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Chair: Mr. George Chalal



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• (1700)

[English]

The Chair (Mr. George Chahal (Calgary Skyview, Lib.)): I call this meeting to order.

Welcome to meeting number 100 of the House of Commons Standing Committee on Natural Resources.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Tuesday, November 29, 2022, the committee is resuming its study of Canada's electricity grid and network.

Since today's meeting is taking place in a hybrid format, I would like to make a few comments for the benefit of all.

Before we begin, I would like to ask all members and other in-person participants to consult the cards on the table for guidelines to prevent audio feedback incidents.

Please take note of the following preventative measures in place to protect the health and safety of all participants, including the interpreters. Only use an approved black earpiece. The former grey earpieces must no longer be used. Keep your earpiece away from all microphones at all times. When you're not using your earpiece, please place it face down on the sticker placed on the table for this purpose.

Thank you for your co-operation.

By way of Zoom reminders, please wait until I recognize you by name before speaking. As a reminder, all comments should be addressed through the chair. Additionally, taking screenshots or photos of your screen is not permitted. In accordance with the committee's routine motion concerning connection tests for witnesses, I'm informing the committee that all witnesses have completed the required connection tests in advance of this meeting.

Before I begin, I want to go to Mr. Angus, and then I'll begin with the witnesses.

Go ahead, Mr. Angus.

Mr. Charlie Angus (Timmins—James Bay, NDP): Chair, out of fairness to our witnesses and to my Liberal colleagues, who really want to get this study under way, and because we were short-changed due to our technical problems, I'm wondering if it would be fair to have the witnesses speak and then do one round of questions so that we're not wasting their time for having waited for us.

The Chair: Thank you, Mr. Angus.

I don't see any opposition to that. I think we can proceed.

I will suggest opening statements and a round of five minutes each. Would that be fine?

Good. I will need a couple of minutes at the end of that for a couple of administrative items regarding the study we've adopted. I'll do that very quickly at the end of the proceedings today. Let's proceed with that.

I would now like to welcome our witnesses with us today. They are, from Energy Storage Canada, Alex Simakov, director of external affairs, by video conference; from EverWind Fuels, Trent Vichie, chief executive officer, by video conference; and from WaterPower Canada, Gilbert Bennett, president.

We have up to five minutes for opening remarks.

We will begin with you, in person, Gilbert Bennett, from WaterPower Canada.

[Translation]

Mr. Gilbert Bennett (President, WaterPower Canada): Thank you, Mr. Chair.

[English]

I'm Gilbert Bennett, representing WaterPower Canada. Thank you to the honourable members for the opportunity to appear before this committee today.

WaterPower Canada represents Canada's hydro power industry. Hydro power provides 60% of Canada's electricity, with over 82,000 megawatts in service.

However, electricity is only a piece of the puzzle, as fossil fuels supply three-quarters of the energy consumed by Canadians. Achieving our net-zero ambitions by 2050 will require us to double our electricity supply, repeating the past 100 years of work building the electricity system that we have today in the next 25 years.

Hydro power generation offers three important benefits to our electricity system. First is long-term storage. Hydro power with facilities with reservoirs provide massive storage capacity over a period of months. Second is flexible production, with the ability to control output as needed and with pumped storage to be able to store surplus energy for use later. Third is firm output. With water in storage, hydro power facilities can provide reliable and stable power when needed.

Canada's electricity system is operated, maintained and, to a significant extent, owned by provincial entities. Notwithstanding the federal government's role in aspects of environmental assessment, permitting and interprovincial transmission, the provinces are constitutionally responsible for electricity generation, transmission and distribution.

Electricity system operators and utilities operate within a provincially regulated framework that addresses reliability, cost recovery and the approval of investments. Except for a limited set of matters under federal jurisdiction, most environmental assessment and permitting responsibilities also lie with provincial authorities.

Ultimately, expansion of Canada's electricity system will be approved by provincial electricity regulators, and absent any other source of financial support, costs will be recovered from provincial electricity customers. Each province is responsible for the development of its net-zero road map.

Historically, more transmission capacity exists between Canada and the United States, with less so between Canadian provinces. The rationale is straightforward: Canadian producers have been able to justify transmission investments so that they can participate in U.S. electricity markets, particularly when peak demands in those markets do not coincide with their own. This business case is not as obvious for east-west trade between provinces, particularly when market structures don't always facilitate real-time trading, but we need to investigate these opportunities on a broader scale.

Interconnecting larger areas provides greater diversity of supply for a larger region and provides greater ability for surpluses in one area to offset shortfalls in another. Interconnecting hydro power-producing areas with their neighbours extends the reach of hydro power reservoir storage more broadly. Interconnecting areas with high quality, variable renewables extends their market reach and improves their business case during periods of low demand in their own market.

Substantial expansion of our electricity system is required to meet our net-zero aspirations, but we are concerned with the challenges to developing projects in Canada.

The environmental assessment and permitting process for clean energy projects is long and arduous, and uncertainties created by the Impact Assessment Act, the Fisheries Act and the migratory birds regulations create unnecessary risk.

Clear timelines for decision-making do not exist, and prohibitions on necessary activities have been imposed without compliance mechanisms for project developers. Some departments, notably Fisheries and Oceans Canada, have created new compliance risks by creating uncertainty for existing facilities that were permitted decades ago. Federal programs that were meant to encourage

investment, such as the clean electricity investment tax credit, are unnecessarily complex, have extraneous conditions and are set to expire before they are useful to developers of long-term projects.

Although climate change is an overarching priority for our federal government, processes and programs are not operating with that goal in mind and are focused on their own silos of responsibility. We are hopeful that the commitments made by our federal government regarding regulatory streamlining will achieve their intent.

Ultimately, our energy transition will happen when end-users, from individuals to industrial customers, decide to change their energy sources from fossil fuels to electricity. Those individual decisions will drive electricity consumption to justify regulatory approvals for generation and transmission projects.

- (1705)

Given the extent of provincial jurisdiction and the requirement for end-user action, our national government needs to consider itself as a change enabler.

Our summary recommendations are as follows.

Develop support for energy projects nationally. The scope of change expected will require large-scale projects everywhere in Canada.

Urgently streamline project approval processes and provide guidance to permitting authorities that energy projects are required to meet our net-zero aspirations.

Encourage and support regional planning initiatives to unlock the benefits of greater interprovincial transmission interconnection.

Support low-cost investments in alternatives to fossil fuel use with standards and incentives to encourage switching.

Finally, actively work with provinces and municipalities to address barriers to electrification and facilitate the change to our net-zero future.

Thank you again, Mr. Chairman, for the opportunity to present before the committee. I would be pleased to address any questions the committee may have at the appropriate time.

The Chair: Thank you, Mr. Bennett.

I should have said this at the beginning. I do use these cards: Yellow is a 30-second warning, and red is time's up. I will try to let you complete your sentence before cutting you off, but I will try to show this.

We will next go online to Mr. Alex Simakov from Energy Storage Canada.

You have five minutes.

Mr. Alex Simakov (Director of External Affairs, Energy Storage Canada): Good afternoon.

Thank you, members of the committee, for the opportunity to appear before you today.

My name is Alex Simakov. I'm the director of external affairs for Energy Storage Canada. We are the national voice of the energy storage and smart grid technology sectors, representing 97 members from across the country, a number that has roughly doubled in the past four years.

I want to make the case today that energy storage technologies have made tremendous progress over the past generation.

First, we're really good at making friends with other technologies. With nuclear generators, we're being co-located to reduce nuclear manoeuvring and optimize their output. With gas plants, we're optimizing response times, where batteries take a millisecond. It allows gas plants to fire up at a more gradual pace to respond to needs.

Our biggest customers are large industrials, who put us behind the meter to manage their peak demands and reduce costs for both themselves and the system overall.

We're also, of course, strongly paired with intermittent renewables so that when the sun doesn't shine or the wind doesn't blow, we have firm capacity that we can provide for our system.

I want to take a second to focus on Ontario to describe some of the key progress that we made very recently.

Last month, the Independent Electricity System Operator announced the results of the LT1 RFP, which is about two gigawatts—aiming for two-and-a-half gigawatts—of capacity. Clean energy storage secured 10 of those projects, and I want to leave you with three figures here.

The first is 24. Our costs dropped by 24% year-on-year decrease.

Two is 40%. That is the cost at which energy storage projects came in compared with the natural gas projects, on average a megawatt per business day.

And three is 90%. Nine of the 10 clean energy projects had first nations equity participation of 50% or greater.

All that means collectively is that today energy storage represents the cheapest form of new capacity in the system, period. It also means that Ontario, having completed its procurement, is on track to be the third-largest jurisdiction for clean energy storage in North America.

I want to reiterate Mr. Bennett's points, that our focus overall is on the doubling of Canada's national energy grid. That is the most consequential economic development opportunity of our lifetime, and one that our sector is committed to fully.

While it's led absolutely provincially, and great progress is being made there, there are major roles for the federal government to undertake in this regard as well. The first is ensuring sufficient transmission capacity. That is the existential choke point that is affecting all decarbonizing and electrifying economies. In the U.K., they're spending about a billion pounds per year on wasted wind electricity because they cannot get that power from Scotland to England. In the U.S., in some markets you're taking about a decade to get a new connection because of the constraints.

If we're looking for an investment case, it's certainly that. The choke point we are going to see on continued economic growth in Canada will be our ability to distribute and consume electricity because of a distribution and transmission system that cannot keep pace with an electrification and renewables build-out.

Two steps can be taken here.

The first is tax incentives for municipalities that welcome development. We've had, as energy storage, a [*Technical difficulty—Editor*] community welcoming us, and they are both eager and partly reticent, and we respect that reticence, and are happy to work with those who are eager to work with us.

That said, as we move forward and as the intensity and the frequency of clean grid asset connections continue, we are going to need to make sure that we are providing appropriate incentives for those communities that do step up and want to do the work. I don't mean just one-off cash transfers. We need to have systematic tax incentives for the municipalities that are keen to do that work and make sure that we have incentives for those that are reticent or reluctant to invest in new clean energy technologies.

Likewise, to echo Mr. Bennett's points, interprovincial inerties are going to be critical. Historically, our provincial energy regulators and planners have looked southwards to export power to the States. We now have a great opportunity to incentivize them to build inerties between provinces, not just to balance out the diversity of our demand profiles, but, more consequentially, the diversity of our supply profiles.

The third point is on ambitions and aspirations to phase out natural gas generation by 2035. Speaking as the representative of the sector that will be the foremost beneficiary of that change, I urge extreme caution on moving with prejudice on achieving a goal that is fairly arbitrarily set and is not aligned with system needs. To quote the ISO, “the CER as drafted is unachievable in Ontario by 2035 without putting at risk the reliability of the electricity system, electrification of the broader economy and economic growth.”

We're on a rapid track to exceed decarbonization, and we want to make sure those gas plants are being used as little as possible, shrinking them to only the extreme days. But we absolutely need them for emergency and standby resources at a time when we're anticipating extremely hot weather events and other challenges coming forward.

• (1710)

Thank you.

The Chair: Thank you for your opening statement.

We'll now go to Trent Vichie, chief executive officer of EverWind Fuels.

Mr. Vichie, you have five minutes.

Mr. Trent Vichie (Chief Executive Officer, EverWind Fuels): Mr. Chair and honourable members of the committee, thank you for the opportunity to present today.

My name is Trent Vichie, the founder and CEO of EverWind Fuels Company, Canada's most advanced green hydrogen development. Our projects in Nova Scotia and Newfoundland and Labrador are supported by our first nations partners, alongside a world-class renewable resource: Canada's east coast has exceptional wind, and it's a resource we should take advantage of.

In recent years, the urgency to get off coal and other fossil fuels—to green the grid—has been building. For example, in Nova Scotia, the province is committed to ending the use of coal by 2030 and using at least 80% renewable energy by the end of the decade. Green hydrogen production and its use are crucial to meeting those targets. In fact, Nova Scotia's “Green Hydrogen Action Plan” explicitly states that it is “a complementary option to help strengthen the electricity system.” This industry can be a flexible demand user, which complements renewable power as well as hydro in the overall mix.

This is precisely what our green hydrogen projects will help us do—not to mention the thousands of jobs and billions of dollars of economic activity they'll generate. We're working hard with provincial governments right now to secure an agreement that will start greening the grid in Nova Scotia, and to develop a very large project in Newfoundland.

However, like all nascent industries, standing this up requires support at all levels of government. Across the board, the energy transition needs support for investment in battery plants, transmission—which the former speakers talked about and which we echo—and flexible power uses in green hydrogen. This is why programs like NRCan's smart renewables and electrification pathways program need to consider how green hydrogen is helping us get off

coal and reach shared federal and provincial goals to secure a renewable future.

We ask parliamentarians and officials alike to ensure these programs are created with the flexibility required to hit the targets we've set to banish coal to the dustbin of history. We must be swift, decisive and flexible in our public policy actions. The global race to provide clean energy to the world is on and competition is fierce. It's critical for the federal government to determine whether Canada will be a leader or a follower in this industry.

To reiterate my earlier points, I offer three recommendations.

Allow programs like SREPs to have the flexibility to support green hydrogen.

Building out the supply chains and infrastructure required for the energy transition is going to be a monumental task. Canada needs to encourage and support the manufacture of essential items like transmission breakers and switching equipment, which has been an increasing problem. Canada could stand up manufacturing in this sector.

Governments need to take a broad view of electrification to support the greening of the grid and the decarbonizing of hard-to-electrify industries.

In conclusion, there's no getting off coal and other fossil fuels without investing in transmission and supporting flexible users like green hydrogen. Transmission is essential for decarbonization. Wind power, hydro and even solar are complementary, but transmission is needed. This is something Canada needs to grab onto with force.

Clean power is an economic opportunity for Canada. The work that we and others are doing in this industry is going to drive a lot of economic growth if it's supported. This is Canada's moment, and we must seize the opportunity.

I want to thank you for your time today, and I look forward to your questions.

• (1715)

The Chair: Thank you, Mr. Vichie, for your opening remarks.

We will now proceed to our first round of questions of five minutes each. We will begin with Mr. Patzer from the Conservative Party of Canada.

You have the floor, sir.

Mr. Jeremy Patzer (Cypress Hills—Grasslands, CPC): Thank you very much.

I'm going to start with Mr. Bennett in the room here.

In order to hit net zero on the grid by 2035, do you know how many hydroelectric dams it would take to replace all the natural gas power and expand the grid to meet all this new demand the government talks about?

Do you know what that number is?

Mr. Gilbert Bennett: I don't have it off the top of my head. That's a number I can report back to the committee on, though.

Mr. Jeremy Patzer: Have you done the research on it already?

Mr. Gilbert Bennett: We have not investigated every market in Canada. We certainly acknowledge that there are markets in Canada that don't have great hydro potential, but I would say at the outset that we are 10 years away from that goal. The development of any hydro project, including the environmental assessment and the construction process, would take us beyond 2035.

Mr. Jeremy Patzer: What year do you think we'd be able to do that, realistically, with existing timelines and processes in place? At what point do you think we could build enough hydro dams in order to meet that demand?

Mr. Gilbert Bennett: If somebody said “go” tomorrow, we're in a six- to seven-year environmental assessment process and probably a ten-year planning and construction process, so we would be 2040—best case.

Mr. Jeremy Patzer: Okay. Thank you very much.

For EverWind Fuels, a similar question for you: If we were to hit net-zero electricity generation by 2035, how many wind turbines would have to be built in order to hit that target? Do you have that number?

Mr. Trent Vichie: I don't. We're looking at building and supplying green hydrogen. It's a specialized industry, so I don't have a view across the entire country.

Mr. Jeremy Patzer: Okay. How many hydrogen units, then, would you have to build in order to hit net zero by 2035?

Mr. Trent Vichie: I don't have those figures right off the top of my head. We can come back to you on that.

Mr. Jeremy Patzer: Have you done the research into that yet?

Mr. Trent Vichie: We've been focused on our own business case, which is focusing on eastern Canada.

Mr. Jeremy Patzer: Okay.

Mr. Simakov, how many gigawatts of battery storage capacity would be needed for 2035 to be net zero on the grid?

Mr. Alex Simakov: If we could speak to Ontario in particular, right now we have 10.5 gigawatts of gas. We've contracted for three gigawatts of storage. To increase that, we'd need about another eight. You might want to say ten, just for additional comfort, so about 10 gigawatts. That's about threefold what we've contracted.

I think the critical point to stress as well is that if we do decarbonize all that gas with storage, that just gets us to the status quo of how much capacity we have. That's no additional capacity for elec-

trifying transit and no additional capacity for electrifying homes. I think the key point, and the one you're getting across, is that we do need both, and we should scale up storage as quickly as possible and have gas as a standby and an emergency resource for when we need it.

• (1720)

Mr. Jeremy Patzer: Okay.

How long would it take to actually build that kind of capacity? I know that you only referenced Ontario, but what would it take to actually build the kind of capacity to hit what the government is suggesting needs to be done?

Mr. Alex Simakov: We could take a straightforward storage project from go: It would take about two years to complete reliably and comfortably. That's the current quantum.

The largest project right now in Ontario is a contract for 400 megawatts. At that point, we have a bit more flexibility compared to some of the other speakers in terms of location. We can have them everywhere. If we had a war-like effort to devote all the resources in the province to doing so, I think we could probably do it in maybe about a decade, above all other priorities.

Mr. Jeremy Patzer: How much per kilowatt hour would it cost to do that? Would there be increases?

Mr. Alex Simakov: I think we want to be clear as well that when we talk about new capacity right now, storage is the cheapest, at \$682 a megawatt business day, but that's not cheaper than an existing asset that's already built and paid for. Certainly, we're not going to get the economies of an asset that's been fully capitalized. That's just realistically not how any market or any energy resource would work.

Mr. Jeremy Patzer: Okay. There will be some stand up costs still to come.

Mr. Bennett, your organization put out a paper saying the following:

While Canada has the potential to have a clean, modern net-zero economy, it is incumbent on the Government of Canada to communicate the trade-offs to be made to achieve our net-zero aspirations. Achievement of this goal will come at a cost—in terms of energy rates, equipment investment, and energy development.

Tell us more about the “in terms of energy rates”, please. What would that look like?

Mr. Gilbert Bennett: The impact on energy rates from a substantial investment in new equipment and new technology in our view is going to have an impact that needs to be looked at very carefully. You're looking at assets that today have been amortized over decades. As I said in my remarks, we're talking about replacing that entire infrastructure over again in the next 25 years.

We have not done rates analysis, but it's reasonable to conclude that there will be upward pressure on rates when you spend \$1.5 trillion to \$2 trillion on new electricity infrastructure for our country.

Mr. Jeremy Patzer: Thank you.

The Chair: Thank you.

We will now go to Mr. Majid Jowhari from the Liberal Party of Canada.

You have five minutes.

Mr. Majid Jowhari (Richmond Hill, Lib.): Thank you, Mr. Chair.

Welcome to all of our witnesses. Thank you for your testimony.

I'm going to start with Mr. Simakov from Energy Storage Canada.

You rhymed off three numbers very quickly. I did try my best to write them down. You talked about 24%, 40% and 90%. Can you quickly highlight what those numbers are again? My apologies that I wasn't fast enough. I would like to get a reminder on what those numbers are.

Mr. Alex Simakov: Sure. No problem.

The first number is 24%. The cost per megawatt business day from last year's procurements to this year's decreased by 24%. They're 24% cheaper.

The second figure is 40%. The 1,782 megawatts of clean energy storage procured came in at \$672 per megawatt business day. That is 40% of the cost of the gas assets that came on. Those gas assets were 411 megawatts of natural gas and biogas generation. That averaged \$1,681 per megawatt business day.

The last figure is 90%. Of the 10 clean energy storage projects, nine of them featured first nations equity of at least 50%. Many had more than that.

Mr. Majid Jowhari: Thank you for that.

As a result of that, you said, energy storage will be the cheapest method for electricity. You then talked about Ontario being the third-largest jurisdiction in North America in terms of leading the storage. Is that true?

• (1725)

Mr. Alex Simakov: There are two points here. We are the cheapest new capacity. I would stress that we are not cheaper than existing capacity assets, but yes, we are the new cheapest, if you'd like to build any new additional capacity.

As far as other jurisdictions are concerned, Texas is the leading one and California is second. Ontario will be third once this procurement is built.

Mr. Majid Jowhari: You said that some enablers would be sufficient transmission capacity, tax incentives, interprovincial interties and balancing the phase-out of the gas plant. I'd like to get your input around the regulations of energy storage.

This is according to the Canadian Renewable Energy Association:

Most jurisdictions in Canada lack a clearly defined legislative and regulatory context to guide the participation of energy storage in the electricity system.

This barrier can prevent these jurisdictions from taking full advantage of energy-storage solutions in a timely manner to advance the energy transition.

What are your thoughts on that?

Mr. Alex Simakov: That's accurate.

I would like to point out two things. Historically, we've had either generation assets or loads for consumers. Energy storage as a bidirectional resource can do both and needs regulatory reforms.

I'd like to recognize Ontario and most recently the Province of Alberta, which, under Minister Neudorf, recognized energy storage resources as a distinct resource class. That's been a major improvement and will be an essential ingredient for the restructured electricity market consultations currently under way for Alberta. Those two provinces are at the forefront. Other provinces do need to effect some regulatory reforms to fully recognize the capacity of bidirectional energy resources.

Mr. Majid Jowhari: I have about a minute to go.

You talked about jurisdiction and that they're leading on that. Can you share one or two your recommendations around regulation that would complement the tax incentives and interprovincial interties to be able to expedite the storage?

Mr. Alex Simakov: From the federal government?

Mr. Majid Jowhari: Yes.

Mr. Alex Simakov: From the federal government, I would suggest that for large infrastructure projects—for example, the long-duration energy storage—one way to maximize bids and competitive pressures would be to allow a stipend for qualified bidders who put forward a viable project but aren't successful.

For example, Ontario will be leading a long-duration energy storage procurement next year. It's only the third in the world. It's very expensive to put together a bid and to compete. Not everyone is going to win, but if they know that there will at least be coverage of their costs put forward, Ontario will see a lot more competition come forward and ultimately see lower rates for ratepayers.

At the moment, there isn't a provincial mechanism to finance this. If the federal government were to step in and cover a portion of those costs—we're talking in the tens of thousands of dollars—we could see savings in the many millions through increased competition and global pressures.

Mr. Majid Jowhari: Thank you.

The Chair: Thank you, Mr. Jowhari.

We'll now go to Monsieur Simard for five minutes.

[Translation]

Mr. Mario Simard (Jonquière, BQ): Thank you, Mr. Chair.

Mr. Bennett, since we don't have a lot of time, we may send you questions in writing if we need more information.

I must confess my ignorance. I'm not very familiar with hydro-electricity producers outside Quebec.

Can you provide the committee with the number of existing hydroelectric facilities and the number of projects in development?

[English]

Mr. Gilbert Bennett: Yes, absolutely, we can provide that.

[Translation]

Mr. Mario Simard: Thank you.

The last recommendation you mentioned in your presentation was about working to address barriers to electrification.

Can you give us some examples of those barriers?

[English]

Mr. Gilbert Bennett: Some examples that come to mind are local building codes and standards for electric equipment. For example, in Ontario, most recently there's been a debate about whether the electricity service for new residential construction should be able to accommodate an electric house instead of a natural gas heated house. We would say it's cost effective to make sure that new building stock is built to be electrified, providing a service to the garage for an electric vehicle down the road. It's much easier to do that with a new house than it is to call an electrician to come back and do it later.

We think there are cost-effective approaches that could be used, and those happen at the provincial level in building codes and the municipal level in terms of by-laws. Municipalities that have made decisions to limit the growth of natural gas for new residential construction are helping to facilitate an electric future, so we would support that.

Anytime there's an opportunity to use more electricity, we think that's a good thing.

• (1730)

[Translation]

Mr. Mario Simard: Thank you.

If you have other examples of things that could be done to better support electrification, you can send them to us in writing.

Mr. Bennett, Hydro-Québec recently announced that it planned to invest \$100 billion in its system by 2035, if I'm not mistaken. That means the clean electricity investment tax credit the government announced in the last budget is quite timely. However, I see many of the requirements as problematic, especially the rules around labour and the obligation to return savings to customers, which is almost impossible for Hydro-Québec to do because it can't pinpoint the specific basin the electricity came from. Considering all of Hydro-Quebec's facilities, I don't see how it would be able to do that. What's more, in Québec, the rates are set by a board.

Does your association think the requirements for the tax credit are flexible enough?

[English]

Mr. Gilbert Bennett: No, we don't. We think they're overly restrictive. We believe the rules and limitations on what should be an incentive are unnecessary. If our federal policy is to promote investment in electrical infrastructure, whether it's generation, transmission or smart distribution systems, then those should be struc-

ured as an incentive. We find there is an addition of unnecessary conditions that ultimately slow investment down, slow projects down. We think that is not helpful if we're to achieve this goal rapidly.

[Translation]

Mr. Mario Simard: Thank you.

Now I have a very short question for all the witnesses. A simple yes or no will do.

If we want to move towards electrification and develop a clean electricity sector, do you think carbon pricing is necessary?

Let's start with you, Mr. Bennett.

[English]

Mr. Gilbert Bennett: Our policy is that a price on carbon is a good means of facilitating a migration to renewables. A policy decision can be taken on what to do with the revenue, but we think that imposing a price on carbon changes the balance from fossil fuels to renewables in our economy.

[Translation]

Mr. Mario Simard: Thank you.

I have the same question for the other two witnesses.

[English]

Mr. Alex Simakov: If I could go next, I would like to distinguish between a carbon price for household consumers, which I don't believe in any meaningful way directs them towards decarbonization, versus a carbon price for large industrials and system operators, who do have extensive planning and long-term investment views and can properly make decisions that contribute to long-term diversification.

Therefore, for household and consumer goods, no, but for large industrials, yes.

[Translation]

Mr. Mario Simard: Thank you.

Do we have another witness? No? All right.

[English]

The Chair: Thank you.

I'm now going to go to Mr. Angus from the NDP for five minutes.

Mr. Angus, the floor is yours.

Mr. Charlie Angus: Thank you, Mr. Chair.

We have a huge oil and gas and nuclear lobby, and we're often told how difficult it is to make things happen and how regulations and everything are standing in the way.

California went from 770 megawatts in battery capacity to 10,379 megawatts in a period of five years. That now allows them, for 40 out of 48 days, to run pretty much straight on renewables, and they can go to natural gas or whatever else as a backup, so that battery capacity has been revolutionary. It has been even more revolutionary in Texas.

Mr. Simakov, what is the potential in Ontario? We see that they're talking about, I think, 1,784 megawatts from 10 projects coming online by 2028. However, that's still like one-tenth of what California has done in six years. How much more capacity can we get online, and how will that change it, not just for going to clean energy but for consumers and the price they're paying for household energy and for industrial operations?

• (1735)

Mr. Alex Simakov: Thank you, Mr. Angus.

I note and appreciate that California has been a great leader in this. Their storage resources are backed up by extensive thermal resources, which represent 45% of the grid's capacity and have been essential to ensure—but not always—the reliability of the California grid. Those resources will continue to be invaluable for at least well past 2035.

For Ontario, we see the capacity for energy storage to completely exceed all thermal resources, certainly well before 2050. There is a great variety where, between 2035 and 2050, energy storage resources can fully displace natural gas.

At this point, we envision the goal for 2050 to be 88,000 megawatts of capacity. That's more than doubling where we are today. Energy storage will have to fulfill close to the entirety of that, notwithstanding existing hydroelectric and nuclear resources, to ensure that we have a reliable grid.

Mr. Charlie Angus: Thank you.

The prices of the various energies are different, depending on the project. However, what we've heard from testimony is that the bottom line on solar and wind now is about \$24 per megawatt, while nuclear's bottom line is \$141 per megawatt and natural gas is \$39 per megawatt.

When you began your testimony, you were coming in at 40% of the cost compared with natural gas. Did I hear you right, and can you explain that?

Mr. Alex Simakov: Yes. In the LT1 procurement from the IESO results released on May 9, the 10 energy storage projects came in at an average cost of \$672, and the average cost for the 411 megawatts of gas was \$1,681, so we are just below 40% of the new bids that were put forward. Again, that is obviously a limited context, and I don't want to over-extrapolate from that, but from the last competitive tender in Canada, we were the cheapest new resource.

Mr. Charlie Angus: That's very important, because one of the questions we always hear on solar and wind is about their flexibility, because they are not always running at peak capacity. However, if we could store that at the cost it's being delivered at, it would be very beneficial not just for the clean energy sector but also for the bottom line for consumers.

I'm going to have to switch to Mr. Vichie now. I'm very interested in green hydrogen, but there's the need to get these projects up to speed. It's not just that we are dealing with a climate crisis; our competitors in the United States are moving on the U.S. seaboard at an extraordinary rate with projects getting off the ground that are going to be producing offshore wind for hundreds of thousands of homes.

Are you concerned that we're going to get swamped? When they have to dump their excess capacity, wouldn't Nova Scotia be a natural place for them to dump that and maybe make some of our projects a little less viable?

Mr. Trent Vichie: No. I think it's the other way around in that there's actually...if you look at the map of U.S. generation, they have a lot of decarbonization work to do. In fact, if you can get offshore wind in Nova Scotia, which is some of the best in the world, into the U.S. market, there is clearly an opportunity there.

On the green hydrogen—

Mr. Charlie Angus: I'm going to jump right on you. How important is it to get these ITCs up and running so that we can—

Mr. Trent Vichie: It's critical.

Mr. Charlie Angus: It's critical. You can lose your mind on this. We've been pushing this government and asking, "Where are these ITCs?"

How important is it that we get them on the table now?

Mr. Trent Vichie: It is absolutely critical, because getting started first and early is paramount. Other parts of the world, not just the U.S., are moving on this...the Middle East and other places in the world. It is absolutely critical.

• (1740)

The Chair: Thank you, Mr. Angus.

Mr. Vichie, if I may, I have a quick question. I was in the Taiwan Strait, where Northland Power, a Canadian company, is investing \$9 billion in another pension fund as well.

What's the opportunity on Canada's east coast for wind power from an investment perspective? That includes your projects, plus all the other projects you think might come forward in the future.

Mr. Trent Vichie: There are two different parts to that question.

Firstly, offshore wind is 100 gigawatts of potential resource. Under 50 metres, you'll do fixed-bottom. You need transmission, though. You absolutely need transmission, and it's a really good complement with some of Quebec's hydro resources and pushing into other markets there.

On the hydrogen side, I'll talk about the first phase of our project, which has two billion dollars' of economic benefit associated with it. About half of that is in Nova Scotia. The other half of it is federal. We're talking about a game-changer here.

The Chair: Thank you.

Thank you to all of the witnesses. You can submit briefs to the committee clerk if there's anything we may have missed, or if there's anything else you'd like to provide for the attention of the committee on this important study.

Witnesses, you are released. Thank you once again.

Colleagues, I have just a few items to discuss with you before we conclude today's meeting.

The first one is the suggested witness lists for the study on the Trans Mountain pipeline expansion. Is the end of day on Thursday a deadline we can all accept so that we can move forward with the

study and get witnesses? I don't see any objections. The end of day on Thursday it is. Thank you, colleagues.

Also, is it the will of the committee that for the study on the Trans Mountain pipeline expansion, the proposed budget in the amount of \$32,100 be adopted? I see no objections.

(Motion agreed to)

The Chair: Great. Thank you very much.

I wish everybody a great day. That concludes our meeting.

The meeting is adjourned.

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