HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Natural Resources

RNNR • NUMBER 068 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Wednesday, October 18, 2017

Chair

Mr. James Maloney

Standing Committee on Natural Resources

Wednesday, October 18, 2017

● (1535)

[*English*]

The Chair (Mr. James Maloney (Etobicoke—Lakeshore, Lib.)): Good afternoon, everybody. We are going to get under way here.

We have two witnesses in the first hour, and in the second hour we have one witness and then we have some committee business at the end.

Gentlemen, thank you very much for joining us today. The procedure is that each of you will be given the floor for up to 10 minutes for your presentation, and then we will open the floor to questions from around the table. There are earpieces there for both of you, should you need to be the beneficiaries of interpretation, because you will be asked some questions in French, I'm sure.

Mr. Stensby, you look like you are ready to go, so why don't we start with you? The floor is yours.

Mr. Wayne Stensby (Managing Director, Electricity, ATCO Group): Thank you very much, Mr. Chair.

I want to offer my sincere thanks to all the committee members this afternoon for the opportunity to provide my testimony.

My name is Wayne Stensby. I am the managing director for ATCO's electricity global business unit. For those of you who may be unfamiliar with ATCO, we are a proud Alberta-based leader in energy infrastructure development, with more than two million customers around the world, including over a million here in Canada.

It is our singular focus, day in and day out, to ensure reliable, accessible, and affordable energy. In doing so, we play a key role in enabling economic growth and the prosperity of the communities that we are privileged to serve. We are extremely proud of our long history of joint venture partnering, and in particular our partnerships with many of Canada's indigenous communities.

As I think about our Canadian operations, we own and operate electricity generation assets in Alberta, British Columbia, Saskatchewan, and Ontario. We operate an extensive system of more than 12,000 kilometres of transmission lines and over 75,000 kilometres of distribution lines in Alberta, the Yukon, and the Northwest Territories. Our newest business, ATCO Energy, is an electricity and natural gas retailer in Alberta.

As one of the very few publicly traded Canadian electricity companies that operate in Canada, with businesses across the entire electricity value chain and in multiple provinces and territories, we believe we are afforded a unique, holistic perspective on the potential for electricity infrastructure solutions that work to the benefit of all Canadians.

Indeed, when I consider the discussion point today, I note that we are presently constructing a 500-kilometre, 500-kilovolt transmission line known as the Fort McMurray west line, which we'll put into service in mid-2019. In 2015, we placed in service our eastern Alberta transmission line project, or EATL, which is a 500-kilometre, 500-kilovolt DC transmission line that serves to support the renewables build-out in Alberta.

With that backdrop, I am delighted to be speaking to you today specifically about strategic interties, which we believe offer a rare opportunity to achieve simultaneous positive outcomes across multiple areas.

The committee has requested that the witnesses address five specific questions. For these opening remarks, I'd like to take each of the five questions in turn, and then finish with a couple of additional thoughts.

The first question was about regional electricity independence. From our perspective, we believe the supply of electricity should be viewed using an overall systems approach, with an energy corridor across several provinces and to the north providing an important backbone that would enable the exchange of reliable and competitively priced electricity.

We would suggest that, rather than seeking regional independence, a strong overall strategy is to seek regional interdependence, working across provincial and territorial boundaries to ensure that the provinces and territories have an adequate supply of affordable, low-carbon electricity.

This interconnected grid could enable Canada to achieve a number of positive outcomes, including the reduction of reserves. Today, the provinces and territories each have the objective of providing reliable electricity under all scenarios. Therefore, each province and territory currently overbuilds generation capacity in order to meet scenarios of exceptional load. This results in a relatively inefficient system design, which incurs incremental costs that flow through to the consumer. If provinces and territories could instead draw from interties in order to facilitate some of these exceptional demand periods, some of this capacity could be avoided, and the savings realized by consumers. On a very high-level basis, we believe the avoided new-build capacity could represent a net present value of as much as $16 billion across Canada.

The second point is about increased resilience. As we face extreme weather events, and we note that they are becoming more frequent, an interconnected grid across regions improves resilience, making it less vulnerable to weather-related outages and reducing the time it takes to restore electricity following outages.

The third point is load diversity. Provinces and territories vary in time zones across our very expansive country and have staggered daily system peaks. lnterties enable provinces and territories to share capacity and meet the wave of peak demand as it moves from the east to the west across our regions. Provinces and territories could avoid the use of more expensive peaking plants that are presently in place today or wouldn't need to be in place in the future. Our very early high-level analysis would suggest that these savings could have potentially as much as $1 billion in net present value.

The challenge is of course that, given the wide variety of market frameworks, much consideration is required in order to land on methodologies that would allow the value to be distributed to all participants fairly and that it does not simply result in a wealth transfer across the borders of our provinces and territories.

With regard to the second question, low-carbon electricity distribution, in a typical year, both Manitoba and British Columbia export far more electricity to the United States than they do to other provinces. In fact, there are more than 30 major transmission connections between Canada and the U.S., yet there are relatively few interconnections of relatively limited capacity across the provincial territorial borders. While Manitoba and British Columbia have an abundance of hydroelectricity, Alberta and Saskatchewan are presently embarking on plans to significantly increase renewable energy and reduce the greenhouse gas emissions intensity of their grids. Interprovincial tie lines between these provinces would allow access to new and existing hydro resources that could have a powerful impact on meeting emissions targets across the country.

As well, there are many northern and remote communities that are meeting their electricity needs primarily through diesel-fired generation, with fuel that is transported either by a plane or across seasonal ice roads. Not only is diesel-fired generation uneconomic, adding to the already considerable cost of living in northern Canada, it is also at times unreliable. We firmly believe that reliable, cost-effective, electricity should be a basic element available to all Canadians. Given the abundance of current and potential hydro-electric resources in the west, and the opportunity to become grid-connected with the north, we envision that there are three high-level opportunities for the western provinces and territories, particularly, additional capacity and interties between Alberta and British Columbia, a larger scale Alberta-Saskatchewan-Manitoba intertie that would require an amount of direct current, and an intertie between Alberta and the Northwest Territories.

Question three refers to opportunities for alignment with the Canadian energy strategy. lnterties can facilitate the development of renewable energy resources to meet future demand. As Alberta, Saskatchewan, and other provinces and territories build out wind and solar projects, interconnection with the geographically separated or diverse renewables, or with dispatchable supply can provide important backup for intermittent generation. This allows the provinces and territories to avoid additional or unnecessary gas-fired generation that would otherwise be needed to meet the rapid changes in the intermittent renewable outputs. Our analysis, again at a very high level and very rough stage, would suggest that this could represent a net present value of roughly $1 billion for Alberta and Saskatchewan.

The fourth question is the Canada-U.S. energy trade and relations. To date, most generation and transmission planning in Canada has been largely confined within provincial boundaries and, of no surprise, has resulted in large efforts being taken, or undertaken, to provide export corridors to the U.S. lnterties that connect us east to west and allow the provinces to be more interconnected, and then through to the U.S. for export, provide additional opportunities. We don't see a conflict here; we see a benefit.

As well, interconnection across the country makes additional markets available to other provinces. Sales to neighbouring jurisdictions could indeed help finance or develop additional renewables in Canada.

● (1545)

The fifth question is employment and economic impacts. Interprovincial interties are large and long-lived infrastructure that bring high-quality construction operations and maintenance jobs to a number of regions for decades to come. Even more importantly, for the reasons I've outlined, interties help enable the provision of clean, reliable, and cost-effective energy for all Canadians. This underpins the economic vitality of our communities from coast to coast.

As an additional consideration, I would like to leave you with a couple of thoughts.

First, investments in capital-intensive, long-life assets like hydro generation and bulk transmission require long-term vision. That long-term vision needs to focus on the future benefits that these projects will provide. We encourage the decision-makers to look at the long term when weighing the opportunities today.

The second point is regarding timelines. There's a recent presentation from work done by NRCan that people are considering interties by 2030 and new hydroelectricity capacity by 2040. Our view is that these timelines are simply too long. Solutions to support renewable energy and modernization of the grid are required in the 2025 time period. The window of opportunity to realize these benefits can bring significant movement and significant opportunity if done today and not in decades to come.

The Chair: I'm going to have to stop you there, unfortunately. We have some time restraints.

Mr. Vaasjo.

Mr. Brian Vaasjo (President and Chief Executive Officer, Capital Power Corporation): Good afternoon, Chair, ladies and gentlemen, and honourable members of the Standing Committee on Natural Resources. My name is Brian Vaasjo. I am president and chief executive officer of Capital Power, headquartered in Edmonton, Alberta.

Capital Power is a developer, owner, and operator of generating facilities across Canada and in the United States. We are a publicly traded company with a market capitalization of approximately $2.7 billion.

Thank you for the opportunity to appear before you and to provide our perspectives on interties and their potential role in Canada's transition to a lower-carbon energy system.

As a participant and investor in electricity markets in Alberta, B. C., and Ontario, we are committed to working with governments at all levels in the assessment, design, and implementation of policies that can achieve public policy objectives for the electricity system in an efficient and effective manner.

Capital Power currently owns approximately 4,500 megawatts of power generation capacity in 24 facilities in Canada and the United States.

In Canada we have interests in 624 megawatts of capacity in Ontario from three wind facilities and two natural gas facilities. In British Columbia, we have 427 megawatts of generating capacity from a natural gas facility on Vancouver Island, two waste heat facilities, and a wind facility.

In the United States we have more than 1,100 megawatts of capacity in five states, including wind, solar, natural gas, and biomass.

The majority of our capacity is currently in Alberta. Capital Power has been the leading developer since 2004 and has ownership in nine facilities representing 2,400 megawatts of capacity, or roughly 14% of the Alberta market. Our Alberta fleet includes four coal generating facilities that are the youngest and most efficient coal units in Alberta, three natural gas peaking units, a combined-cycle natural gas facility, and a wind facility.

Alberta is unique relative to other provinces with respect to how generation investment occurs. This has little to do with specific market rules but relates to a fundamental distinction: that investment is made by private investors on an at-risk basis in a competitive market, and with no guarantee of cost recovery. While Alberta is undertaking a market redesign, the fundamental aspect of private investors bearing investment risk is expected to remain unchanged. This presents a significant issue for any consideration of strategic interties for Alberta.

Alberta's market redesign was in large part driven by Alberta's climate leadership plan, announced in November 2015. This plan introduced several policies to transition Alberta's electricity system to a lower-carbon trajectory. These included a phase-out of coal generation by 2030, introduction in January 2018 of a more stringent carbon pricing framework for large emitters, and a plan to add 5,000 megawatts of renewable generation by 2030 through a government-supported procurement program.

Capital Power was and remains supportive of the design and implementation of Alberta's plan and the emissions reduction objectives it's intended to achieve for our sector and province.

We worked with the Alberta government to reach a compensation agreement to reflect that the 2030 coal phase-out date specifically shortened the lives of six of our coal generating units. Alberta also reached agreement with two other Alberta counterparts who are also affected. This sent a positive message from Alberta in terms of investor confidence.

We are undertaking a $50-million program at our coal facilities to further improve their efficiency and reduce their emissions intensity by 10%. This responds to the signals for continuous efficiency provided by both Alberta's competitive market and its new carbon pricing framework.

We are actively exploring the potential for co-firing biomass at our coal facilities and are planning a second test next week. This would allow up to 15% co-firing at one of our units, resulting in immediate reductions in emissions.

We are also assessing design and economic issues associated with potential conversion of our coal units to natural gas prior to 2030. We are developing several wind and solar sites to participate in the competitive process to add 5,000 megawatts of renewables by 2030. We recently entered into commercial agreement with the Siksika Nation to develop projects on their lands.

● (1550)

We also stand ready to continue investing in the new capacity that Alberta will require to replace retiring coal generation and to meet load growth in Alberta and meet Alberta's renewable targets. We have a shovel-ready natural gas facility ready to go when market signals are appropriate.

The Alberta government estimates that the total level of power generation investment required by 2030 will be roughly $25 billion. The market redesign under way is intended to provide a framework to attract this scale of investment. This market will continue to rely on competitive forces and on investors making investments on an at-risk basis. It is in this context that the strategic interties, at least relating to Alberta, need to be considered.

The Alberta government set out three objectives for transition of the electricity sector in announcing their plan. These were maintaining reliability, providing reasonable sustainability in prices to consumers and business, and ensuring that capital is not unnecessarily stranded.

Capital Power believes there are five objectives and considerations that should be incorporated into the assessment of government-funded intertie projects.

First is reasonable costs. Any federal initiative needs to ensure reasonable costs for consumers. The costs associated with strategic interties would include the costs associated with new hydro resources developed to backstop the interties, new generation that would be required in Alberta or any "sink" provinces to provide reliability when hydro imports might not be available for any number of reasons, and direct costs to expand both intertie and provincial transmission grids to manage energy trade in real time.

Capital Power does not believe that the all-in cost of a strategic intertie would be a lower cost, from a ratepayer perspective, than low-emitting and renewable generation developed in Alberta.

Second is reliability considerations. The reliability issues raised by a strategic intertie based on construction of new hydro sites need to be considered. First, the announcement of an intertie would make an immediate impact upon investment decisions in Alberta by reducing the future market opportunity. A single large intertie creates its own significant risk from the standpoint of reliability.

Third is environmental outcomes. Any federal initiative needs to ensure that assessment of environmental outcomes takes into account whether the intertie would be supported exclusively by hydro or non-emitting generation or would be utilized to "wheel" power from other markets. Alberta's existing interties, including the one with B. C., are used to import power sourced from markets with thermal and renewable supply sources. A strategic intertie initiative that expanded the scope for wheeling of thermal generation from outside the province would not provide any benefits from an emissions perspective.

Fourth is community benefits. Federally subsidized intertie projects would displace and pre-empt investment in low-emitting and renewable capacity in Alberta. In doing so, they would also diminish the opportunity for Albertans and Alberta communities to realize the benefits of locally sited generation that will be required to replace retiring coal generation and meet demand growth. This is a particular issue for Alberta communities in which coal facilities are located, but also an issue for communities looking for the opportunity to host renewable energy projects.

Fifth is a level playing field and investor confidence. As noted, Alberta's market will continue to expect investors to bear risks of investment decisions and to seek a return through a competitive market. A federal initiative to subsidize imported supply will create an unlevel playing field for Alberta-based generators. Ensuring fair treatment of existing investments must be considered for any federal initiative, in the same way that Alberta has established this as a principle for its market redesign initiative.

In respect of Canada's 2050 vision, as a final comment Capital Power notes that the Government of Canada's 2050 vision identifies a role for several sources of non-emitting power generation, including hydro, nuclear, and carbon capture and storage.

Consideration of strategic interties needs to be coordinated with the assessment of those options to ensure that any federal funding is targeted to support the lowest-cost option. In this regard, Capital Power believes that any funding or procurement process to support non-emitting technology should not be fuel-specific but should instead invite proposals from industry on options that can meet the non-emitting criteria.

● (1555)

Successful proposals would be those that would meet objectives in a most cost-effective manner. Proceeding with strategic interties in isolation would close the door on other technologies, such as carbon capture and storage, that may be more appropriate and cost-effective for Alberta over the long term.

In closing, government support for intertie projects, while in certain jurisdictions could be a source of public good, in others might have unintended consequences with respect to consumer costs, reliability, and investor confidence.

Capital Power is a Canadian company that wants to continue to invest in our power infrastructure to support the transition of Canada's electricity system. We are not asking for any advantages or special programs or benefits. We are asking that the government not embark on programs that disadvantage us.

Capital Power appreciates the opportunity to provide its views on this very important initiative.

Thank you.

The Chair: Thank you, gentlemen.

Our first questioner is Ms. Ng.

Ms. Mary Ng (Markham—Thornhill, Lib.): I want to thank both of you for coming today and helping us work through the study on strategic interties and the consideration of them for the country.

I'm going to start with ATCO.

You've talked about what the opportunities might be for strategic interties, and particularly the ability to create a connection through certain jurisdictions. Can you talk to us about what some of the logistical or infrastructure demands might be and what might need to be considered in doing that?

Mr. Wayne Stensby: I think from a pure infrastructure perspective, it's very doable. Building transmission lines east and west, in theory, is no more complex than building them north and south. You have to go through a landowner process. You need to think about partnerships. From a technical and infrastructure perspective, it's completely doable.

I think the hard work comes—and my colleague Brian alluded to it—in setting out the framework around markets, given different ownership interests in different provinces and different territories, and how you come to a commercial position that does not advantage or disadvantage any particular proponent. That's the real piece of work. I don't think that this is a technical or infrastructure construction debate per se.

Ms. Mary Ng: You had talked about the opportunities between Alberta or B.C., Alberta and Saskatchewan, or other east-west participation.

Can you give us a state of.... “Readiness” is probably not the right word, but which would be the most ready if you were to look at the state of what exists in Alberta today with respect to the interties?

● (1600)

Mr. Wayne Stensby: I would try to think about this in a staged way, because while there could well be a vision of a pan-Canadian transmission network, I think the practical side would be to think about it in a staged manner. There is a great opportunity to support the north and build a relatively small connection between Alberta and the Northwest Territories. I think there is an opportunity to expand the current relatively small and weak connection between Alberta and Saskatchewan, and I would think about that in a staged approach. As you think about British Columbia, again, we have an existing intertie with British Columbia. I think there is an opportunity for an additional intertie to B.C.

As to which one of those might come first, I think we need to look at the dynamics of the current generation build-out in British Columbia, Alberta, Saskatchewan, and the north. I'd be particularly keen to try to address the north, because I think the north has some particular challenges that, as a Canadian, I'm quite passionate about.

Ms. Mary Ng: I like some of the work you have done that talks about the net present value that can accrue by being able to develop some of the strategic interties into some of those jurisdictions.

Could you expand on the benefit for us if we were to build out some of those strategic interties, and how that connection could also then help with some of the surplus power we might get out of that in the Canadian jurisdiction, which would then help with trade with our southern partners.

Mr. Wayne Stensby: The very high-level work we've done didn't attempt to quantify what additional generation could be developed in Canada or exported into the U.S. I think there is a great opportunity there, but we have not done that analysis. We've been focused on the coal transition and the build-out in Alberta particularly. That is a piece of work, however, and on a very high-level basis.

If the committee was interested, we could take that on as a supplemental that we could provide. I believe Canada is blessed with tremendous hydroelectricity resources, and we can be the solution for many of our cousins to the south, if that's what we choose to do. I think there is a great opportunity there for the Canadian economy.

Ms. Mary Ng: This may or may not be something you can answer, but it picks up a bit on the point by Mr. Vaasjo and what you talked about. It is around what strategic interties you would take, and the kinds of things you would have to consider around the mix of energy that might exist. From a practicality standpoint, do you have any thoughts about how government might need to look at that as we consider strategic interties? I agree. There is that balance.

Mr. Wayne Stensby: I think it's quite a complex.... It comes back to the market frameworks and Brian's comment about unintended consequences. I think we are all quite keen to see that additional interties do not simply become wealth transfer between provinces and that we don't somehow disadvantage some parties and advantage others, and find ourselves potentially producing higher carbon emissions generation or enabling what we weren't intending to enable.

I think this is at the crux of the question. It's really where the work needs to be done to establish, number one, who would fund the interties and how they would get funded, and number two, how the electricity that's transferred across them is managed and marketed into these disparate marketing entities.

● (1605)

Ms. Mary Ng: Somewhere I read that.... Oh, I'm done.

Thank you so much, gentlemen.

The Chair: That was right on time.

Mr. Falk, go ahead.

Mr. Ted Falk (Provencher, CPC): Thank you, Mr. Chair.

Thank you to both witnesses for attending the committee meeting and presenting here today.

Mr. Stensby, I'd like to start with you. You talked about moving from independence to interdependence. I'm assuming you mean in relation to interties. Can you explain to me what you mean by that?

Mr. Wayne Stensby: We didn't get here by accident. If you look at the traditional build-out of electricity systems in Canada, you see that there is a long history, and it has much to do with what we could call “ownership models”. British Columbia is a crown corporation. Saskatchewan is a crown corporation. Manitoba is a crown corporation. As Brian very astutely and correctly pointed out, Alberta is a bit unique in its investor-owned utility base, but fundamentally the provinces were responsible for the provision of electricity, and that's the way it has been built out.

Going forward, I think you have to take a broader perspective as a Canadian in order to help each province work within its remit of low-cost, reliable electricity. I don't believe we've taken full advantage of the adjacencies of our provinces. I think we've almost allowed these barriers to exist.

The other point I would make is that there is a technical separation between the electric systems along the border of Alberta and Saskatchewan—and it falls all the way down into the United States—that historically has provided a particular challenge to interconnect. With recent changes in technology, I think that's no longer the case. We can use lots of advanced technology in order to more closely couple Saskatchewan with Alberta. There was a technical reason for some of the separation, but most of it was around ownership structure and individual provincial responsibilities.

Mr. Ted Falk: Okay.

Do you think increased interties would also increase collaboration between different jurisdictions? Do you think the end result would be cheaper hydro for consumers?

Mr. Wayne Stensby: I think that, if it's done right, the end result should be cheaper electricity for consumers. I think it's going to take increased collaboration to enable interties, as opposed to interties creating increased collaboration. I see it the other way. If we can't get good agreement and discussion going across provincial and territorial boundaries, we won't be successful at developing interties.

Mr. Ted Falk: Do the interties exist today that provide adequate redundancy within our electrical grid in Canada?

Mr. Wayne Stensby: They are part of the resilient solution. Where they don't exist in individual jurisdictions, we've simply built more generation. There are a couple of ways to solve the equation. We solved it by what I refer to as overbuilding or by building excess generation in each jurisdiction.

Mr. Ted Falk: Thank you, Mr. Stensby.

Mr. Vaasjo, I would like to ask you a few questions.

You indicated that you produce coal, gas, and wind power.

Can you tell me a little bit about the difference in the cost to produce a megawatt of power—a kilowatt, perhaps, is a better measurement—in those three different systems? Then could you also parallel that to the carbon footprint that each might make?

Mr. Brian Vaasjo: With regard to coal, the variable cost—at this point in time, that's the more reasonable measure—to produce a megawatt of coal power generation is in the order of about $15, so it's very inexpensive.

If you move to natural gas and a fairly efficient natural gas plant, that's more in the order of $45 a megawatt.

Wind is very dependent on the jurisdiction that you're in, the wind resource. Generally speaking, in a good wind resource you can get into the mid-$40 a megawatt hour. In other jurisdictions, it's more in the $60 to $65 to $70 a megawatt hour range. There's been a tremendous improvement in the wind hardware over the last couple of years. Again, there have been tremendous advancements, not only in efficiency and cost of equipment per se—the price of steel and so on—but in the ability of the equipment to capture the wind. The science behind it has improved considerably as well.

● (1610)

Mr. Ted Falk: Okay.

It is definitely a lot cheaper to produce a megawatt of power from coal.

Mr. Brian Vaasjo: Yes.

Mr. Ted Falk: The current mandate is that it has to be phased out by 2030.

Mr. Brian Vaasjo: That is correct.

Mr. Ted Falk: Six years ago, I think you were quoted as saying that we have 800 years of coal in the ground.

Mr. Brian Vaasjo: We in Alberta have a tremendous amount of coal resource. It actually dwarfs all other hydrocarbons.

Mr. Ted Falk: Okay.

You've also indicated that there's a cost to abandoning or stranding investments and assets.

Mr. Brian Vaasjo: In Alberta, and to be clear, the agreements that our organizations reached with the Alberta government were that post-2030 there would be no coal emissions from the coal plants. We can reuse them. We can convert them to natural gas. We can build new gas on the site. There are a number of things that we can do.

We collectively worked with the Alberta government and came to a resolution late last year where, in aggregate, the government is paying the three companies involved approximately $1.3 billion over a 14-year period to compensate for the stranding of the assets, so to speak.

Mr. Ted Falk: Do you think additional interties will help sell cheap power?

Mr. Brian Vaasjo: That's a very difficult question to answer in isolation.

One of the things about interties is that if you take British Columbia, it's in a position, particularly if Site C does go forward, of having a slight oversupply.

Saskatchewan is reasonably well supplied and has steps to maintain its supply profile. Alberta right now is in an oversupply situation. Certainly today, a large intertie to an area that's more depressed from an overall price perspective may well be positive, but I don't really see the markets today.

We can wheel power into Minnesota from Alberta. We can run power down into California from Alberta. It's just that there's a depressed power price across North America right now. There really isn't.... We have cheap power, but everybody else does too.

The Chair: I'm going to have to stop you there.

Mr. Ted Falk: Thank you.

The Chair: Go ahead, Mr. Cannings.

Mr. Richard Cannings (South Okanagan—West Kootenay, NDP): Thank you.

Thank you both for being here today.

Mr. Stensby, I have a technical question. We've heard this before and I haven't really got a clear...perhaps because I didn't ask it correctly. You talked about two of the new transmission lines that you're building. I think you said the eastern one was DC.

Mr. Wayne Stensby: Yes, that's correct.

Mr. Richard Cannings: Could you tell me and the rest of us here why you would have some AC and some DC. I assume DC is better over long distances. What does that mean when they come together? What kinds of technical issues do you have to overcome?

Mr. Wayne Stensby: I'll try. The vast majority of transmission and distribution systems in the world today are alternating current. Aside from the history lesson, part of the reason that's done is that you can use transformers to transform voltage relatively effectively, efficiently, and cost effectively. One of the things that designers of transmission networks do is that they attempt to use the highest voltage possible, reduce the current, and by doing so, they reduce losses, so it becomes the most efficient way to transmit volumes of electricity.

If you have a very long distance, as Quebec would have had with their early James Bay projects and Manitoba Hydro has done, you have significant losses over these long distances. Therefore, traditionally DC, or direct current, was reserved for these very long, substantial transmission projects. They convert alternating current in a converter station, they transmit it on direct current transmission lines, and they reconvert it at the other end back to AC.

Historically, those converter stations have been very expensive. They're essentially electronics. For the same reason that your phone.... I don't know if it's cheaper, but your television is cheaper than it used to be. Converter stations have become cheaper than they used to be, so the technology has caught up to us to now allow relatively efficient and lower cost conversion to DC.

The advantage of a DC system is that it gives you a gas pedal, like in your car. You can actually control the amount of flow that goes down the transmission line, whereas an AC system just allows the flow to occur. It gives system designers and operators some more control and more flexibility. They can actually force power to leave. They can import power. It's still generally considered economical, but only for relatively long distances.

● (1615)

Mr. Richard Cannings: I'll ask Mr. Vaasjo this next question, but you can also jump in if you like, Mr. Stensby.

I'd like to expand on the idea of unintended consequences. The impression I have is that one of the reasons that we're considering these interties is to help facilitate the integration of renewables and diverse sources of power into the grid. At least that's how I understand it. Please, correct me if I'm wrong.

When I talk to groups, such as the wind power people, they say be careful what you wish for because there may be unintended consequences that would make it more difficult for renewables. I think that you both mentioned this. Could you expand on what conditions we should watch out for and consider before we move ahead with projects such as this?

Mr. Brian Vaasjo: I think, just from the highest level and a principle perspective, probably any answer to what is done with the energy mix would suggest that you need some diversity. You can't be all hydro. You can't be all nuclear. The wisest thing to do is to have some diversity around that.

Each region in Canada has its own resource base. Alberta has been historically blessed with hydrocarbons. Obviously British Columbia and a number of the other provinces have very tremendous hydro resources, and they've developed their resources accordingly.

When you look at what might be the answer, what might be the build in the longer term, as basically communicated and positioned by the Canadian government, hydro is a significant part of the Canadian future in power generation. Most of the work is suggesting that hydro power in Canada has to double. I think we'd agree with that. That it is definitely a renewable resource and is, to some degree, readily available.

That, in combination with interties, can't be the only answer. If you take Alberta, southern Alberta has the best solar resource in Canada. It has a tremendous wind resource. There's a tremendous amount of renewable energy, green energy, that's available other than hydro. There continues to be good strong hydro potential in Alberta, as well.

Each region has its own unique characteristics, and in each region there is likely a different answer. Some of that answer may well be interties. Certainly I would agree that connections to northern Canada definitely have some tremendous benefits. The intertie between Alberta and B.C. today is derated, and should basically be doubled in effective capacity through improvements.

There's definitely a lot of work that can be done around interties and around transmission. The unintended consequence is when there ends up being an answer arrived at and you end up with overreliance on a particular source or particular intertie, or whatever. That creates a significant risk of a different nature. That's a part of the unintended consequences, and specifically when you look at the Alberta market.

When it was announced that there may be an intertie between Alberta and B.C. and that Site C power would go there, it had implications for our market. In the long run, people are looking at that and asking how they can build an asset and all of a sudden be swamped by hydro energy coming from British Columbia, which crashes the market.

There are some definite consequences associated with it.

● (1620)

The Chair: Thank you, Mr. Cannings.

Mr. Tan.

Mr. Geng Tan (Don Valley North, Lib.): Thank you, Chair.

I'm going to ask a few technical questions to both witnesses.

The high-voltage power transmission system suffers electrical losses on the line, partially due to the old system design or the outdated technology. On Monday, we heard from another electricity producer, who seemed to suggest that such an electrical loss is not a big concern, since it occurs more on the end point than during the transmission.

Would you agree? Can you comment on that suggestion?

Mr. Wayne Stensby: We would say that losses in the transmission system are not a tremendous concern for us. I think there are larger losses in the conversion of energy at the customer's place, at the use of that energy, when they convert it to other uses.

That's not to say that we shouldn't do everything we can. I mean, losses are losses, and you're much better off to try to tackle greenhouse gas emissions from an efficiency perspective than you are to.... You know, if we all became more efficient, that's a better way to produce fewer emissions than simply trying to get lower emissions generation in the first place.

I think the losses are important, but I don't see the intertie conversation as being all that germane to the losses discussion. I think it's a bit of a red herring, personally.

Mr. Geng Tan: A part of the funding for the green infrastructure goes to the upgrading of the current transmission line.

Another question is about DC versus AC. No matter what kind of advanced technology we have right now, that kind of conversion will lead to additional intertie costs, for sure. I'm asking whether there are there other large hidden intertie costs that we should be aware of, similar or different, technically?

Mr. Wayne Stensby: No, I don't believe there are large hidden costs, and I don't believe that even the discussion on DC and converter stations are actually hidden costs. I believe they are quite obvious when you price out and get capital cost estimates. The basic design principles will set forth a technology and the technology will drive a cost, and I think that's pretty well understood in the industry. I don't think that element of costing would be a surprise to the study.

Mr. Geng Tan: Okay.

I have another question, to Capital Power.

You talked a lot about thermal natural gas. I'm curious. What percentage of your current assets are thermal versus renewable? Do you have any plan or strategy to invest more on the renewable energy?

Mr. Brian Vaasjo: As a rough measure, today we're about half thermal and half renewables, from a capacity perspective. We are decreasing our intensity around our coal facilities by moving down to natural gas, but of course that's still thermal.

In terms of what we're doing from a renewables perspective, we have participated in the Alberta RFP for the 400 megawatts, and we'll see if we're successful or not. So far this year, we have completed one wind farm in Kansas, we announced another one being constructed in North Dakota, and we expect to announce another one by the end of the year. We're building a lot of wind.

● (1625)

Mr. Geng Tan: Okay.

My final question is for both witnesses.

In the current year, you both generated power within the same provinces. Let's say if a single major new intertie were to bisect a major geographic area of the shared interests, could you foresee working together in some kind of a partnership to achieve better efficiency or cut costs, since you're both linked up to the same intertie?

Mr. Wayne Stensby: Yes.

Mr. Brian Vaasjo: Sure.

The Alberta market is extremely competitive, but you would also find that industry works together very well to find answers to significant issues. I would say that if properly constructed and an intertie that fundamentally makes a tremendous amount of sense, then we could certainly find a way to make sure it works within the market structure. Again, a lot of that is the lead of the Alberta government, to ensure that happens.

You had asked the question on whether there is a cost. One of the things that is often not talked about from an intertie perspective is where the energy is coming from, and the cost. I think that is very much something that is missed in the conversation.

If you take Site C, just because it's a live example today, it's an 1,100-megawatt facility with a 70% capacity factor. That's equivalent to a large natural gas plant. To build an intertie to export power to Alberta, and to have an intertie, makes very little economic sense. My friend next to me could probably put a project together much cheaper in Alberta, with hydro and other renewables.

In any event, when you think of an intertie, one thing is that the actual cost of the generation behind it is much like the pipeline debate. What are the upstream and downstream impacts of it?

The Chair: Thank you.

If you think you can get a question and an answer in less than a minute, I'll give it to you.

Mr. Kelly McCauley (Edmonton West, CPC): I have one for the people from Alberta. I used to work next door to ATCO. Full disclosure, I think I got my gas from ATCO Gas.

Gentlemen, you spoke about investor confidence. We are forced to shut down six coal plants early. Are ATCO and Capital Power changing any of their investment plans in Alberta, or in Canada, because of future investor confidence that the rules may change again, or is it business as usual for investment?

As a follow-up question, if we are shutting down the coal, what are we going to do to replace that capacity? Is it all switching to natural gas?

Mr. Wayne Stensby: Is it business as usual in Alberta? Maybe this is the new world in Alberta.

Mr. Kelly McCauley: I've heard that ATCO's investments are headed to Texas now instead of Alberta for power generation.

Mr. Wayne Stensby: Yes. I think it's quite challenging in Alberta. It's a very dynamic time we live in, and there is a lot of uncertainty. I won't speak for Brian, but I'm sure he shares the view that as we move through a number of these transitions, and we move to capacity market, there are a lot of unanswered questions. Until we get the answers to those questions, I don't think any of us are pulling out our credit cards.

Mr. Kelly McCauley: The reason I asked is that there are far-reaching implications. We talked about unintended consequences. When we force these changes, when they are not planned out, there are jobs lost, people affected, taxpayers on the hook for $1.3 billion for these changes, lost investment, and perhaps energy power shortages, if we are not investing in natural gas, which I understand some power companies are not anymore, in Alberta.

The Chair: I'm going to have to stop you there. We really are out of time.

Gentlemen, thank you both very much for joining us today. Your evidence has been very helpful.

We'll suspend for one minute, and then we'll start our second hour.

● (1630)

(Pause)

● (1630)

The Chair: Ladies and gentlemen, we are going to begin the second hour. We're going to have to stop at a quarter after five to get into some committee business, so we'll have to move fairly efficiently.

Mr. Fox and Ms. Milutinovic, thank you both for coming. We appreciate your making the effort to be here today.

We'll give you the floor for up to 10 minutes between the two of you. I don't know how you're going to present. Then we can open the floor to questions from people around the table. There are earpieces, should you need translation. Beyond that, it's fairly straightforward.

The floor is all yours.

Mr. Jim Fox (Vice-President, Integrated Energy Information and Analysis, National Energy Board): Thank you.

Good afternoon, Mr. Chair and committee members. Ms. Milutinovic and I appreciate the opportunity to appear before you today.

I'd like to open by familiarizing the committee with the National Energy Board's mandate with respect to electricity. The production of electrical energy in Canada and much of the infrastructure and trade in electrical energy are constitutionally within the powers of provincial governments, so the NEB's mandate on electricity is quite limited. The mandate we do have comprises two broad categories: an adjudicative function and an energy information function. We believe both are somewhat relevant to your study today.

There are two separate aspects to the adjudicative function. The first relates to power lines. A company seeking to construct or operate an international power line, or IPL, can apply to the NEB for either a permit or a certificate. The board always seeks public input for an IPL application. Under the permit application, the board hears concerns from stakeholders, but after they hear concerns, they are required to issue the permit under the NEB Act, although the board can attach conditions to the permit. Once permitted, an IPL is subject to regulation by the province it is in, if an energy regulator exists in that province. Should the board receive comments that somewhat concern it as a result of the permit application, the board can recommend that the IPL be designated for the certificate process by the Governor in Council.

A company can also apply directly for a certificate. Under the certificate process, the board can hold a hearing and approve or deny the IPL application based on the evidence gathered. The ultimate approval under the certificates process is subject to the Governor in Council.

The NEB has no automatic authority for the regulation of power lines that cross provincial or territorial boundaries. That said, the Governor in Council has the authority to designate an interprovincial line to be under NEB regulatory authority. Currently, the NEB does not regulate any electricity transmission lines that solely go between provinces.

The second aspect of our adjudicative process deals with trade. Exporting electricity to the United States requires a permit or a licence from the National Energy Board. The current default process is the permit process, which begins with a public comment period under which the board will consider factors such as the effects of the export on adjacent provinces and fair market access for Canadians. If the board has concerns, it can recommend that the application go to a licence process, which requires a hearing. If the permit process prevails, though, the NEB will issue a permit. Under the licence process, the board can approve or deny the application after the hearing. Approvals are subject to Governor in Council approval as well.

Since the permit process was introduced in the early 1990s, all export authorizations have been under permits rather than licences. With both permits and licences, the board has the authority to attach terms and conditions. For example, the board requires companies to submit monthly reports on the volumes traded. The NEB Act allows electricity export permits to endure for up to 30 years.

The NEB has no mandate for the regulation of electricity imports, nor for interprovincial electricity trade.

Beyond our adjudicative function, the NEB contributes to the national energy conversation by providing neutral, independent, and fact-based information to Canadians. The NEB's energy information program includes the collection, analysis, and publication of information on energy markets, including electricity. We regularly publish energy information reports, ranging from very brief targeted energy market snapshots to more comprehensive larger reports. These products increase the transparency of the Canadian energy market, support energy literacy, and inform Canadian decision-makers.

We will soon be releasing the latest edition in our energy futures series, entitled “Canada's Energy Future 2017: Energy Supply and Demand Projections to 2040”, or simply, “Energy Futures 2017”. Our energy futures reports are the only publicly available long-term Canadian energy outlooks that cover every energy commodity in all provinces and territories. An interesting fact is that next week's report comes 50 years after we published our first such report in 1967.

“Energy Futures 2017” will look at how possible energy futures might unfold for Canadians over the long term by considering three cases: a reference case, which is based on the current economic outlook; a moderate view of energy prices; and the climate and energy policies that were announced at the time the analysis was done.

● (1635)

A higher carbon price case considers the impact of higher carbon pricing than in the reference case, and our technology case considers the impact of greater adoption of select emerging technologies that impact energy production and consumption.

Technologies include less expensive solar and wind electricity generation, grid-scale battery storage, electric vehicles in the passenger transportation sector, steam-solvent technology for the oil sands sector, electrified space and water heating in the residential and commercial sectors, and carbon capture and storage technology for coal-fired electricity generation.

I'd like to point out a few key statistics with respect to renewables in Canada. Canada has a wealth of electrical generation capacity. Fifty-five per cent of Canada's capacity and 58% of our generation are from hydro. Non-hydro renewables account for 12% of capacity and 7% of generation, and coal, nuclear, natural gas, and oil round out the rest.

We've provided some slides to the clerk on non-hydro renewable capacity and generation projections, as well as Canadian end-use demand according to the three scenarios in our upcoming energy futures report. That's a bit of a spoiler for the energy futures report, as interesting as it might be.

Electricity generation varies greatly across provinces. For example, hydro accounts for 95% of electrical generation in Quebec, Manitoba, Newfoundland and Labrador, and Yukon, and 87% in British Columbia. Conversely, virtually none of Nunavut's power is hydro-generated. Instead, Nunavut relies heavily on diesel generation. Nuclear power generation, at 15%, is Canada's second-largest source of generation. However, it is concentrated in only two provinces, Ontario and New Brunswick.

A notable trend over the past decade has been the increase in the generation capacity for renewables such as wind, solar, and biomass. Non-hydro renewable energy has increased its national share by almost five times since 2005. In fact, according to our projections, renewables' share of generation capacity is expected to grow even more in the future, with wind capacity more than doubling and solar capacity more than tripling by 2040 in our latest reference case scenario.

In conclusion, the board stands ready to assess any electricity applications that are filed with it, and we will also continue to provide fact-based energy information to inform the energy debate in Canada.

With that closing, I'll thank the committee again, and we're open for questions.

● (1640)

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

Ms. Shelley Milutinovic (Chief Economist, National Energy Board): Maybe I'll just make one clarification. It's 95% or more of hydro in those provinces, because some of them are 99% or 98%.

The Chair: Thank you.

Mr. Lemieux.

[*Translation*]

Mr. Denis Lemieux (Chicoutimi—Le Fjord, Lib.): Thank you, Chair.

Thank you to our witnesses.

As you know, our government has introduced carbon pricing that will reach $50 a ton in 2022. I'm from Quebec, where we produce a lot of hydroelectricity and have started producing wind power.

When we compare the production costs of those two energy sources to those of, for instance, a coal plant elsewhere in Canada, we're clearly led to believe that production costs are lower in coal plants. However, if we take carbon pricing into account, could we believe that production costs in the coal sector would be similar to those in the wind power or the hydroelectricity sector in Quebec?

[*English*]

Mr. Jim Fox: I can start answering that question and then I'm going to turn it over to our chief economist.

Ms. Shelley Milutinovic: I didn't hear it.

Mr. Jim Fox: You didn't hear it. Maybe as I go, you can catch it.

Obviously, a carbon price will increase the cost of producing coal-fired electricity. As to whether or not it will come to equal that of hydro, or incremental hydro, that's a question that is more technical, and I don't know that we actually have an assessment of that.

Ms. Shelley Milutinovic: I didn't hear the question, but I think that by 2030 there will be almost no coal-fired power generation in Canada. Most of that is because provinces have said they are going off coal. The cost isn't even the key thing. The key thing is the policy saying we are going off coal by 2030. I hope that answers your question.

[*Translation*]

Mr. Denis Lemieux: Could we say the same thing about natural gas-fired electricity generation?

[*English*]

Mr. Jim Fox: Are you asking if we will ultimately get off natural gas power plants? Is that the question, because of carbon pricing?

[*Translation*]

Mr. Denis Lemieux: Yes.

[*English*]

Ms. Shelley Milutinovic: We did two scenarios. One scenario has carbon pricing in Canada going up to $50 in 2022, similar to the pan-Canadian framework. The other one has it continuing to rise by $5 a year after that. In both of those cases, we actually increase our consumption of natural gas for power generation, because it has lower GHGs than other forms. Plus, it has other benefits. You can bring it on quickly, and it's relatively cheap. It's a good backup for renewable energy, and so on.

● (1645)

[*Translation*]

Mr. Denis Lemieux: I'm pondering another great question.

During the last eight years, electricity prices went down about 40% in export markets. Now, we're thinking about a way to produce greener electricity and to develop new inter-ties in an environment where electricity consumption is on the rise.

Have you given any thought to how we will finance these new electricity-generating projects and these new inter-ties in such a low hydroelectricity market?

[*English*]

Ms. Shelley Milutinovic: Most Canadian electricity exports come from the provinces that are hydro-dominated: B.C., Manitoba, Ontario, and Quebec, most of all. It is largely the hydro we are exporting.

[*Translation*]

Mr. Denis Lemieux: We want to develop inter-ties for green energies even though building new power lines falls under provincial jurisdiction. It so happens that each province has its own vision and its own philosophy.

Do you have suggestions to make to the federal government? Given all these visions, which guidance could it give to improve inter-ties between Canadian provinces in order to increase the amount of low-carbon electricity exchanged all over Canada?

[*English*]

Ms. Shelley Milutinovic: That really falls outside the role of the NEB. It's not something I could comment on.

The Chair: There are two minutes, if somebody wants to use them.

Mr. Geng Tan: I've prepared one question for the NEB. I don't know how long this question is.

I realize that the core of NEB's role relates to Canada's oil and gas industry. However, part of NEB's purpose is to promote “efficient energy infrastructure...in the Canadian public interest.” Also, NEB's main responsibility includes regulating the construction and operation of “designated interprovincial power lines”. Even though NEB has jurisdiction over designated interprovincial power lines, by determination of the federal government, no such lines have ever been designated, leaving the regulation of existing interties to provincial regulatory bodies.

Why is that? What happened? Can you comment on that?

Mr. Jim Fox: I can comment a bit on that.

The National Energy Board has been around since 1959. It was created around pipelines. We received the responsibility for interprovincial and international power lines in 1990, in a change to the NEB Act.

Since that time, no one has chosen—at least to my knowledge—to ask the Governor in Council to designate an interprovincial power line. It would require a party to go to the Governor in Council and say, “We would like you to designate our power line, or a power line that is being proposed, as an NEB-regulated interprovincial power line.” No one has done that.

The Chair: Thank you.

Mr. McCauley, are you next in the batting order?

Mr. Kelly McCauley: Thank you very much.

Thank you for joining us today.

Our earlier witnesses, from ATCO and Capital Power, were saying that B.C., Alberta, and Quebec have surplus power. We are not even considering what's going on with the Muskrat Falls debacle, where they are giving away two-thirds of it for free, basically, in Nova Scotia.

With all these provinces in surplus, is there value to even looking at the issue of power going east-west, when everyone seems to be producing excess right now? That's even before Site C possibly comes on in 10 or 20 years, and Muskrat starts pumping it out.

● (1650)

Mr. Jim Fox: I think, from our standpoint, our role is to act on applications that are brought in front of us, not to question the larger policies of provincial governments to produce more electricity than they need.

Mr. Kelly McCauley: You're wrecking my question, aren't you?

Mr. Jim Fox: Sorry.

Mr. Kelly McCauley: Ms. Milutinovic, we were talking about Site C, and Churchill Falls, of course, reared its ugly head. We used to live in Newfoundland, the two of us, and of course, it's an ongoing thing there.

You're an economist. What would be the length of a contract if, say, Site C gets up and going in 10 or 20 years, or whenever politics will allow, if we were to have a long-term contract for that provided to Alberta to avoid these interprovincial fights? Newfoundland's has been going on, I think, for 20 or 30 years now. What length of contract would we be looking at so that they're stable and reliable?

Ms. Shelley Milutinovic: I don't think that there is any special insight that I could give you on that one.

Mr. Kelly McCauley: Okay.

Maybe you're the wrong people to ask, but do you worry at all about phasing out coal in Alberta and Saskatchewan, about the future capacity and avoiding brownouts, if we're not ready to switch to natural gas or if perhaps a government flavour du jour decides to get rid of natural gas production as well?

Mr. Jim Fox: I think that, from the National Energy Board standpoint, no, we're not. We believe that the market of the day in Alberta does have a competitive power market and will adjust to meet the government's demands in the market at a price, and that will come out. Canada has abundant natural gas supplies and an abundant way to get them to the various kinds of markets.

Mr. Kelly McCauley: With regard to the electricity that goes back and forth between Canada and the States—we send down to them; they send up to us—I'm just wondering how closely you look at upstream emissions from the U.S. considering that two-thirds, a huge majority, of the electricity generated down in the States is from coal, generating, therefore, much higher emissions.

Mr. Jim Fox: We haven't done any studies on that. I'll reiterate something I said earlier. We do not regulate energy imports into Canada, so we don't actually look at them in the way that we would look at exports.

Mr. Kelly McCauley: I might be getting a bit off topic, but is it not a bit odd or hypocritical that we don't look at upstream emissions from the States for coal power coming into Canada, but we look at it for Alberta oil and our pipelines for upstream and downstream?

Ms. Shelley Milutinovic: It would be totally outside the board's mandate to look at that in the context of electricity.

Mr. Kelly McCauley: Does it strike you as a bit odd?

Ms. Shelley Milutinovic: It's not our mandate.

Voices: Oh, oh!

Mr. Kelly McCauley: Okay, I'm trying.

I'll turn it over to Mr. Falk.

Mr. Ted Falk: Thank you, Mr. McCauley. Those were excellent questions.

Is it part of your mandate to have jurisdiction over the routing of transmission lines?

Mr. Jim Fox: For those transmission lines that fall within our jurisdiction, yes, it is.

Ms. Shelley Milutinovic: Under a certificate process....

Mr. Ted Falk: Which ones would do that? Give me an example. I'll give you an example. The Manitoba-Minnesota transmission project that's being proposed, is that within your jurisdiction?

Ms. Shelley Milutinovic: It's within our jurisdiction, and it's under a permit process, so the detailed route hearing would be under provincial regulation.

Mr. Ted Falk: You'd have no jurisdiction or contributions to make in that aspect?

Ms. Shelley Milutinovic: In terms of the detailed routing, no. The board recently approved the Lake Erie transmission line. That was a certificate, so in that case, the board has some jurisdiction over detailed routing.

Mr. Ted Falk: You also indicated that there are no interprovincial NEB-jurisdiction transmission lines.

Mr. Jim Fox: Correct.

Mr. Ted Falk: Why would that be? Are power corporations concerned about your regulatory practices?

Ms. Shelley Milutinovic: GIC has never sought to tell the board to regulate an interprovincial line.

Mr. Ted Falk: Why do you suppose that is?

A voice: [*Inaudible—Editor*]

Ms. Shelley Milutinovic: That's right...ask them.

Mr. Ted Falk: Was the Bipole III in Manitoba under your jurisdiction as well?

● (1655)

Ms. Shelley Milutinovic: I don't know about that specific line. There are 85 international power lines that we regulate. The majority of them aren't major, so I'm not sure whether that fits in the 85, but there are many between Manitoba and the states below it.

Mr. Ted Falk: When you consider a transmission line, do you take into consideration what that will do to the end cost of the product?

Ms. Shelley Milutinovic: The board's regulation is over the facilities of international power lines. It hears from all parties in a proceeding, so parties can make their case on whatever. However, we should be clear that, unlike pipelines, the board doesn't regulate the tolls and tariffs on those power lines.

Mr. Ted Falk: Okay, but my question was on whether you consider the end cost to the consumer.

Ms. Shelley Milutinovic: That generally is something that comes up in the context of the tolls. I don't think, in most cases, the parties would bring that up as an issue in proceedings. I don't know that it's never come up, but normally it's around the facilities, environment, the engineering, etc.

Mr. Ted Falk: Our study here is around interties. Would you see there being a benefit to increasing the amount of provincial interties that we currently have?

Ms. Shelley Milutinovic: If they were economic, there's certainly benefit.

When you're trying to integrate renewables, there are a number of things you can do. Increasing interties is one of them, more battery storage, more flexibility around your baseload, some demand-side management. Interties is certainly one of those things that would help integrate renewables.

The Chair: Thank you very much.

Mr. Cannings, it's your turn.

Mr. Richard Cannings: Thank you both for coming back before us for this.

I want to start off with questions, and I don't who might answer, but anybody can jump in.

When you were talking about power and power lines for export, you said you could put conditions on those export agreements or whatever. You said if you had some concerns you could do this or that. I'm wondering what concerns you might have and how they are expressed.

Have you ever refused—

Ms. Shelley Milutinovic: An international power line...?

Mr. Richard Cannings: An international power line, or what might—

Ms. Shelley Milutinovic: The board did refuse the Sumas, which was an international power line from Abbotsford down into the States. That's the one that comes to mind.

Mr. Richard Cannings: Okay, and why was that?

Ms. Shelley Milutinovic: As I'm recalling, they said there wasn't enough benefit for Canadians. There was an effect on the air quality in the Abbotsford region and, taking everything into account, there wasn't enough for Canadians.

Mr. Richard Cannings: I'm trying to remember. I think that was a natural gas power plant.

Ms. Shelley Milutinovic: There was a natural gas power plant on the U.S. side of the border. The power was going to come back into Canada and then go back down into the U.S. again.

Mr. Richard Cannings: Okay, I vaguely remember this.

Ms. Shelley Milutinovic: That was 12 or 13 years ago.

Mr. Richard Cannings: Yes.

One of the questions I had was around energy security for Canada. Is that one of the things you might take into account when we're exporting energy to the United States?

Ms. Shelley Milutinovic: When we're exporting energy.... Again, parties can come and bring whatever case they want. I don't recall that's been brought up very frequently.

Mr. Jim Fox: We do consider something that we refer to as “fair market access”.

When a party is exporting to the United States, other parties—if they haven't had a fair market access to that power—can come to the board and provide comments or potentially appear at a hearing. That can be a factor that the board can look into.

Ms. Shelley Milutinovic: That is looked into in every proceeding.

Mr. Richard Cannings: Okay.

I want to thank you for giving us a sneak preview of your report. I always like these graphs.

I'm not sure if this has anything to do with our study, but I'm curious. I'm looking at the end-use demand histograms at the back, and what strikes me is that nothing changes. I mean, I can imagine that something is changing in behind. I'm sure in the electricity chunk of that, there is change, with coal being phased out and natural gas being wrapped up.

I'm wondering. First of all you said that the reference case was based on regulations and policies at the time it was done. When was this done?

● (1700)

Ms. Shelley Milutinovic: It would have been done four or five months ago.

The reference case has something that looks very close to the pan-Canadian framework, but of course there are options in that for provinces, so we simplified some of that so everybody has the same carbon or has at least the $10, $20, $30, $40, $50 carbon prices.

Mr. Richard Cannings: At every meeting I've gone to about world energy, etc., in the last couple of years, everybody was talking about how we need to ramp up the electrification of our energy mix, and I just don't see that happening here.

I'm wondering if you're predicting the failure of government policy or is Canada just going to get left behind the rest of the world because these are not the graphs I've seen at these other meetings.

Ms. Shelley Milutinovic: The graphs don't show huge changes.

Mr. Richard Cannings: I can't see any change.

Ms. Shelley Milutinovic: It's hard to see it on the graphs, but in the high technology case, for example, wind increases about three times what it currently is. Solar's about 12 times higher. So in power generation you get some fairly substantive shifts.

Mr. Richard Cannings: I'm talking more about the oil and gas products. That's vehicles. That's what we're driving our cars with, yet you're not showing any change. Now we're hearing many car companies want to phase out gas-powered vehicles by 2030 or at least the production of those vehicles. I don't see any reflection of that.

Ms. Shelley Milutinovic: It's hard to see those kinds of differences. We see oil going from I think it's 41% down to 38% because you might get big changes on the margins, but to change the whole system takes a long time for these kinds of graphs to show.

In this high technology case, the last bar there, one scenario was assumed where we have carbon prices going up to $140 nominally by 2040, and we have much more electrification of cars. We've relaxed on the integration, and some of the other things Jim talked about in this.

Again, that's one scenario. It takes fossil fuel use down 13% less in 2040 than it was in the base case, but these things happen so gradually it's hard to see big changes when you look at a total like that.

Mr. Richard Cannings: I'll just throw this out. We're going to be hearing about how the NEB's role might be changed in the future. Is this a place where you could reflect on how you see that happening, or what powers you would like to have that you don't have now? Would you want those powers in provincial power lines? Tell me in one minute.

Mr. Jim Fox: Obviously, the process of NEB modernization and environmental assessment review has been going on for quite some time, and the board has worked hard to support that in any way we can.

We're looking forward to what the government's going to announce, apparently this fall, to modernize, and we look forward to the transition. There's really nothing we could say that we would want. We're a creature of legislation and will do with what we get.

Mr. Richard Cannings: It wasn't very fair. I was scrambling for a question, but I'm curious.

The Chair: You did fill your time.

Mr. Serré.

Mr. Marc Serré (Nickel Belt, Lib.): Thank you, Mr. Chair.

Thank you for presenting to us today.

You indicated the NEB regulates the construction and operation of international power lines by awarding permits for the export of electricity. Do international power lines face the same environmental assessment review as other facilities the board regulates?

Mr. Jim Fox: Yes, they do. There's a trigger in the Canadian Environmental Assessment Act's designated project regulations that says the power line has to be 345 kilovolts and 75 kilometres of new right of way before it becomes a CEAA-designated project. But even in projects that don't meet the CEAA designation, we would apply the same scrutiny to the environmental effects as we would to any other.

● (1705)

Mr. Marc Serré: I want to understand a bit more. You indicated the export north to south, but said you do not issue permits or licences for any interties between provincial governments.

Mr. Jim Fox: That's correct.

Mr. Marc Serré: Who regulates that, the individual provinces?

Mr. Jim Fox: Yes.

Mr. Marc Serré: There's no oversight.

Mr. Jim Fox: There's no national oversight. Each province would regulate the piece up to the border.

Mr. Marc Serré: Do the provinces just get together and make an agreement without any...?

Mr. Jim Fox: Yes.

Mr. Marc Serré: Okay. You indicated about the study, the outlook, that it's the first one in 50 years—

Ms. Shelley Milutinovic: No. It's been 50 years ongoing.

Mr. Marc Serré: Ongoing, okay. That's quite a difference.

I want you to expand a bit on what you said earlier about interties being good for renewables, and you indicated more battery storage and less reliance on coal. I want you to expand a bit on your comment about the interties being good. Is there anything in your outlook that addresses those three elements?

Ms. Shelley Milutinovic: My comment was that the interties are one of a number of methods that can be used to increase the integration of renewables. In one of our scenarios, our technology scenario, the high-tech thing, there were a number of changes that were assumed to happen on both the production and consumption sides. One of them was relaxing the constraints on integration of renewables by interties or grid storage battery. The outcome of that is shown in that particular scenario.

Mr. Marc Serré: In the outlook, have you looked from a provincial perspective at the country's aging infrastructure? Have you looked at some of the challenges of coal and smog or some of the issues on energy security? Have you looked at any of those elements in your outlook and your studies?

Ms. Shelley Milutinovic: When we do the electricity sector in those outlooks, we look at a number of things, Statistics Canada data, etc., but we also look at the plans of the utilities and the provinces. To the extent that those things are incorporated in those plans, and they are, then that would feed into what we incorporate in our models.

Mr. Marc Serré: What is considered when the board reviews a permanent application for electricity exports? What are you specifically looking at when you're looking at increasing the exports?

Ms. Shelley Milutinovic: There are two main things that we look at. One is fair market access. Did Canadians get the opportunity to buy that electricity on similar terms and conditions? Then there is the reliability of the provinces. Do adjacent provinces have any concern about them? That's really a reliability concern. Those are the two main things we are required to look at according to the NEB Act.

Mr. Marc Serré: In the act or any of your studies, have you looked at the issue of energy security and also NAFTA? Have there been any studies linked to NAFTA?

Mr. Jim Fox: Not specifically. We haven't done any study specific to NAFTA, if you're referring to the recent concerns that NAFTA may not endure. We have not done a study looking at that impact on electricity.

Mr. Marc Serré: Have you looked at any benefits that NAFTA has had or will have in the future? I'm not necessarily looking at the current negotiations.

Ms. Shelley Milutinovic: We haven't done that, no.

Mr. Marc Serré: Those are all the questions I have, Mr. Chair.

The Chair: We have two minutes left, if anybody wants them.

Ms. Kim Rudd (Northumberland—Peterborough South, Lib.): I do. This is the second time I've spoken.

● (1710)

The Chair: Ms. Rudd.

Ms. Kim Rudd: I know we were talking about Generation Energy, and you were in Winnipeg with us last week. There were over 700 people there, international, as you know, and you observed some of the panels.

We had a dialogue with Canadians. There were 150 Canadians from all walks of life across the country who came in for two days to talk to us. I was struck by the passion that they have for our energy systems going forward.

I wonder if you, as a regulator, might have some sort of perspective on what you heard that you feel may impact the work you do or that we could learn from through what you do.

Ms. Shelley Milutinovic: That's a very good question. One of the things that struck me—and I was on a panel dealing with this—was the need for better information, better data on energy. Whenever we do these analyses, and we do them regularly, it takes a great deal of our staff's time and effort to come up with what the current situation is. When we're looking at policy and changes to the energy system, if we had better.... What is the current state of events? We also have very poor information in Canada with respect to renewables. We have struggled to try to fill that gap. We've put out renewables reports, but there is much work that could be done on the data side of that.

Ms. Kim Rudd: Thank you. That's very helpful.

The Chair: Thank you very much.

Mr. McCauley, you're going first. You have about two minutes.

Mr. Kelly McCauley: I probably have about two minutes of questions.

You mentioned a fair number of items, such as switching over to electric vehicles and electrified conversion. You know, we have these targets. I think in Ontario, one out of every 10 cars is going to be a Tesla or a Volt in 10 years. Has anyone done an analysis of what the demand is going to be for electricity and how many more Site C dams we are going to have to build if we are successful in achieving these dreams?

Ms. Shelley Milutinovic: In our high technology case, we did incorporate more electric vehicles, etc. We have significant amounts of solar and wind coming on in that time period. Natural gas uses a little bit less, because we have so much more renewable coming on.

It all balances out. There is sufficient electricity capacity for the electric vehicle assumptions we made.

Mr. Kelly McCauley: What's the assumption? Is it what Ontario has, the fantastic number of one out of every 10, or is it much lower?

The reason I'm asking is that if it's one out of every 10 cars, or along those lines, I think we're going to have to build, in B.C., eight Site C dams to cover the extra power generation, or massive amounts of wind, which has unintended consequences, such as killing off birds and bats off the sides, and this and that.

I'm just wondering what numbers you are using.

Ms. Shelley Milutinovic: I don't have those numbers off the top of my head.

Mr. Kelly McCauley: Okay, maybe we'll get them later.

The second question is kind of the flip side. We heard from the ATCO guys and Capital Power, going back to the excess energy we have in every single province and all this green energy coming on board. Is the whole talk of interties going across the country perhaps an expensive boondoggle we should stay away from? Every province, it sounds like, has a fair amount of excess energy. That's again even before Site C or Muskrat Falls come on.

Ms. Shelley Milutinovic: It's not something I could comment on.

The Chair: That's where we'll end it. Thank you, Mr. McCauley.

Thank you both very much for joining us today. We appreciate your taking the time to be here to contribute to our study.

We will suspend for two minutes, and then we're going in camera for committee business, so everyone else will have to clear the room.

[*Proceedings continue in camera*]