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Chair

Mr. Leon Benoit

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● (0845)

[*English*]

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

First, welcome back. This is our first committee meeting since Christmas. I hope you all had a bit of a break and then some good time with your constituents.

We are here today to start a four-day session, pursuant to Standing Order 108(2), to do a study on the current and future state of oil and gas pipelines and refining capacity in Canada. This is a topic that we all know Canadians will be paying attention to, and I'm looking forward to the presentations and to your questions and comments throughout the four days.

Today we have three groups of witnesses. First, from the Department of Natural Resources, are Mark Corey, assistant deputy minister, energy sector; Douglas Heath, director, oil sands and energy security division, energy sector; and Michael Rau, senior policy advisor to the assistant deputy minister, energy sector. Welcome.

From the Canadian Petroleum Products Institute, we have Peter Boag, president; and Carol Montreuil, vice-president. Welcome to you.

As an individual, we have Hossam Gabbar, an associate professor at the University of Ontario Institute of Technology. Welcome to you.

We will have presentations of up to 10 minutes for each group, starting with the department. Mark Corey, go ahead, please, sir.

[*Translation*]

Mr. Mark Corey (Assistant Deputy Minister, Energy Sector, Department of Natural Resources): Thank you, Mr. Chair.

I think that we have distributed our presentation document. The purpose of my presentation is to give you an overview of the petroleum refining industry. I will begin by describing the refining process as such. Then, I will provide the committee with an overview of the Canadian petroleum refining industry. Finally, I will talk about the factors affecting investment in the refinery sector.

[*English*]

Again, I'm just going to go through the deck here.

On the slide where we talk about what refining actually is, this is very much an oversimplification, but refining is basically just boiling crude oil. If you look at the slide, you can see that what it's actually doing is adjusting and reshaping the hydrocarbon molecules, standardizing the product, and removing contaminants. That's an oversimplification, but that in a nutshell is what refining does. Crude oil is boiled, the vapour is condensed in a tall distillation column, and different components are drawn off as they condense separately at each level in the column at different temperatures. You can see, for example, that gasoline comes out at the top, and lubricating oil, paraffin wax, and asphalt, the heavier ones, come out at the bottom. You have other products in between.

Now, that's a real oversimplification, but that's essentially what refining is. Again, I'd let Peter Boag from CPPI probably go into more of the technicalities of it, as that's the industry side of things.

The next slide is just to show that the amount of different products that can come out of a barrel of crude oil can vary. That's one of the things that refineries do through various processes. They can get more or less gasoline and more or less diesel, for example, out of a barrel of crude depending on how it's refined.

Conversion is required. The processes use high temperatures and chemical reactions to separate products by changing their chemical structure. This involves removing impurities such as sulphur and nitrogen to meet regulatory and seasonal requirements.

Refineries get more complex and expensive to build and operate based on the heaviness of crude they handle. Again, refineries that are processing crude oil are bigger and more expensive than ones that produce light crude.

Each refinery is often of a different design, based on the existing technologies and anticipated market needs at the time of construction. They adapt to the marketplace. For example, North American refineries tend to be set up to produce more gasoline and less diesel because we have more need for gasoline. European refineries do it the other way. They actually are set up to produce more diesel and less gasoline.

So that's what refineries do. They can actually vary the amount of different products that come out, depending on how they're processed.

The next slide is just to show that even though North America is an integrated market, Canada really gets its crude from two different sources. Western Canadian refineries use domestic crude, and western Canada supplies the majority of crude used by Canadian refineries that's transported all the way from southern Ontario, Sarnia, to Vancouver. Specifically, refineries in Ontario use largely now domestic crude—approximately 85% Canadian crude in 2011—but still bring in some imported crude from the east coast. The imported crude, the other 15% coming in, is from North Dakota, 4%; and Norway, Angola, and Equatorial Guinea make up about 11%.

In terms of refined products, product is moved from the refineries to supply terminals through a variety of modes, including pipelines, trains, tanker trucks, and tanker ships in the east. Western refineries supply all product demand from Vancouver to Thunder Bay and the territories. In addition to supplying local markets, refineries in southern Ontario also move product to Sault Ste. Marie in northern Ontario.

If you go to the next slide, you can see that in eastern Canada it's different. In eastern Canada, crude oil comes either from the Canadian offshore off Newfoundland, which is 15%, or imported, which is 85% via tanker into Halifax, Saint John, or Come By Chance from countries such as Algeria, Nigeria, the United Kingdom—that's from the North Sea—and Norway.

In Quebec, crude is imported via smaller tankers into Lévis or by larger tankers into Portland, Maine, and then via the Montreal-Portland pipeline into Montreal. Again, for Montreal there is a pipeline. I think the capacity is that about 600,000 barrels a day come in from Maine and go to Montreal.

An indication of the refinery sector's competitiveness is the fact that today Canada is a net exporter of refined products. In 2010 we imported 223,000 barrels per day of refined product, mostly into Quebec and Atlantic Canada, while at the same time we exported 419,000 barrels per day of refined product, largely into the New England states. Again, this is the phenomenon where some of the refineries in eastern Canada will import crude, process it, and ship it on into markets in New England.

Petroleum products come from two of three Atlantic refineries that supply local markets but also find their way to the Arctic and Hudson Bay regions as well as the eastern seaboard, which is what I just mentioned.

Montreal and Quebec City facilities supply some of the more remote areas of northern Quebec and occasionally parts of the Arctic as well as the St. Lawrence River corridor from eastern Ontario to the Gaspé Peninsula via the Trans-Northern pipeline. In northern Canada, weather-dependent delivery systems, mainly by ship, mean that some delivery windows are very narrow. Again, a seasonal "sealift", as they call it, goes up to northern Canada with refined products.

● (0850)

The next slide deals with the state of the industry today.

Currently there are nine companies operating 15 full petroleum refineries in Canada. They produce a full range of products, such as gasoline, diesel, and jet fuel. There are four partial refineries, which produce asphalt or petrochemicals: two are asphalt facilities in Moose Jaw and Lloydminster, and two are petrochemical facilities in Mississauga and Sarnia. Nationally, Imperial Oil, Shell, and Suncor operate more than one refinery.

One thing to point out is that the refining sector has undergone significant rationalization since the 1970s. The rationalizations in the 1970s and 1980s were a result of a decline in demand caused by price shocks at the time, which led to vehicles becoming more fuel efficient. Demand subsequently recovered, and this recovery encouraged not the building of new Canadian refineries, but the expansion of existing refineries to add capacity.

National capacity today is higher with 15 refineries than it was with 44 refineries in the 1960s. In other words, while we talk about the fact that we're closing refineries and have fewer of them, the capacity of individual refineries is expanding and we actually have more capacity today than we did in the 1960s. Over the last 10 years, for example, we've seen two refineries close, but total capacity has held steady.

The next slide deals with something that Peter Boag will probably go into more deeply.

[*Translation*]

Refinery utilization rates were above 90% early on in the previous decade. However, since the 2008 recession, they have dropped to 80% in Ontario and western Canada, and to 84% in Atlantic Canada and Quebec. In 2011, the refinery utilization rates in western Canada were slightly affected by hydrogen availability issues, a refinery fire and other minor maintenance issues.

The industry aims for a 94% or 95% utilization rate, which would maximize operational efficiency while allowing for normal maintenance and seasonal turnarounds. Therefore, refineries are currently operating below optimal levels.

[*English*]

The next two slides deal with where refineries and operators are located, something we touched upon earlier.

There are five factors that drive where refineries and operators are located. We work in a market-based system in Canada, so it's really the market that determines where these things are going to be located.

The first factor is capital cost for new upgraders and refineries. North America is really a single integrated market, and companies don't make investments in isolation. The United States' gulf coast has 58 operational refineries that represent 50% of the refining capacity in the U.S., with considerable idle capacity to refine heavy crude oil. Refineries are very expensive. They can cost anywhere between $5 billion and $15 billion to build, so if you have a refinery that is already built, with idle capacity, it is really much more economic to try to get the capacity up in that refinery than to try to build a new one.

The U.S. gulf coast requires little capital investment to be able to process diluted bitumen coming out of the Canadian oil sands. In the situation they are now in, stocks coming principally out of Mexico and Venezuela are declining and need to be replaced, so this increases the demand for heavy crude such as that coming from the oil sands, reduces price differentials, and reduces the need for major new capital investments at present. That is one of the reasons the proposal for the Keystone XL pipeline was there: it was because this infrastructure of refineries on the U.S. gulf coast, which was already set up to do heavy crudes, was losing feedstock from Mexico and Venezuela. That's what is driving the economics behind that.

The second factor is price differentials. If the cost of crude plus the cost of refining is not significantly lower than the cost of refined petroleum products, then there is not that much incentive. The same holds true for upgrading. If the cost of raw bitumen plus the price of upgrading is not actually more than the price of conventional crude, then again there is less of an incentive. An economically rational company basically seeks to maximize its returns, and this all works its way out through the marketplace.

The average price differential has varied considerably between the price of crude—refined and upgrading—and the actual cost of refined products over the years. That's what drives the decisions to either invest in refining or not.

We'll see in the next slide where the capacity utilization is as a result of all these factors right now.

The third factor is contamination. Refineries tend to serve regional markets, although there is some long-distance shipping by ship. Transporting crude does not have the same contamination challenges as transporting refined products. Shipping refined petroleum products over long distances and over multi-product pipelines can lead, for example, to increased sulphur levels, requiring costly remediation at the final destination, so if they're shipping long distances by pipeline, shippers tend to prefer to ship crude and then refine it closer to market. For example, airports often have dedicated lines from a local refinery to the airport for jet fuel. In Canada, for example, airports in Vancouver, Edmonton, Calgary, Toronto, and Montreal all have dedicated pipelines.

The fourth factor is distribution infrastructure. Shipping one product through a pipeline is easier and cheaper than shipping several products in batches or having separate dedicated pipelines. When you're shipping crude, you're shipping one product; when you're shipping refined, you're shipping multiple products. The input to refineries is crude oil, whereas products are likely to be gasoline, diesel, and jet fuel. It's more complicated and costly to transport multiple refined products long distances to customers at many end destinations.

The fifth factor is fuel specifications and seasonality. This is interesting, and it's something that most motorists don't know: fuel specifications are extremely stringent and are tailored to the climate within which the fuels are consumed. Gasoline consumed in a warm climate is blended differently from that consumed in a cold climate, and in the same area, specifications will change seasonally. Transporting crude oil versus refined products also provides fuel suppliers with the flexibility to produce different products in response to seasonal demand, for example, heating oil versus gasoline.

We will move on to the summary to put that all together.

● (0855)

[*Translation*]

Generally speaking, western Canada and southern Ontario refiners mostly rely on western Canadian crude oil, while eastern Canadian refiners largely use eastern Canadian offshore crude oil and imported crude oil.

Our refineries today are fewer in number, but they are much larger and more efficient than they were 50 years ago. Canada refines more petroleum products than it consumes and is therefore a net exporter of both petroleum products and crude oil.

Canada's crude oil reserves are the third largest in the world. As production increases, it is likely that the amount of Canadian crude oil refined in North America will continue to increase.

● (0900)

[*English*]

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

We go now to the Canadian Petroleum Products Institute.

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

Mr. Peter Boag (President, Canadian Petroleum Products Institute): Thank you.

Good morning, Mr. Chair and members of the committee. I'm very pleased to be here today to provide perspectives on the committee's study of pipelines and refining. I'm happy to have Carol Montreuil, vice-president of our eastern Canada division, here with me this morning.

CPPI members play a key role in Canada’s energy value chain. They make a significant contribution to many sectors of Canada’s economy. I think you would all agree that transportation fuels are a vital enabler of Canada’s social and economic activities in that they provide that essential fuel that moves people and goods across our country.

Our submission, along with some other pertinent material, is contained in the packages that have been distributed to you. In my remarks this morning I'll highlight the key points in our submission and focus on four themes. The first is a snapshot of Canada's refining sector, which supplements the information Mr. Corey has provided.

The second is to clarify the distinctions between bitumen operators and product refineries—I think there is some general confusion around that issue. The third is to compare and contrast the market challenges and opportunities for Canada's petroleum product refiners and our oil sands producers. The last is to reinforce the role we think public policy-makers can play in promoting a competitive and viable Canadian refining sector.

First is that snapshot. CPPI members have been providing quality and reliable petroleum products to Canadians for more than one hundred years. The industry today contributes $2.5 billion annually to Canada's GDP. It employs 17,500 highly educated and well-paid refinery workers. In Canada overall today there are 19 refineries located in eight of our provinces, and they have an aggregate production capacity of about two million barrels per day. CPPI members operate 16 of these 19 refineries. In addition to refinery infrastructure, there are 70 distribution terminals and some 12,000 retail sites across Canada that employ 82,000 workers in total.

Refiners produce gasoline, diesel, and aviation fuels, as well as heating oil, and important feedstocks for the petrochemical industry. Some CPPI members are also significantly involved in the production of biofuels, and certainly virtually all Canadian refineries and petroleum producers are now involved in the distribution of biofuels.

As Mr. Corey pointed out, Canada is self-sufficient in and a net exporter of refined petroleum products. Our sector exports about 20% of its output—about 400,000 barrels a day—mainly to the United States and mostly from Quebec and Atlantic Canada. Geographic proximity to the very large northeast U.S. market and the ability to ship by sea or ship relatively short distances to market are key factors that facilitate these exports.

Now, refining is, again, as Mr. Corey pointed out, a very capital-intensive business. It's one of the most capital-intensive businesses in our economy. A typical new refinery would cost in excess of $7 billion to build today, and that doesn't include the land acquisition costs that would be associated with that. While no new refinery has been built in Canada for some 25 years, more than $40 billion has been invested in Canadian refineries since 1980. That's including the capacity expansion of the kind Mr. Corey has already spoken about. As well, it's directed at continuous improvement initiatives to increase operational efficiency, to enable the refining of heavier crudes, and of course to improve environmental performance.

On that point alone, over the past 10 years, a total of $8 billion has been invested in environmental improvements to Canadian refineries. Currently, CPPI refiners invest close to $3 billion a year in aggregate to sustain their competitiveness in an increasingly challenging global market for refined petroleum products.

Canadian refineries are efficient, but they are not large by international standards. They operate at a size and complexity disadvantage to U.S. refineries and at an even greater disadvantage to some of the new super refineries that are being built in Asia. A good illustration is that we now have one refinery in India, on one location, on one site, that has the capacity to produce 60% of all Canadian refinery output—1.2 million barrels a day from one site, compared to Canada's two million barrels from 19 sites.

● (0905)

Refining economics generally dictate that refineries be located close to consumer markets. Again, as you've heard from Mr. Corey, transporting finished products such as gasoline, diesel, and aviation fuel, especially over great land distances, is more expensive and logistically less efficient than transporting crude oil.

This is a common theme for many commodities that are traded globally. As Canadians, we export a lot of wheat, but we don't export baked goods. Certainly as coffee drinkers we import a lot of coffee beans, but we don't import brewed coffee. So this is consistent with a lot of commodities.

However, the economies of scale of some of those larger refineries that I've talked about, and also the access to ocean shipping, substantially mitigate the economic impediments of transporting finished products to distant markets. So this does pose significant new competitive challenges for Canadian refineries, increasing the importance of refinery efficiency and the requirement to be globally competitive.

A big part of refinery efficiency is operating at or near capacity; optimal capacity utilization is over 90% and preferably close to 95%. Currently there is excess refinery capacity and below optimal utilization across North America. The latest National Energy Board figures show that through 2010 and 2011 the utilization rates in Canada were in the low 80% range.

As we've seen those low utilization rates across North America for the last several years, there has been some continuing consolidation and a number of refinery closures. One has closed in Canada in the last couple of years. Three refineries have recently been closed or idled on the U.S. eastern seaboard. Two weeks ago, a large refinery in the United States Virgin Islands announced that it would cease operations next month. That's indicative of the kind of business environment we operate in right now.

On product refineries versus bitumen upgraders, there is some confusion over the nature and roles of refineries and upgraders. Often the terms are used interchangeably, but let me emphasize that petroleum product refineries and bitumen upgraders are not necessarily the same. Product refineries are built and configured to process crude oil from heavy to light, from sour to sweet—and now synthetic—into products such as gasoline, diesel, aviation fuel, and home heating oil. They're generally much more complex than a bitumen upgrader due to the nature of the multiple products they're designed to produce.

Mr. Corey has already provided a very high-level summary of the refinery process, so I won't repeat that, but I will emphasize that no two refineries are identically designed and engineered. They do share a number of common features and processes—distillation and cracking—and they use similar state-of-the-art technologies, but specific refinery configuration and process units are employed.

The specific refinery configuration and process units employed are generally determined by the crude oil diet that is available to the refinery and the kinds of products they want to produce that are driven by local market demand conditions, and this is obviously something that is not static. Other factors that do affect refinery configuration are the technological requirements, or the technology available at the time of construction, and of course the way the refinery has evolved over a long period of years to adapt to a changing marketplace situation and/or changing environmental regulations in the relevant jurisdiction.

So no two refineries are alike. In fact, they can be quite substantially different.

Bitumen upgraders are specifically built and configured to produce a 100% bitumen feed, or "dilbit"—diluted bitumen. It's a form of crude oil, but it has physical and chemical properties that are generally unsuitable for use as a refinery feedstock. So upgrading is an intermediate process whereby bitumen is transformed into higher-value synthetic crude oils suitable as a feedstock for some but again not all refineries. So while a bitumen upgrader may employ some of the same processes used in a products refinery, it's configured differently to address the specific challenges of the high viscosity and extra-heavy physical and chemical properties of bitumen.

Complicating this distinction, though, is the fact that the operational and process boundaries of a refinery and an upgrader are not clear cut. There's not a clear line to say this is a bitumen upgrader and that is a refinery. Some product refineries can process bitumen and heavy crudes; generally that means they employ a coker. Some upgraders produce limited amounts of finished products, generally diesel. Also, an upgrader and a refinery can be integrated into a single facility. It's not a clear-cut distinction, but in general, upgraders and refineries are different.

● (0910)

Moving on to the differences in market challenges between the refining sector and the oil sands industry, certainly Canada's refiners and oil sands producers live in very different worlds and face very different market challenges and opportunities. There is no question that the upstream and oil sands industry provides a tremendous catalyst for growth in Canada. Growing demand for crude oil, especially from developing economies, is projected to increase for the next 25 years and beyond. This creates attractive export opportunities for Canada's upstream sector. On the other hand, North American demand for refined petroleum products over the same period is expected to be essentially flat. This fact and the challenges it creates for Canadian refiners were highlighted in a recent Conference Board of Canada report. That report is included in your package.

The fact that petroleum fuel demand has likely peaked, or has nearly peaked, in North America may come as a surprise to some, but it's a phenomenon that's experienced in virtually all OECD countries, where demographics, mature transportation systems, new vehicle fuel efficiency regulations, and a growing market penetration of alternative fuels—biofuels and natural gas, for example—and electric vehicles combine to offset any growth in overall transportation energy demand as we move forward for the next 25 to 30 years.

In this context, to go back to some earlier discussion, North American product refining capacity now essentially exceeds demand. Furthermore, the North American refined product market is increasingly exposed to imports from new global supply capacity, especially in the developing economies of India and China, where these massive new super-refineries are operating or being built.

Building new refinery capacity in Canada in this context is a tough sell. It's hard to justify spending $7 billion on a new refinery when there is already more than enough supply on the continent. However, it is understandable that with increasing production from Alberta's oil sands, there is an expectation, at least in some circles, that Canada's refining capacity should also grow. However, the economic truths of supply and demand in the North American context often get lost or ignored in the debate, and the realities of declining North American demand, excess refining capacity, and stiff competition from overseas refiners often get overlooked.

These economics get even tougher when the geographic realities are considered. Alberta, home to most of the oil sands, is landlocked, and far from major refined-product markets in the U.S. Similar economic realities apply to the argument that we should be upgrading more, if not all, of our bitumen in Canada. Certainly we are increasing our amount of bitumen upgrading capacity. There are new upgraders online. Canadian refineries have been, over time, changing their configuration to be able to upgrade more synthetic crude, or more diluted bitumen, but there is a limit. The excess U.S. gulf coast capacity that Mr. Corey spoke about is a major investment hurdle for building new capacity in Canada.

Finally, then, there's the role of policy in helping to sustain a viable and competitive Canadian refining sector. Certainly sound economic policies and smart, predictable regulations are key enabling factors for a competitive and viable refining sector in Canada. Success, in our view, demands a sound science-based approach to developing new regulatory requirements that include credible and rigorous economic impact and cost-effectiveness analysis. Regulatory structures that are outcome-driven and provide refiners with flexibility to develop and implement the most cost-effective options to meet regulatory requirements....

I go back to that characterization of our refineries that no two refineries are alike. A one-size-fits-all approach that prescribes how refiners need to do their business really doesn't work for us. We need an outcomes-based regulatory approach that allows those refiners to determine what is the most cost-effective approach to respond to and achieve regulatory compliance given the nature and configuration of their refinery. This is essential if we're going to continue to overcome the scale and competitive disadvantages that we face, particularly from refiners abroad.

● (0915)

Policy-makers can play a significant role in promoting a globally competitive and viable Canadian refining sector: they can contribute to or detract from Canadian refinery competitiveness through the policy choices they make.

In conclusion, the future size and scope of Canada's refining sector will really come down to how well we can stack up competitively in what is a highly competitive and increasingly global market. Can Canadian refiners successfully compete to maintain or grow market share in what is in North America a stable or possibly shrinking fuels market? Can Canadian refiners displace current U.S. domestic supply and imports abroad with more Canadian exports? These are important questions.

In the end, the size of Canada's petroleum products refining sector will be market-driven and will be the sum of many individual business decisions influenced by a myriad of factors, including commercial strategies, crude availability and cost, logistics and labour issues, product demand and market access issues, and of course the Canadian policy and regulatory environment.

Thank you very much. I look forward to your questions.

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

The final presenter today, appearing here as an individual, is Hossam A. Gabbar, an associate professor from the University of Ontario Institute of Technology.

Welcome, sir. Go ahead with your presentation.

Mr. Hossam Gabbar (Associate Professor, University of Ontario Institute of Technology, As an Individual): Thank you very much. It's my pleasure to be here. I'm delighted to be with you here to share some of the thoughts from the R and D and the research perspectives.

First of all, I belong to the Faculty of Energy Systems and Nuclear Science, in which we study energy from the perspective of economic and social impacts as benefits to society. So we study oil and gas as part of the energy supply chain. Accordingly, when we deal with oil and gas, really as one resource—a natural resource, an important resource in Canada—we always compare and try to find its position versus other resources.

My first image is where we started talking about the map—we call it an energy map—to find out if we would like to capitalize and to strengthen our oil and gas industries and what the motivations for and limitations of doing that might be.

First we said, okay, let's try to map what we have as energy, including oil and gas. We started building the generation side. From the generation side, we built energy bio-power, nuclear power, thermal, hydrogen generation, solar, wind, geothermal, and other.

I just took you one step further up, where we found that we can build a reliable infrastructure for a gas network, for a thermal network, and for an electricity network. The idea here is to say that if we would like to say we have water finally in a certain region, how can we improve it? Do we need to upgrade it, maintain it, extend the lifetime? In order to answer these questions, it is primarily two factors, and these factors are related to the fact that it is supporting a regional area as transportation lines.

So I think the first image I would like to emphasize is that if we would like to really evaluate and make a proper plan for the oil and gas industry for the coming period, one thing we need to do is to see the needs and do a comparison with other energy sources in the region and internationally.

The second thing to look at is refined versus crude oil, which is a very important question, and one that I think everybody is trying to resolve. I would say at this point the question, when we have natural gas and crude oil, is whether we should proceed and extend the refinery. Doing so is very important for the Canadian market as well as the international market if we want to actually export the crude oil.

In order to answer this, again from a research perspective, we started our analysis by saying that we would build a model in which we would define the inputs and outputs for each entity such as a refinery or pipeline, upstream or downstream. And we tried to build in the parameters, which are the performance indicators, and see these parameters—economic parameters, environmental parameters, even HQP. In our terminology, HQP is high-quality personnel, including new-generation engineers and persons working in industry. Based on this model, we try to optimize and maximize the benefit from oil and gas.

This is a generic overview just positioning oil and gas. If we would really like to promote the oil and gas industry further, there will be a parameterized mathematical formulation that will determine that this approach is definitely the way to go based on optimization.

Looking at the oil and gas industry in more detail, in terms of generation, of course, gas represents 16% of the energy distribution. Nuclear is 33% and hydro is 23%. That means gas is actually a major contributor to energy in Canada. In terms of how to map this, we found, from the statistics I provided to you, for example, that Newfoundland generates around 18,000 cubic metres, and Nova Scotia and New Brunswick are around 48,000.

I have provided some information about the statistics we collected so far from the oil and gas industry, in terms of actual generation or production. We have tried to map these values to the actual geographical map and to say, for each region, what the local requirements are and what the sustainable factors are for each region.

● (0920)

Based on that, what we try to actually emphasize is whether we can sustain locally to minimize the transportation: can we balance the need for transportation versus local sustainability? That was one of the factors we tried to analyze. We found that it is primarily related to each region's requirements and needs as generation is available in that region. So from the map, from the projected figures we got from the actual oil and gas production, such as what I've provided, we found that it is very important to optimize the energy locally in each region based on the input-output parameters for each particular region.

I would like to go further into this, and in particular into the picture of where the crude oil chain goes. We have the wells. Crude oil and natural gas go to gathering pipelines that go to oil and gas processing facilities. This is a very simplified picture. That goes to feeder pipelines and then to transmission lines, which are bigger. That goes to a smaller size, which is the distribution—the LDCs—and then to homes and industry. That means we have a network. This infrastructure is not only a refinery but actually a network: from the generation, from the wells up to the processing upgraders, and then up to the end user. This means that if we would like to focus only on the refinery, that's only one element in the supply chain.

So in regard to that refinery's characteristics, from the top view, if we would like to optimize it in such a way as to maintain its maximum function or its maximum key performance indicators, we have to look at this upstream and downstream. Transmission lines are quite large, over long distances. If we'd like to see where to go in terms of maintaining existing refineries, increasing or expanding, developing a new refinery, or transporting the crude oil into the U.S. or internationally—primarily the U.S.—that means we need to model this network. Modelling the network actually includes the characteristics of the material, of the oil, the cost of maintaining the infrastructure, and then costs or the benefits or the value of the oil and gas products.

With this picture, I always feel that it is very important that we build the model dynamic with existing current production. Putting in our requirements and strategy will enable us to actually refine the policy around this supply chain.

If you would like to go to the end of the supply chain, which is actually the products, what we have as products, I have a picture of where we have the whole fractionation, or the situation or the refinery process, if we can say that—a simplified one. We have the crude oil and the generic products. So in the end, each product actually has its own supply chain. We have the fuel that goes to vehicles or transportation. We also have some products that go to jet fuel and also to diesel fuel for trains, and some for lubrication, fuel oil, grease, and asphalt, etc. We have quite a spectrum of products.

The question is.... A refinery is quite a dynamic process, where we can actually tune it in a way that can generate what we like to generate. This means that in a dynamic manner, with adaptive systems or adaptive refineries—I would say smart refineries—we can actually focus more on a product that we are interested in producing.

Let's take a vehicle as an example. As we know, there is the PHEV or plug-in hybrid electric vehicle, so if there is a rule or a policy or a direction to go into electric vehicles, it means that while we are talking about the refinery production or tuning or maintaining its operations, we need to have a look at what's exactly running into that electric vehicle, because it's a factor.

In Ontario, I am actually a member of something called the PHEV—plug-in hybrid electric vehicle—initiative, where we are thinking about how if we want to do electrification for a vehicle, what is the best way to do it? That definitely would affect the supply chain of oil, gas, and fuel. Accordingly, what I want to say here is this: each of these elements actually has a supply chain.

● (0925)

If I would like to maintain the refinery as one element, I need to be 100% sure that the supply chain is maintained properly, upstream and downstream. In addition to analysis on a case-by-case basis, what I strongly recommend in terms of actually evaluating that supply chain is having a real-time simulation for that supply chain that can show us parameters and what-if scenarios: if we contribute 80% of the electric vehicle, what will happen upstream? What if we implement 90% of the electric vehicle? What will we get? That was one of the pictures I tried to emphasize here.

Finally, in terms of the refinery itself, the last thing, as I mentioned, is the dynamic and adaptive aspect. The refinery involves a lot of processes. One of them is physical, thermal, and catalytic, which is chemical. That means we can actually adapt and attune and improve the refinery process.

My last comment in terms of improvement is about integrity. A lot of integrity requirements need to be maintained in terms of physical and mechanical integrity. Second, modifications can be made in terms of energy savings. We can actually improve the refinery's energy saving by maybe 20%. That is a good factor and a big factor. In terms of research, we have achieved something similar to 20% improvement in energy, and environmental and safety aspects as well.

That's primarily a quick review of my discussion.

Thanks a lot, and I'll be pleased to answer any questions.

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

We'll now go to questions and comments. Just before we do, I want to welcome a couple of new members who will be on our committee, Joe Daniel and Royal Galipeau. Welcome to our committee.

We go now directly to questions. Mr. Calkins, you have up to seven minutes.

Mr. Blaine Calkins (Wetaskiwin, CPC): Thank you, Mr. Chair. Hopefully my voice will get through the seven minutes.

Thank you, Mr. Corey, for coming back to committee. You'll remember a question I asked you a little bit earlier; I want to ask you the same question again today, insofar as we have a few more people paying attention.

Other points of view or voices in Canada are saying that we should be refining and upgrading more products here domestically, rather than shipping bitumen or raw products out of Canada. This is something that strikes home very much to me as an Alberta member of Parliament.

I notice in your deck that in Canada, particularly in eastern Canada, we import crude oil, but nowhere in your presentation did you say that we actually import any refined products into our country. Is it fair and reasonable to assume that Canada should be able to solely export refined product while it's perfectly okay for us to import crude oil from other countries? There seems to be a bit of a double standard there.

Mr. Corey, could you elaborate on why the market is choosing not to upgrade or refine more product in Canada, particularly closer to the point of extraction in Alberta?

Mr. Mark Corey: Thank you.

Mr. Chair, there are a number of reasons that drive it. To underline the policy of the Government of Canada, we take a market-based approach; we have had that approach consistently I think since the 1980s. There are a number of factors that drive whether or not it's upgraded in Canada.

One thing to put into perspective is that Canada consumes about 1.8 million barrels of oil per day. If you multiply that out, that puts annual consumption around 650 million barrels a year—it's in that range. We have crude reserves of about 174 billion barrels, of which 170 billion are oil sands. That could grow to about 300 billion barrels, as the technology progresses and it becomes more economically viable. It's a massive reserve. Most people don't understand just how huge the oil sands actually are. It will be exported; it's way bigger than anything Canadians could ever use for the next couple of hundred years.

As to where that is actually upgraded and refined, it depends on a number of factors. As we said, one factor is capital cost. As Peter mentioned, the cost of a new refinery is probably in the range of $7 billion to $10 billion; one doing heavy crude is going to be more expensive, and this is heavy crude.

The other analogy I heard was that saying we shouldn't be shipping diluted bitumen is like saying we shouldn't be shipping wheat, we should be shipping baked products only. I think that was one of the analogies that was used. But actually, diluted bitumen does have a high value as an export.

Another factor is contamination. If you're doing pipelines and stuff like that, it's actually cheaper and easier sometimes to ship crude than it is to ship multiple products, as we mentioned.

Seasonality and fuel specifications are other reasons for why gasoline, in particular, is often refined closer to markets.

Those are some of the things that actually drive it. The Province of Alberta—again, I have to underline that the provinces are responsible for the resource—does have a goal of two-thirds of the oil sands being upgraded by 2020. As a province, they've been really promoting it, but in the end it's the market that actually dictates it. I think you can look at it and say the fact that we do have surplus refining capacity right now, with our refineries operating at about 80%-83% of their capacities when the ideal is closer to 93% on the refining side, makes it difficult to make the case that we should be building more refineries in Canada.

Upgrading kind of fits into that picture as well. There are a number of refineries that are set up to do heavy crude. As Peter was pointing out, often that includes the upgrading side of it in the gulf coast. The market basically decides that a lot of that should be shipped to be refined there, and that's probably why the market is doing that.

● (0930)

Mr. Blaine Calkins: I'm going to move on to Mr. Boag.

Thank you for coming, and thank you for your presentation today. Thank you for clarifying the difference between an upgrader and a true refinery. That gives us the full suite of products. There is a lot of confusion about that.

Mr. Corey just spoke about the fact that upgraded bitumen, or synthetic crude, is actually a high-value product. In my particular riding, we have midstream processors for natural gas that create the diluent, which is piped up to Fort McMurray, where it is then mixed with the bitumen so that it can be piped down to the upgraders in Fort Saskatchewan. That creates jobs all over in my neck of the woods, and we're a thousand miles away from the oil sands.

Because Mr. Corey also talked about the fact that we're not running at full capacity, Mr. Boag, I'd like to ask you what the price impact at the pump would be if we were running at full capacity.

Mr. Peter Boag: I think the price impact is determined by a whole pile of different factors. I certainly would remind you that, number one, about 80% of the price at the pump is reflected in the price of crude and taxes, so what we're now talking about is a relatively small amount. As you look at past price trends over the last 15 to 20 years, at higher levels of utilization margins do go up, and at lower levels of utilization the refinery margins do go down. But the actual gap in the difference is fairly insignificant.

Mr. Blaine Calkins: Mr. Chair, I have one more question. This might be better directed to the Canadian Energy Pipeline Association. I sure hope they're going to have an opportunity to participate.

A couple of you have spoken quite eloquently about what would happen if we tried to do more upgrading and more refining in Canada and the impact it would have on shipping, with contamination and so on. Basically we have a lot of single-purpose lines going out of our country into the export marketplace. If you try to use those lines for different purposes or for shipping different products....

Are pipelines generally built to handle a specific kind of product? Are they designed to handle the full suite of products? What are the costs? What would we see for an increase in costs, Mr. Boag, if for example we tried to run bitumen for a couple of days, then we tried to run diesel for a couple of days, and then we tried to run jet fuel for a couple of days through a pipeline that stretches over thousands of kilometres?

● (0935)

Mr. Peter Boag: I can't talk to all of the necessary details, not being a pipeline expert, but first I would clarify that we do have two kinds of pipelines in Canada. The pipelines that ship crude are distinct from the pipelines that ship finished products. We do not mix crude and finished products in the same pipelines.

We have a number of pipelines, particularly in eastern Canada, that ship finished product from refineries to major market centres. The products that go through those pipelines are different on a day-to-day basis, depending on the demand and how the pipeline schedule works. You cannot ship gasoline and diesel at the same time. You ship gasoline, and then you need to ship a load of diesel after that.

Certainly the longer distances you try to do that, the costs do increase. I think that comes back to the principal discussion we had earlier this morning, that because of the costs and the inefficiencies involved in shipping finished product over long distances, generally the refineries have been located closer to market.

As for the costs, I don't know what would be the specific incremental costs.

The Chair: Thank you, Mr. Calkins.

Monsieur Gravelle, you have up to seven minutes. Go ahead, please.

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

I'd like to thank all of the witnesses for coming out here today.

My question is for the assistant deputy minister. I want to refer to a recent CBC interview. The Prime Minister acknowledged the issue of energy insecurity in our country. That was in an interview he did with Peter Mansbridge, I believe.

He said, and I want to quote him, that "...on a certain level.... It does seem odd,"—that we are moving oil out of western Canada to the United States or Asia when a good chunk of Canada itself does not have domestic oil—"and I do think there are people out there in the marketplace looking at dealing with that particular sensitivity or insecurity."

Can you comment on that issue of insecurity for our country and what the Prime Minister might be referring to, in terms of what is happening in the marketplace to address this? Has your department studied this insecurity issue?

Mr. Mark Corey: Thank you, Mr. Chair.

I think you could answer that really at two levels. What the Prime Minister I believe is referring to is the fact that as oil production ramps up in western Canada, you will likely see the market respond. In fact we're already seeing the market starting to respond.

Line 9, which is an Enbridge pipeline that runs from Sarnia to Montreal, was originally built to go from west Sarnia to east Montreal, bringing western crude to the Montreal market. In the 1990s, for economic reasons, it was reversed. It was bringing imported crude all the way down to Sarnia.

What you're seeing now is that Enbridge, for example, has applied to reverse line 9 as far as Nanticoke, which is just west of Toronto. The idea is that, again, they would be bringing western crude more into the Ontario market and the refinery specifically at Nanticoke. There has been speculation in the media as to whether or not they will eventually reverse it all the way to Montreal, but that's a decision for the company to make.

So you'll probably see some of those adjustments happen. As well, Canada is an international trading country. We also seek energy security at the international level. This is the reason why we're a member of the International Energy Agency, which is a grouping of countries that both produce and consume—largely the consuming countries. These countries band together. We monitor the markets very closely. We have mechanisms where, if there are production shocks, for example, we respond as a group. We also rely on the collective approach to energy security internationally through the International Energy Agency as well.

So I would say it's probably those two things that are at play.

Mr. Claude Gravelle: Thank you.

My second question is also to you, Assistant Deputy Minister.

The minister, when he was here for estimates, used figures of anywhere from $7 billion to $16 billion for new refineries. Can you break down the costs for a refinery? And do you have an estimate of the lifetime economic output of a new refinery and the government revenues compared with a pipeline?

● (0940)

Mr. Mark Corey: Mr. Chair, I was wondering if I might actually refer this to Peter and ask him if he could talk more about the costs of a refinery, as really that's in the private sector and that's what they do.

The Chair: Mr. Boag, go ahead.

Mr. Peter Boag: Certainly refineries are a very capital-intensive business. You are talking about anywhere from $7 billion or more to build a new refinery. In our presentation we talked about the kind of capital investment that has been required over the last 30 years in Canada to maintain a viable and competitive refining sector. That's about $40 billion on an annual basis right now. The investment requirement to sustain and maintain our competitiveness is about $3 billion per year.

The Chair: Okay, go ahead.

Mr. Carol Montreuil (Vice-President, Canadian Petroleum Products Institute): As a complement, building a refinery is a 40-year endeavour, as a minimum, in terms of looking at returns over a long period. An economist would tell you that by and large this business is roughly an 8% to 10% business. You are looking, in terms of a return, at 10% on average over a long period. Given how capital intensive the business is, you have to think about it twice before spending that kind of money.

Mr. Claude Gravelle: All right. This is the second part of my question for the government. Can you give us a breakdown of the government revenues of a refinery as compared to a pipeline?

Mr. Mark Corey: Mr. Chair, we would have to get back to you with that. I can tell you that at the macro level, for example, the refining industry in 2009, according to a recent Conference Board report, contributed $2.5 billion to the economy and provided the direct employment of 17,500 workers. As an aggregate, it's an important part of the economy. We'll have to get back to you with specific numbers.

Mr. Claude Gravelle: Can you provide us, now or later, with a breakdown of the Canadian and foreign ownership of the oil sands—dollar and percentage investment of the oil sands by country and company?

In addition, what is the current level of Chinese involvement in the oil sands? If you can't give that to us now, can you give it to us later?

Mr. Mark Corey: Mr. Chair, I would think we would probably want to get back to you with the details. That would be a very long and detailed answer because there are a large number of projects. Specifically, as you note, there have been some major Chinese investments in recent years in the oil sands. We'll have to get back to you. As I said, it would be a very long and detailed answer.

The Chair: Thank you. We will look for that.

Go ahead.

Mr. Claude Gravelle: Mr. Boag, can you help us understand who gets what from a barrel of oil sands?

Let's say a barrel of oil costs $100. Who gets what, and how much? Please consider the federal government, provincial governments, municipal governments, upgrading companies, pipeline companies, and refining companies. Can you break down a barrel of oil at $100?

Mr. Peter Boag: No, I am not able to do that. Certainly, my interest and my knowledge base are specifically in the refining sector. If you want that kind of detailed information starting at the oil sands, royalty rates, and all of those kinds of issues, I'm not the person to be asking. I suggest that perhaps Mr. Corey, in the long run, could do that, or someone from our upstream counterpart association, the Canadian Association of Petroleum Producers, might be able to do that.

The Chair: Mr. Corey, are you or is someone with you able to provide some information on that now?

Mr. Mark Corey: We are indeed. We do actually publish something, which is a regular publication called *Fuel Focus*. It actually tracks the price of gasoline and the various component parts. For example, the average price tracked in 2011, according to the numbers I have, was $1.24 per litre, of which 63.8¢ was crude oil, 23.5¢ was refining and marketing costs, 15.7¢ was federal tax—excise and GST—and 21¢ was provincial taxes. That's about it. We can provide the committee with a much more detailed background on the cost of fuel and parts.

● (0945)

The Chair: The question was on the actual barrel of oil, but that's helpful, I'm sure.

Mr. Claude Gravelle: Can he forward that to the committee?

The Chair: Could you get that information looking at it from the breakdown of a barrel of oil?

Mr. Mark Corey: That becomes more complex because you will have a number of products coming out of a barrel of oil, but we will see what we can do on that as well, Mr. Chair.

[*Translation*]

The Chair: Thank you, Mr. Gravel.

[*English*]

We now go to Mr. McGuinty for up to seven minutes. Go ahead, please.

Mr. David McGuinty (Ottawa South, Lib.): Thank you, Mr. Chairman.

Gentlemen, I want to go to something that Premier Redford in Alberta has been calling for, for about 90 days or slightly longer now. That is her call for a national energy strategy in this country. I think she has been raising some really important questions around where we're going as a nation with respect to energy.

I'd like to get your responses to that, because this study is all about the current and future state of oil and gas pipelines and refining capacity in Canada. I don't know how you cannot address the question of a more coherent national approach to energy.

I'm not going to get into questions like nuclear or questions like renewables. The government is making choices all the time.

Mr. Corey, you fall back repeatedly on the notion of "free market", as if the free market for energy in Canada were not fettered. All you have to do is read the Income Tax Act to know that the free market for energy is fettered like every other free market activity in the country.

Governments make choices. For example, the national government is promising loan guarantees for the exploitation of hydro power in eastern Canada. The federal government has declined to meet Ontario halfway with respect to renewables. Those are choices a government makes. That fetters a market.

Can I get your first high-level responses, Mr. Corey and Mr. Boag? Do we need to work coherently, as one country, to look at where we are with energy and where we're going with energy, working with the provinces? Because it's not just Premier Redford who is calling for this. We now have quite a large number of CEOs of fossil fuel companies who are saying, "We just need more certainty and clarity."

Mr. Boag, perhaps we can start with you.

Mr. Peter Boag: Thank you for the question.

My unequivocal answer is yes. I mean, certainly a broad-strokes direction or a framework of where Canada is going in energy—and not just on the energy production side but on the energy use and consumption side—is I think something that would be very useful for Canada, going ahead. Energy is an incredibly important part of our country and of our economy. We are among the highest per capita users of energy, and certainly we are a major energy producer. That's for all forms of energy. I'm not just talking about fossil fuels.

So I think some common vision, some common view of where we are going as a nation with respect to energy, recognizing that we have jurisdictional issues in Canada in terms of our federation, and that there is a federal role and there are provincial roles.... It's not about specifying and intruding on the individual prerogatives of provinces or the federal government by one jurisdiction or the other. But clearly, a common understanding, a common vision, and speaking about energy in a common language going forward I think would be something that's very valuable. It's something that certainly my colleagues and I in the oil and gas value chain have been promoting and working on for some time.

A number of years ago, we began an initiative called the energy framework initiative, which was fundamentally about highlighting the need for what we didn't call a “strategy” but a clearer “framework” for energy in Canada. I don't want to get mixed up in the semantics of “strategy” and “framework”, but clearly, some greater degree of clarity and common vision of what is in the national interest of Canada for energy I think would be very useful. It would be very useful to ultimately guide policy, but also to ultimately guide investment decisions so that we have some certainty and some common view of the role that energy will play in our economy and how we can maximize the value of that for all Canadians on a national interest basis.

The Chair: Mr. Corey.

Mr. Mark Corey: Mr. Chair, it's a very good question.

Our view is that all levels of government have a key role to play in setting energy policies for the country. In fact, last summer, in July, at Kananaskis, federal, provincial, and territorial ministers agreed to collaborate on a number of these issues. The framing was that they said we need a pan-Canadian approach to energy that respects provincial jurisdiction, as resources are within the jurisdiction of the provinces, but it basically acknowledges that all levels, as you say, do have an important role to play.

They set out a number of priorities that we're working on right now among the three levels of government: regulatory reform; energy efficiency; energy information and awareness; markets; international trade; smart grid technology; and electricity reliability.

The thing that I think is a bit different and encouraging is that oftentimes when you look at energy policy, it's all supply side, and this says that there are actually two sides we need to look at. We need to look at both supply and demand. So this looks at the whole energy demand, the energy infrastructure, and as a result, we're getting into things like working collaboratively with the provinces and territories on things like building codes, building standards, and efficiency in transportation systems, a number of things on the demand side that are critical to using energy better, as well as things on the supply side. So it's a balanced approach.

We'll be coming back to this at the next federal-provincial-territorial meeting in Charlottetown in September. There will be an update at that point. That's where ministers will look at it and say, “What's the next step?”

● (0950)

Mr. David McGuinty: Mr. Corey, I'm glad you raised the Kananaskis meeting. I followed it closely and was very encouraged by the fact that we actually had a federal-provincial meeting on any front, particularly on energy, but what disappointed me—and it leads to my next question—is this: is it possible to have in Canada a national energy policy or strategy or framework, some sort of coherent approach, without addressing greenhouse gases?

In all the presentations we heard this morning, not a single intervenor used the words “greenhouse gases”. When the Alberta Minister of Energy was interviewed after the Kananaskis meeting, the minister said it was not a place to talk about greenhouse gases. For most Canadians, who understand that 86% of greenhouse gases in Canada come from digging up, transforming, and consuming fossil fuels, that is a hard thing to understand.

If we are working and aspiring toward a national energy strategy, would you agree, Mr. Corey and Mr. Boag, that in the list of items you mentioned, Mr. Corey, wherein federal-provincial cooperation is occurring, one of the top three items might be how we are going to deal with the government's face-value commitment to reducing emissions by 17% from 2006 levels in the next eight years, by 2020?

Mr. Boag, can we start with you?

The Chair: I will ask you for very short answers. Mr. McGuinty's time is up.

Mr. Peter Boag: Again, an answer would be, “Absolutely”. When we talk about an energy strategy, the environmental impacts of energy consumption and production need to be part of that strategy.

Certainly, when I go back to the early days of the work that I and my oil and gas value chain colleagues did on the energy framework initiative, it was founded on a base of sustainable development in the classic, true sense of the Brundtland Commission in terms of economic sustainability, social sustainability, and environmental sustainability. You can't have an energy strategy, in my view, that doesn't deal with the environmental aspects of energy consumption and production.

The Chair: Would you comment, Mr. Corey?

Mr. Mark Corey: Mr. Chair, as was mentioned, the government does have a target. It is to reduce to 17% below 2005 levels by 2020. Environment Canada is, of course, the lead on the specific strategy itself.

A number of things have happened. The principal consideration is to harmonize with the U.S., because we have such a strong trading relationship. In synchronization with the U.S., light-duty and heavy-duty vehicle emissions have been looked at. They are in the process of looking at coal-fired electricity.

In Canada we have a very clean electricity system, with 75% of our electricity coming from non-GHG-emitting sources, principally hydro and nuclear. In the U.S. it is much more largely coal-based, so working with the U.S. to reduce that will have a bigger impact on GHGs than most other things.

The demand side is really where we can have an effect on GHG reduction. We just recently renewed our suite of energy efficiency programs. When we evaluated the old ones, we were looking at the tonnes of GHGs that the various initiatives were reducing; we're looking at the same for the new suite of programs. It's an important consideration, particularly when we look at the programs on the demand side.

● (0955)

The Chair: Thank you, Mr. McGuinty, and thank you, gentlemen, for your answers.

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

Mr. David Anderson (Cypress Hills—Grasslands, CPC): Mr. Chair, maybe I should make an observation that is more personal. I hope it reflects the policy of the government.

The government obviously has a role in energy and in federal-provincial relationships, but the market seems to have been operating fairly well in Canada since the 1980s. It serves most provinces, most areas, and most sectors well. The last time the government got involved excessively in the energy sector, it almost destroyed the entire industry and our country, so we need to be aware of that.

You talked about semantics this morning, but it's obvious that when people talk, they are working around the words "national energy policy" or "national energy program", as Mr. McGuinty mentioned, for a reason. Those of us from western Canada are still sensitive to that, and we need to remember we are a long way from there right now.

I'd like to talk a little bit about the refining capacity in Canada. You talked about these super refineries being set up in other parts of the world. I'd like to ask you about what happens when one of our refineries is shut down. We only have nine now. There seems to be consolidation, and last summer in western Canada we had some issues with diesel supply and petroleum supply. I'd like to talk a little bit about that. We only have 15 or 18 refineries left, so are we consolidated too much already in Canada? We have issues as soon as we have a problem with one of those refineries.

Mr. Peter Boag: I would say no. I think consolidation, and continuing to seek efficiency gains, has been a huge part of maintaining a viable and competitive refining sector in Canada.

Yes, we have had some issues over the last year or so with diesel shortages from time to time. The diesel market in western Canada is very tight right now; however, that situation is going to ease over the next several years, with new capacity coming on line in a number of upgraders that are scheduled to be built in Canada, and one of the products and outputs from those refineries is going to be distillate or diesel. I think the capacity expansion in western Canada around those new upgraders that are being built is in the order of 200,000 to 300,000 barrels of diesel a day that will become available on stream in Alberta.

I think we're seeing a temporary situation right now, and that's again reflected in that when you build a refinery, it's built around a certain demand profile of percentage of diesel, percentage of gasoline. Our refineries have traditionally been built to emphasize gasoline over diesel. As markets evolve, there is some work you can do in terms of changing that percentage of gasoline to diesel, but the amount you can change that is not unlimited.

So we're seeing market changes, obviously because of industrial development, principally in the oil and gas sector in Alberta. There are higher demands from diesel than we've ever seen before, and that is causing some local tightness in the market, but that tightness is going to ease over time as new capacity comes on line in these new upgraders, which will be producing diesel in addition to synthetic crude.

Mr. David Anderson: You mentioned earlier and you mention now that we're going to be increasing and upgrading in western Canada. I'm just wondering, in terms of projections, what percentage of bitumen do we expect will be upgraded in western Canada? What percentage will be processed into final product? Pick whatever time period you want, but in 10 years or 20 years, do you know—

Mr. Peter Boag: Again, I don't have those exact figures at hand, and I certainly have to confer with my upstream colleagues to get a better handle on the specifics of bitumen production rates over the coming years and the actual capacity of some of those upgraders.

I think Mr. Corey mentioned that the goal of Alberta is that they would be upgrading two-thirds of their bitumen in Alberta.

I forget, Mark, what time period you said that was in.

Mr. Mark Corey: The Alberta objective is to upgrade two-thirds by 2020. Just to give you an idea of what that means in terms of big numbers, we have seven upgraders right now. We estimate that would require an additional four upgraders to meet that requirement. It's in that ballpark.

Mr. David Anderson: Do you know what percentage of that would be used in western Canada and how much will be exported?

Mr. Mark Corey: I'm not sure, but we could check and see what numbers we could get for you on that. I don't have that with me today.

Mr. David Anderson: Okay.

I have another question. I'm wondering what percentage of our petroleum products end up in manufactured goods and plastics and those kinds of things. Do you know what we're refining? We've got the breakdown of all of the fuel products, but I'm just wondering, for some of those other products, is that percentage significant in Canada or not?

Mr. Peter Boag: I don't have the latest figures with me, but in terms of overall refinery production in Canada, a relatively small percentage of our output from refineries is petrochemical feedstocks. The large majority of it is fuel products; probably 90% to 95% is fuel products, and probably somewhere under 10%, maybe closer to 5%, is petrochemical feedstocks.

● (1000)

Mr. David Anderson: Maybe you're the wrong people to ask, but is there a potential in Canada to further develop that aspect of our petroleum industry?

Mr. Peter Boag: Again, you'd have to ask the chemical people, not me. I'm not particularly an expert on that sector.

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

We'll go to Mr. Allen for up to five minutes. Go ahead, please.

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

I want to follow up quickly on Mr. Anderson's comment on the upgraders, and then I want to talk a little about the flow of west to east, to seize a little more on that.

You mentioned four new upgraders, and if I understand correctly, the cost would be somewhere in the area of $7 billion to $10 billion apiece for each of these upgraders. Is that true?

Mr. Mark Corey: I believe it's about $3 billion. The $7 billion I think was actually for a refinery.

Mr. Mike Allen: Okay. So you're talking about $3 billion.

What is the potential? Some estimates suggest that Alberta is already well over 150,000 workers short now. In terms of trying to develop these actual upgraders, do we have the labour resources to get that done?

Mr. Mark Corey: Mr. Chair, again, I think this is something that Alberta has been going through in the recent past. Something they're obviously quite focused on is making sure they do have the labour skills. The good news is that they're generating good, high-paying jobs in the resource industry. That is an attraction for people to work there. When you go to the oil sands, obviously, people from all over Canada are working there.

It's a pressure that has to be managed. Primarily, the province is responsible for that, so it's the province that's really focused on making sure they can develop the labour force with the skills they need, because these largely are skilled jobs that are being developed.

It's a good question, and it's one that I think the province is dealing with.

Mr. Mike Allen: Okay.

In terms of moving the product from west to east, you talked about Enbridge line 9 actually being reversed into Montreal. If you wanted to move that product all the way down to the Irving refinery, for example, what would that take? Would that take a new pipeline going from Montreal into New Brunswick? Or what would be the implications of that?

Mr. Mark Corey: The way it works right now is that we do have pipeline capacity all the way to Montreal. Again, line 9 from Montreal moves from east to west. Some have been speculating that Enbridge may eventually apply to have that reversed. They haven't yet. I can't really comment on whether or not that would be reversed; it's a market decision. But it is possible. That infrastructure is there.

In Montreal, again, I guess it's what they call “barges”; basically they're moving crude into Montreal right now. They could possibly..... I mean, theoretically they could be moving it out of Montreal.

You also have for Montreal the pipeline that goes from Portland to Montreal. It flows in that direction right now. I know there's been speculation; I believe there was even an application at one point in the past, in the recent past, to reverse that. That's a two-300,000-barrel-per-day pipeline, so that's 600,000 barrels per day of capacity, which would link Montreal to the eastern seaboard. At that point they could.... I mean, again it's theoretical; you're asking what pipelines are there, and that pipeline is there. Portland is on tidewater. It could be serving the U.S. east coast and the Canadian east coast by ship as well.

Mr. Mike Allen: Does that give us the best value for dollar for every barrel of crude that we're bringing out, though? If we're continually going into the U.S. market, is that getting us the best value for our dollar? If we're going to export it anyway, does that get the best value?

Mr. Mark Corey: The way the oil markets work right now is that you have to look at two prices: West Texas Intermediate, which is really the price in Cushing, Oklahoma, which is sort of the central hub for North America, and then Brent, which is the North Sea price, which is sort of considered, too, the world price.

Once you get oil to tidewater, it's into the international market. The market basically adjusts once you get it to tidewater. The differential between those two has been up to $25 per barrel in the past. I think it's around $10....

Sorry, is it $13 today?

A voice: Yes.

Mr. Mark Corey: It's about $13 today. Recently it was down to $9. So it fluctuates.

The principal reason for that differential is that there's a bottleneck in Cushing—from Cushing, for example, to the gulf coast. We can get lots of crude to Cushing, and then moving it beyond that there's a bit of a bottleneck. I'm just quoting what the industry says, but their view is that when you can de-bottleneck Cushing and get it past Cushing to, for example, the gulf coast refineries, you'll see these two prices come more into line. So to the extent that we do get oil to tidewater and it enters the international market, that's where the two price levels come more into line.

There was a recent study done by a university in Alberta—I think it was the University of Alberta—that basically underlined the fact that if you're selling your oil at somewhere like $13 a barrel less than what it's getting for Brent, and you multiply that by a couple of million dollars a day, it's a lot of money that you're leaving on the table. That's one of the reasons for the push to get Canadian oil to international markets.

I think our minister has been pretty clear on that. The U.S. is our best friend, our closest trading partner. We have great economic relations with the U.S., but strategically it would be wise of us as well to diversify beyond the U.S. market to make sure we're getting the best price possible for our crude.

Mr. Mike Allen: Thank you.

● (1005)

The Chair: Thank you, Mr. Allen.

We go now to Mr. Stewart, for up to five minutes. Go ahead, please.

Mr. Kennedy Stewart (Burnaby—Douglas, NDP): Thank you very much for coming today and for all of your presentations.

I put in a motion to ask for this study for slightly selfish reasons, because my riding is Burnaby—Douglas and we are “petroleum central” in British Columbia. The only remaining major refinery in British Columbia is in my riding of Burnaby—Douglas. I have talked a number of times with the managers there and they told me there's a real danger that this refinery may close because they're having a hard time outbidding Chinese bidders for the crude oil that's coming down the Kinder Morgan pipeline. They said they may have even more trouble competing if this pipeline is doubled. There's a real concern within my riding that this refinery is going to close.

We used to have two other refineries in my riding. They've closed, and as you've said in your presentations, refineries are closing right across Canada.

Now, Mr. Corey, I just looked at page 7 of your presentation. You point these facts out—that there were 44 refineries in the 1960s and we have 15 today. You also say that Canada now has more refining capacity, but when I look at your graph on page 7, the second graph at the bottom, that statement doesn't seem quite true to me. I would have a different interpretation of your graph.

We may have more refining capacity than we did in the 1960s, but when you look at our peak capacity, that was in the late 1970s and early 1980s. At that point in the late 1970s and early 1980s, our capacity was over two million barrels a day—about 2.2 million or 2.3 million—but now we're under two million barrels. What that says to me is that we're actually losing capacity from our peak capacity of the 1970s. It's not that we're replacing them, as in these refineries are getting bigger and there are fewer of them, but our capacity is actually dwindling.

That is alarming to me. Not only is our capacity dwindling and the number of refineries is dwindling, but also you're saying our capacity is much lower. We're running at about 85%, when we used to run at 90%. The story that's telling me is that we're having a decline in refining in Canada. This is worrying because it almost puts us in this absurd position of being the only major oil superpower that someday may be importing refined products.

I'm just wondering if you agree with my characterization of that or if perhaps you see a different outcome. Maybe you could let us have your thoughts on how our refining is going to go on in the future.

The Chair: Go ahead, Mr. Corey.

Mr. Mark Corey: Mr. Chair, again, the graph basically shows that from the 1960s up until the late 1970s we were ramping up. We had the price shocks in the late 1970s. From that point, cars have become more efficient, houses have become more efficient, Canada has become more efficient, and demand has kind of flattened out. When you look at the capacity again, yes, you're right, the number of refineries has dropped, but the capacity of the refineries has expanded, so they're becoming bigger, more efficient refineries.

When you look at the capacity utilization, that's the key thing, and right now a refinery likes to run at about 95% capacity. In Canada last year, they were running between 80% and 83% capacity, which means they could have produced more, they would have liked to produce more, but they just didn't have the markets for it.

It's not the case that Canada is just starting to import refined products from everywhere else; we actually are net exporters. We refine more than we consume in Canada. It's one of those things that's like a lot of other industries, where you're seeing fewer, bigger, more efficient refineries serving the Canadian marketplace.

● (1010)

Mr. Kennedy Stewart: I know that in Burnaby we import refined products from the U.S., from the state of Washington. We import quite a lot of jet fuel, for example, by barge. I'm sure that situation is right across Canada, where there is an exchange.

For those short-distance refined products, why can't we increase the amount we refine, as long as the distance is short and we don't get the contamination that you mentioned?

Mr. Peter Boag: Ultimately, I think it comes down to economics.

It makes more economic sense, rather than producing a small amount of this product and a small amount of that product and a small amount of another product, to focus on achieving economies of scale and producing a lot of one product and perhaps even exporting some of that product. For those other products, of which you would be able to produce small amounts but at a much higher cost, it then makes more economic sense to import them.

When we look across Canada, yes, it's not consistent. We export from every refinery in Canada. We have a mix of products; some are imported and some are exported. It's really to maximize the economic efficiency. The bottom line is that at the end of the day, we are a net exporter of refined products to about 20% of our capacity in a very competitive North American market. We think that's a pretty positive story for Canada.

Our focus today is how we can continue to maintain a viable and competitive refining sector in Canada so that we can, at the very least, maintain our market share in that in North America, and on a more positive basis, if possible, grow that market share, recognizing that there are economic and competitive realities.

The Chair: Thank you, Mr. Boag.

Thank you, Mr. Stewart.

We go now to Mr. Daniel.

Welcome. You have up to five minutes.

Mr. Joe Daniel (Don Valley East, CPC): Thank you, Mr. Chair.

Thank you, witnesses.

I'm going to have a couple of questions for Mr. Gabbar, since you have been very quiet all this time.

First, it's great to hear that you're working on research for the future and making contributions to the future.

My question is about your modelling. How are you actually validating your model, and how are you ensuring that it's not just telling you what you want to hear?

Mr. Hossam Gabbar: Thank you very much for that question.

It's indeed modelling what we have in practice. First, it's modelling the well. I would just like to highlight which components we are modelling: we're modelling the well, the pipelines, the refinery process, the flares, and even the greenhouse gases in the environment. These are the major components that we're actually modelling. When I say “modelling the refinery,” I mean modelling the refinery process with equipment underneath.

In terms of validation, what we have developed throughout our expertise—and I was in Japan for almost ten years, working with all oil and gas companies. Until now, I also did a lot of consulting with oil and gas companies in the Middle East.

So through this expertise, we have developed modelling validation through a link with a real-time plant. That means we have the actual plant data, and we develop our models. We link them with what we call real-time simulation. That means the plant is running, and we have our simulation, and I can simulate at a faster pace so I can see an hour ahead in just a few seconds what the actual pipeline ingredients or the turbulence or the production speed, for example, will be.

So primarily the validation is actually through integration with the real-time data. We have this cross-link or integration where we reduce the error of our model's parameters so that it will be tuned to the real-time simulation.

That's primarily the story of modelling.

Mr. Joe Daniel: Just to follow up on that—this modelling is obviously very interesting and can be very useful—could you explain how this could be used in coming up with a future strategy for energy?

Mr. Hossam Gabbar: Yes, indeed.

One of the things I wish for, which from my perspective could be very helpful, is to be able to actually model the whole supply chain so we can see these what-if scenarios. I have really enjoyed most of the questions. All of them have really been what-if scenarios: What if we extend the pipeline? What if we extend the production of the refinery? What if we extend the production of one product?

These what-if scenarios are our main outputs, using simulation modelling and simulation tools. What I am proposing, which I feel could be very beneficial, is to have a modelling and simulation tool that could project these what-if scenarios and could provide some sort of decision support and could actually be used for some policies in terms of determining the maximum capacity and the minimum capacity, etc. It can accurately or dramatically affect decision-making.

● (1015)

Mr. Joe Daniel: Good.

Do I have more time? Yes?

For the rest of you, clearly we're not building any new refineries, and we're not expanding from that point of view. We're just upgrading, although we're spending a lot of money. How can Canada stay competitive globally if we don't create new refineries?

Mr. Peter Boag: I think that in order to remain competitive, we need to continue to be able to have an investment climate that encourages investment in our refining infrastructure. That investment might be in existing refineries to continue to improve their efficiency or to respond to increasing environmental performance expectations. I think that is really the key: to make sure there's an economic environment conducive to the kind of investment that's required to maintain that competitiveness.

Mr. Joe Daniel: I meant that perhaps there's a limit to how much upgrading you can do before you actually have to go to a completely new facility. Is that point coming close, or do we have a clear path to go on for a long period of time?

Mr. Peter Boag: Over the past number of years we've certainly seen significant investments in upgrading our refineries. Some have been efficiency upgrades; a number of refineries have made significant investments in being able to upgrade heavier crudes and in particular either synthetic crude or diluted bitumen. Under the right economic conditions, I think there's still lots of scope to continue to build on our existing refinery infrastructure and remain competitive.

Mr. Joe Daniel: Is that for a significant amount of time? Would it be the next 10 years?

Mr. Peter Boag: It's difficult to make forecasts into the long term. There's still lots of uncertainty. We've seen huge swings over the last three or four years in demand, prices, and cost, so it's very difficult. At least in my crystal ball, it's not all that clear in looking out in the future. We saw the price of crude in the summer of 2008, and then we saw the price of crude early in 2009; six months in advance of that, would either of those have been forecast? I doubt it. Certainly my forecasting ability is not that good.

If you look out a number of years, there's a lot of uncertainty about where demand is going to go. We're seeing increasing emphasis on alternative fuels and transportation, so there's a lot of uncertainty in the market. There's a keen interest within the industry to continue to be a viable and competitive part of Canada's economy, and they're going to take the steps to do that, but, as I've indicated in my remarks, there are some policy issues that will have some impact on whether the right investment climate exists for investing those billions of dollars when payback times are very long.

Mr. Joe Daniel: Thank you very much.

The Chair: Thank you, Mr. Daniel.

We go now to Monsieur Lapointe. You have up to five minutes.

Mr. François Lapointe (Montmagny—L'Islet—Kamouraska—Rivière-du-Loup, NDP): You may wish to wear your headphones, gentlemen; I may speak in “Frenglish”, since there are two official languages in this country.

[*Translation*]

My questions are for Mr. Boag or Mr. Corey.

Which pipelines have had the fewest leaks? Where did the most leaks occur in the Canadian or the North American network? I would like to know which pipelines were the best and the worst in terms of performance?

[*English*]

Mr. Peter Boag: I'm not the best person to ask about pipelines. I would suggest to the committee that someone from the Canadian Energy Pipeline Association would be a far better person to address issues directly related to pipelines and pipeline safety than I would.

● (1020)

[*Translation*]

Mr. François Lapointe: Perhaps Mr. Gabbar could answer.

[*English*]

Mr. Hossam Gabbar: I couldn't hear the question, but I think I got.... I couldn't hear the question in English.

Mr. François Lapointe: What's the worst scenario on pipelines not working well and the best scenario on pipelines working well?

Mr. Hossam Gabbar: Actually that's indeed a very important question. It is coming to that stage where it's coming to the performance of the pipeline.

First of all, one way the pipeline operation can work, as Peter mentioned, is by transporting one product at a time. That's one scenario, to transport one product at a time.

The other scenario is actually what we're trying to study and investigate. It involves having something called the carrier, which means we have the pipeline actually carrying multiple products at a certain point in time. This pipeline—

Mr. François Lapointe: In your model, that could be a possible solution.

Mr. Hossam Gabbar: Yes, it could be possible. It could be feasible, based on the fact that we select which carrier and which product we can actually push in the same pipeline at the same time. That is something that is under study, actually, and what we—

Mr. François Lapointe: And what about the safety of those pipelines? Will they be...? Can we tell the Canadian public that they will be totally safe—or that they are dangerous? We have to tell them.

Mr. Hossam Gabbar: Yes: in particular, the word "safety"—I specialize in safety in particular—we define as "freedom from unacceptable risk". This means that if we want to say that transportation of a product combination in a pipeline is safe, in order to achieve that we need to estimate accurately the risks around it.

Mr. François Lapointe: Yes.

Mr. Hossam Gabbar: These risks, coming from transportation at a distance, are the corrosion or the impact on the pipeline, the degradation, because multiple products might have different chemical properties that might impact the pipeline.

In other words, we cannot say that product one and product two, as transported in a pipeline, are safe unless we actually evaluate exactly the risks.

Mr. François Lapointe: But that would be feasible? We could get to a very clear conclusion and tell the Canadian public? That would be feasible?

Mr. Hossam Gabbar: It is feasible, yes.

Mr. François Lapointe: Okay.

So knowing that it's feasible, Mr. Corey, would you agree with me that consultation...?

[*Translation*]

Sorry, I don't know what the English equivalent is. Do you feel that consultations and arrangements based on those conclusions are totally inevitable? Do you think that step is absolutely necessary further to analysis findings like these ones? Do you think that Canadians should be consulted before a long-distance pipeline project is developed and launched?

Mr. Mark Corey: Mr. Chair, pipelines are currently the safest way to transport oil. Therefore, they are the safest and cheapest way to transport large quantities of oil over long distances, for instance.

[*English*]

Just to give you some statistics on spills, because you were asking about statistics, petroleum spills between 2000 and 2011 were about 3,715 barrels per year, which represents 0.00037, about four-millionths of the volume.

I can also give you an idea of numbers recently.

[*Translation*]

There were two incidents in 2009. In 2010, there were eight, and in 2011, there were four by September.

Mr. François Lapointe: That does not quite answer my question. I hear your figures. I also hear Mr. Gabbar saying that the acceptability of a project could be assessed. I am wondering whether you feel that the parameters you have set out should absolutely be discussed as part of a public consultation? Do you think that consultation should be completed before a route or a pipeline is even planned?

Mr. Mark Corey: Absolutely. When a new pipeline needs to be built, the National Energy Board studies the project. That is often done in consultation with the Canadian Environmental Assessment Agency during project assessment.

● (1025)

The Chair: Thank you, Mr. Lapointe.

[*English*]

Your time is up.

We now go to Mr. Trost, for up to five minutes. Go ahead, please.

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

I have to say, after listening to this presentation today, that if I had $6 billion to $8 billion, I probably wouldn't be putting it into a refinery. Having said that, there are people who had more than $6 billion to $8 billion and did things like buy Greek bonds.

Voices: Oh, oh!

Mr. Brad Trost: So you never know where investment decisions will come out.

One of the things that caught my interest while listening to the presentation was when Mr. Boag mentioned regulatory issues and outcomes. That particularly caught my ear.

While I've often heard the general principle that regulations need to be outcome-based and that we need to do it most efficiently, it helps members around this table if we have specific examples. I hope I haven't put you too much on the spot, but do you have any specific examples that could illustrate the point you were making about outcome-based results and that would be useful for us?

Mr. Peter Boag: Yes, I can use a specific example, and it's a timely one, as a matter of fact. Right now both the provinces and the federal government are working to develop new air quality standards for conventional air emissions. I'm not talking about greenhouse gases; I'm talking about conventional air pollutant emissions from a number of industrial sectors across the economy, and clearly refining is one of those sectors.

One element of that effort is to advance some federal minimum standards for refinery emission improvements. In the consultation exercise we're looking at a number of models under what's called the air quality management system, or AQMS, which is the effort being led federally by Environment Canada. We're looking at a number of models and options specifically with respect to refineries and what's called the base level industrial emission reduction, or BLIER. I don't want to get into all of the acronyms. From an industry perspective, what we have been advancing and advocating is a system that is very much an outcomes-based process. It's the bubble approach: we put a bubble over a refinery and then, using a system that we've called the national framework for petroleum refinery emissions reductions, we determine the performance outcomes for various pollutants at refineries. Mr. McGuinty, you probably might know about that from your days when you were at NRTEE.

We're advancing a system that lets us establish the performance outcomes for various pollutants at refineries. What we're hearing as an alternative from Environment Canada is a very prescriptive one that sets out what each individual piece of equipment needs to do based on a specific technology. It's very much focused on a prescriptive approach that leaves very little flexibility and in fact drives performance improvements that are far greater than we think is in the philosophy behind AQMS. It certainly would require Canadian refineries to make investments that would bring levels of improvement that far exceed what's happening in the U.S.—

Mr. Brad Trost: That's a good example, but I'm up to three and a half minutes. I'll move on to my next question. I don't want to cut you off.

In response to a question from Mr. McGuinty about national energy strategy—and I'm glad he doesn't use the words “national energy policy” too often when he talks about it—I think someone mentioned something about certainty, clarity, and consistency. Those are the words I wrote down. For a capital-intensive industry, I could see why that would be useful. What are the things, other than what we've mentioned on the regulatory side, that we can do to bring certainty, clarity, and consistency to the refining industry? We're not just talking about building new refineries; we're talking about whether or not decisions are going to be made to upgrade refineries as capacity and demand change. What can we do to bring certainty, clarity, and consistency?

I'd like a brief recommendation. I'm opening it up to anyone.

Go ahead, Mr. Corey.

Mr. Mark Corey: I can start out by saying that in terms of involvement by the Government of Canada, Natural Resources Canada does not have a lot of levers in this area. Most of the levers would be related to tax policy, which is finance. I think the Minister of Finance has been very clear that one of his objectives is to create and maintain a world-class tax system in Canada that will be internationally competitive. It has to do with the regulatory side and making sure that we have a system that deals effectively and efficiently with environmental issues through the review process and making sure that these decisions are made in the best possible way.

Those are the macro levers that we tend to use at the federal level. As for specifics, I note that at pre-budget consultations most industry associations will recommend things related to tax policy that tend to be in their interest. Those are some of the issues that would probably be important, I would think, to the refineries.

● (1030)

Mr. Brad Trost: I would focus in on one, and I think Mr. Corey made some reference to it already: a greater level of certainty and timeliness around the regulatory approval process. That would certainly be very significant to our industry, and probably more so to the upstream industry in the pipeline sector than it is even to the refinery business. Certainly a greater level of certainty and timeliness around regulatory approvals would be one very specific example that would be part of that national strategy. It was highlighted in the work that I and my colleagues did on the energy framework initiative. It was one of the key pillars we identified as being required in a broader Canadian energy framework.

The Chair: Thank you, gentlemen. Thank you, Mr. Trost.

Before we go to Madame Day, I just want to say that we'll take about five minutes at the end of the meeting to approve the budget, which outlines the costs of having witnesses before this committee for these four meetings.

We'll go now to Madame Day, for up to five minutes. Go ahead, please.

[*Translation*]

Mrs. Anne-Marie Day (Charlesbourg—Haute-Saint-Charles, NDP): Good morning everyone. Thank you for joining us.

As you know, when all is said and done, Canadian consumers and families are the ones who buy the product. They want decent prices, a healthy environment and a steady supply. Companies add costs to account for pipeline transportation. The international market, the companies and people involved, and competition all play a part in that.

How can we ensure that the product's domestic price remains at a level consumers can afford?

Mr. Mark Corey: I first want to go back to what you said about prices in Canada really being international market prices. During the 1980s, Canada decided not to operate in an isolated system. In other words, we are really exporters of crude oil, and working with international markets benefits us.

[*English*]

I know we appeared recently before the industry committee and there were questions on gasoline pricing. We looked at that very closely. I know, for example, that the Competition Bureau has looked into the competitiveness of the industry. We also appeared with the Canadian Petroleum Products Institute. We also had representation from a lot of the small retailers of gasoline. It's a fiercely competitive marketplace.

[*Translation*]

That involves maintaining a system with very competitive markets. The government is responsible for ensuring competition in that system. According to our policy and our point of view, competition may provide us with the best prices in the long term.

[*English*]

Mr. Peter Boag: I would just add to your remarks, Mark, and say let competition work. Canadians enjoy some of the lowest prices for gasoline in the world and we operate on a competitive basis. We think the competitive system works well. My feeling is to let competition work.

[*Translation*]

Mrs. Anne-Marie Day: On page 9 of your document, you talk about contamination. You say that “shipping refined petroleum products over long distances and over multi-product pipelines can lead to increased sulphur levels, requiring very costly remediation at the final destination.”

I assume that the studies are fairly recent and that there is enough experience to determine whether there will be issues with increased sulphur levels. I would like to know what that really means.

[*English*]

Mr. Michael Rau: The reality is that we definitely can ship this stuff and we could take the sulphur out at the other end. It actually takes place in Canada right now. There's one pipeline that is shared between crude oil and some petroleum products. It goes from Edmonton to Vancouver, and the sulphur is removed at the other end, but it is quite costly. Peter can talk a little bit more about the cost and technicality.

● (1035)

Mr. Peter Boag: I can't. I don't have any specific figures, but suffice to say and reiterate that transporting finished products by pipeline over long land distances is less economically efficient than shipping crude. Yes, when you ship it long distances, some additional refining is again required to ensure the product is fit for its purpose and provides the kind of performance that it's required for, both in terms of regulated and legislated standards, as well as what consumers expect.

[*Translation*]

Mrs. Anne-Marie Day: Pardon me, but Mr. Gabbar could perhaps answer that question.

[*English*]

Mr. Hossam Gabbar: Sorry. I didn't hear the question in English. Is it in translation?

[*Translation*]

Mrs. Anne-Marie Day: I can repeat the question. It's about items 2 and 3 on page 9 of your English document. It says that sulphur levels can increase when the product is transported.

I would like to know whether those levels are increasing and what the overall cost is when additional product refining or decontamination is required.

[*English*]

Mr. Hossam Gabbar: Thanks a lot for that question. I'm sorry I didn't hear it the first time.

In terms of the production cost in general, if we look at the production line from the beginning, we have the oil from the beginning of the production. Throughout that, the oil is actually moving through the refinery, the transportation, the refinery, etc. Each stage is actually adding additional cost.

In terms of contamination in particular, so far we have studied each block of the refinery process and looked into its impact on the contamination of the final product. We came up with a model that found it is actually very possible that overall purity of the product can be enhanced dramatically with proper adjustment or tuning of the refining process.

I'm not sure if that was the question.

The Chair: We are actually out of time for Madam Day.

Go ahead, Mr. Lapointe.

Mr. François Lapointe: May I ask for 30 seconds more for my colleague? She had to repeat the question because of problems with the translation. I think it's not fair—

The Chair: She has had 45 seconds extra already, so the time is up.

Before we get to the budget, we will go finally to Mr. Allen. You have perhaps three or four minutes, Mr. Allen.

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

Mr. Boag, I wanted to pick up on one of the things you commented on, the seasonality factor. It was brought out first in Mr. Corey's presentation when he dealt with fuel specifications and seasonality, and you've spoken about it as well.

When you look at the seasonality factors in Canada and potentially the number of different products that we would have in Canada based on that factor, first of all, how does seasonality change the refinery setup and configuration, or does it? Second, how many fuel specs do we have, and how often do they actually change?

Mr. Carol Montreuil: The best example is what we call vapour pressure. For your car to start, you need some vapour to start the ignition. As the weather gets colder, it's more difficult to have this vapour. The best example of vapour pressure is summer and winter conditions. You have to prepare what we call the base stock gasoline in the refinery with different components so that the vapour pressure meets the Canadian specs. Then your car will start and won't stop on the side of the road. That's one example.

Biofuel composition is another example. Adding more biofuels in a season might mean that the base stock that you prepare before you blend the biofuels would have to be of a different quality, depending on the weather conditions.

Those are two examples—vapour pressure, and the addition of biofuels that would require a different base stock product at different times during the year before it's blended in.

Mr. Mike Allen: Okay, you have your different base stock product, but does that need a separate configuration? Do you have to reset your—

Mr. Peter Boag: It means you may be using different process units more often or less often within the refinery. More of your feedstock might be going through a certain process unit at a particular time because of seasonality issues than might be going through that process unit at some other time of the year. There are process units and there is impact on feedstocks to be considered.

There are significant operational changes within the refinery to meet the seasonality requirements of both gasoline and diesel. They can be quite significant. As well, there are multiple changes throughout the year, depending upon the geographic region and the prevailing climatic conditions. Largely it's ultimately climatic conditions, seasonal differences in climate, and seasonal differences in weather that cause significant changes to the recipe, if you will, for gasoline and diesel, depending on those seasonal changes. It involves different uses of different process units and using them more or using them less at any given time in the year.

● (1040)

Mr. Mike Allen: You also commented about different refineries. You said that when refineries are built, they could be very different depending on the target market and that type of thing. Does that make it more complex? In the India example, potentially 40% of their production may be imported into North America. How is that refinery being set up?

Mr. Peter Boag: It has implications for that.

The other part we haven't talked about in terms of the product side is of course the crude slate. We often want to talk about crude as a single type of product. Well, there are multiple different types of crude in terms of their weight, their heaviness, their sulphur content. So refineries are also configured generally to refine a specific type of crude. That is one of the economic challenges of balancing. What I would call heavier, more sour crudes are generally less expensive on the market. So you can get your feed stock at a lower cost, but in order to make that into the product mix you need to make, you need to have a more complex refinery, and your refining costs are higher. It's always that delicate balance of feedstock, refinery configuration, and managing costs. Then you have to match those with the demand profile, whether it emphasizes diesel, aviation fuel, or crude. Then you have to meet all of those aspects around seasonality.

So when Mr. Corey defined a very simplified refinery, that really masked much of the complexity that's involved in the refining business that relates to crude, processes, and ultimately final products, bearing in mind the seasonality issue.

The Chair: Thank you very much.

Thank you, Mr. Allen.

If the witnesses could just stay in their seats for about a minute or two, so that if any members of the committee would like to chat with them they could, that would be great.

Committee members, could we just look at the budget? You have it in front of you. It's a budget just to cover costs for witnesses to come to this study. I would like to get approval for the budget if I could.

Are there any questions or comments on the budget? Then can the budget be approved as presented in the document from the clerk?

Some hon. members: Agreed.

The Chair: It's approved.

Thank you very much.

The meeting is adjourned.

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