubic metres per well. That's simply a function of the geological variability and the depth requirement.

● (1150)

The Chair: Thank you, Mr. Shory.

We go to the second round, for three minutes each, starting with Mr. Coderre.

Go ahead, please, Mr. Coderre.

[*Translation*]

Hon. Denis Coderre (Bourassa, Lib.): Good morning gentlemen. I apologize for being late; I may ask questions that you have already heard. On the other hand, I think sometimes it's important to repeat some questions, just to see if we get the same answer.

Some members: Oh, oh!

[*English*]

Hon. Denis Coderre: No, I'm just saying that.

Of course, there's an issue in Quebec; there is clearly a problem vis-à-vis our communication or perception, because it's a new issue. What I would suggest, because clearly the way that—and I'm not saying Talisman or any other—the industry tried to sell at the beginning, with Mr. Caillé and all the others, was a disaster, wasn't it?

You don't have to answer that, but it was a disaster. You're blushing; it's a good sign.

My concern is quality of life. I'm sure it's yours too. To ensure it, we need an independent way of monitoring. Of course, it is an issue of provincial jurisdiction, but we have a role to play. This is a serious study that we're doing, and I think we can all be part of the solution.

My concern is the science. We saw in *Découverte* on Sunday the issue with sodium, the issue of the use of water, the problem you had in Pennsylvania. So of course people are looking through some other examples. B.C. seems to be a model; we have some issues in other places.

How do you manage the issue of science? At the end of the day we can talk about the money, but if we talk about the wealth of people, I think the science and the monitoring process are the most important things. We need also to reassure people, because it's about their lives.

Regarding the possible contamination of water, vis-à-vis the way you use the water and when you bring it back, do you have any scientific study showing that what you're doing right now is great? And to help you, would it be a good thing—through NEB, through some expertise or environmental evaluation—to have in Canada an independent monitoring process whereby we can make a science study, with all the expertise from outside, and then put up a process to reassure everybody?

The Chair: Who would like to start?

Mr. Fraser, go ahead, please.

Mr. James Fraser: Mr. Chairman, there are a lot of questions there.

First I'll start with the Quebec issue. As you realize, we have been very active in the BAPE process, which is ongoing right now. A lot of the answer to your question is that we very much support a robust regulatory environment. You're right that it's a little immature in Quebec right now; it operates under the mining law. We know that government agencies are working to update those studies so that we can operate at scale.

As far as the studies you asked about are concerned, oil and gas extraction in North America has been in existence for 150 years. The processes we use—specifically, horizontal drilling and fracture stimulation—have been in operation for decades. The first frac job was in 1947. So those studies do exist, and as part of the BAPE process we provided a lot of the data, a lot of the studies you mentioned, to the BAPE commission.

Hon. Denis Coderre: [*Inaudible—Editor*]...or independent studies? The issue is toxicity, is it not?

Mr. James Fraser: Mr. Chairman, they were not our studies; they were independent, third-party studies. The EPA in the U.S. was the primary author of them. They studied fracture stimulation as early as 1994. In 2004 they put out a study, in 2007 they put out a study, and they're currently undertaking another study whose results will come out in another couple of years.

So those studies exist. Many of the regulatory agencies in other parts of North America, specifically Colorado, have also put out studies, as has the regulatory agency in Pennsylvania.

Hon. Denis Coderre: Mr. Fraser, one of the issues will be how to bring back the water in a viable way at the drinkable end. In Pennsylvania, it seems that the state said you need your own infrastructure, that you cannot use municipal infrastructure.

What is your situation? Of course, it's just exploration—you're not exploiting it right now in Quebec—but how do you manage to work with municipalities? Or do you have a provision in your program that you'll have to build your own infrastructure for the water issue?

● (1155)

The Chair: This was answered earlier.

Mr. Fraser, could you give us a very short answer, please?

Mr. James Fraser: The first answer is that in Pennsylvania we reuse all of our water. We reuse 100% of the water we get back, so that obviously takes that part out of the equation.

The other part of the question I answered was that in Quebec it's very early days; there are only a few wells that have been fracture stimulated. In other parts of North America, where this activity has gone on for longer and it is larger scale, there are known scientific ways to treat this water, such as reverse osmosis, deep injection, and evaporation. The municipal sewage facilities are not used whatsoever.

That would be the long-term solution in Quebec. With only three wells that are fracture stimulated in Quebec this year, it's not at a scale where we can bring those industries in today.

Hopefully in Quebec, if the resource gets developed...and at the end of the day that's for the citizens of Quebec—

Hon. Denis Coderre: If a company were to dig a hole about a hundred metres from your house, it's not your issue in Quebec.

Mr. James Fraser: No, sir.

The Chair: Monsieur Coderre, your time is up. Thank you.

We go now to Ms. Gallant for up to three minutes.

Mrs. Cheryl Gallant (Renfrew—Nipissing—Pembroke, CPC): Thank you.

The questions I have are more basic. Mr. Heffernan, you provided a very good outline about the process.

But I guess I'm not alone, so you'd better explain it for everyone. You've got your well casing that goes down. The concrete goes between the formation and the casing.

That's correct?

Mr. Kevin Heffernan: That's correct.

Mrs. Cheryl Gallant: So the pipe goes down and then goes horizontal. Are there holes at some point that spew out the proppant, or the sand?

Mr. Kevin Heffernan: Yes, that's correct. We use a process called perforating. A tool is put in the well, and at specific intervals that tool fires small charges that perforate the steel casing and the cement, and it basically gives the fluids, and therefore the proppant, an avenue into the shale formation.

Mrs. Cheryl Gallant: What about these glass beads? Do they come out of the same holes?

Mr. Kevin Heffernan: Yes. It's sand.

Mrs. Cheryl Gallant: Okay. How do you get the gas out? Is it just dynamics?

Mr. Kevin Heffernan: It flows. Essentially it seeks a lower pressure environment than the shale, and that lower pressure environment is the surface. The fracturing process creates a pathway from the shale into the well, and the well creates the pathway from the shale to surface. It basically flows because there's a pressure difference between the surface and the reservoir in the shale.

Mrs. Cheryl Gallant: Is it hot water that's going through there or just—

Mr. Kevin Heffernan: No. It's just...let's call it normal water, which in the summertime would be a little warmer than in the fall. In some parts of Canada where fracturing operations are done in the wintertime, which is generally not the preference, the water supply needs to be heated.

Mrs. Cheryl Gallant: And that would create more pressure underneath to get the gas out.

Mr. Kevin Heffernan: No, I don't think so.

Jim may have a better answer, but I don't think so. I don't think the temperature of the water makes any difference. It's just so that it doesn't freeze into a block in a tank or a bit someplace.

Mrs. Cheryl Gallant: And you capture it when it comes to the surface. Very good.

Is it so far below the water table, the water and the sand that's going through these perforations, that there is no chance that it's ever going to reach back up to the water table?

Mr. Kevin Heffernan: It will not. It will stay in the shale. That portion that isn't returned to surface stays in the shale.

Mrs. Cheryl Gallant: Is there any chance, through pressure and normal movement of the earth's crust, that there would be any sinkholes that form as a consequence of the gas coming out?

Mr. Kevin Heffernan: No, the nature of gas storage in shale is nothing like that. The fractures that are created are the thickness of a sheet of paper.

Mrs. Cheryl Gallant: Thank you.

The Chair: Thank you, Ms. Gallant.

And thank you for your answers.

If you were to see a sample of the rock this gas is coming from, you'd see that it's a solid material with very, very small areas of porosity, I guess. It's fascinating to see. I hope later on that our committee will travel to some operations to actually see these things.

I go next to Monsieur Pomerleau for up to three minutes.

● (1200)

[*Translation*]

Mr. Roger Pomerleau (Drummond, BQ): Thank you Mr. Chairman.

Thank you for having come to meet with us today.

Mr. Fraser, in your brief you seem to imply that you are one of those who provide full disclosure of all additives used in fracturing liquids. What we read in the papers does not reflect that. They say that companies keep this information secret, that these are trade secrets.

Do you mean that you do not make that information public but you do share with two or three individuals who then decide whether or not to give you environmental rights? Is that made public?

[*English*]

Mr. James Fraser: I can only speak for our company, Talisman Energy Inc. We put on our website, the Talisman U.S.A. website, the exact components of that fracturing fluid.

[*Translation*]

Mr. Roger Pomerleau: Fine, that was my question.

You claim that you comply with all the regulations, all your rights and that you have all the necessary permits to dig and to store water. You claim that you have all the necessary permits in order to carry out your work.

What is it exactly that you are in violation of currently, if you are complying with all the rights and regulations? That is what is being reported in the papers.

[*English*]

Mr. James Fraser: Are you speaking of Quebec specifically, sir?

Mr. Roger Pomerleau: Yes.

Mr. James Fraser: Yes, sir, we did get two infractions a couple of weeks ago. Those infractions were administrative errors when we were moving water. We had a permit to store the water on one site, and because we thought it would be more efficient to move some of that water from one site to the other, we didn't have the exact administrative paperwork to move it.

I want to emphasize that we did not put any water in the ground; we just moved it from one location to the other without the exact proper permit.

[*Translation*]

Mr. Roger Pomerleau: The third question I have is, for me, the most important. You seem to say—as do other companies, and rightfully so—that social acceptance in Quebec, since this is what we are talking about, will be vitally important if and when you decide to restart your work in the spring.

My personal feeling is that the social acceptance, which is already quite low, will continue to be eroded for various reasons. As my colleague mentioned earlier, the way things were presented got you off to a bad start. The sales pitch was bad; the communications were bad, etc. And the government that is currently overseeing the file is losing more and more of its credibility, so much so that fewer and fewer people are placing their trust in it. That is why I think that social acceptance will be eroded even further.

What will happen if Quebecers' social acceptance of shale gas research does not meet your expected level?

[*English*]

Mr. James Fraser: You're exactly right. The ultimate decision for the development of this resource is going to be placed with the citizens of Quebec. They will make that decision and we will respect that decision, whatever one they come up with.

I would like to note that part of our process when we go into a specific area is that we meet with all the stakeholders of the area. At the recently conducted BAPE hearings we went through quite a detailed description of a 14-step process that we used on a specific well, where we met with the landowner, the municipality, and all the unions, and we had nine different approvals before we actually drilled that well. It took over a year and a quarter from when we had our first meeting until we actually started drilling that well. We're very respectful of all the stakeholders in the areas, and we use that process wherever we operate.

We do not go in without notice; we do not go in without permission. As I said, at the end of the day, the citizens of Quebec will make that determination of whether that resource is developed or not.

[*Translation*]

Mr. Roger Pomerleau: Thank you.

[*English*]

The Chair: Mr. Allen, for up to three minutes.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you, Mr. Chair.

I just have a couple of quick questions. One is picking up on one of Mr. Shory's questions with respect to the difference when you actually develop, fracturing the well, as opposed to when you actually go into operation for the fifth-year time horizon. What is the employment difference when you go in and set the original footprint on the ground? What kind of employment does that generate as opposed to what is the long-term employment for these wells when they start producing?

● (1205)

Mr. James Fraser: The first part of the process, the drilling and completion, is quite employment intensive. But even though that wellhead or those wells exist for many years, the employment continues for long-term job creation.

There have been economic studies cited in several jurisdictions in North America, such as the Haynesville project in Louisiana, where 50,000 jobs were created in one year and $6 billion of wealth has been created, and in the Barnett shale, which is the most active of the shale projects in North America, 130,000 jobs were created over a multi-year timeframe.

These aren't assumptions; these are actual studies that have been done by economists. The third one that I can refer you to is Marcellus shale in Pennsylvania, where over 57,000 jobs have been created in that state in the last couple of years with the shale development. These are long-term jobs.

Mr. Mike Allen: Mr. Heffernan, when you say the majority of these wells use water but some use no water, what is the process when they're not using water, and what are some of the challenges they run into when they're not using water?

Mr. Kevin Heffernan: The approach that's being used—it's been tested in Quebec and also in New Brunswick—tends to be liquefied petroleum gas, basically a propane frac. That method offers a number of advantages in terms of management of the flow-back of the fluid, the fluid in this case being propane. It can either be recovered or, depending on the quantity that's coming back, left in the gas stream for recovery at gas plants.

Safety is probably one of the key issues around using propane, although it's being used in many places. It has been used in Alberta for a number of years, and the procedures are well understood. But unlike water, propane has some additional risks.

Mr. Mike Allen: Thank you, Chair.

The Chair: Thank you very much, Mr. Allen.

Thank you all for your presentations. They are very helpful to our study. We thank you for answering our questions. We appreciate it very much.

We'll suspend now for a couple of minutes, as we move some new witnesses in and get the video conferencing hooked up. We will then resume.

● _____ (Pause) _____ ●

● (1210)

The Chair: We now resume our meeting with our second panel. I would like to say, before I introduce the panel members who are here, either by video conference or in person, that Timothy Egan, president and chief executive officer of the Canadian Gas Association, cancelled out at the last minute due to some family issues. We may be able to get him at a later date. We'll certainly try for that.

We have by video conference from Calgary, from Encana Corporation, Richard Dunn, who is vice-president of the Canadian division, regulatory and government relations.

Welcome, Mr. Dunn.

We have, from the Department of Natural Resources, Marc D'Iorio, director general, director general's office; Denis Lavoie, research geoscientist, earth science sector, georesources and regional geology; and David Boerner, acting assistant deputy minister, Natural Resources Canada. Welcome to you.

We will start with Mr. Dunn by video conference.

Go ahead for up to seven minutes please, Mr. Dunn.

Mr. Richard Dunn (Vice-President, Canadian Division, Regulatory and Government Relations, Encana Corporation): Thank you, Mr. Chair.

Let me say right from the get-go, I appreciate the opportunity to present by video conference. It is probably a lot nicer in Ottawa: I think it was minus 28 degrees this morning in Calgary.

As mentioned, I'm Richard Dunn, vice-president of government and regulatory relations for Encana Corporation. Just a quick blurb about Encana: we are the second-largest producer of natural gas in North America, with production of some 3.3 bcf a day, that's 3.3 billion cubic feet a day. That represents about 5% of North America's total production. We are 100% North American, with 40% of our production in Canada and some 60% in the United States, with a market capitalization of about $25 billion Canadian.

The natural gas industry in North America is undergoing a technological renaissance that will go down as one of the biggest game-changers in the history of Canadian energy. Technology has unlocked vast new supplies of natural gas, providing an abundance the like of which none of us has seen in our careers. As a result of the new and fast-advancing horizontal drilling and stimulation techniques, North American natural gas resources are now estimated to be in the range of 100 years to 150 years of supply at current production levels. This technology has unlocked world-class places such as the Horn River and Montney Basins in northeast B.C. It offers significant promise in new producing regions across the country, including Quebec and New Brunswick.

I can create a picture of what this technology in action looks like. I am talking about multiple horizontal wells from a single pad location, which is roughly 200 metres by 200 metres on the surface. This taps into some 13 square kilometres of reservoir buried thousands of metres deep and accesses tens of billions of cubic feet of natural gas. You can have several high-tech operations under way at the same time. In one well, a high-tech well log is being run; another well is being completed, with as many as 24 separate stimulations in the horizontal well bore; and still another well is being prepared for production.

We look forward to showing the committee a truly high-tech operation sometime in the near future.

Canada is at the forefront of this energy renaissance. It's also at the forefront of environmental and economic stewardship. Communities do not have to choose between the vast economic opportunities that natural gas offers and the protection of their environment. What allows us to achieve this balance? First, we make use of best practices in quality engineering design across the breadth of our operations. Second, we observe solid regulations, which oversee all aspects of our development. These regulations pertain to diverse areas such as drilling, water management, air emissions, wildlife impact, and worker health and safety. Protection of groundwater is highly regulated throughout all phases of our operations. Regulations are in place to deal with the storage of saline water, setbacks of producing wells from local water wells, and protection of aquifers. From a design perspective, we've heard that engineering steelcase systems, which are fully cemented externally, provide multiple barriers to the migration of fluids from well bores to groundwater aquifers.

In Canada, we support the disclosure of increased information regarding the composition of the frac fluids we use in hydraulic fracturing. However, we go further. We are working to ensure that, wherever possible, we use the most environmentally responsible hydraulic fracturing fluid formations and fluid management practices. The industry as a whole is pressing forward with reducing our environmental footprint by drilling many wells—up to 16 in the Horn River from a single pad—from the same location, recycling water where practicable, and searching for new sources of water that would not otherwise be used. As an example, together with our partner Apache, Encana recently invested more than $50 million in a plant that provides a water supply from deep saline aquifers. This otherwise unusable water, as salty as sea water, is a substitute for fresh surface water that would otherwise have been used for fracturing.

I'd like to turn to the economic impact of the industry and spend a few minutes on the huge economic benefits that our industry provides across the country, including jobs.

According to figures from the American Natural Gas Alliance, in 2008 natural gas supported more than 600,000 jobs across Canada and contributed more than $100 billion to Canada's GDP. The studies show that every Canadian province has natural-gas-related jobs, and spending in the west brings significant benefits to the rest of Canada. Approximately 15% of the economic benefits from the investment in natural gas in western Canada goes to other provinces, much of that to Ontario and Quebec. Encana's spend includes millions of dollars directed toward Ontario- and Quebec-based suppliers, from high-tech suppliers to consultants to manufacturers, including such companies as Hoerbiger, Quadra Chemicals, and Tenaris Steel. As well, the industry brings significant benefits to local service sectors where we operate. In B.C., for instance, even though the service sector is relatively immature, more than 50% of our spend is directed toward local service providers, including a significant amount with aboriginal-owned businesses.

● (1215)

However, with the marked increase in shale gas production in North America, the price of natural gas has dropped, responding to basic supply and demand. As well, it's expected that the natural gas commodity prices will be low for the foreseeable future. Canadian shale gas plays are facing great challenges to compete in the northeast U.S. markets that we once supplied handily. The simple fact is that with the development in North American shales, the U.S. does not need our product to the extent that it did. While we have tremendous resources, we also face some inherent disadvantages, such as increased costs from operating in a northern climate and long distances to transport our gas to market. Large shale gas supplies are being tapped in Pennsylvania and Michigan, near our traditional and core markets. In large part due to these competitive challenges, since 2008, Canadian production has decreased some 20%, while over the same period the United States production has increased some 20%.

What can we do about these competitive challenges? In the short term, industry continues to improve its efficiencies. Provincial governments as well have done an excellent job in creating a competitive environment. One important thing the federal government can do is to adopt the CAPP federal budget proposal that will temporarily level the playing field by proposing an equivalent tax treatment to that afforded in the U.S. to natural gas developers. This tax treatment is roughly equivalent to the current tax treatment afforded to manufacturers and processors in Canada.

In the longer term, the health of the industry will be dependent upon creating markets both domestically and abroad, expanding natural gas use as a means of addressing the pressing demands to reduce carbon emissions. Natural gas is the cleanest burning fossil fuel, and greenhouse gas benefits through natural gas displacing hydrocarbon fuels in industries such as transportation and power generation are significant, providing between a 20% to 50% reduction in greenhouse emissions per unit of energy. Increased use of natural gas will create jobs and more government revenue through taxation and royalties.

Additionally, to turn to foreign markets, in transitioning to a middle-class society, Asia represents the other major market opportunity for natural gas. China, for instance, is expected to quadruple its natural gas consumption by 2020. Asia is injecting billions of dollars into growing our natural gas industry to meet its own energy needs. As part of this, LNG facilities on the west coast and supporting pipeline infrastructure will be required to access this market opportunity.

In conclusion, the Canadian natural gas industry is a responsible, sustainable, well-regulated industry that is a major contributor to the Canadian economy, yet this industry is facing significant competitive challenges. To maintain and grow markets domestically and internationally, it requires access to foreign investment and export markets, support for strategic infrastructure programs, and bridging fiscal policies so we'll continue to ensure this industry does not become further marginalized.

Thank you.

● (1220)

The Chair: Thank you, Mr. Dunn.

Now we go to our last group of witnesses. Who will be making the presentation today?

Mr. D'Iorio, please go ahead with your presentation for up to seven minutes.

[*Translation*]

Mr. Marc D'Iorio (Director General, Director General's Office, Department of Natural Resources): Thank you, Mr. Chairman.

The goal of our presentation today is to provide you with a background, as you requested, on shale gas exploration and production in North America. We would like to give you an outline of the geoscience knowledge used to identify oil and gas potential, as well as a preliminary assessment of shale gas resources in Canada.

[*English*]

As you've probably heard abundantly over the last sessions here, shale gas has changed the North American energy market. You can look at the top diagram on page 3 at the NEB reference case as of July 2009, which now starts to include shale gas as part of their forecast and their scenarios going forward, which is new as of 2007—they were not including shale gas in these. As well, perhaps more strikingly, when you look at the North American natural gas supply, you can see that it peaked in 2000, after which the supply from the Gulf of Mexico had started declining, and from 2005 forward, it started moving up again due to the shale gas production in the U.S. In Canada, shale gas production is expected to have the same impact on the gas supply.

[*Translation*]

Production of shale gas in North America began in the United States some twenty years ago, in the Barnett shale.

Since 1990, nearly 12,000 wells have been drilled, and ultimate recoverable reserves are estimated at 30 tcf, or trillion cubic feet.

The most promising field in the U.S.A. is the Marcellus shale. It is very promising because the organic layer in that shale is very rich. Production there began in 2000, or 10 years ago, and 2000 wells have been drilled, with ultimate recoverable reserves in the Marcellus shale estimated at 49 tcf. To put that into context, North American demand for natural gas is approximately 25 tcf per year.

[*English*]

I'll turn to slide 5, the Canadian context. You've heard of the Horn River. Since 2006, this is the area that's being explored and is going into production. In terms of the potential resource that could be available, the Canadian Society for Unconventional Gas is estimating that approximately 500 tcf might be available from the Horn River Basin. As well, the Utica and Lorraine basins are now being looked at in Quebec and have a potential of 181 tcf. Shale gas potential exists in many other parts of the country as well, not just in these areas shown on the map—in Ontario, for example.

Again, putting these potential resources in context, the Canadian gas demand on a yearly basis as of 2008 was about 2.5 tcf.

● (1225)

[*Translation*]

Our role is to assess the geological context. The work done by the Geological Survey of Canada and Natural Resources Canada is published and funded by taxpayers. All the work conducted by the Geological Survey of Canada is published in scientific journals or publications produced by Natural Resources Canada.

The data and publications are used by the private sector, in the development of new exploration sites, and by the public sector, by regulatory officials and the provinces that own the resources.

Most shales currently being explored have been mapped or studied by the Geological Survey of Canada, which was founded in 1842.

Shales can be very different in terms of mineralogy. For example, the organic matter that actually determines its potential can vary, but there are also differences in silica and carbonate content that affect our ability to fracture the rock, in the case of natural gas production.

[*English*]

The key elements on this in the work that the Geological Survey does really have to do with the petroleum system and how you generate resources. To have a working petroleum system, you need sedimentary rock and you need several kilometres, typically, of sediment. You need a layer that's going to be very rich in organic material. That's the source rock, and it's typically clay and it becomes shale. So shales are the source rock for petroleum systems most of the time. Then you need to bury the system and expose it to some heat—we call it cooking—and you create petroleum from that. Eventually, you keep cooking it and you produce natural gas. If you keep cooking, well then everything is gone and it dissipates.

Eventually the oil and gas will migrate into a reservoir that is a structural trap. The structural traps are your conventional reservoirs. With the technology now, putting together the ability to fracture and to horizontally drill, you're able to go back to the source rock, which is the shale.

Slide 7 looks at the extent of the preliminary assessment of shale gas resources. The Geological Survey looked at what's available at the surface and also at the rocks, the drilling, and all the data that's available publicly, as well as the seismic records. In the typical cross-section, what you would look for is that source rock, which you see in red in the diagram on the left. That is the shale natural gas, and typically there's an impermeable layer on top that has trapped...left the natural gas where it is. These are obtained partly by the seismic profile, but then with analysis of the rocks and geochemical analysis to understand the system, its evolution with time, and then the potential of the rock itself.

In the second diagram—I think it's a diagram that's been shown already today—is your typical type of drilling, where you start vertically and then you go horizontally. Typically, in Canada the areas that are currently producing natural gas or where they're exploring for natural gas out of shales are several kilometres below the surface. Again, the context for groundwater is that groundwater is typically in the first few hundred metres, near the surface.

[*Translation*]

Slide 8 deals with the roles and responsibilities of the various governments and regulatory agencies. Regulation of onshore oil and gas drilling and production, including shale gas, falls primarily under provincial jurisdiction, as well as of the Yukon Territory. The federal regulatory role is limited to territories onshore and offshore, through the offshore boards, and, in the Northwestern Territories and Nunavut, through the National Energy Board.

The department of Natural Resources Canada, through the Geological Survey of Canada, plays a key role in understanding natural resource potential through its geoscience and geomapping programs.

● (1230)

[*English*]

Slide 9 is the last slide.

In the roles of responsibility of the federal government, other federal departments can be involved in the shale gas development, principally, Environment Canada, through their administration and enforcement of certain provisions of the Species at Risk Act or the Migratory Birds Convention Act; Environment and Health Canada, through the Canadian Environmental Protection Act and the chemicals management plan; Fisheries and Oceans, under the Fisheries Act, for the protection of fish and fish habitat; and finally, Indian and Northern Affairs Canada, through their responsibilities relating to oil and gas and their issuance of rights in the territories but not onshore Yukon.

Thank you, Mr. Chair.

The Chair: Thank you very much.

Just before we go to questions, in the presentations with the earlier panel and in this presentation, you talk about “tight gas”. Could you just explain in one minute to the committee what “tight gas” is. You have conventional, tight, and then this CBM, shale, and frontier.

Monsieur Lavoie.

Mr. Denis Lavoie (Research Geoscientist, Earth Sciences Sector - Georesources and Regional Geology, Department of Natural Resources): Thanks for your question.

“Tight gas” is some kind of a conventional reservoir that is characterized by very low permeability and porosity. So you need to fracture that conventional reservoir, because the reservoir is different from the source.... That's how we distinguish conventional from unconventional. So it's still a conventional reservoir, but with very low permeability, so in order to produce a gas out of it, you need to fracture that conventional reservoir, and it is called “tight gas”.

The Chair: Thank you, and you did it in a minute.

Perhaps we could go now to questioning, starting with Monsieur Coderre for up to seven minutes.

Go ahead, please.

Hon. Denis Coderre: So from tight gas to tight questions.

[*Translation*]

Mr. Chair, I will be sharing my time with my colleague, Mr. Kennedy, who is our party's environment critic.

Natural Resources Canada is a wonderful umbrella organization, with much expertise, etc. My question concerns the latest budget, which removed environmental assessments from the hands of the National Energy Board. You did not speak about that.

Would it not be possible to also engage in environmental assessments? Obviously, one of the problems with shale gas is that its production requires a lot of water. Many studies have been quoted here and there. Mr. D'Iorio, you yourself are the expert resource person at National Resources Canada. Could your department not consider the fact that, because of the water situation... The water table ends up by reaching the river. There must be a way the department can play a role. I would like for you to explain whether Natural Resources Canada could indeed play such a role.

Mr. Marc D'Iorio: I do not want to hypothesize on the kinds of roles we could play. What I can say is that the information that is produced is publicly available for both regulatory agencies and the provinces that have responsibility over the resources.

As well, experts from the Geological Survey of Canada contribute their expertise in over 60 environmental assessments a year. So the department already plays a role: we provide scientific information.

Hon. Denis Coderre: Has there been or is there currently an environmental assessment conducted into shale gas exploration in Quebec? Things are now happening in that sector. You see how people are reacting. We on this side get the impression that the minister is saying that everything is okay, that no problems have been identified, but without wanting to place you in a difficult situation, I would like to know whether the public service has already conducted an environmental assessment in Quebec?

Mr. Marc D'Iorio: To my knowledge, no assessment has been undertaken in accordance with the Canadian Environmental Assessment Act.

Hon. Denis Coderre: Is that because you are told not to conduct one or because that is not your role anyway?

Mr. Marc D'Iorio: The act sets out specific conditions that trigger an environmental assessment. Those conditions have not yet been met.

Hon. Denis Coderre: What are those conditions?

Mr. Marc D'Iorio: I am not an expert in the matter.

Perhaps David can answer the question.

Hon. Denis Coderre: David does not want to answer. Go ahead.

[*English*]

Mr. Marc D'Iorio: I'll drag you in, in a second here.

[*Translation*]

For example, in the Fisheries Act, protecting marine habitats is a condition that could trigger an environmental assessment.

● (1235)

Hon. Denis Coderre: Very well. There is also the emission of chemical products, which is a matter for Health Canada. Would such an assessment be conducted by the National Energy Board?

Mr. Marc D'Iorio: No, not in Quebec.

Hon. Denis Coderre: But what about at the federal level?

Mr. Marc D'Iorio: No. That falls under the responsibility of the Canadian Environmental Assessment Agency.

Hon. Denis Coderre: Very well.

Mr. Kennedy.

Mr. Gerard Kennedy (Parkdale—High Park, Lib.): Thank you.

Thank you for your help, colleague.

[*English*]

I have similar questions. We were told earlier that this fracturing—we know the fracturing technology, and actually Canada has done a fair bit with it in oil—has now been in use for some time. What do our government agencies know, and the industries as well, over a period of time, of these new technologies? We're hearing how the new technologies are now making a lot more available. I think the initial reaction of lay people is that these are kind of violent things that happen underneath the ground. Do we really have the studies to tell, over time, what the impact is of the induction of new chemicals and the use of water? If so, where are those studies?

We heard earlier reference to the EPA. First studies were in 1994; that sounds pretty recent. So I'm looking at the experienced studies we have, such as from the Canadian government, because the energy board does have a role in approvals of new projects. I'm not sure where that goes with gas, but certainly it has to do with the oil sands. But on these particular things, do we have the studies conducted? And if so, where can you point us?

The Chair: Mr. Boerner, go ahead.

Dr. David Boerner (Acting Assistant Deputy Minister, Earth Sciences Sector, Department of Natural Resources): Thank you, Mr. Chair.

We're the scientific arm of Natural Resources Canada, so we restrict ourselves to trying to provide the facts and make sure they're publicly available.

Mr. Gerard Kennedy: That's what we want.

Dr. David Boerner: The way to try to answer your question is to talk about some of the geological knowledge we have.

I'll turn to Monsieur Lavoie in a second to talk about how we know that reservoirs are under impermeable layers. The geology has acted to trap highly mobile materials over time. So that's part of the knowledge that we have, that there is a geological understanding of how long fluids and gases have been trapped in the subsurface, and they're trapped quite effectively. So geologically there's a—

Mr. Gerard Kennedy: But if I could, before that's handed over.... It's not an abstract question. It's applied science here. So in other words, when that fracturing takes place, what contribution does that make to the assumptions you can have about the geological formations? If I hear you correctly, you're saying that what you know of the science, the geology would say that the liquids will stay contained even following this. So with the chemicals—the 20% or 40% that are left in the ground and so on—we have good reason to believe they're going to stay there.

But I'm asking if there are specific studies that show this happens, that this actually is confirmed when the fracturing process and the other processes involved in the recovery of shale gas take place. Do those studies exist, first of all, and what do they say?

Dr. David Boerner: We're not the exact experts to answer that with a clear answer, but I can tell you that there are regulations and requirements for the industry to monitor their fracturing process. For example, they have to have sensors close by to the hole to monitor how large a motion in the ground is created by the fracturing of the rock, and they can tell how far the fractures extend. So we have—not us, but the companies and the regulators actually have this—direct evidence from them of how much ground movement is taking place.

As one of the witnesses said earlier, I think the fractures end up being the thickness of a piece of paper and they can extend over maybe 100 metres. We're talking about things that are under two kilometres of rock, which is a considerable amount of weight and pressure and everything else.

I'm probably answering the question for him.

Mr. Gerard Kennedy: I'd be happy to hear Monsieur Lavoie.

Yes, please go ahead.

Mr. Denis Lavoie: There are two aspects to your question. The first one is the intensity of that fracturing event—how destructive it can be and how big it can be.

As Dr. Boerner was saying, the industry is putting seismographs in adjacent wells to record the earth movement at the time of fracturing. They are recording those values and expressing them in terms of the Richter scale, as for any other type of earthquake.

You may not know that on the Richter scale there are negative values; at the time they defined the Richter scale, the smallest earthquake they could register was given a zero value, but with more modern instruments we can go into negative values for smaller earthquakes. The intensities of those fracturing events are between -2 and -3 on the Richter scale, so these are very small seismic events that are recorded.

With reference to the permeability or the preservation of the water or the gas in the rock, in most of the shale gas rocks in Canada the gas was generated hundreds of millions of years ago, and it's still trapped in those rocks. That means that the geological system was fairly impermeable.

We have some other examples in Quebec, for example. There is an old gas field that has been exploited near Quebec City. It's called the Saint-Flavien gas field. That gas was generated by the Utica shale and has been trapped in that conventional reservoir, overlaid by the Utica and the Lorraine shale. The gas has been there for 450 million years. Those geological systems are very impermeable systems.

● (1240)

Mr. Gerard Kennedy: I take from this—

The Chair: Thank you, Mr. Kennedy. Your time is up, and then some.

We'll go to Madame Brunelle. You have up to seven minutes. Please go ahead.

[*Translation*]

Ms. Paule Brunelle: Good afternoon. My question is for the officials from Natural Resources Canada.

The Geological Survey of Canada has conducted a study. Mr. D'Iorio, you said that we could obtain the results, but I have not been able to access them. I would particularly like to know which issues were addressed. Are we talking about the scope of the resource, its location and potential? That appears to have been documented, since we have received maps. Or did the study rather deal with environmental issues, such as the amount of clean water that is used —which is of concern to people —chemicals in the water, or threats to the environment? What was the role of the Geological Survey of Canada?

[*English*]

Mr. Denis Lavoie: The Geological Survey of Canada is....

[*Translation*]

I apologize. The Geological Survey of Canada...

Ms. Paule Brunelle: I was wondering, given your name...

Mr. Denis Lavoie: I really do apologize. I was visualizing the question.

Since the founding of the Geological Survey of Canada in 1842, this scientific body has produced basic geological data which is fundamental to understanding sedimentary basins in Canada. One of the research topics included in this fundamental geological data is an evaluation of hydrocarbon potential. That work included several studies on conventional systems. Bear in mind that the interest in shale gas is recent. For many years, the Geological Survey worked on hydrocarbons and conventional systems. The systems include parent rock, the rock from which hydrocarbons are produced. Today, we are looking at shale for shale gas. Shale produces hydrocarbons. We have taken a very close look at its characteristics: the thickness, the geographic distribution, the amount of organic material, the degree of thermal maturity, of heat exposure, to determine if the organic shale produced oil or gas. So a host of scientific data is available in the various publications by the Geological Survey of Canada, on the geological aspects of conventional hydrocarbons.

With shale gas, the parent rock, the rock which is the source of hydrocarbons, is also the reservoir. So we try to produce from this source rock. The data relating to this kind of work is the same as that which is used to evaluate conventional systems. We try to determine the amount of organic material, and the quantity of gas present in the rock. There has not been a specific study on shale gas rock, since we had already studied it as parent rock in conventional systems.

The Geological Survey synthesized the material and produced a preliminary assessment of shale potential in Canada in 2006. Tony Hamblin from the Geological Survey of Canada is the author of the report which is available to the public. I don't remember which issue it is, but I could send it to you. In recent years, this report has been one of the Geological Survey's leading publications, the one which has been most successful in bookstores, we are told. It has been downloaded many, many times. It covers current knowledge of shale gas in Canada.

Ms. Paule Brunelle: Does the Geological Survey of Canada go as far as making suggestions, for example to the provincial government, which has jurisdiction, and to industry, on ways of preserving the resource and ensuring everything is done in an environmentally friendly way? Is that part of your mandate or not at all?

● (1245)

Mr. Marc D'Iorio: Once again, the information we produce is made public. Beyond that, at the start of October Mr. Lavoie appeared before the BAPE. We provide our expertise in various ways, both through reports which are made public and by providing expertise at the request of various provinces or jurisdictions.

Ms. Paule Brunelle: I have some questions about your role at the Department of Natural Resources Canada. Do you provide the government with advice? Gas and oil is fine, but there are other kinds of energy, including ones that are greener. Are you consulted to determine whether we should try to develop wind energy, hydroelectricity or another type of energy? Do you play a role in that?

Mr. Marc D'Iorio: I am the director general of the Office of Energy Research and Development. Investments in oil and gas make up only a part of our portfolio. We also invest in demonstrations of renewable energy and conduct more in depth research on the regulatory environment or security.

Ms. Paule Brunelle: Do political decisions dictate what research will be done in which field?

Mr. Marc D'Iorio: The Program of Energy Research and Development was implemented in 1974, that is right after the 1973 oil crisis. This is a federal program whose direction is mandated by various federal government departments. No fewer than 12 government departments work on this program and do research in all manner of energy-related fields.

As for policy decisions, the government proceeds through the budgetary process and the public service implements these decisions. So the answer is yes, some programs are mandated by the government, whether they be green plans or clean energy programs.

Ms. Paule Brunelle: Do I still have a little bit of time, Mr. Chair?

The Chair: One minute.

Ms. Paule Brunelle: I still have an issue with federal versus provincial jurisdiction. We know that the Bloc Québécois vigorously defends provincial jurisdiction.

You said that the drilling and pumping of onshore oil and gas is mainly regulated by the provinces. What do you mean by mainly?

Mr. Marc D'Iorio: "Mainly" means that for chemical products or under certain circumstances, for example on crown lands managed by INAC, there are some cases where a federal department might have a role to play.

Ms. Paule Brunelle: And that's where you come in.

Mr. Marc D'Iorio: That's right.

Ms. Paule Brunelle: Thank you.

The Chair: Thank you Ms. Brunelle.

[*English*]

We'll go now to Mr. Cullen for up to seven minutes.

Go ahead, please.

Mr. Nathan Cullen: Thank you, Chair.

And thank you, gentlemen, for your testimony.

Mr. Dunn, to bring you back to another conversation, we had one of your competitors up earlier committing publicly to disclose the chemicals used in the fracturing process.

Is that something Encana is doing right now or is willing to do in the future?

Mr. Richard Dunn: Yes, we're doing it now.

Mr. Nathan Cullen: You're doing it right now.

Again, just to be clear, because this committee has to write a report and recommendations to government to change the regulations to require companies—all of your competitors and Encana—to release information on all of the chemicals used in the fracturing process, I assume you would have no problem with that because it encourages greater public confidence in your operations?

Mr. Richard Dunn: Yes, absolutely, I agree with your comments on increasing public confidence and full disclosure.

As well, I note that the recently developed regulations in British Columbia—the Oil and Gas Activities Act just implemented within the last few months—in fact require this disclosure. So we support doing that, and we support the regulations that require it.

Mr. Nathan Cullen: Encana claims that it conducted the world's biggest frac at what's called the 63-K pad. Is that correct?

Mr. Richard Dunn: I believe it was our partners, Apache. They made that claim a while back, yes.

Mr. Nathan Cullen: Sorry, so it's your partners. You're obviously a principal in this project as well.

Mr. Richard Dunn: Yes, it's a fifty-fifty joint venture to develop properties up in the Horn River Basin, north of Fort Nelson.

Mr. Nathan Cullen: You might not have this with you today, but can you submit to the committee later on how much water and how many chemicals were used in this fracturing?

Mr. Richard Dunn: Yes.

Mr. Nathan Cullen: Okay. Thank you very much for that.

To our friends at Natural Resources Canada, the aquifer research project that's been going on for the last little while has the priority of looking at a total of 30 aquifers across the country. Are these priorities overlapped with where these natural gas plays are happening, or are they independent?

● (1250)

Dr. David Boerner: They overlap in some cases, but there are other places where they're independent.

Mr. Nathan Cullen: Yes, and to ask more specifically, this study was not initiated or conducted with any foresight of the potential of this unconventional natural gas exploration going on at the same time, was it?

Dr. David Boerner: No, there was a joint federal-provincial exercise a few years ago to try to come up with the key aquifers and then to attach a priority to the sequence of them. We have changed that priority a little bit. For example, we're not dealing with one that's close to the oil sands, because of concerns about whether there's an interaction between them.

Mr. Nathan Cullen: So what we know so far—and I assume you saw the report out of the University of Toronto, Munk School, which raised some concerns—is that there are 30 priority aquifers and 12 have been completed so far. Are those numbers still current?

Dr. David Boerner: Yes.

We're still working on others, but 12 have been completed.

Mr. Nathan Cullen: Do you have funding secured to complete the full 30?

Dr. David Boerner: Yes.

Mr. Nathan Cullen: Okay.

A confusing point for me in trying to understand what the effect of a new industry is—and aquifers are at play in this question—is how we're doing the studies at the same time or after having drilled, in some places, many hundreds, if not thousands, of wells into those same areas as aquifers. Do you follow my concern?

One of the concerns of the public is that without baseline research, without a baseline understanding of what was there before an industrial project, it's impossible to consider what the effects of the project have been, because the company can say, “Well those conditions were pre-existing”, or “That contamination was naturally occurring”. We've seen this in the tar sands already, where they say, “The river already had those pollutants in it. It's not the operations of the oil companies.”

Do you see where the public might be confused why the federal government is doing this after all these plays have already been done?

Dr. David Boerner: Yes, I can certainly understand how the logic follows from that. From a scientific perspective, though, I would say there's a slightly different view.

We know that things like gas contamination of an aquifer occurs in places, and the cause of that can actually be determined scientifically. For example, we know that the degradation of organic material like bacteria produces methane, and when that happens near the surface, it actually has a signature in isotopes, carbon-14. If you have ever heard of carbon dating, that's how it works. If the methane contains carbon-14, it had to have been created near the surface. It couldn't possibly have been generated by a deep burial, and you can actually determine—

Mr. Nathan Cullen: Okay, so you feel confident proving it after the fact, that this methane contamination over there was from drilling, but this other methane over here was naturally occurring, just by the source of the methane?

Dr. David Boerner: I'm talking about the logic of it. We can't possibly know what's happened, because we had to have studied everything in advance. I'm saying there is actually a way of telling where methane came from, and some of the things that have been talked about, in terms of potential contamination near oil and gas developments, have actually been shown to be biologically determined or to have created methane from the near surface.

Mr. Nathan Cullen: It's so-called naturally existing methane.

Dr. David Boerner: Right, not things from reservoirs.

Mr. Nathan Cullen: But we're also, as a government, open to the idea that contamination from the industrial process can happen as well, I assume. I know there are the two.

Dr. David Boerner: Right.

Mr. Nathan Cullen: Just to go to Mr. Dunn for a moment regarding one of the concerns with Encana's projects right now, is there any requirement under the law to have a cumulative impact assessment? When an impact assessment is done for a single well, is there the potential of having many wells done around an aquifer or in a watershed without the cumulative effect being understood by the regulator?

Mr. Richard Dunn: No, the wells at this point are looked at on an individual well or pad basis together. Where the cumulative effects assessments are done, for example, up in the Horn River, is in the land use planning exercises. So rather than an individual permit, you'd look at bearing the accountability for a cumulative impact assessment through land use planning.

Mr. Nathan Cullen: Is that sufficient? I've been involved in some of those land use planning efforts. They don't have anywhere near the scientific effort that an environmental assessment has.

Would it be outside the realm of common thinking to look at individual wells when trying to understand the environmental impacts on, say, the amount of water taken out of a system or the amount of chemicals introduced into a watershed?

Would it not make logical sense to the public, and to you as an industry, to say that we have to take the assessment of the full 100 wells? If we place and lease another 100 wells on top, and another 100 wells on top of that, they're not existing individually. That's insane. They're existing together, and the impact is together.

Is that not true?

● (1255)

Mr. Richard Dunn: That's a very fair comment. I'd take back one point, sir, that I'd initially think about, and that is the need for competitiveness to keep the industry viable. It would not make sense to do a cumulative effects assessment.

It would be efficient to do it on a well-by-well basis, but what we do support—be it through a land use planning exercise or some sort of an area cumulative effects assessment—is working with the government to understand the industry plans and looking at what those plans will have on a cumulative impact assessment.

One area that I'd like to bring forward is the work that we're doing up in the Horn River shale basin, where we're looking at a five- to ten-year development plan and working with the provincial government on how those plans could be integrated with concerns around species at risk. The cumulative effects of those plans can be integrated into mitigating those effects on species at risk, including the caribou in the area.

That's a very effective way of not burdening individual projects but still getting to the need to assess cumulative effects assessments.

The Chair: Thank you, Mr. Dunn and Mr. Cullen.

We go now to Mr. Harris for up to seven minutes.

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

My first question would be to Mr. Dunn. I'm curious about the market and the competitiveness of our Canadian shale gas versus the U.S. supply. You mentioned things like price and distribution. What areas of competition with U.S.-produced shale gas would concern you in regard to, say, the tax treatment in the U.S. that you brought up versus anything the federal government has to offer? What would you be looking for?

You talked about a robust regulatory regime for you to operate in. Are there things we can do in Canada to ensure the competitiveness of our Canadian resources?

Mr. Richard Dunn: Thank you. I appreciate the question.

With regard to the details on the tax, in the United States the developers are given an immediate writeoff of their expenses against their taxes—

Mr. Richard Harris: Is that their capital cost allowance, equipment and stuff?

Mr. Richard Dunn: That's correct. It's effectively a capital cost allowance. They're enabled with a 100% writeoff in the first year against taxable income.

In Canada, historically, for development expenses, it's been a 30% declining balance, so it can take somewhere between five to seven years to get that same level of writeoff against the taxes. In an industry where cashflow is critical at this point in time, this 100% writeoff provides a significant advantage to the competitiveness of the U.S. shale plays.

What we are advocating through the Canadian Association of Petroleum Producers is effectively the same. At this point in time, when the industry is so competitively challenged, we're advocating the same tax treatment that's been afforded to the manufacturers in Canada over the last five years, which is effectively a two-year straight-line writeoff, 50% a year. So it's not quite what the U.S. gives, but again, it would provide a significant advantage over what Canadian tax regulations currently provide.

Mr. Richard Harris: When your company embarked upon the recovery of shale gas, was the competitive environment different at that time, or was the success of what you're doing contingent on the federal government coming on with tax incentives, etc.?

Mr. Richard Dunn: That's an excellent question. With the emergence of shale gas in the last few years, the price of natural gas has dropped by approximately 50% to 60%. When we embarked on work in the Horn River Basin, for example, gas would have been valued at somewhere between $7 and $8 per 1,000 cubic feet, mcf, if you will. Today that same gas sells for $3.50 to $4 per mcf, a 50% drop in the commodity price. This drop in commodity price has really put the Canadian industry under severe competitive challenges. As the commodity price goes down, every nickel becomes that much more important. The inherent disadvantages that we have in terms of operating in a cold weather environment, as well as the increased distance to transport gas to market, and the increased costs associated with that, really make it critical that we all pull together and do whatever we can to keep the industry viable at this point in time. Certainly this CAPP tax proposal is a very important bridging opportunity to keep the industry viable in these tough competitive times.

● (1300)

Mr. Richard Harris: Thank you very much, Mr. Dunn. I appreciate your comments.

Mr. D'Iorio, I'm a little confused about slide 8 in your deck. The first point, on the regulation of onshore oil and gas and so on, falls primarily under the provincial jurisdiction. I understand that statement, but then you go on to name a number of different federal government departments that would play a role in this, and it looks as though the word “primarily” is perhaps not used properly there. Just how big a role do those federal government departments that you named play in a primarily provincial jurisdiction situation?

The Chair: Mr. D'Iorio, could we have a brief answer, please?

Mr. Marc D'Iorio: Yes.

Thank you for the question. Rapidly, primarily, you have to look at the balance of the number of cases in which the provision of these acts would actually be triggered, and there are very few of them. Typically, for example, under the Fisheries Act or the Canadian Environmental Protection Act, there are very specific conditions that would trigger these things, so they're not triggered very often. For example, environmental assessments can be triggered by the Fisheries Act and then the Species at Risk Act and the Migratory Birds Convention Act can be brought into play.

Mr. Richard Harris: Okay. Let me ask you a quick specific question, if I may.

The Chair: Be very brief, Mr. Harris, please.

Mr. Richard Harris: Say in a province that had a moratorium on oil and gas drilling there was an initiative by a first nations group that wanted to proceed with oil and natural gas exploration notwithstanding the moratorium. Would the federal government likely be involved in protecting any rights of that group to do that?

Mr. Marc D'Iorio: I'm really not an expert in this area. I do not know the answer to that, but we could find the answer to that if you want.

Mr. Richard Harris: All right. Thank you.

The Chair: Thank you.

Thank you, Mr. Harris.

The witnesses are free to leave. I just want to thank Mr. Dunn very much for being here by video conference, and I thank the members from the department, Mr. Lavoie, Mr. Boerner, and Mr. D'Iorio.

Mr. Cullen has an issue. He said it would take two minutes, and I promised him that two minutes.

Go ahead, please, Mr. Cullen.

Mr. Nathan Cullen: Sure. Does this need to be in camera? I'm unsure.

The Chair: Is this going to take two minutes? It will take longer than that to go in camera.

Mr. Nathan Cullen: Okay. Committee members have the motion in front of them. This is with regard to the export of steam generated by Bruce Power. We submitted this within the appropriate timeline. Here's the question.

There's a timeline consideration for committee, and this is why we move this motion. The CNSC has held, I believe, two public hearings—Cheryl will know this—on the transport of waste out of Bruce Power?

A voice: It was one in two days.

Mr. Nathan Cullen: It was one hearing in two days. Excuse me.

Their decision is actually now coming up, and this committee hasn't reviewed this at all. The reason we're putting this forward is there isn't a policy framework regarding the shipment. Canada has never done this before. The waste needs to be shipped past places where many millions of people live—down the Great Lakes and out through the St. Lawrence.

I think it bears witness...and I think CNSC will be interested in coming before us, as well as some of the other folks we mentioned here, because one hearing over two days probably isn't sufficient when there is no policy framework for Canada at all. If the government has developed one or is developing one, this would be helpful, but I think it would also be helpful to hear from people who are feeling the impact of this.

So I put this forward to the committee to take a look at. December 8 is the date on which the CNSC is expected—unless they delay again—to issue a statement about whether the policy framework that exists or doesn't exist is sufficient for protecting Canadians' health.

● (1305)

The Chair: I understand that you just want to get a quick feel for what the committee wants to do.

Mr. Nathan Cullen: Yes, if the committee wants to do this, then to assist the clerk to have enough time to call the people in our usual....

The Chair: We are beyond the end of the committee meeting, so we'll just get a quick view.

Go ahead, Ms. Gallant.

Mrs. Cheryl Gallant: I just want to confirm. You're willing to wait until the CNSC gives their decision to call them in here.

Mr. Nathan Cullen: The reason we're trying to get them before the CNSC decision is that once the CNSC decision is made, the shipments, presumably, could go down the lakes and out the river. That's the concern. It is that the CNSC has done this with what we'd have to admit is very little public consultation. I think the groups have written all committee members here with concerns about there being insufficient public input into something that's pretty important.

The Chair: Mr. Cullen, do you want to bring this back at maybe the next committee meeting, briefly?

Mr. Nathan Cullen: The only reason we wanted to get it done today is that if the committee has an interest in looking into this, and I'd be surprised if we didn't, it would assist the clerk to know that this is the intention of the committee, and he can go ahead and begin to contact potential witnesses. Our problem is that if we wait, witnesses can't come, it is delayed past the decision from the CNSC again, and the relevance dramatically changes.

The Chair: Okay. Could it wait until Thursday, though, and we'll deal with it on Thursday morning? We're past the committee end. I know I promised you a couple of minutes. I thought it would go more quickly than this.

Mr. Nathan Cullen: Just for process, then, Chair, the confusion we have is that we delivered this well before the 48 hours so as to have this as committee business. I guess what would be helpful is to have this on the agenda, clearly.

It feels as if we've wedged something in, but we followed all the guidance you've given us on delivering new business.

The Chair: I understand that, Mr. Cullen, but often members will bring a motion before a committee and won't bring it up for weeks or months. It is up to the member who presents the motion to the committee to decide to do that.

Mr. Nathan Cullen: Just to be clear, and I know that people have to go to other things, Chair, to be fair, I came to you halfway through this meeting and gave you notice that I'd like to talk about this. We went overtime. I'm not sure what my options were in being respectful of committee members' time. I did everything I could. I submitted the motion. I notified you that I was going to talk about it. And now I'm not being heard.

Of course we'll do it Thursday, but I'd just like some clarity on process, because we're trying to be very respectful of committee members' time. We did everything we were told to do, and we're not hearing this discussion. It's unfortunate.

The Chair: We will deal with it on Thursday. It's a good point, Mr. Cullen.

Mr. Nathan Cullen: Thank you.

The Chair: You said a couple of minutes. I thought that's what it would take. Obviously, it will take longer, so we'll bring it up Thursday.

Thank you, everybody, for your involvement in the committee and another great meeting.

The meeting is adjourned.

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