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Chair

Mr. Leon Benoit

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• (1530)

[English]

The Chair (Mr. Leon Benoit (Vegreville—Wainwright, CPC)): Good afternoon, everyone.

We're here to continue our study on diversification in the energy sector, but before we do that, we have a little bit of housekeeping to do. It shouldn't take more than a minute.

Mr. Garneau is replacing the former Liberal member on this committee and he will become a vice-chair of the committee as a result, and we just want to quickly have an election of Mr. Garneau as vice-chair of this committee.

Mr. Blaine Calkins (Wetaskiwin, CPC): Mr. Chair, I would be happy to do so, but I would just seek clarification. In order to be a vice-chair or chair of the committee, has Mr. Garneau officially become a member of this committee? Has that been tabled in the House?

A voice: Yes, it's been tabled.

Mr. Blaine Calkins: Okay, then it would be my pleasure and honour to nominate Mr. Garneau as vice-chair of the committee.

The Chair: Thank you, Mr. Calkins.

Mr. Jamie Nicholls (Vaudreuil-Soulanges, NDP): I second that motion.

The Chair: Okay, Mr. Nicholls seconds the motion.

The motion is carried, thank you very much.

(Motion agreed to)

The Chair: Welcome, Mr. Garneau, as a vice-chair of this committee. You're never going to get another election like that, Mr. Garneau. I don't think so, so enjoy that.

Some hon. members: Oh, oh!

The Chair: Okay, back to business. As I indicated, we're here to continue our study on diversification in the energy sector.

I'd like to make sure that members of this committee and all of the witnesses do stick to the topic at hand. Generally that has happened, but I want to make sure that we're dealing with the business of the committee and not straying too far. I encourage you to stick to diversification of the energy sector.

We've divided our study into three parts: export market diversification, product diversification, and diversification of energy supply sources. Today we're primarily on product diversification, but

I encourage the witnesses to keep it to the diversification in the energy sector topic at the very least.

With that, we'll go ahead with witnesses as listed on the agenda for today.

First I'll introduce the witnesses. We have today, as an individual, Ms. Madelaine Drohan, Canada correspondent, *The Economist*. Welcome to you.

We have from Canadian Gas Association, Mr. Timothy M. Egan, president and chief executive officer. Welcome to you again.

We have from Canadian Association of Petroleum Producers, Greg Stringham, vice-president, markets and oil sands, and welcome to you as well.

From Cameco Corporation we have Jeff Hryhoriw. I'm sorry, I should be able to pronounce your name, being from the Vegreville area.

Mr. Jeff Hryhoriw (Director, Government Relations, Cameco Corporation): It's Jeff Hryhoriw. If you take off the first and last letters you might stand a chance.

The Chair: Right. Thank you very much, and I do apologize for that.

Mr. Hryhoriw was going to be at our meeting last time and he couldn't make it, so he's here today. He is with government relations at Cameco Corporation.

People will remember who you are better now than if I hadn't screwed that up so badly.

From the Pembina Institute we have two witnesses today. With us is Mr. Nathan Lemphers, policy analyst, oil sands. Welcome. We have, by video conference from Calgary, Alberta, Mr. Tim Weis, director, renewable energy and efficiency policy.

It's a long string of witnesses, but all of you will have a lot to contribute, I know.

We will start with Ms. Drohan from *The Economist* with a presentation for up to seven minutes. Go ahead, please.

• (1535)

Ms. Madelaine Drohan (Canada Correspondent, The Economist, As an Individual): Thank you very much, and thank you for inviting me.

As you have heard, I am the Canada correspondent for *The Economist*, but I'm here today because of a report on natural resource policy that I researched and wrote last year for the Canadian International Council. It's called "Nine Habits of Highly Effective Resource Economies: Lessons for Canada". I'm speaking as the author of that report, not as a correspondent for *The Economist*.

The premise of the report was that Canada was good at extracting and harvesting natural resources, but could be even better. I looked at energy, mining, and forestry, and I talked to as many people as I could, which ended up being about 160 of them, both across Canada and in other developed countries that have important resource sectors, such as Australia, Norway, Sweden, and Finland.

I asked all of them what Canada could be doing better. The "Nine Habits" in the title of the report are the nine issues that were raised the most frequently, but this is not an exhaustive list.

If I had to sum up what they told me in one sentence, it's that Canada has to take a longer, broader view of resource development and be more collaborative in its execution. These are very general principles, but they have real impact when it comes to things like expanding markets and diversifying products, which I understand is the work of this committee.

Market diversification is one place where thinking more broadly comes in. I saw that a previous witness told you that achieving market diversity is deceptively simple, that you just build the infrastructure required to get the product to market. I would politely disagree. There are so many obstacles that can trip you up that unless you deal with them first, you won't get the infrastructure built.

The debate over the Northern Gateway pipeline is a perfect illustration. No one could have been surprised by the opposition of some aboriginal groups and environmental groups. The environmental movement has been on the rise since the 1970s, and aboriginal groups have been more assertive about having their say about development on their territories since a series of court decisions starting in the late 1990s.

The lesson to draw from this is that energy policy can't be dealt with in isolation. At a minimum, aboriginal and environmental policies have to be included so obvious problems can be addressed, and you could argue as well that trade, investment, and labour policies should also be part of the discussion. I know you probably don't want to hear this since it simply complicates the work of the committee.

It sounds complicated, but other governments are doing it. Here in Canada, Plan Nord in Quebec is an example that's probably worth looking at. While it's not perfect, it is an attempt to bring together the range of policies in the interest of developing resources in Quebec, and it ties resource policy to aboriginal, infrastructure, tourism, investment, trade, and environmental policies.

If you look abroad, Australia has a very detailed policy on how to penetrate and maintain markets in Asia for its mineral and energy exports. Australia is the nearest comparator to Canada in that it's a federation and the states there have jurisdiction over natural resources.

Again, the Australian plan is not perfect, but it brings together everything from broad international trade policy right down to very detailed education policy, such as the fact that they are going to start teaching Mandarin in primary and secondary schools starting next year.

It's this type of broader and longer-term thinking that's needed to achieve market diversification, and there's not enough of it being done in Canada. We get hung up on our differences and on the difficulties in getting the provinces and the federal government together, but meanwhile other countries, some of them our competitors, are forging ahead.

If you look at product diversification, which is sometimes mistakenly referred to as value added.... I say mistakenly because adding value to resources is not the only option. There's also extracting value and building value.

In my report I looked at the forest sector here, but I'll try it with bitumen. Refining would add value. If you created new byproducts from the bitumen itself or waste streams, that's extracting value, and if you built a new industry on top of it, that's building value.

I heard recently of a good example of some medical imaging technology in Alberta that's actually been adapted out of technology that's used in the oil industry to locate reservoirs underground. A non-energy example of building value is, of course, the financial and legal sector in Toronto that people don't think of very often, but it has its roots in the mining industry.

- (1540)

Canada has its successes, but overall we're not doing a very good job of adding, extracting, or building value on our natural resources. I was quite dismayed when I travelled abroad to hear that we're often seen as a rip and ship resource producer.

There's a lot to say on diversification, but I'll focus on one key difference that I've found between Canada and some of the comparable resource producers that's pertinent to product diversification. Their companies are more collaborative when it comes to research. It's out of research that the new products, processes, and services emerge. These new products can lead to new markets, so the two are connected.

I'm referring here to collaboration among companies for research solutions to common problems and to sharing the benefits of that research. We have several small efforts along these lines in Canada. COSIA in Alberta, which was only created in the last year or two, brings together the major oil sand producers to research environmental challenges. FPIInnovations is looking for new products and processes in the forest industry. There are several groups in the mining sector. Most are relatively new, and some are struggling.

Yet again, when you look abroad, Australia has had its Australian Mineral Industries Research Association since 1959. It's so successful that several large Canadian mining firms are now members of it. Australia also has a research program, partly financed by the government, that encourages groups of companies to collaborate. There's also mass collaboration in Sweden and Finland.

The advantage of pooling resource dollars is that companies will get more bang for their research buck. This is actually something that the government could encourage, not by spending any more money on research grants or tax exemptions, but by giving priority to research projects that involve groups of companies instead of individual firms.

I tried to get to the bottom of why Canada is not very good at this, and I have to admit I didn't find any satisfactory answers, but certainly other countries are doing it, and it's to their advantage.

I'll sum up with the idea I started with. One of the big messages I got in talking to other people and other countries about resources is that in order to achieve better market and product diversification, you have to have a broader and more collaborative approach.

Thank you.

The Chair: Thank you very much, Ms. Drohan.

We go now to the Canadian Gas Association and Timothy Egan, president and chief executive officer.

Go ahead, please, with your presentation, sir.

Mr. Timothy Egan (President and Chief Executive Officer, Canadian Gas Association): Thank you, Mr. Chairman, for the opportunity to provide remarks related to your study on market diversification.

As you know, the Canadian Gas Association represents Canada's natural gas delivery industry. I put before you the map that you find on slide 2 in your package. This committee has seen it before, but let me present it again just to remind you of who our members are and how they fit into Canada's energy picture. We're the natural gas distribution and transmission companies that deliver energy solutions to more than 6.3 million homes, businesses, and institutions in communities right across Canada. CGA also represents about 50 equipment manufacturers and service providers.

Today I am going to focus my remarks on the role of natural gas in facilitating energy market diversification. I'm going to do this by answering four questions. First, what is energy used for? Second, how does natural gas meet those uses in Canada today? Third, how can product diversity in the use of natural gas be beneficial to Canadian consumers going forward? Fourth, how can governments facilitate product diversity in the energy sector, particularly in the use of natural gas?

I'm particularly pleased to have the opportunity to speak because often the energy discourse in Canada is focused on energy supply, or if the discussion is about energy use, the tendency is to focus on electricity. Natural gas use is a topic that rarely gets coverage despite the significant, and I would argue, growing economic value it represents to our country's well-being.

To understand why, let's start with the first question about what energy is used for. Let me focus your attention on the third slide in your package as it shows that energy is used for three core societal needs: heating and cooling, mobility, and electric power. You can also see that the bulk of energy use in Canada is actually for heat. This is followed by energy from mobility, and finally energy for generating electricity.

Now how does natural gas meet those needs? If you look at slide 4, we've laid out some specific examples for you, and just to remind you, natural gas currently meets over 32% of end use of energy in Canada. Again, this is predominantly for heat: the heating needs for industrial uses and for space and water heating in homes. A smaller amount is used to generate electricity, and thus far, a very small amount, less than 1%, although that's growing, is used as a transportation fuel. This is the current picture, but the affordability of natural gas is changing it fundamentally and society is looking at more and more ways to use this clean and abundant fuel.

How does the idea of more natural gas use support diversity? Let me remind you again of the value proposition of natural gas. According to Statistics Canada, the cost of using natural gas to heat homes has fallen by approximately 19% in just five years. By comparison, the cost of electricity during this same time has increased by over 12%, and the cost of fuel oil and other fuels has increased over 46%. So, as noted on slide 5, in reference to home space and water heating, natural gas continues to be an affordable energy choice, all the more important in difficult economic times. For all energy users, any reduction in energy costs, while enjoying the same level of comfort or maintaining the same level of client service or production output, means that savings are redirected to other uses or help maintain and strengthen competitiveness.

Affordable energy drives economic performance, enabling investors the freedom to do more with their capital to create more jobs and opportunity. The significance of this is being demonstrated in the U.S. in the natural gas sector as we speak as industrial facilities are relocating to take advantage of the natural gas opportunity.

The other advantage of natural gas is its versatility. It offers enormous opportunity for efficiency in its own applications, for instance, through ever better performing appliances. As well, it's a key supporter and partner for other technologies to improve their reliability and performance.

If natural gas already meets a fairly significant amount of the energy needs in Canada, how is using more of this fuel going to promote energy use diversity to the benefit of Canada going forward? I draw your attention to slide 6 to give you a few specific examples.

Using natural gas in combined heat and power applications is an efficient and affordable way to meet both heat and power needs, a well-tested technology application that abundant and affordable natural gas is making even more attractive. To date the focus has been on large CHP, combined heat and power, projects, but increasing opportunities for medium and even micro CHP applications, some potentially small enough for the home, are emerging. This represents more service choice for the consumer to meet end-use energy needs.

Natural gas is an ideal enabler for intermittent renewable energy sources such as wind and solar. The intermittency of these technologies obliges their promoters to have standby delivery systems using other fuels and technologies, and natural gas offers a particularly flexible option.

• (1545)

In addition, growing research on the idea of using the gas grid as an energy storage system promises even better utilization of renewable and other technologies.

Natural gas vehicle engine technology can offer an affordable and clean transportation fuel option when fleet operators currently have very limited choice in their fuels. Moreover, Canada is currently a leading driver of this technology through companies like Westport.

I have one final point on this topic. At CGA we have begun research exploring the idea that there is an opportunity to expand the natural gas delivery system to offer an affordable, innovative, and more efficient energy choice for customers, communities, and industry currently located off the existing distribution system in more remote areas in Canada's north using CNG, compressed natural gas, and LNG, liquid natural gas.

In sum, natural gas enables diversity by giving greater choice to the end user. Of course, the question that is often asked is whether we need to be concerned about supply not being able to meet demand. In the case of natural gas, I think it's fair to say that the short answer is no. Natural gas is in abundant supply thanks to significant conventional and unconventional resources that have been deemed economically recoverable in North America.

In addition, there is a significant supply of renewable natural gas and, as the most recent issue of *The Atlantic* magazine has highlighted, there's growing evidence of the opportunity for recovery of methane hydrates. Add to this the continuous innovation in technology and energy efficiency efforts over time—as you can see on slide 7 we document the per capita efficiency—that reduce per capita use, and we can use less fuel for more of our energy needs.

Let me conclude by answering the final question about the role of government in driving product diversity in the energy sector, particularly vis-à-vis natural gas. The distribution industry, through CGA and Energy Technology Innovation Canada, or ETIC, which is our technology demonstration and commercialization project, believes that government's role here should be threefold.

First, government should drive innovation in partnership with industry. We continue as an association and as member companies to work with NRCan. We're pursuing relationships with Sustainable Development Technology Canada and with the National Research Council to identify opportunities to partner on the commercialization

of market-ready technology that will provide more choice in the marketplace.

Second, government should drive efficiency in partnership with industry. The Government of Canada has a distinguished record as a promoter of energy efficiency. Most recently, with our industry, NRCan co-sponsored a significant project to test new highly efficient natural gas furnaces. Ninety-one units in homes across the country are part of the pilot and early results suggest efficiency gains in the order of 40% to 45%, a remarkable result that promises energy cost savings for the homeowner, and lower emissions. More such cooperative efforts can be pursued, and we welcome the opportunity to do so.

Third, government should ensure that policies, regulations, and programs don't pick fuel favourites but again work to ensure that a range of fuel and technology options are available in the marketplace.

Mr. Chair, I'm going to stop there. I want to thank you again for the opportunity to present to the committee. I welcome any questions committee members might have.

• (1550)

The Chair: Thank you very much, Mr. Egan, for your presentation.

We welcome now, from the Canadian Association of Petroleum Producers, Mr. Greg Stringham, vice-president for markets and oil sands.

Go ahead, please, with your presentation, for up to seven minutes.

Mr. Greg Stringham (Vice-President, Markets and Oil Sands, Canadian Association of Petroleum Producers): Thank you very much.

Mr. Chairman, members of the committee, we appreciate the opportunity to join you today to share our views from the Canadian Association of Petroleum Producers in regard to your market diversification study.

In particular, as you know, we have a very important focus on this issue. Our focus right now, for today, will be on the oil and gas sector, but that spreads across, as you'll hear from the other witnesses, to other sectors as well.

Let me start by putting in your minds the context for the Canadian oil and gas industry as we discuss this market diversification.

First off, our industry in Canada plays an important role. We invested \$61 billion in Canada this last year just in capital investments and paid \$21 billion to governments in royalties and taxes. We employ about half a million people, and we account for about 20% of the exports in Canada.

In a nutshell, the oil and gas sector plays a very vital role in the Canadian economy. To play that role, for us market growth and diversification are critical: first, to assure that we have a market outlet for our growing crude oil supply and our natural gas production; second, to improve access to global prices for our products; third, to improve the security and reliability for all Canadians; and fourth, to continue to provide the economic benefits I talked about, and improve the quality of life for Canadians across the country.

In order to realize this, Canada needs to be competitive. We also need to have the social licence to develop and operate the infrastructure necessary to move these products to our markets.

Let me start with crude oil and give you an idea of that. Canada has been very much blessed with abundant crude oil resources. We have the third largest resources in the world. Canada's production right now of crude oil far exceeds our domestic and local refining capacity. The map I brought with me indicates that we have about two million barrels a day of refining capacity here in Canada right now.

Even with these world-class resources, though, it is not well known that the refineries in eastern and Atlantic Canada—from Quebec east—actually import over 60%, or 670,000 barrels a day, of their oil from offshore suppliers. About two-thirds of our Canadian crude oil production is actually exported, and almost all of those exports are to a single market in the United States.

Natural gas, likewise, has a vast and growing resource available to it due to new technology developments. It has really unlocked this large shale gas resource not only in Canada but also in the United States.

As is the case for oil, our natural gas production really does exceed our domestic requirements. Again, about 60% of our production here in Canada is exported, but exclusively to the United States. With the surge in shale gas production in the U.S. and Canada, supply is being backed out of its more traditional markets in the U.S. In fact the U.S. gas is now being imported into eastern Canadian markets. The market is working.

Any discussion on market diversification of the Canadian energy sector needs to take into account the recent changes that have changed so dramatically our market trends. First, the crude oil production from western Canada is about three million barrels a day. It's expected to reach about four and a half million barrels a day by 2020. Most of this growth will come from the oil sands production, which is heavy crude.

New application of technology, however, is unlocking large resources in this tight oil—or oil shale, as it's sometimes called, where there's light oil that is simply in tight resources, less porous reservoirs—and it's moving to offset the declines that we have seen in our industry over the last several years.

We'll be releasing our annual forecast in about a month, but I want to assure you today that we don't anticipate, in the data we've seen so far, any significant changes in that forecast.

The outlook for crude oil demand in the United States is relatively flat. Recent Canadian production has experienced discounts relative

to world oil markets due to a significant increase in the supply in North America of both oil sands and this tight oil, and the lack of infrastructure to get those new supplies to markets.

Estimates are in place that this price disconnect between the price available to Canadian production in the North American market and that in the global markets is costing the Canadian economy, not just the industry, about \$50 million per day. This is a key driver for us to expand and diversify our markets.

The potential that exists to grow and diversify our markets for Canadian oil includes, first off, eastern Canada, exports from Canada's west coast, and the U.S. gulf coast. Let me go through each of those three quickly.

In eastern Canada in 2012, as I mentioned, Quebec and the Atlantic provinces alone, not just all of eastern Canada, imported 700,000 barrels a day of their 800,000 barrels a day of production, from offshore sources. This region is currently purchasing crude oil at world market prices, which are currently higher than the domestic prices we're seeing in the rest of Canada. The timing for this new infrastructure is important, as Canada is not the only infrastructure that we're looking for.

● (1555)

That supply from western Canada is going to supply reliability and security in a very competitive financial way to eastern Canadian consumers. In addition to the pipeline, though, rail alternatives are also being proposed to increase this movement of oil into eastern Canada. While the market will ultimately make that decision, we think there's a strong case to grow the western Canadian supply into these markets.

I want to talk about the west coast options. With Asia being the fastest growing energy market in the world, it represents a great opportunity for Canadian heavy oil producers. As an example, in 2011 China imported 5.7 million barrels of oil a day to satisfy its needs.

In addition to Asia, there is also the refining capacity in the states of Washington and California, and it's almost 2.8 million barrels a day. Last year, these refineries imported only 146,000 barrels a day from Canada. A key source of supply for these regions is Alaskan crude, which has been declining over the last 10 years, and given the proximity to our west coast, this is an opportunity that we would like to fill. Both pipeline and rail options are under consideration to actually increase the export market access to these markets as well.

Last but clearly not least is the U.S. gulf coast. While market diversification is critical, it doesn't make sense for any producer to be tied solely to just one market. There is also no doubt that the U.S. will continue to be our major market for exports for crude oil into the future.

The U.S. gulf coast represents the most significant opportunity in North America for market growth for Canadian heavy oil producers. There is a market of nine million barrels a day in the U.S. gulf coast. A significant portion of that is heavy oil capacity that has already been built and is currently processing heavy oil from other suppliers.

Refineries in this market are importing oil from Mexico, Saudi Arabia, and Venezuela. Imports from Mexico and Venezuela have been declining in recent years. Canada has an opportunity to fill that gap, provide a reliable, secure supply, and satisfy the needs of these existing refineries if the pipeline capacity is put in place.

Again, a number of pipeline proposals, including Keystone XL and others, and rail proposals are looking to fill that gap. Many of the options that were put on the table are being evaluated; it is well advanced and Keystone is one of the most strongly supported in the market. In our view, there's a strong case for approval of this project on its merits, and we believe that the Department of State, with its supplemental environmental impact statement and its recent points, has made that point very clear.

Let me turn briefly to what Mr. Egan talked about in regard to natural gas.

For natural gas, there's a significant growth in unconventional gas supply, both in Canada and in the U.S. Shale gas has become a game changer, most notably due to the Marcellus and other plays in the southwest U.S., and what we call the Montney or the Horn River plays here in Canada.

A number of the traditional markets for our Canadian natural gas exports are in close proximity to this growing natural gas supply in the U.S. As a result, our Canadian gas producers are looking for other opportunities both to expand and to diversify their markets, not only to other geographical areas but into other uses in Canada as well. This has resulted in substantial changes in the North American market, both in pricing and in where that gas moves.

One of the most important things for us is seeking that demand beyond our North American borders, particularly in the growing markets in Asia via liquefied natural gas exports. It's fair to say that the future of our natural gas industry in western Canada is largely dependent on the timing and competitive development of liquefied natural gas export and its infrastructure on Canada's west coast.

Canada has a window of opportunity to develop this LNG off Canada's west coast, but it must be done relatively expediently in order to compete globally with well-established and emerging LNG-exporting countries. This is a very competitive global market, in which Canada is somewhat of a latecomer. To date, three projects have received their licences to export LNG from Canada, and there are another four that are being proposed in order to take a look at that. This has the potential of about six billion cubic feet a day.

Equally, in addition to these growing export markets, there are opportunities to expand use of natural gas here in Canada. The key markets for natural gas include, of course, the oil sands, natural gas for power generation, natural gas for transportation—as Tim has mentioned, not just for long-haul vehicles but also for fleet vehicles—and natural gas for home heating and other domestic needs. All of these will require new infrastructure and expanded existing infrastructure, so there can be market diversity in that way as well.

We are clearly on the global stage as the Canadian oil and gas industry and have many strengths with which to compete on those global markets, but there are a few things that it would be helpful for the government to do to help us out as well. The industry has its role to play. We need to demonstrate responsible development and

continuous improvement in our economic, environmental, and social performance. We need to be transparent. We need to do cooperative research and development like COSIA, which was mentioned by Ms. Drohan. We need to be transparent in communicating and in dialoguing effectively with the public.

• (1600)

Likewise with governments, there are a few things we'd like to put on the table that could be helpful in expanding and diversifying this market.

First would be ensuring policy that is right for Canada, recognizing our energy circumstances and our economic dependence on responsible resource development. Second would be ensuring that Canada has a world-class regulatory system, for example, as it relates to the management of transportation of oil that we've seen the federal government move forward with recently. Third would be advancing policy that continues to support timely and efficient regulatory decision making. Fourth would be ensuring that an integrated policy approach to market growth and diversification addresses all the elements: fiscal, environmental, trade, aboriginal, and regulatory. Last would be advancing policy that continues to reinforce our commitment to open borders and free trade.

With Canada's economy and the international opportunities at stake, we believe this is a very important opportunity for both industry and governments, and one that can help us as an industry realize those economic benefits that I talked about earlier.

Thank you very much, Mr. Chairman.

The Chair: Thank you, Mr. Stringham.

From Cameco Corporation, we go now to Jeff Hryhoriw, director of government relations.

Go ahead with your presentation please, for up to seven minutes.

Mr. Jeff Hryhoriw: Thank you, Mr. Chair, and my thanks to your committee for inviting Cameco here today to share our views on the importance of market diversification to Canada's energy sector.

I'd like to begin today by telling you a bit more about our company before talking about the evolving market for our products, and ending with a quick synopsis of what the federal government can do to help facilitate market access for Canadian players in this industry.

Headquartered in Saskatoon, Cameco is one of the world's largest producers of uranium for nuclear energy, accounting for about 16% of total global production. The majority of that production comes from our extensive mining and milling operations in northern Saskatchewan. I should add that we also have exploration projects on the go both in Saskatchewan and other provinces and territories across Canada.

Cameco's Canadian footprint extends beyond mining into other aspects of the nuclear fuel cycle. We have uranium refining, conversion and fuel fabrication facilities in Blind River, Port Hope, and Cobourg, Ontario. We also own just under a one-third share of North America's largest nuclear power generating station, the Bruce B reactors on the shores of Lake Huron.

In terms of sales, Cameco markets its uranium and fuel products around the globe. We play a major role in the energy equation of many countries, particularly here in North America, where Cameco uranium currently powers one in every 14 households in Canada, and one in every 18 households in the United States.

Through these activities Cameco employs more than 5,000 people in Canada between direct employment and long-term contractors. Importantly, close to 1,700 of these jobs are held by workers of first nations and Métis heritage, making Cameco the largest industrial employer of aboriginal people in Canada. It's a record of which we are very proud, and we intend to build on it going forward as we grow our business.

Cameco is in the midst of an ambitious growth plan to increase our uranium production from the current rate of around 22 million pounds per year to 36 million pounds per year by 2018, with the vast majority of that increase again coming from expansion and development projects here in Canada.

We are undertaking this strategy in response to a growing market for nuclear energy that is currently manifesting on the world stage.

Despite the current global economic malaise, despite the short-term uncertainty that is affecting commodity markets, despite the lingering effect on the nuclear sector of the earthquake, tsunami and nuclear incident in Japan, I am pleased to report that the long-term fundamentals of the global nuclear energy sector remain strong.

There are presently 435 operable civil nuclear power reactors in the world. There are an additional 65 reactors under construction right now, and dozens more in the planning stages. By our estimation, this will take global nuclear generating capacity from the current level of around 392 gigawatts to 510 gigawatts by 2022. This represents a 30% increase.

Again, these are post-Fukushima numbers, representing growth this industry hasn't seen in decades. Also interesting is where the majority of this expansion is happening, because it likewise signals a notable shift.

As with most commodities, the biggest growth market for uranium is China. China currently has 17 reactors in operation, another 28 under construction, and plans for dozens more thereafter.

Another rapidly expanding market is India, which operates 20 nuclear reactors, has another seven under construction, and is planning for several more units by 2020.

While these two economic giants lead the way, other nations are similarly expanding their existing reactor fleets, while still more countries that have not generated nuclear power to date are now turning to it as a form of clean, safe, reliable electricity production.

That's not to say that growth is stagnant in our major long-standing markets, either. With 104 reactors, the United States is still

the largest nuclear energy consumer in the world. Construction is now under way on three new reactors in the U.S., the country's first new builds since the 1970s.

However, current expansion patterns clearly point to a global market for nuclear energy that is shifting.

While established players, like the U.S., will always remain important in the nuclear industry, the emerging growth markets are vital to our long-term success. The Government of Canada and indeed all parliamentarians play a major role in determining the ability of Canadian companies to participate in these markets.

The nuclear energy sector is among the most highly regulated in the world, and rightfully so. There are both international and bilateral non-proliferation safeguards in place to ensure that products and technologies sold for peaceful, civilian nuclear energy generation are used exclusively for that purpose and not diverted for military intentions. Among these safeguards are nuclear cooperation agreements, or NCAs. No trade of nuclear products or technologies can take place between two countries unless they have successfully negotiated and implemented a bilateral NCA governing the approved usage, tracking and reporting requirements for such materials.

● (1605)

Canada has had NCAs in place with countries like the U.S., Japan, South Korea for some time. However, a number of agreements with key growth markets have only recently been concluded under the current government, including those with China and India. These two NCAs, in particular, were welcomed as very significant and celebrated events by the Canadian nuclear sector. They open up the two fastest growing markets on the planet to Canadian uranium, fuel products, and reactor technology, enabling Canadian players in this industry to compete on an even footing with their counterparts around the world.

The net result of these agreements is that more of the financial benefits from the growth taking place in the global nuclear energy sector will accrue to Canada so that Canadian companies, workers, and communities reap the rewards of the jobs, investment, and economic activity that go along with this magnitude of growth. To provide a concrete example, Cameco currently has long-term sales contracts in place with two Chinese utilities, the value of which will be in the billions of dollars. Up until now we were compelled to fulfill these contracts using uranium sourced from other countries. With the NCA now in place, it's our intention to soon begin using Canadian uranium for this purpose. Again, the net result is that Canada will be bearing the fruits of this labour, not some other country.

Another activity that the federal government can undertake to help open energy markets is to engage in trade missions with key destinations. Governments play a major role in the electricity supply arrangements of many countries, especially when nuclear energy is involved, and in many of the countries where growth is happening, state-to-state relationships remain incredibly important to doing business, even for private companies.

Foreign leaders want to know they can trust the companies with which they are dealing, that they have the endorsement of the Government of Canada as a credible and reliable partner. That reassurance is delivered when senior federal representatives travel to these countries alongside their business leaders. In an industry where many of our competitors are state-owned enterprises, that support is particularly valuable. Cameco has made great strides in its commercial dealings by participating in such foreign trade missions, and we want to reinforce their importance with members of your committee.

Mr. Chair, I've covered a lot of ground in a short period of time, so with that, I will again extend my thanks on behalf of Cameco and look forward to any follow-up questions.

• (1610)

The Chair: Thank you very much for your presentation from Cameco.

We have now, from the Pembina Institute, two presenters. First of all, I understand Mr. Nathan Lemphers, policy analyst, oil sands, will present. Then he will be followed by Dr. Tim Weis, director, renewable energy and efficiency policy.

Go ahead, please, Mr. Lemphers, with your presentation.

Mr. Nathan Lemphers (Policy Analyst, Oilsands, Pembina Institute): Thanks for the invitation to share the Pembina Institute's perspective at this committee hearing.

Pembina's mission is to advance clean energy solutions through research, education, consulting, and advocacy.

When it comes to diversification of energy markets, it's not just where you ship your products, but what you are actually shipping. In the case of Canada it is oil, led by the oil sands, that has become a dominant energy export. Oil as a share of commodity production value has risen over the past 15 years from 18% to 46%, a near tripling. That's nearly as much as natural gas, metals mining, forestry, and agriculture combined. This is not what I would consider to be product diversification.

As Canada's economy reorientates towards oil sands production, we will see that diversity be replaced by increasing reliance on oil sands revenues to fill public and private sector coffers.

This lack of product diversity is problematic for a number of reasons, both economic and environmental.

On the economic front, oil sands have relatively marginal economics compared to most other oil sources. In last year's *World Energy Outlook*, by the International Energy Agency, they did a cost comparison of a variety of different oil sources, and the capital and operating costs for the oil sands for new production was up to 15 times higher compared to new production coming out of places like

the Middle East. These marginal economics make the industry susceptible to prolonged price spikes or price crashes. The fate of Suncor's Voyageur project, or half a dozen other upgrader projects that have been shelved in the last decade, are a testament to this. This volatility threatens not only private sector competitiveness, but is also the source of many headaches for governments like Alberta that use oil revenues to pay for essential services.

This lack of diversity of energy products is also problematic on environmental grounds. The real and perceived dominance of oil sands exports has caused all sorts of environmental concerns along pipeline and tanker routes. For downstream markets, hands down the number one concern has been unregulated carbon pollution from the oil sands, and that's seeing an interest from downstream markets through California's clean fuel standard, a similar standard in the European Union, or the Keystone XL pipeline proposal. It's widely known that oil sands expansion will be the reason that Canada fails to meet its climate commitments.

In the absence of a credible plan to address climate change and the challenging economics that oil sands are facing, downstream markets are starting to be increasingly concerned. When you take the climate perspective into account, the International Energy Agency noted last year that two-thirds of proven fossil fuel reserves need to stay in the ground if the world is to prevent catastrophic climate change. Economist Nicholas Stern has called these reserves, the two-thirds quotient, "stranded assets". Even HSBC, which has called these assets "unburnable carbon", found that not burning these assets would strip up to 60% of the value of some oil companies based on their devalued portfolio. Because the oil sands are particularly carbon intensive, this has even greater ramifications here in Canada.

If Canada bases its future economic competitiveness on a product with a questionable future, then this study should cause some soul searching on what sort of energy superpower we are setting ourselves up to become. Luckily, Canada has no shortage of options in energy products and technologies that can put it on track to compete in the rapidly growing \$1-trillion global clean energy economy.

I'll pass the microphone over to my colleague, Tim, now.

Dr. Tim Weis (Director, Renewable Energy and Efficiency Policy, Pembina Institute): Thank you for having me.

I think it's important that we make sure we take heed in not overrelying on a single resource, but I think we all would agree that there is an important role for developing Canada's fossil fuel resources. One of the big questions we have to answer is, to what end? What are we using this one-time endowment for when it comes to diversifying our overall economy and our overall energy landscape?

A key opportunity for us, if we are going to be thinking strategically about our fossil fuel resources, is how we use them to invest in cleaner opportunities. Canada contributes about 2% of the global GDP, yet we capture only about 1% of the clean energy industry globally, which is about a \$1-trillion industry, but also is rapidly growing. It's forecast to be about \$3 trillion within the next seven years.

Renewable energy is a major subset of the overall clean tech industry. It has grown about tenfold in the past decade, reaching about \$300 billion last year. Renewable electricity accounted for about half the new electricity supply installed globally in the past two years, while in Europe alone almost half the electricity supply last year came from solar photovoltaics on their own. Canada is a major player in this market, and we shouldn't underestimate that. Right now, Canada has the seventh largest electricity system on the planet, so we shouldn't think of ourselves as small players in this overall market. Not only are we a very large electricity consumer on our own, but we're also right next door and well connected to the second largest electricity system in the world, the United States. Canada is home to the fourth largest hydroelectric capacity and the ninth largest wind energy capacity in the world.

So when it comes to clean energy, there are some ways to think about it. Canada can either be considered the smallest of the major players, or the largest of the minor players. Either way, we have a big opportunity to grow our share in what is a growing market. I think there are three ways we can grow and diversify into renewable energy.

The first is to start at home. Currently, our electricity system accounts for about 10% of our overall greenhouse gas emissions, and there are major opportunities to clean that up using cleaner electricity sources, including renewables. A clean electricity system is not only important to decarbonizing the system itself, but an increased reliance on electricity is going to be important to decrease our overall energy footprint as we move things like building, heating, and transportation onto the electricity system.

Another key opportunity for diversification is to take advantage of the large electricity market south of the border. Currently, we export about \$4 billion of electricity to the United States. The United States' heavy dependence on coal opens up an important opportunity for them to be reducing their emissions, but also for us to be supplying the United States with clean electricity.

Last, manufacturing is another really important area for market diversification for us. Renewable energy's growth has been exponential over the last couple of decades, but that growth is forecast to continue, not only to decarbonize existing electricity systems, but also to help provide electricity to the 1.3 billion people around the world who don't have power. Canada is already an established manufacturer, with products ranging from solar panels, to wind turbines, to inverters, to emerging areas of power storage. Renewable energy manufacturing is very synergistic with our existing automobile industry. Germany has proven the synergies between these two manufacturing sectors.

To take advantage of manufacturing, Canada not only has significant domestic market opportunities in the United States where renewable energy continues to grow, but also in Latin America,

which has become one of the largest growing markets for renewable energy. Our geographic proximity gives us a competitive advantage.

To sum up, Canada is already a significant player in the clean energy market, and we shouldn't underestimate ourselves, but this is a globally growing market and we have lots of room to grow and to be a much more major player. But there is competition to get there, so if we want to be a serious player in the growing clean tech market, now is the time for us to take advantage of that.

The first and most important thing the federal government can be doing is to internalize the cost of carbon so we can send a strong market signal that this is an area that Canada wants to be serious about developing.

The second and the last thing I'll say is there's an opportunity for the federal government to try to get our provinces to work more closely together on this issue. An important vehicle for that is the Council of Energy Ministers, so we're not acting like 10 different energy markets, but taking advantage of our market as a country.

Thank you.

• (1615)

The Chair: Thank you very much for your presentations, Dr. Weis and Mr. Lemphers from the Pembina Institute.

Thank you all for your presentations.

We go now to questions and comments from members. For the seven-minute round we start with Mr. Trost and then we'll go to Mr. Nicholls and then Mr. Garneau.

Go ahead, Mr. Trost, for seven minutes.

Mr. Brad Trost (Saskatoon—Humboldt, CPC): Thank you, Mr. Chair.

Thank you again to all of our witnesses. Everyone had a good presentation today.

Because most of the next few rounds are going to be dominated by oil, and probably to a lesser degree natural gas, I'm going to start off talking a little about uranium, which I think gets forgotten, as have some of the other industries, technologies, and fuel sources in some of the other rounds.

My first question has to do with the nuclear cooperation agreements, NCAs. They don't seem to be absolutely crucial to your business. They also seem to be something which the federal government isn't actually involved in. I'm sure we won't be negotiating them with North Korea or Iran any time soon.

Could you tell me a little about why they're so crucial where we're looking to expand for further markets? I know you're quite happy with what the government has done with India and China, but I'm sure there are other places.

Could you elaborate a little more on why that's crucial, what the federal government can do, and where we're going with future markets?

• (1620)

Mr. Jeff Hryhoriw: Thank you, Mr. Trost.

Yes, there is quite a robust regulatory regime on the non-proliferation aspect of the nuclear energy sector, with some very stringent international safeguards as well as bilateral safeguards between the two nations in question. No trade in products or technologies of a nuclear—

Mr. Brad Trost: I was asking about countries other than those two. That was sort of a reference. You don't have to worry about those two.

Mr. Jeff Hryhoriw: Okay.

It should also be noted, in addition to India and China, that recently the one with United Arab Emirates was another one that was concluded, as well as one with Russia. The significance of one like the United Arab Emirates is that it highlights another area of future expansion; the next frontier for nuclear energy might be some Middle Eastern nations. We've had a nuclear cooperation agreement with Jordan for some time now, and with the United Arab Emirates.

These are countries that have readily pumped their oil out of the ground and burned it to produce electricity, which is probably not the greatest for the environment. They've realized that it's not the greatest for their economy either. They can pull it out of the ground at a cost of \$7 or \$8 a barrel, and instead of selling it on the world market for \$90, they're consuming it. They're starting to look at nuclear as a way to replace oil, not only from an environmental and a greenhouse gas perspective, but also from an economic perspective. The Middle Eastern nations, those that are credible and legitimate democracies, are the ones where the Canadian government is looking to now, and certainly the nuclear industry is peeking at them as well.

Beyond that, I mentioned there is an expansion going on with existing countries that have nuclear power. Those that are engaging in it and looking at it for the first time, which includes a number of South American nations for a number of reasons, are the areas the federal government has looked toward. The big emphasis obviously for the industry was getting the agreements concluded with China and India.

Now that they are concluded, I think there is some administration that goes along with actually making the transaction. First of all, we have to have a contract in place. Second, there is an involvement between the regulatory agencies from the respective countries, import and export permit rules, and so forth. The administration of the actual sales will now take over from the negotiation of nuclear cooperation agreements on the ground for us.

Mr. Brad Trost: Let me get this straight, then. You're looking at South America, and some of the more stable Arab states perhaps. With these countries, is it the federal government that initiates this, or do you go to the federal government and say that you have a market there and would the government help you out?

How do you expand your markets? Where is the federal government involved? Again, this is not quite the free-flowing market that oil is or seems to be.

Mr. Jeff Hryhoriw: It's a bit of both, actually. In some cases the federal government has initiated discussions with various countries. The United Arab Emirates was one; South Africa was another.

I don't believe anyone in the Canadian industry actually approached the federal government about initiating these, but the

government saw an opportunity and took it, to its credit. In other cases, as with China and India, I think it was an approach from industry to reinforce how important these growth markets are for us and wondering whether there was a way we could do it.

It's worth noting, when it comes to nuclear cooperation agreements, that these things take many, many years to negotiate.

Mr. Brad Trost: So should we start now?

Mr. Jeff Hryhoriw: Sure, start yesterday, if you have the opportunity.

Notably, the one with China was in place in 1994, but it did not cover uranium concentrates, which is what the Chinese are now buying. What was actually done in recent months and years was a protocol agreement which is almost like an attachment or an amendment to the existing NCA that has been in place for some time. You look at it and see that the NCA was first put in place in 1993 or 1994, I believe it was. It took this long to get to the point where we're comfortable with the arrangements that we're able to glean from China as far as sending uranium concentrates—

• (1625)

Mr. Brad Trost: With respect to product diversification in your industry, are there regulations holding it back? What are the things that you're looking to do for product diversification? I assume you're looking to figure out more ways to get value from the raw uranium. You mentioned a few things the company is involved in. Are there things that can be done that are being currently held back because of Canada's lack of competitiveness in certain areas?

Mr. Jeff Hryhoriw: Yes, it's certainly Cameco's intention to be vertically integrated as a nuclear energy company. We are active in other value-added aspects of the fuel chain. The majority of our focus, the majority of our business happens to be uranium mining and so forth.

I don't think you'd hear a whole lot different from any of the witnesses you have before you today. I think the importance of labour market and workforce development can't be stressed enough when it comes to our industry's advancing and succeeding. Entry level positions are not that huge an issue for us, but when you get to some of the more highly technical, highly skilled positions—in Saskatchewan we have quite an economic boom going on ourselves—it seems the same resource companies are competing with one another for the same set of jobs over and over again, be it mine engineers, geologists, or environmental experts who help out on the regulatory front to ensure that our operations are as pristine as they can be. Those are jobs that every company is looking to fill. When you ask if there is anything that's potentially holding us back, I'd say it's workforce development.

I mentioned that Cameco's workforce has quite a component of first nations and Métis. We work very closely with those communities, as do governments. I think there's a role for all of us to do more on that front and ensure that we have an engaged workforce, a capable workforce, a well-educated workforce, because it's been a competitive advantage for our company. I think it can be even more so for us and for other companies that maybe aren't as deeply involved with aboriginal communities as we have been.

The Chair: Thank you.

Thank you, Mr. Trost.

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

Mr. Jamie Nicholls: Thank you, Mr. Chair, and my thanks to our witnesses.

Mr. Chair, I'm going to touch upon the role of investment, both public and private, and diversification markets, and then touch upon the role of collaboration in market diversification. If you get lost, just stick with me; we're on topic. I think we're all here with the idea of growing the economy in a balanced and sustainable manner, smart growth rather than blind growth.

The bulk of my questions are going to be for you, Ms. Drohan.

I'd like to ask a few questions on private investment in the energy sector. Although the government says that it doesn't pick winners and losers in the market, we've seen that the fossil fuel industry in particular has been subsidized to the tune of \$1.3 billion. Yet in the private investment community, we have about 30% of GDP locked up in dead money. My question is about trying to stimulate value added, extracting value, and building value in our energy sector.

How can the government send a market signal to private investors to start putting their money into extracting value and adding value to our resource sector?

Ms. Madelaine Drohan: Are you asking me that question?

Mr. Jamie Nicholls: Yes, I am.

Ms. Madelaine Drohan: Could you clarify something?

Mr. Jamie Nicholls: Sure.

Ms. Madelaine Drohan: When you were talking about money being dead money, I wasn't sure what you were referring to.

Mr. Jamie Nicholls: It's what's been called the cash hoard of private investors that have not invested. They're not taking the risk of investing in what are perceived to be riskier areas of the energy sector.

Ms. Madelaine Drohan: I'm thinking about that in terms of monetary policy.

I think that the message I heard from a lot of people is that the government should definitely stay away from trying to pick winners and losers, so it really shouldn't be trying to encourage a particular industry, whether that's a value-added industry or building on it.

What was also crucial and came across in these various countries is that the government has to continue to invest in things such as basic research. That was really stressed in all the countries I went to and back here in Canada. That, in fact, is the foundation on which other research is then based. That was one of the most important points.

In terms of other value added, it was interesting trying to get to the bottom of why some countries do more value added than we do. There wasn't a model that we could import here. For example, in Finland, they were talking about—this is both collaboration and value added—having to pay war reparations to the Soviet Union after the Second World War. In order to pay those war reparations, all the industries had to get together and figure out the most value they could get out of their resources. That is actually what led to their

culture both of collaboration and of adding the most value to resources.

I'm wandering a bit, but the basic thing for government is to make the investments in basic research, infrastructure, and things that would benefit every industry, and then let them get on with their own value added.

• (1630)

Mr. Jamie Nicholls: In terms of the collaboration, we know that the University of Alberta has just lost an important collaborator that was part of the Helmholtz-Alberta initiative. Part of the reason for the pullout was that the research wasn't diversified enough. Also, in talking with people responsible for running the program, they said there was no money for the logistics of collaboration. They didn't have the financial support from the different levels of government to actually run these collaborative things.

Did you see examples of public or private investment in the logistics of collaboration in these other countries?

Ms. Madelaine Drohan: Yes. In all of the ones I mentioned before about mass collaboration, Australia, Finland, and Sweden, it was initially started with a rather large government investment. Governments are pulling back a bit from their investment in it and letting the private sector take over there, but it was the government that started it to begin with.

Mr. Jamie Nicholls: It's interesting. I've been looking at the example of Norway quite a bit. In terms of collaboration, the state there takes a collaborative approach to dealing with groups that may be perceived as oppositional, whereas this government seems to be taking a more adversarial approach. Are there things we could learn from Norway's approach to bringing in these groups perceived as oppositional, trying to work with them rather than taking an adversarial approach?

Ms. Madelaine Drohan: Certainly, and it goes back to my point again about the lack of collaborative spirit in Canada. We fancy ourselves as being quite collaborative, yet many of the differences are exaggerated. For example, lots of times when I was talking to people about this in Canada, they would say, "We can't do this because of federal-provincial relations." I realize we're not Norway, but a country like Australia has more of a collegial mindset about pulling all the various players together so that everybody advances at once.

I said I couldn't find a satisfactory explanation. The only one that's been offered to me generally is that we have more of a North American individualistic approach here. The only way I can see getting over that is having leadership from the top to actually pull people together.

Mr. Jamie Nicholls: The New Democratic Party believes in social collaboration, in collaborating as a society and not focusing so much on the individual. I personally might be biased, but I believe we can provide that leadership you're talking about.

I'd like to ask you a question about the idea of a metric of technology exchange for extracting value. I believe that was mentioned in your report, the idea of not just being happy with a raw material but actually extracting the value from it and coming up with sophisticated products. Are we particularly good at that in Canada, and how can we get better at having these sophisticated products from our raw materials?

The Chair: Ms. Drohan, could you give a short answer, please. Mr. Nicholls' time is up.

Ms. Madelaine Drohan: It will be very short.

Yes, you're right. There's actually quite a good chart in the report that comes from the Conference Board which shows that we trail all the other resource producers on the technology and knowledge exchange. So yes, we should be doing a better job. I would say that going back to collaborative research is one way to encourage that idea of extracting more value, building more value.

• (1635)

The Chair: Thank you.

Thank you, Mr. Nicholls.

Mr. Garneau, go ahead, for up to seven minutes.

Mr. Marc Garneau (Westmount—Ville-Marie, Lib.): Thank you, Mr. Chair.

Thank you all for being here. Please forgive me if I rush you along because I have lots of questions.

Mr. Hryhoriw, you talked about uranium concentrates. I don't know much about the products that you export. Do you add value in this country to basic uranium ore, among the products that you export?

Mr. Jeff Hryhoriw: Uranium concentrate is essentially yellow cake, so that's what I mean by that.

Yes, our facilities in Ontario at Port Hope, Cobourg, and Blind River are essentially that. They add value to the product. They are a conversion, refining, and fuel fabrication facility, particularly for the CANDU reactors. The Cobourg facility generates fuel rods for the CANDU technology.

Mr. Marc Garneau: Okay.

You will not have seen it, but in the CAPP presentation, there's a global primary energy demand here. If I look at nuclear over the next 25 years, it doesn't look like nuclear is growing that much relative to everything else. You mentioned there are 60 new reactors under construction, and some others are in the planning stage. Is it a relatively modest forecast, or do you think it could increase significantly?

Mr. Jeff Hryhoriw: What's interesting is even with the tremendous growth we're seeing in China, nuclear as a percentage of China's overall energy picture isn't really shifting. What's happening is the overall pie is growing. I think the International Energy Agency projected that between 2010 and 2035, global world energy consumption was going to increase by 75%. If you look at it and you say that in 2010 it took wind, solar, nuclear, hydro, coal, gas, and oil to get to that level, we're talking about almost a doubling of energy consumption in 25 years. It would be difficult to see just

one source, one commodity, providing all of that increase. So even though the percentage stays the same, the pie is growing to such an extent that I think we're all probably going to see some growth in our areas.

Mr. Marc Garneau: Very good.

Mr. Egan, I'm sort of ignorant of some of these things. Your graph on page 5, on electricity and heating oil and natural gas, I understand. Propane kind of surprised me. How would you compare natural gas to propane? Are they on the way down and you're on the way up, or are they also on the way up? I'd like to have a comparison of the two, in your opinion.

Mr. Timothy Egan: I'd say they're also on the way up because propane is also, relatively speaking, affordable. As natural gas has become more abundant, so has propane. It's available in different markets. Certain markets will be using these products more than others. For instance, in northern Saskatchewan there's extensive propane use by industry and homes that are off-grid. It really depends on the availability of the fuel, the existing infrastructure, etc., as to which is used.

So, propane is on the way up. I think the prospects for natural gas are significantly greater.

Mr. Marc Garneau: Very good.

You mentioned methane hydrates. I just read a couple of days ago that the government has decided to stop funding research in methane hydrates. They were working on some projects, for example, with Japan. This sounds like an enormous source of energy, but there are some challenges.

Does the Canadian Gas Association have any involvement with the research involved? I know your primary focus is delivery, but what's your view on these hydrates?

Mr. Timothy Egan: In terms of research, the question should be directed to my colleague from the Canadian Association of Petroleum Producers, because we are the downstream association. But my view on the prospects for hydrates is that it means yet more supply, in fact significant quantities more, which on balance is a good news story and negates any suggestion that we're running out of the fuel. Obviously there are all kinds of technical challenges with its recovery, which again I would direct to upstream colleagues, but the story is a good one because the supply picture continues to get better.

Our conventional supply picture is getting better; our unconventional supply picture has made it better still. Hydrates would make it better still.

Mr. Marc Garneau: Good.

Would you care to comment on that, Mr. Stringham? I have some questions for you as well.

• (1640)

Mr. Greg Stringham: Sure, I'll make my answer brief, then.

The answer is that given the surge of what we've seen in shale gas across North America and the research that was done in cooperation with the industry and governments, and I think there were about 60 countries and 100 scientists who were working in the Northwest Territories on that project, it actually got to the results that they were looking for, and they've now taken it.

Japan has gone back home and they are looking at their hydrates offshore. That research has become more about individual countries and companies, but it's still looking at it. The market right now is so strong with natural gas that it is the next one out—

Mr. Marc Garneau: It's very cost-effective right now.

Mr. Greg Stringham: Yes.

Mr. Marc Garneau: Very good.

Ms. Drohan talked about a collaboration, and everybody's talking about collaboration. Most of the companies that you represent share the common challenges of how much water they use, what to do with tailings, how much greenhouse gas is produced, species at risk, and those kinds of things.

My question to you, Mr. Stringham, is this. Do the companies within CAPP talk to each other and work with each other on these very common challenges in terms of research and how best to approach it, or is everybody basically doing their own thing?

Mr. Greg Stringham: I think a decade ago everybody was doing mostly their own thing, although in some of the major projects, be they oil or natural gas, they were in consortiums or joint ventures with nine or ten companies. Syncrude, for example, has eight or nine companies in it. They have a research arm that spends over \$100 million a year, that then distributes back to all those companies as well. So there were some smaller amounts of collaboration.

Really, the significant amount of collaboration happened on the health and safety side. Companies did not see any competitive barriers. So we have to be careful. We're in a competition bureau; we're in a market economy; we have to compete, and that's one of the laws of the land. But when it came to health and safety, to keeping people safe and making sure they were healthy on the work site, that was where there was a great deal of collaboration.

That was the real spark that led to this question on the environmental side: why can't we do this on water, air, land, and tailings? That's what led to the initiation of Canada's Oil Sands Innovation Alliance, where 14 of those companies—again, about 90% of our oil sands production—have come together to accelerate that research on those four areas for the oil sands. They have contributed their technologies for free into that group, and they can be used for free by any other company. Some of the multinationals that really had a hard time with that have now done that, and it's the first time it's been done anywhere in the world.

The Chair: Thank you.

Thank you, Mr. Garneau.

We're starting the five-minute rounds, and we go to Mr. Leef, followed by Ms. Crockatt and then Mr. Gravelle.

Go ahead, Mr. Leef, for up to five minutes.

Mr. Ryan Leef (Yukon, CPC): Thank you, Mr. Chair.

Thank you to our witnesses.

With the number of witnesses we have, it limits my ability to get to everybody, so I'll focus on some of the things that might be relevant in the Yukon. Of course, we're looking at liquefied natural gas up north. I see on your map that it's one of the only places in the country that doesn't have a dot on it right now, so we probably need to change that.

On your graph on page 7, it looks like your industrial use of natural gas seems to consistently take up the greatest bulk from 1980 to 2012, and then commercial and residential use has a pretty substantial piece of that pie. It seems as though all of them have maintained a similar growth rate. It's hard to really see, in the way that graph is lined up, but it looks like they've all grown proportionately the same.

When you look at diversification, would it be fair to say industry would drive the market first and then residential picks up because there's industry access, or do they come hand in hand? How does that play out in terms of where it diversifies within the country?

Mr. Timothy Egan: I think it will depend really on the market. You referenced the Yukon. You're not going to have significant residential demand in the Yukon. It's tough to make the economic case for a natural gas distribution system within the Yukon.

In a market like that, what you might look at is a different approach, a kind of hub-and-spoke approach. If there's a significant industrial load that could be met with natural gas, that's economic, you meet that application and then you can look at distribution to other applications, be they commercial or residential.

I'm not sure if that—

Mr. Ryan Leef: Yes, that does. It got me thinking. Just on Friday I was back home and announced a Government of Canada investment in a clean tech project for biomass in the community of Haines Junction, in cooperation with Champagne and Aishihik First Nations in that community and Yukon Energy. The potential results for that biomass facility would generate two megawatts, and there are substantial resources there for biomass. In terms of being able to really spread that out, even if they have excess supply there, their ability to push out from the generation station of that size for that size of community, they're going to be limited in terms of what they can do. But it certainly serves the residential needs.

Mines coming on line are talking about energy needs, and everybody is trying to fill that. Diversification from a local perspective I think would be very much welcomed if industry picked it up, and then they could say, "Okay, industry has this, it's now available; natural gas is there" and the conversion would start to shift. Is that pattern consistent in Canada and in international markets?

•(1645)

Mr. Timothy Egan: Yes, I think it is. Again, most of the Canadian population is within roughly 100 miles of the U.S. border, and there's significant density, which makes the economics of gas distribution very good. In less dense areas you need different triggers in order to bring the fuel into the marketplace. Industrial demand is often the most significant trigger. So you have communities like Red Lake, Ontario, where there was a mine development opportunity. There were a couple of communities around it that wanted natural gas as well. The economics as stand-alone for those communities to get gas wasn't good enough. The federal government, through, I believe, the FedNor program, made a contribution in order to facilitate the development of the project. So you have significant industrial load met with natural gas, and then those communities could get access to it as well. That's the kind of model, and there are precedents that have been used over time across different provinces and territories in Canada.

Mr. Ryan Leef: Perfect. Thank you.

How much time do I have, Mr. Chair?

The Chair: You have one minute.

Mr. Ryan Leef: One minute, okay. I'll make this question fairly quick, then, for Mr. Stringham.

We heard a reference from the folks at Pembina Institute that two-thirds of the acids need to remain in the ground to avoid catastrophic climate change. What kind of diversification is going on within the oil sands for distribution? Is that a fair assessment? Do we have to leave two-thirds in the ground, or are we working on technologies today that are going to allow transportation and access to diversify it in a safe, clean way?

Mr. Greg Stringham: I'll answer quickly as well. I think that technology is the answer. I think technology is the answer that has unlocked a lot of these resources, be it shale gas or tight oil or even the oil sands. Technology is also the answer to the environmental challenges that we face as well. We've seen that in particular on climate change issues. The industry has really worked hard to try to reduce its greenhouse gas footprint on that, as well as its water consumption. But it's technology that's the driver.

On that perspective, the latest technology out there is for Imperial's Kearl project that's coming on right now, for example. It's just starting this week. It actually has its greenhouse gas emissions on a life-cycle basis down to 2% within the U.S. average, and that's because of new technologies, the way they're developing it. That's only that one project. It's a big project. We still have a lot of historical work to work on, but it does give us the promise that we can continue to drive that down through technology.

The Chair: Thank you.

Thank you, Mr. Leef.

Ms. Crockatt, you have up to five minutes.

Ms. Joan Crockatt (Calgary Centre, CPC): Thank you very much.

Thank you all for coming. I really appreciate the expertise that we have here today.

I'll pick up where Ryan left off and ask a little bit more about that Kearl project, because I know that the petroleum industry has taken the need for a social licence to operate very seriously as something that is required in order to get international market access. I just heard you say that the industry is really taking this seriously. I think Don Martin on CTV yesterday said that the oil sands have cleaned up their act dramatically. I don't know that the public understands that or even understands what the 2% life-cycle average is. Could you explain that? What does the public need to know about how you've changed practices, particularly with regard to GHGs and maybe specifically Kearl, if you like?

Mr. Greg Stringham: What we found in talking to Canadians in general—I think there are two aspects of what we've been doing—is first of all, you have to perform. You have to improve your performance. It's not just a matter of going out and talking about it. You actually have to do that and put the technologies in place. But you need to do both. It's performance plus communication that we see as affecting our reputation.

We've been working hard on both of those aspects, but you need to make sure that performance is leading. These new technologies for environmental improvements are things that we've been talking to the public about in saying that we need to address the issues that they have raised, such as water use, land use, and greenhouse gas emissions, in a way that they know we're committed to it and we're moving forward on those areas. That has been a big part of the new technologies at Imperial and the new technologies that are being applied on the water use as well. It's both doing it first and then making sure that its awareness is out there.

•(1650)

Ms. Joan Crockatt: Am I correct that in the layman's description of Kearl, it's a fairly significant achievement?

Are they now producing a barrel of oil from the oil sands with a GHG level comparable to a refinery-produced conventional oil in the U.S.?

Mr. Greg Stringham: Yes, that's exactly correct.

The new technology they are using gets them within 2% of the U.S. average. That U.S. average is from 2005, so we think it's moved around. The easy way to say that is it's very comparable, from a greenhouse gas footprint, to the oil they are producing at that plant.

Ms. Joan Crockatt: What about water use? Can you tell us what has happened or changed in water use?

Mr. Greg Stringham: I think there have been two things. I'll talk about a lot of things in the oil sands industry, but it also applies to the natural gas industry. Water use has gone down for the amount of production, which is going up, so they're finding more ways to reuse the water.

For the oil sands in particular, they have been using water out of the Athabasca River and they want to try to minimize that. The latest projects have what we call off-site storage, essentially a lake next door to their plant, in order that during those low-flow periods, they can draw water from that lake rather than draw it from the Athabasca River. That's becoming more—

Ms. Joan Crockatt: Is there a key quantifier of how much they've reduced water usage, by any chance?

Mr. Greg Stringham: They're still using water significantly from the river. Essentially, it's just less than 1% of the total Athabasca River flow, but that's over an annual period.

The real concern is during the low-flow periods. That's why these offsetting lakes are important, so that during the low-flow period, they can draw from a different source.

Ms. Joan Crockatt: Okay.

Could I address the benefits to all provinces? I think there is still some feeling that maybe the west and maybe Alberta are the primary beneficiaries.

I know that CAPP has put out quite an interesting list of the Ontario suppliers to the Canadian oil sands, and I counted 300 B.C. suppliers.

Could you outline for us how the benefits actually flow through to other provinces, and to consumers for that matter?

Mr. Greg Stringham: The benefits of the development of this resource are such that we are drawing on all of Canada and beyond Canada as well.

For our supply chain list, we simply went out and said to name the companies they are working with in these other provinces. There are over 600 in Ontario. Quebec has them. In B.C. there are over 300, almost 400. This is just from the initial list we did.

The real key to us, though, is that it becomes personal, "What does it mean to me?" That's really how Canadians recognize that the benefits are coming through.

One thing that has been a surprise to us actually is the communication we've had for the Prevost bus company out of Quebec. We did a commercial on it, not knowing what it would be, but all of a sudden Quebecers understood, as the commercial states, that even though the distance between the oil sands and Quebec is 4,000 kilometres, it's very short because 400 coaches are seen as being built in Quebec and moved out that way. That resonates personally with the individual and has an impact on Canadians, more than just saying that it affects all across the country.

We're doing the same now with a company out of British Columbia. Using B.C. forest products, they're building modular facilities that are being taken up and used in the oil sands for kitchens and other things as well. That starts to make it real.

We've looked at the big numbers, but we've also tried to make sure that Canadians understand what it means to them.

Ms. Joan Crockatt: Mr. Chair, do I have time for one more short question?

The Chair: Yes, you do.

Ms. Joan Crockatt: Okay, I'll just go ahead.

I want to go to the imports right now. Canada is importing a lot more oil than most people understand, and you addressed it. Quebec and Atlantic Canada import 700,000 barrels per day, which is seven-eighths of their oil consumption. Where is that oil coming from?

Mr. Greg Stringham: That's coming from offshore sources in the world oil market that range from all the way in the U.K. and Norway to Africa and the Middle East.

Ms. Joan Crockatt: Quebec imports by far the majority of its oil from Algeria. Is that correct?

Mr. Greg Stringham: I'm not sure if that's Quebec alone, but that region does import oil from Algeria, for sure.

Ms. Joan Crockatt: Why would Quebecers and Atlantic Canadians not want to continue with that practice of importing a significant chunk of their oil?

Mr. Greg Stringham: There are at least two or three reasons for that.

Number one, we already have a pipeline in place that could serve them, but it's been flowing in the other direction. It was built back in the 1970s and then reversed to bring oil from offshore into Ontario. Now it's being looked at to reverse and go in the other direction. That is an existing pipeline, so it's an easy way to satisfy that.

Number two, the price they're paying today is a world oil market price, which we would all hope to get, but in stranded oil in Canada and the U.S., it's about \$15 less than that right now, so there is an economic driver as well.

But clearly, the main one is a security driver. Canadian oil for Canadians is an opportunity that they can choose in the marketplace. It doesn't mandate it, but it opens that option for them to choose Canadian oil, and that's where I think they would really want to get it from.

The Chair: Thank you.

Thank you, Ms. Crockatt.

We'll go now to Monsieur Gravelle, for up to five minutes, please.

Mr. Claude Gravelle (Nickel Belt, NDP): Thank you, Mr. Chair.

Thank you to all the witnesses for being here today.

Mr. Lemphers or Mr. Weis, my first question is, have we learned any lessons from Alberta when it comes to energy production diversification?

• (1655)

Mr. Nathan Lemphers: Absolutely. We can learn a lot of lessons from Alberta when it comes to diversification.

The former finance minister for Alberta, Ron Liepert, said that Alberta has a problem, that they want to get off the oil revenue roller coaster. Right now, 30% of their provincial budget comes from oil resources. That pays for teachers, schools, and doctors. That's causing Alberta to have the worst track record in Canada for meeting its budget targets. It's a highly volatile resource that they have no control over.

The best idea is to put those resource revenues off the table so you're not overexposing the economy to the volatility of the oil market. There are ways you could do that. You could set up a savings fund. Alberta has. You could do that federally as well. It's not just something Pembina has recommended. Ms. Drohan's report recommended it as well. The OECD has also recommended it. It's not just a green idea.

Right now federal corporate income taxes from the oil and gas sector amount to around \$3 billion, which is a very small fraction of the federal budget. It's not a whole lot, but as the oil and gas sector grows in the country, that amount will also increase, which will start to shield the economy from that sort of volatility. So I think that's one lesson you could learn.

Another one is straight from the province's Emerson report. The Premier's Council for Economic Strategy released a report, quite a good report coming out of the Stelmach government, that warned Albertans to plan for the day when they have all the heavy oil in the world to sell but no one willing to buy it. That speaks to not just the product, but the value-added component of the industry as well.

It's important to diversify outside that particular energy product and look at the other things that are growing. As Tim suggested, renewables are accounting for 50% of new energy investments. That's a phenomenal amount. That's seeing growth in all sorts of emerging and advanced economies. That's something that Alberta and Canada can certainly get on with.

Mr. Claude Gravelle: Okay.

I take it you're saying that value-added oil sands related activities would help our economy be more resilient.

Mr. Nathan Lemphers: It can. You could capture more value and more economic activity per barrel, but you're also increasing the susceptibility. The foundation is based on bitumen, and if bitumen is not fully priced, if you're not pricing those externalities, those costs, the environmental costs in particular that come with bitumen, could act as a house of cards, if you overdevelop an industry based on that one particular resource. There are all sorts of economic stories of that happening throughout the world.

But there are opportunities. You could use the resource revenue from the oil sands to help transition to a cleaner energy economy. That could be done through savings funds, the elimination of federal fossil fuel subsidies, which currently amount to \$1.3 billion. That could be plowed into cleaner energy sources, which not only provide jobs, but provide a window we could leverage to open a longer-term competitive advantage for the country as well. You could use the wealth that's coming from the oil sands to see a brighter future.

Mr. Claude Gravelle: Does Canada have a niche market for renewable energy manufacturing?

Mr. Nathan Lemphers: I think that's something my colleague could answer.

Dr. Tim Weis: Sure.

I think we could be taking advantage of a couple of areas. One is some of the existing manufacturing we already have, and that's with some of the developments of wind energy that we've already seen in Quebec and Ontario in particular, but also in other parts of the country. One of the reasons that's important is that wind turbines are so big that moving them around is a big cost, so being local to the demand is going to be important.

Other key areas we can contribute to are going to be in integrating renewables as well as power storage. Geothermal is potentially an interesting area for us to be looking at as well, because I think it takes advantage of some of the synergies we have with the oil and gas industry. Obviously, we're good at drilling, and a lot of

geotechnical work goes on. I think there are big opportunities for developing geothermal as an exciting new renewable energy that can provide baseload opportunities. I think that's a particular area Canada could and should be a leader in.

• (1700)

The Chair: Thank you, Mr. Gravelle.

We go now to Mr. Calkins, followed by Mr. Choquette, and then Mr. Allen.

Go ahead, please, Mr. Calkins.

Mr. Blaine Calkins: Thank you, Mr. Chair.

I thank our guests for being here today.

I want to talk about diversification, in particular in response to some comments that Mr. Lemphers just made.

Mr. Stringham, we've heard before from CAPP. As an Alberta member of Parliament, of course I'm deeply concerned about the differential in price. When we talk about diversification, we also need to talk about windows to market. There have been some comments made about Alberta's economy. I would suggest to you that Alberta doesn't have a revenue problem. Alberta has other problems beyond revenue. No province spends more per capita on social programs than the Province of Alberta. Notwithstanding the fact that the revenues are still there, the price of natural gas has come down so much that the royalties on natural gas have actually been the largest factor in Alberta's resource revenue, not oil. So that's a mischaracterization of the oil prices. There's been much more volatility in the price of natural gas than there has been in the volatility of the price of oil.

The concern I do have, notwithstanding that, is we have window-to-market opportunities for both liquefied natural gas off the coast of Canada and we also have window-to-market opportunities to diversify our economic bases for oil wherever it happens to be, Saskatchewan or Alberta, wherever it happens to come from. I'm just wondering if you can comment on how tight that window is, and what obstacles might be standing in the way of Canada achieving that.

Mr. Greg Stringham: Let me start with the idea of market diversification, because I think you hit some very key points there, in particular with natural gas. Natural gas right now is stranded within North America, but what that has done is it has led to a resurgence in the petrochemical industry in Alberta and other places as well where they have this lower cost feed stock that's going and creating other things that are out there because it's competing. That is really one key element, in addition to moving it elsewhere. We have the opportunity to actually build on it here because the industry can build on that, and there's still plenty in North America right now to start looking at moving the liquefied natural gas to other markets.

The west coast is really the closest and nearest. As I mentioned, there are several proposals there, but we can also actually achieve some of the environmental goals in addition to the diversification goals by moving there. If we can take the abundance of natural gas we have in North America, liquefy it and move it to places in Asia like China that are currently burning other heavier fossil fuels for their electricity, and displace that, we can actually achieve an environmental goal at the same time as getting the economic goals and the things that go on here in Canada. That's another way of looking at this in a bigger picture perspective that can benefit Canadians.

Mr. Blaine Calkins: What would be our market opportunity on that, given the fact that others that are also producers of natural gas are already appearing to be ahead of us and out of the gate on that? Can you advise the committee on some of the price differentials that other countries in the Asia-Pacific might be paying currently for their natural gas with North American prices?

Mr. Greg Stringham: Absolutely. As we look at the window of this, as you mentioned, and as I mentioned in my presentation, we are relative latecomers as Canadians to this market. Australia has been there for several years, and is actually moving ahead very quickly. We also see the discussions going on in the United States. Remember that they're part of this North American natural gas market, and if they open up their opportunities for export there for liquefied natural gas, it may be something that we lose out on. So that window is relatively tight. These plants take a few years to build, so we see them in the next three to five years. It's not something that's immediate, but the policy decisions that are needed to implement that need to be taken shortly.

Mr. Blaine Calkins: The last question I have is on the price differential of North American oil, depending on what indices you want to use. I'm not going to get into the list of indices that are being used. At the last meeting I was at we had an economist here who said that if Canadian oil were able to reach tidewater in significant enough capacity to command world price, we would actually see a blending of the world price and the North American price into a common global price. Would you agree with that assessment?

Mr. Greg Stringham: Yes. Typically, if you look back two years, the North American price was relatively equal to the international global price, transportation adjusted. Right now, what we see at least on the disconnect between the world price and what we call the landlocked oil price—so that's Canada and the U.S. and block in Saskatchewan and Alberta—of a minimum of \$15. Putting that to Canadian production of about three million barrels a day, you're talking \$45 million a day that's being lost because of that disconnect.

• (1705)

Mr. Blaine Calkins: Thank you.

Do I have some time left, Mr. Chair?

The Chair: Yes, half a minute.

Mr. Blaine Calkins: The last thing I'd like to talk about is how, if we were able to diversify our market access, that would also contribute to economic growth in terms of capacity. Right now, we're going to be limited in our ability to grow simply because we have nowhere to ship it.

Could you give us a comment on pipeline safety versus rail? I also represent farmers, and it's hard to send wheat down a pipeline, but it's easy to send it down the rail line. We have to make sure that we do this in an intelligent way to make sure everybody has an opportunity to get their products to market. If you could comment on pipeline safety and the preferred method of getting the products to the marketplace or to the coast, it would be very helpful.

Mr. Greg Stringham: Absolutely. I'll comment very quickly because I know you're short on time.

First, on pipeline safety, the newest pipelines that are being built right now are being built with high technology and a great deal of redundancy and safety in place. It constantly has to be improved and demonstrated that that's the case. Recent incidents unfortunately have been showing that the older pipelines that we've been working with have been a challenge, but they're putting in the mechanisms to do that.

With respect to rail, rail has come forward and said that they could actually fill a niche with the pipelines. Originally they came out and said they would compete with them and it's either rail or pipelines. Now they're saying, "We know that pipelines could eventually be built in this quarter. We can start and do it earlier or we can take it, for example, from Ontario off to New York and other places until the pipeline is put in place". They're starting to find a way to move that niche, and the volumes being moved by rail are increasingly significant.

The Chair: Thank you.

Mr. Choquette, you have up to five minutes, followed by Mr. Allen. Then I understand we're probably going to have bells. So, go ahead.

[*Translation*]

Mr. François Choquette (Drummond, NDP): Thank you, Mr. Chair.

[*English*]

If I understand well, there is no consent to continue five minutes more so my colleague can ask a question.

The Chair: We already will be going over time a little bit.

Mr. François Choquette: So will we have five minutes?

The Chair: No, we'll end with—

An hon. member: We can share.

The Chair: Yes, you can share time.

Mr. François Choquette: Yes, of course. I know.

[*Translation*]

Mr. Chair, I would like to thank the witnesses for coming today.

I will ask my questions in French, and they are addressed to the Pembina Institute representatives. I will be sharing my time with my colleague Dennis Bevington.

My first question has to do with the famous \$1.3 billion in subsidies and the ecoENERGY program, which subsidizes research on tar sands and gas.

Would it be a good choice to withdraw these subsidies and use them for research in diversification, in such areas as hydroelectricity, wind power and wave power, which we are beginning to hear about and which could be increasingly appealing in Canada?

Furthermore, not much can be done with tar sands, since we are being told we have to leave two-thirds in the ground to meet our objectives or our targets, which are quite weak in any case. Indeed, Conservative targets with respect to climate change are very weak. If we put a price on carbon, would we be able to do so at the federal level? For our part, we are proposing the creation of a carbon exchange, similar to what Quebec and California have just signed.

Could you please quickly answer those two questions? Unfortunately, my time is limited since we were unable to obtain the committee's consent to prolong the session and discuss this issue a little longer.

[English]

Mr. Nathan Lemphers: Sure, I could take a stab at it, and then maybe Tim could follow up.

I think it's critical, that two-thirds figure, and let's put it into context, that's if there's not wide scale use of things like carbon capture and storage technology, and that's certainly an option, and we stand behind it. We think it's potentially viable in places such as the oil sands, except the hard numbers of it is that it needs a price on carbon upwards of \$90 a tonne for it to be economically viable without massive public subsidies.

Right now Shell's Quest CCS project requires over \$850 million in taxpayer subsidies in order for them to go forward with it. It will be a case study and a pilot for the rest of the industry, but it's incredibly expensive, and given the price signals and the regulatory signals to the industry right now, it doesn't make economic sense to expand beyond that. That's why you have companies such as TransAlta dropping these projects at their electricity plants, because it just doesn't make economic sense.

If you shift the subsidies away from fossil fuel production and towards cleaner fuel production, you'll start to see the playing field tilt so that those sectors can start to compete. You can also see, through market mechanisms such as cap and trade or a carbon tax, that you can start to see the line of sight on the business case for even more reductions from the oil sands.

• (1710)

[Translation]

Mr. François Choquette: Thank you very much.

The remainder of my time will go to my colleague Dennis Bevington.

[English]

Mr. Dennis Bevington (Western Arctic, NDP): Thank you.

I just want to make one comment about collaboration. What I've heard so far, Mr. Egan, is that you're interested in collaborating with the renewable energy sector because you see the advantages of that in terms of use of natural gas for electricity generation for heat. These are collaborative approaches that you're talking about.

Mr. Weis, what do we need to bring renewable natural gas, perhaps the utility companies together to come up with a plan so that we can move ahead with renewables? Is that the most likely scenario going forward?

Dr. Tim Weis: I think there is a natural synergy between renewable energy and natural gas, not only on what was discussed in terms of being the opportunity to balance renewables, but also in the longer term the opportunity is potentially to store renewables, whether it's this idea of power to gas, or even renewable fuels, or renewable natural gas.

I think the opportunity exists and I think we're seeing it more and more. But if we want to get there seriously then it comes back to we need to have that price on carbon. We also need to make a more aggressive move towards phasing out our coal plants so that people know this is where we need to be investing our dollars.

One of the big struggles the renewable energy companies are up against is trying to finance their projects in the long term. I think that potentially is an area in which the federal government could play a role in helping with some of that financing.

Mr. Dennis Bevington: Okay.

Mr. Egan, you talked about cogeneration and distributed cogeneration. How is that going with the utility companies in establishing that as a part of your market?

Mr. Timothy Egan: It's proceeding well. There are projects in jurisdictions across the country right now. The key driver is the affordability of the fuel. Most cogeneration projects, most projects involving biomass, and most projects involving other emerging fuels and technologies need an affordable fuel as a starting point, and natural gas is that starting point.

The Chair: Thank you, Mr. Bevington.

Mr. Allen.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you very much, Mr. Chair, and my thanks to our witnesses for being here.

My first question is for Mr. Egan and Mr. Stringham.

I think you tried to address this a few minutes ago, but I don't think we got a definite answer because you probably ran out of time.

One of the statements you made, Mr. Stringham, was that 60% of our production is exported exclusively to the U.S. You said that with the surge in shale gas production in the U.S., the Canadian supply is being backed out of the traditional markets, and in fact, more U.S. gas is now being imported to eastern Canadian markets.

A couple of things on that strike me. Losing an export market, getting squeezed out, is one, but the other side of it is that if we don't move in our own area, we might end up losing our own internal markets. Is there a timeline for losing this opportunity? That could apply to natural gas and oil sands as well.

Mr. Greg Stringham: There definitely is. In North America we operate in a very integrated market. You've seen on the pipeline maps that it is very integrated. We take the market forces for that. Travelling all the way across the country, versus moving from New York up into Quebec and other markets, makes it hard to compete on the transportation side. That window is very short. That's starting to happen, and we see it happening right now. We're willing to see that happen. You've seen the reaction across North America. The drilling rigs are down. People aren't looking for as much anymore because there's an ample supply.

This drives us to looking for the LNG markets where we have a strategic advantage and we can compete. The same thing happens on the oil side. On the oil side of things, clearly we want to move into markets that are open and looking for that. The markets on the U.S. gulf coast right now are losing their supplies from Venezuela and Mexico in heavy oil. They're looking for that market right now, but they won't look forever. They'd like to see the growing supply come from Canada to connect that. So we have a little longer window of opportunity there than we do on the gas side, but both of them are windows.

Mr. Mike Allen: Mr. Egan.

Mr. Timothy Egan: The integrated natural gas market is a great strength of North America, and the prospect of natural gas coming into eastern markets from the United States is a competitive advantage for industrial, residential, and commercial consumers in those eastern markets, because the transmission costs are lower.

My colleague mentioned a number of as much as eight billion cubic feet per day of potential exports from likely projects. These are export projects on the west coast, announced projects. This eight billion cubic feet a day is under three trillion cubic feet a year, which is more or less the volume of natural gas we currently export to the United States. In other words, what you could see is a direct offset, eastern markets taking U.S. gas, which is closer and more affordable for domestic supply, and western suppliers exporting Canadian western gas to Asian markets.

It isn't a threat to the domestic price regime in the domestic marketplace. It's buy low, sell high, and doing both at the same time, which is an opportunity for Canada if we can seize it.

• (1715)

Mr. Mike Allen: You talked about this hub-and-spoke system. I'm thinking about markets in Canada.

I was in my riding on the weekend and it was kind of interesting. In New Brunswick, where I'm from, the heating market is dominated by oil and electricity. We get penalized because we don't have fuel choices.

McCain Foods is converting two of their french fry plants in my riding to natural gas, but because they don't have a pipeline system, they're doing it through compressed natural gas and taking it there. They get a \$1-million project to do this conversion, but they're going to save 30% in their energy costs.

I was intrigued by your idea of the hub-and-spoke system. Do some of those hubs and spokes work on a pipeline basis to a major customer like that, or does it work on trucking to a major customer and then a distribution system in those smaller communities?

Mr. Timothy Egan: It can work on both. The trucking example you cite is one that's currently being used in Nova Scotia, where you have an existing franchise, a small franchise, like New Brunswick's, a relatively young natural gas distribution industry. That franchise has some small communities that are quite far removed from the main pipeline. That pipeline can't be extended affordably, so the substitution strategy is to move natural gas as compressed natural gas from one point to another and into a distribution system.

So it is possible to do that, and there are precedents for it in the Maritimes.

Mr. Mike Allen: I'm wondering if there are volumes where the trucking and the pipeline...because pipeline is obviously the most effective way to move it. Is there a tweaking point where pipeline and trucks...?

Mr. Timothy Egan: Pipelines are by far the most effective and safest way to move it. It all depends on whether you can position that pipeline.

In the case of the Nova Scotia example, the technical and cost challenges of extending the pipeline are such that it's more cost-effective to use the CNG model. There's an economic model, which is pretty straightforward, to determine which works in which case. In the earlier example of northern Canada, a pipeline is not the appropriate strategy; to truck CNG or LNG is the appropriate strategy in that instance.

The Chair: Thank you, Mr. Allen.

The bells are indicating that we have to leave for the votes.

Thank you to all of the witnesses: as an individual, Ms. Drohan from *The Economist*; from the Canadian Gas Association, Mr. Egan; from the Canadian Association of Petroleum Producers, Mr. Stringham; from Cameco Corporation, Mr. Hryhoriw; and from the Pembina Institute, Mr. Lemphers and Mr. Weis. Thank you all very much. You have added to our study.

The meeting is adjourned.

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