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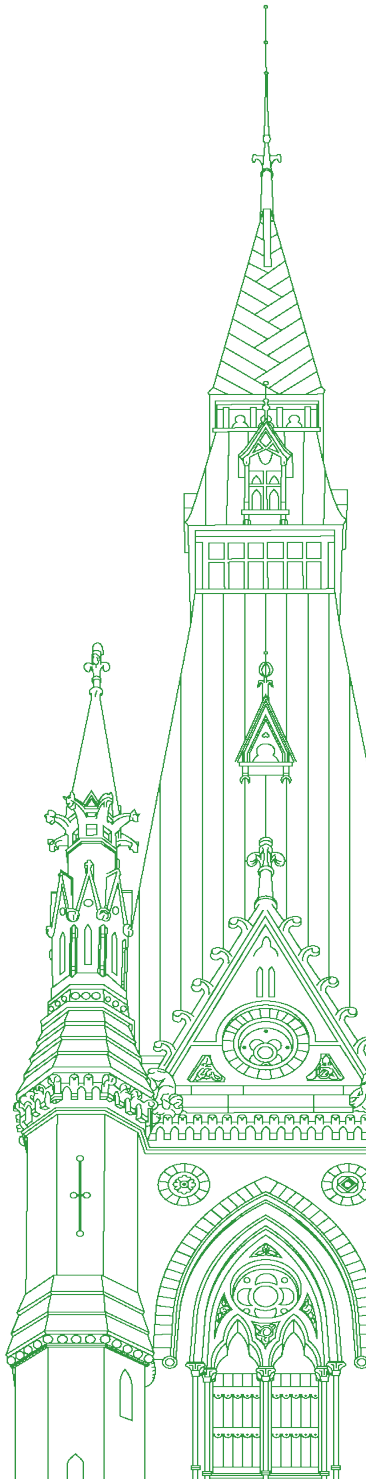

Chair: Mr. John Aldag

Standing Committee on Natural Resources

Wednesday, September 20, 2023

● (1630)

[*English*]

The Chair (Mr. John Aldag (Cloverdale—Langley City, Lib.)): Good afternoon, everyone. I call this meeting to order.

Welcome to meeting number 72 of the House of Commons Standing Committee on Natural Resources. Today, we're meeting to resume our study of Canada's clean energy plans in the context of North American energy transformation. We'll then proceed to sit in camera for a brief committee business discussion near the end of the meeting.

I'd like to welcome all of our guests.

For Monsieur Mousseau, who is here in person, and for all of our guests online, welcome.

As a bit of a quick run-through, for everybody who has done their sound checks, hopefully the technology holds and we'll be good. We are missing one witness who had confirmed. Obviously, that sound check has not happened. We are trying to track down the witness. We'll go through the opening comments from everybody else. If the missing witness appears, we may have to suspend for a minute to do the sound check. Then we'll resume, get those opening statements done and go into our rounds of questions and answers. If we can't track down that witness, we'll just continue with those of you who are able to successfully join us.

I have a couple of quick things for anybody who is new to testifying at committee. Please wait until I recognize you by name before speaking, and please address any comments through the chair, although I'm pretty relaxed about that so you can have a bit of leeway with talking to the members. For those participating by video conference, click on the microphone icon to activate your mike, and please mute yourself when not speaking. For those in the room, we have people who control the microphones, but we can't do that remotely.

Interpretation for those on Zoom is available. If you haven't been taken through it, at the bottom of your screen there is a choice of floor, English or French. You can choose to hear whichever language is being spoken or the translation by choosing either English or French. Your earpiece will pick up the desired channel.

Now that we're in session, screenshots and photos are not allowed.

In accordance with our routine motion, I am informing the committee that all remote participants have completed the required connection tests in advance of the meeting.

Thank you, each of you, for doing that.

Now, to welcome the guests, as I've said, we have in the room with us Normand Mousseau, physics professor, Université de Montréal, and scientific director, Institut de l'énergie Trottier, Polytechnique Montréal. We also have, from AGvisorPRO Inc., Robert Saik, professional agrologist. From the Alberta Federation of Labour, we have Gil McGowan, president. From Arianne Phosphate Inc., Raphael Gaudreault, chief operating officer; and from the World Resources Institute, Daniel Lashof, director for the United States. We are hoping to pull in, from BioSphere Recovery Technologies Inc., Zsombor Burany, chief executive officer.

That's our panel for today.

Each of you will be given five minutes for opening statements. Then we'll get into the rounds of questions and answers.

I'll try to use a yellow card as a visual cue when you are down to 30 seconds left on the clock. When I give you the red card, the time is up. Don't stop mid-sentence, but wind up your thoughts. We will move on to the next person, because the time allotment we have goes pretty quickly.

With that, I'll go with the order of my sheet. We'll start in the room with Monsieur Mousseau.

I'll turn the floor over to you for your five-minute opening statement. The floor is yours.

● (1635)

[*Translation*]

Prof. Normand Mousseau (Physics Professor, Université de Montréal and Scientific director, Institut de l'énergie Trottier, Polytechnique Montréal, As an Individual): Thank you, Mr. Chair.

Honourable members, thank you for inviting me to participate in the work of the Standing Committee on Natural Resources. There's more information about me and the Institut de l'énergie Trottier in the brief I sent you. Our work is about the energy transition and how to support governments in achieving climate goals.

The United States' 2022 Inflation Reduction Act put pressure on the Canadian government, and the government tried to respond in the latest budget. In addition to that response, Canada is moving forward with its own climate agenda. A few weeks ago, the government tabled regulations to reduce greenhouse gas emissions associated with electricity generation by 2035. We're also expecting another set of regulations to cap fossil fuel industry emissions.

We need a made-in-Canada approach. We can't just copy the Americans. For one thing, Canada doesn't have the same political and economic structures as its neighbour. For another, the size of the Canadian economy means that we can't throw as much cash at the problem as the United States. That's why we have to focus on our strengths so we can advance Canada's decarbonization agenda and meet those climate targets.

I think the federal government needs to do much more than just give huge grants to foreign investors who bring their know-how and intellectual property. It also has to support Canadian sectors active in developing technology, integrative knowledge and exportable approaches, because the energy transition also has to provide the financial capacity to get the job done.

That's why we need strategic capacity-building approaches to developing scalable decarbonization solutions, not just pilot projects. There are too many pilot projects. We need an integrated approach.

Many sectors are still rudimentary, even at the ideas stage. I'll go over some of them. The first, of course, is a robust building decarbonization policy. That is key. Canada is a cold country, and building decarbonization means getting rid of natural gas while ramping up electrification and other heavy technologies, which require integrative know-how to avoid blowing electrical grids and manage peak consumption.

Since Canada is a cold country, we could develop technology integration and peak management know-how along with other related elements. That know-how would be exportable to the northern United States and other cold countries. We need to tackle that. Canada's diverse energy resources mean we can develop a portfolio of useful solutions that could transfer to certain industries.

We also have to deal with a major auto sector reorganization in which vehicle electrification will result in job losses. We need to use people's know-how to move forward and adopt policies to reskill those workers or transfer them to sectors of crucial importance to Canada, one of which is building infrastructure, in my opinion. I am not an expert in this area, but the energy transition will require massive investments in infrastructure, be it electricity, public transit or other infrastructure. However, Canada is not particularly productive in terms of infrastructure. I think we need to see a focused effort; we need a robust strategy to reduce infrastructure costs and speed up infrastructure deployment. Some of this could be achieved through prefabrication, such as in building and road infrastructure. By developing an infrastructure-related manufacturing industry, we can support the auto sector.

Regarding electricity, we need to dramatically increase production in Canada, but that comes with huge costs, so we also need to develop strategies to improve productivity as we deploy that infrastructure.

● (1640)

There are many other potential sectors that could be used, but for decarbonization, we must move away from traditional approaches or sectors of electricity production to move in the direction of energy demand. In that direction, there are many areas where Canada could position itself ahead of its partners, while speeding up the energy transition.

Thank you.

[*English*]

The Chair: Thank you. There will be time for more discussion following the presentations.

I always apologize for having to make people finish partway through their comments.

We're now going to go to Robert Saik.

I understand, Mr. Saik, that you have to leave at 6 p.m., so we'll get your opening statement. For any of our panel members who have questions for Mr. Saik, please be aware that at six o'clock he is going to drop off.

We do have our last panellist, who is joining us now. For those who are here, we are ready to hear your opening statements. Then we'll suspend briefly to do the quality check. We'll then proceed, after those opening statements, to questions.

Mr. Saik, over to you. You have the floor for five minutes.

Mr. Robert Saik (Professional Agrologist, AGvisorPRO Inc.): Good afternoon.

Clean and green—my background is agriculture and agronomy. I built a very large consulting business and one of the first carbon credit trading companies in North America.

In Canada, as of last year, we had about 27 million acres of wheat, and we had 22 million acres of canola. When you look at canola, being about 40% oil with a 90% extraction rate, we could convert each tonne of canola oil into 360 litres of biodiesel. For every tonne of CPS wheat that we grow, which is a specific kind of wheat that is generated or grown for the ethanol industry, we could extract about 425 litres of ethanol. When you put this in the context of the opportunity for Canada to grow additional crops—and I know there's always a trade-off between growing crops for food and growing crops as fuel—Canada has a great potential to increase our production of crops to meet this new biofuel market.

Our average wheat yield last year was 51 bushels per acre, and our average canola yield was about 40 bushels per acre, which is about one tonne per acre.

There is a lot of opportunity for us as Canadians to grow more crops that can feed into the biofuel industry. However, we must temper the countervailing policies, such as a perceived reduction of nitrous oxide emissions. That is fine to achieve, but if you achieved it through the absolute reduction of fertilizer, you would catastrophically hamstring our ability as farmers to meet biofuel. Also, the difference in an absolute 30% reduction in fertilizer to meet the nitrous oxide target would mean 0.000028 of 1% to the global greenhouse gas economy

The opportunity that we have in agriculture is to increase that production and increase those yields, carving off part of our production into the biofuel economy. The excess could also be used in biomass—for example, oat hulls. The hulls that remain from oats can be used to burn very cleanly in biomass digester furnaces.

The idea that Canada could be clean and green is really important. We have some of the lowest environmental impact quotients when it comes to how much input we're using to produce our crops, and we have some of the highest no-till or zero-till farming on planet Earth, which makes us some of the best conservation farmers on the planet.

To be clean and green, let's use agriculture as part of the solution to meet this new challenge we're facing.

● (1645)

The Chair: Thank you.

You have time left on the clock. That's excellent. Thank you for that.

We will now go to Mr. McGowan.

If you're ready, there's five minutes on the clock for you. The floor is yours.

Mr. Gil McGowan (President, Alberta Federation of Labour): Thanks.

Almost exactly one year ago, a coalition of Alberta unions representing thousands of Alberta workers in oil and gas, construction, manufacturing and industrial maintenance released a blueprint for our provincial economy entitled “Skate to Where the Puck is Going”. The impetus for both our coalition and the report was the daunting realization that change is coming to our provincial economy whether we like it or not.

As worker leaders and worker advocates, we decided that it's better to prepare for change than to get run over by it. More specifically, we decided that it's better to prepare to seize the many opportunities associated with the rapidly accelerating global energy transition than to bury our heads in the sand and be left behind as the rest of the world moves forward.

Our report outlined opportunities in areas like hydrogen, critical minerals, electricity, housing, transportation, building retrofits, agribusiness and renewable energy, but also offered suggestions about how to secure a future for our oil and gas sector in a decarbonizing world, specifically by helping the sector pivot towards producing feedstocks for materials as opposed to feedstocks for fuels.

Perhaps most important, we concluded that denial is not a plan and that delay is not in the best interests of the working people we represent. That's why we are very pleased that this committee is taking a close look at the Biden administration's Inflation Reduction Act.

In our coalition report, we argue that the only way we in Alberta can keep up with the scale, scope and pace of the unfolding global energy transition is for our federal and provincial governments to embrace the notion of government-led industrial policy in the public interest. We said that we need to pivot our economy toward opportunities in the lower-carbon economy. We said that we couldn't wait for the market to do it itself. We said that we needed to follow the lessons of former Alberta premier Peter Lougheed, who used government-led industrial policy to create whole new industries and decades of prosperity when he saw in the 1970s that we were running out of conventional oil and gas.

We said that our governments at both the provincial and the federal levels have to put their money where their mouths are, because industrial policy only works when it is impressively funded. Perhaps most important, we said that workers need to be at the table when decisions about industrial policy are being made and that strings need to be attached to industrial policy funding to make sure that money actually flows to Canadian workers, Canadian businesses and Canadian communities.

With their Inflation Reduction Act, the Biden administration has done all of these things for the American economy and for American workers. The act has now been in place for more than a year and by every possible measure it has been an unequivocal success. The IRA has created hundreds of thousands of jobs. It has unleashed hundreds of billions of dollars in investment, and it's setting up the American economy for success in a rapidly changing world.

The question for Canadian policy-makers is not whether we should follow suit—of course we should. The real question is how we can up the ante and do even better.

The good news from our perspective is that the federal government has gotten the memo. In their last budget, they committed over $80 billion to IRA-style incentives. They have also seen the wisdom of giving workers a seat at the table and tying IRA-style strings to the funding to make sure that Canadian workers and Canadian communities benefit from the investments.

The bad news from our perspective is that Conservative politicians, both in Alberta and in Ottawa, have at least implicitly rejected the logic of the IRA and are ignoring or dismissing its obvious successes. How else can you explain the UCP Alberta government's decision to impose a moratorium on investments in renewable energy projects, a moratorium that is jeopardizing $33 billion in investments and 22,000 jobs? How else can you explain the reluctance of federal Conservatives to even discuss the IRA, let alone acknowledge its obvious accomplishments?

I'm here on behalf of Alberta workers today to say this needs to stop. In the IRA, we have a policy model that works. We need our elected representatives to stop putting politics ahead of the public interest.

Thank you very much. I look forward to the discussion.

● (1650)

The Chair: Thank you very much for those opening comments.

I will go now to Monsieur Gaudreault, who will have five minutes.

The floor is yours when you're ready to start.

[*Translation*]

Mr. Raphaël Gaudreault (Chief Operating Officer, Arianne Phosphate Inc.): Thank you very much.

Arianne Phosphate is a Chicoutimi-based mining company that is developing a phosphate production project in Saguenay—Lac-Saint-Jean. Our company owns the Lac à Paul phosphate deposit, which is a fully permitted, construction-ready project located 200 kilometres north of the city of Saguenay. This asset is one of the world's largest undeveloped deposits, capable of producing environmentally friendly phosphate concentrate. Because of its high purity and low contaminant content, Arianne phosphate can be used to produce fertilizers, and has specialized applications including in food, animal feed, and the production of lithium-iron-phosphate batteries.

We plan to build an open-pit mine, an ore processing plant, and a deep-water port, in addition to upgrading 240 kilometres of logging road for the annual shipment of our three million tons of phosphate concentrate. At full production, the company will require approximately 375 employees.

Phosphorus is a key element in agriculture, as it cannot be substituted, making it indispensable to crop growing. It benefits root development and provides increased resistance to drought. Recent disruptions in the global supply chain, resulting from export quotas imposed by China and Russia, have been amplified by the situation in Ukraine. As a result, selling prices have risen considerably. Most importing countries had to revise their supply strategy, highlighting the weakness of the chain.

Canada has not been a phosphate-producing country since 2013, following the closure of the Agrium mine, now called Nutrien, in Kapuskasing. We are therefore 100% reliant on imports, mainly from the United States, which itself is a net importing country. As a result, the performance of the economy in the Prairies depends on our ability to source a product overseas—a product that we could in fact be exporting.

Arianne Phosphate's potential customers are located all over the world. However, the geographic location of our company and our access to the St. Lawrence Seaway give us a competitive advantage in serving markets in western Europe, the east coast and gulf regions of the United States, as well as Canada. These markets are particularly attractive, given that they are import markets for phosphate products that are showing steady growth in their use in traditional fertilizer applications. However, demand projections for technological applications such as battery manufacturing exceed current production capacity by far.

In that sense, the committee's current study is very important for the Canadian phosphate industry and for Arianne. It's an opportunity for Canada to set itself apart with a product of the future that meets two global needs: the use of fertilizers to improve food productivity, and the development of a lithium-iron-phosphate battery manufacturing industry as part of the global energy transition.

Although phosphorus is an abundant element on Earth, its geographical distribution makes it highly vulnerable in terms of security of supply, with most of the world's reserves concentrated in North Africa and China. It should also be noted that, in terms of quality, the concentrates produced in these countries are far inferior to those found in Canada. Our phosphate is igneous, not sedimentary, which means that the concentrate is much more pure and, in practice, free of heavy metals and radioactive elements. This is very important for the fertilizer industry, but even more so for battery manufacturing. In fact, only a limited portion of the world's phosphate reserves can be used to produce a phosphoric acid that meets the technical specifications of battery manufacturers.

[*English*]

Currently, virtually all the world's LFP cathode capacity is based in China. The phosphate used to produce those cathodes is also sourced domestically, as China is self-sufficient in phosphate. The implication of this is that, if LFP cathodes continue to be produced predominantly in China over the long term, the raw materials that are used in their production will continue to be sourced domestically as well. To be successful, western carmakers will need to reduce their dependence on materials from China and locally source raw materials and inputs, particularly PPA, purified phosphoric acid.

● (1655)

[*Translation*]

Canada has a role to play in solidifying its strategic advantage in phosphorus. It is disappointing to see that this element of the future is not currently part of the Canadian critical minerals strategy.

The government is also relying heavily on mining exploration, but few mining projects are underway in the country. There are various reasons for this, including the lengthy time periods required and strict regulations, not to mention the lack of support for mining infrastructure development.

Thank you for listening.

[*English*]

The Chair: Thank you for those opening comments.

We'll go now to Mr. Lashof.

Thank you for joining us. Whenever you're ready, the floor is yours. You'll have five minutes for your opening statement.

Dr. Daniel Lashof (Director, United States, World Resources Institute): Thank you, Chair and members of the committee. It's an honour to participate in your important work.

The devastating impacts of climate change seen in Canada, the United States and around the world in the last year underscore the critical need to meet the Paris Agreement goal of limiting global warming to no more than 1.5°C. However, it's clear from the global stocktake recently released by the climate convention that countries must substantially increase their ambition and accelerate their transition to a clean energy economy to meet the Paris goals.

North America must contribute by cutting emissions 50% from peak levels by 2030 and reaching net-zero emissions by mid-century, and it should do so in a way that leaves no one behind by charting a just transition for workers and communities.

There are five pillars of this transformation that many studies recognize as essential. First is to increase the efficiency of energy use. Second is to electrify as many end uses as possible, including road transport and low- to medium-temperature heat. Third is to achieve a 100% clean electricity system. Fourth is to decarbonize remaining fuels with hydrogen and selected use of biomass wastes such as residuals from agriculture but, in my view, not crops. Fifth is to implement natural and technological carbon removal to compensate for remaining emissions.

In the United States, the Inflation Reduction Act combined with the Bipartisan Infrastructure Law and the CHIPS and Science Act create powerful incentives to make progress on each of these pillars. Here are just a few of the key provisions.

For pillar one, the IRA includes tax credits for residential energy efficiency upgrades and a greenhouse gas reduction fund targeting projects in disadvantaged communities. For pillar two, the IRA includes consumer tax credits for electric vehicles and heat pumps. For pillar three, the IRA includes a choice of production or investment tax credits for wind, solar and other new zero-carbon electricity sources as well as a production tax credit designed to keep as much existing nuclear power online as possible. For pillar four, the Bipartisan Infrastructure Law includes investments in hydrogen hubs, and the IRA includes a performance-based production tax credit for clean hydrogen and enhancements to the tax credit for carbon capture and sequestration. Finally, for pillar five, the Bipartisan Infrastructure Law includes investments in direct air capture hubs, and the IRA includes enhancements to the tax credit for direct air capture.

The IRA is designed to promote a just transition by requiring prevailing wages for most projects to be eligible for the full tax credit and through provisions designed to promote a manufacturing renaissance in North America on clean energy technologies.

Early indications are that these policies are having a tremendous impact. As Mr. McGowan said, it's a tremendous success. Research by the Rhodium Group and MIT found that over $200 billion of investment occurred in the last 12 months, an increase of 165% over the level of investment just five years ago. While it has been widely reported that the IRA will invest $369 billion in federal resources over 10 years, that was a preliminary estimate that assumed little acceleration of the clean energy transition. A more recent estimate by Goldman Sachs suggests that the IRA will invest over $1 trillion of federal resources and that most of those investments will be matched by at least two dollars in private investment for each dollar of federal investment, for a total of over $3 trillion.

Nonetheless additional policies will still be needed for the U.S. to meet its climate goals. A study released by Princeton University this summer found that current policies in the U.S., including those of the IRA, will likely reduce emissions to about four billion tonnes in 2030, or to about 40% below their peak levels in 2005. While that represents tremendous progress, it still leaves an emissions gap of about 800 million tonnes that will need to be closed with additional policies, such as regulations to cut carbon emissions from power plants, motor vehicles and large industrial facilities.

Supply chain bottlenecks and siting and permitting challenges will also have to be overcome to deploy clean energy technologies at the speed and scale needed to meet the U.S. emissions reduction targets.

Overall recent legislation in the United States has initiated a race to the top in clean energy technology. This is a race we all win if everyone joins in.

Thank you very much.

● (1700)

The Chair: Thank you.

Colleagues, we're going to suspend briefly so we can do the sound check with Zsombor Burany from BioSphere Recovery Technologies. As soon as that's done, we'll resume, hear that opening statement and get into our rounds of questions and answers.

We're suspended.

● (1700)

_____(Pause)_____

● (1700)

The Chair: Okay, Mr. Burany, you've seen how it goes. I'll turn the floor over to you. You'll have five minutes. Then we'll get into our questions and answers.

The floor is yours.

Mr. Zsombor Burany (Chief Executive Officer, BioSphere Recovery Technologies Inc.): Thank you very much. I'm encouraged by what I hear so far in the panel.

Honourable members, my name is Zsombor Burany, and I am coming to you as a patriotic Canadian who has been forced to accept funding from sources based in the U.S. and Europe for several very large projects. I want to talk a little about these projects. This addresses the root cause of what I think everybody here is facing.

These projects are all tied into energy natural resources and the reduction or the removal of carbon and other toxic pollutants. Each is in the range of $2 billion plus. Although they were all 100% Canadian in origin, over the past two years they have become or are in the process of becoming 100% foreign-owned.

The first one is a toxic waste processing enterprise that recycles mining tailings and purifies toxic water. It's a corporation called GROW Holdings. The second is a very large-scale battery recycling facility—lithium and a bunch of other rare earth elements. The third one is an enormous biomass capture enterprise that will be removing hundreds of millions of tonnes of carbon and microplastics from the environment.

These were all emerging Canadian resource and energy-based companies that have been unable to gather domestic support to scale their operations. Here is just a little bit about each one.

The toxic waste business developed cutting-edge waste treatment and cost-effective metals recovery and recycling technologies for the mining industry. Our researchers, led by Dr. Mishra, who is a leading materials expert, in partnership with Worcester Polytechnic Institute, Leuven university in Brussels and the University of Alberta, have over the past 15 years developed four unique patents that process toxic tailings and polluted water into usable materials and drinking water.

Why is this important? Because GROW is the only company on the planet today that can turn the toxic water produced at the tar sands at scale into potable water. In fact, the process allows the water to be perpetually reused instead of having fresh water always flowing in and spent water flowing out into the waterways. It's a huge win for the environment and energy production.

Through a related patented process, GROW can also convert toxic red mud produced by aluminum mines into usable safe materials like pig iron. There are billions of tonnes of toxic red mud around the world that need to be treated. Toxic red mud just sits in settling ponds. We Canadians are the first to figure out how to safely process and eliminate all of those harsh chemicals, at a substantial profit. Unfortunately, growth funding was only available out of the U.S., so GROW is no longer Canadian. The technology was invented by Canadians. The proofs of concept, pilot projects, peer review and patents were all led by Canadians. I'm proud of the achievement and very saddened by the outcome.

The battery business is Li-Cycle. Please look them up. There is a wonderful two-minute video that explains the development that's taking place. It will be the largest battery recycling facility in the world and is under construction currently in Rochester. In fact, they have plans for three more identical facilities for the U.S. and Europe. Let's look at where the funding came from.

To fund their $2-billion project, Canada provided zero dollars. South Korea—and I don't even know why they're in this mix—provided $172 million U.S. The U.S. government directly put in $400 million, and then the U.S. bond market raised another $1.5 billion. The founders are Canadians and most live in the GTA. They are in the process of relocating to the U.S. and already have 300 employees there.

Finally, the biocarbon project is completely funded through Europe and U.S. The technology was developed in Canada and the founders are all Canadian, but all of the benefit will go to the U.S. and private investors—the same story as the previous two.

There is no shortage of good ideas and capable people in Canada. As a nation, we continue to generate brilliant, leading solutions, so finding the answers is rarely the problem. We just can't get the big dollars to build out the big ideas. We desperately need very large-scale loans at very low interest rates to build out these initiatives.

● (1705)

None of the examples I gave required that the founders invest millions of their own money or have huge investors coming in. They were looked after. They received a little bit of capital in the beginning and then very large funding at low or zero interest, with repayment holidays for five years. It would cost the government almost nothing to do this, and the benefits are enormous. Every one of the founders of these businesses I mentioned earlier would have loved to build their businesses in Canada and expand to foreign markets, but they have been literally forced to uproot their families and go to where the money is.

You want to—

The Chair: I'm sorry, but I'm going to jump in and ask you to conclude. We're at the end of the five minutes and a little bit over. If you could just take a couple of seconds to finish up, then we'll get into our rounds of questions.

Thank you.

Mr. Zsombor Burany: Yes. Thank you.

I'm at the end. All I'm saying is that we need these investments to be able to let the businesses grow. It's a non-partisan benefit to everybody.

Thank you.

The Chair: Great. Thank you.

Before we get started, I just want to welcome Mr. May and Mr. Gaheer to our committee today.

For our rounds of questions, first up I have Mr. Patzer, who will have six minutes on the clock.

Mr. Patzer, it's over to you.

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

Thanks to all of our witnesses for being here today.

Mr. Mousseau, I just want to ask you quickly.... You were talking about how the grid capacity would have to increase. I'm wondering if you have a number for the committee of by how much our grid capacity would have to increase in order to electrify the grid.

[*Translation*]

Mr. Normand Mousseau: In the evaluation, we did some modelling. Canada needs to produce twice as much electricity. We also have to strengthen the transmission and distribution network because, if we want to electrify home heating and cars, we need more powerful networks that are closer to customers, not just in terms of production.

[*English*]

Mr. Jeremy Patzer: Okay.

We know that the federal government is moving towards a net-zero electricity grid by 2035, which gives us only less than 12 years. Do you think it's possible to accomplish that in as short a period of time as 12 years?

[*Translation*]

Mr. Normand Mousseau: Yes, it is possible, but we have to make the investments now and plan things properly.

The Institut de l'énergie Trottier conducted a study last year in eastern Canada, from Newfoundland to Ontario. None of the utility companies have the investment plans to meet those targets. They can't even meet the anticipated demand on the ground from Canadians who want to go electric and contribute to Canada's decarbonization.

[*English*]

Mr. Jeremy Patzer: Okay.

I've seen some research and some studies done that would indicate that we need another 119 Site C hydro dams like the one that's being built in B.C. in order to double our grid capacity or else a large number of CANDU nuclear reactors. Part of the reason I'm asking this is that, if we look at our regulatory timelines to get projects approved and then built, it seems like that 12-year window might be a little bit narrow here. Would you agree?

● (1710)

Prof. Normand Mousseau: One of things is that we know where we are going. We just haven't made the investment. It will be tight, and maybe it will not be reached exactly, but if we don't have this regulation, it will not happen. If you go abroad—if you look in the U.K. and if you look in the U.S.—the massive calls that are being made today to upgrade the production are way above what we are talking about in Canada. Canada is just lagging. The U.K. had a 15-gigawatt call for a project a few weeks ago. It did not meet everything because the prices have been going up on offshore wind, but it is making the call, the bid for tender, and it is moving ahead. The U.S. is doing the same thing.

Canada, by just closing its eyes and saying it will not happen, is losing opportunities.

Mr. Jeremy Patzer: I saw the other day that Ørsted, which is one of the global leaders in offshore wind, said that U.S. projects no longer make financial sense. I'm just curious. We're seeing some of the big players saying that there are problems with trying to do that. Even if we look at the onshore side, we see that there have been wind farms in Saskatchewan and Alberta for so long that they're now decommissioning them and taking them down because they've already exceeded their lifetimes. I mean, we've already been investing in renewables out in the Prairies here.

When I look at the demand that's going to be needed to double the grid, I just don't see the timeline as being able to be met. Are you concerned that more big players in the wind industry, for example, are going to...? Are you concerned that they're going to back out if they look at the rising costs?

Prof. Normand Mousseau: What's happened in the U.S. is that prices were going down for many years, and now everybody is calling and trying to build. There's a lot of demand, and it's hard to respond to the demand due to the supply chain. Clearly, the longer we wait, the more we are the tail of this supply chain and the more we will pay, unless we have a clear strategy, and that's what I'm talking about here. We need a real strategy in Canada to make sure we can provide this transformation.

Let me tell you that in Quebec today, Hydro-Québec is obliged to say no to consumers who want to decarbonize because it doesn't have the capacity. We're dreaming if we say, “Well, it will not happen.” People on the ground—the citizens, the industry—want to decarbonize, and they're knocking at the doors of utilities who all say, “We have not made the plans to invest.”

The problem will be the pressure from the bottom, under politicians, under governments, who will say, “We have not planned. Where were you?” The issue is that if we don't move, there will be problems coming up from the citizens, and we already see those on the ground. We're not dreaming or making up something that is being pushed by a few academics here.

Mr. Jeremy Patzer: Thank you for that.

Mr. Lashof, you made a quick comment about being interested in residuals but not in crops. I'm just wondering. Is that residuals from biofuels, or are you just saying that we shouldn't be getting biofuels from crops—period? I'm just looking for some clarity on that comment.

Dr. Daniel Lashof: Yes. Thank you for the question.

I think there are large resources that are left over when crops are used for food—things like corn stover and wheat straw—that should be looked at as feedstock for biofuels, but there's a finite amount of land in the world and we really need farmers to, first and foremost, feed people. As we're approaching 10 billion people, I think we'll need all of our prime crops for people, and we should look to other biomass resources, including forestry waste such as from forest fuel-reduction programs. That's another source we should be looking to.

The Chair: Thank you.

The six minutes goes quickly.

We're going to go now to Madame Lapointe.

Madame Lapointe, you have six minutes.

Ms. Viviane Lapointe (Sudbury, Lib.): Thank you, Chair.

My questions are for Mr. McGowan.

Mr. McGowan, welcome back to the natural resources committee. I'm from Sudbury, and as a mining town, we see the energy transformation as an opportunity for Canada and for workers, but I recognize that, depending on the geographical location of an industry, this transformation can be seen as negative.

In April 2022, you appeared before this committee as a witness during our study on creating a fair and equitable Canadian energy transformation. At that time you said:

> It's clear to us in the Alberta labour movement that the oil and gas sector in our province will never be the engine for job creation that it once was, and it's irresponsible for our leaders to wave their hands and suggest that we can go back to the way things were.... This is a structural transformation, so instead of talking about maintaining the status quo, we should be planning for a future that's going to look very different from our past.

My question to you today is this: In terms of America's Inflation Reduction Act, what do you think is needed from the federal government to plan for this future for our workers while being competitive with the IRA?

● (1715)

Mr. Gil McGowan: Thanks very much for the question.

As I said in my opening remarks today, I think what the IRA does for us is provide a model that can be followed and should be followed. The good news is that the federal government, as I've said, has received the memo. They've looked across the border and they see how well the IRA is working in terms of attracting and incenting investment, creating jobs and building industries.

There's a model there for us to follow. As I said in my opening remarks, and as our labour coalition has talked about in our reports, on getting to where the puck is, the answer is actually industrial policy in the public interest—the same kind of industrial policy that helped build our oil sands and petrochemical industries when Peter Lougheed and his PC government in the 1970s and 1980s realized that we were running out of conventional oil. He didn't wait for the market to decide. He didn't put his finger up to the wind to see which way the wind was blowing. He saw a crisis looming on the horizon, and he decided to use the levers of power to address it.

The answer is industrial policy. The best example is right across the border with the IRA. It's working. Doing nothing, frankly, is a dangerous option. As I said in my opening remarks, denial is not a plan. Delay will just put off all the investments that are necessary, and we may get left behind. That's our biggest fear.

I think the federal government has taken the necessary initial steps with the $80 billion they've earmarked in the budget. There's a framework for consultation and worker involvement in the sustainable jobs act, which is before Parliament right now. We are moving in the right direction, but because of our federal structure, what we're worried about is that the provinces may get in the way.

That's what we're seeing in Alberta. Just last month, our provincial government and our premier, Danielle Smith, introduced a surprise moratorium on renewable energy investment. It's that kind of thing that's going to trip us up. We're already losing jobs in oil and gas and have been for years. Even though production has been going up and investment is going up, employment is going down because companies are automating. They're automating our jobs away.

Our future lies in an IRA-style pivot towards a lower-carbon economy. That's where the jobs will be for all Canadian jurisdictions, including Alberta. That's where we need to go.

Ms. Viviane Lapointe: The Inflation Reduction Act focuses on energy as a national security issue. I think it's not only prudent but imperative for Canada to do the same. How can we use this time of transition to make sure that we have the labour and the infrastructure available to do this, and how do you envision a pan-Canadian plan for this shift in work?

Mr. Gil McGowan: That's one of the reasons we, in our labour coalition, put together an Alberta blueprint, because given our federal structure, this will work only if the provinces get on board. I'm worried that this isn't happening, especially in the provinces where the heaviest lifting will have to be done. Those are the oil- and gas-producing provinces, like my home province of Alberta. We have 12% of the population. We produce 40% of the emissions. Oil and gas, which is the industry that will be most affected by this transition, is the biggest industry in the province.

As a country, we're not going to reach our goals, we're not going to be able to pivot and we may fall behind if we don't get our act together in places like Alberta. It's not going to happen unless our provincial governments get on board. Unfortunately, that's what I'm really worried about. I mentioned the moratorium that our provincial government placed on renewable energy investment, which shocked everyone and is counter to the best interests of our province and our economy. They've also refused to engage in the creation of a regional table with the federal government to talk about how to spend this money that the federal government earmarked in the last federal budget.

That's what we need. As a representative of hundreds of thousands of workers in Alberta, I'm actually despairing, because I think we're going to miss opportunities if we don't—I think one of the other guests said it—put politics aside. This should be a non-partisan issue. If we don't do that, we're going to miss opportunities—

● (1720)

The Chair: We're at the end of the time.

Mr. Gil McGowan: This is a political issue that needs to be addressed.

The Chair: That's the end of the six minutes.

I have a point of order from Ms. Dabrusin.

Ms. Julie Dabrusin (Toronto—Danforth, Lib.): We all hear things that we might not like or fully agree with in this room, but we have an obligation to respect the witnesses. That is part of our job here as parliamentarians. Heckling, even if they can't fully hear us because they're on Zoom, is disrespectful, and I would ask that we maintain decorum in this room.

The Chair: I have Mr. Angus on a point of order.

Mr. Charlie Angus (Timmins—James Bay, NDP): We ask our witnesses here, whether we agree with them or not. Mr. McGowan represents thousands of workers who are on the front lines. To have him heckled through the entire process.... It was hard to hear because the Conservatives were ridiculing him. I think that's not acceptable.

We need to show respect, whether we agree with the positions or not.

The Chair: Yes. I would ask everybody to listen respectfully as we engage in the conversations. Everybody has their chance.

We have a point of order from Mr. Dreeshen.

Mr. Earl Dreeshen (Red Deer—Mountain View, CPC): Thank you, Mr. Chair.

This is a point for the witnesses. Once you have your red card up, because you had it up for about a minute while the witness continued.... I think everyone should be aware of that as well.

The Chair: Like I said, I ask people to wind it up. I keep track of the time because everybody goes over. I cut it off at six minutes and 20 seconds, not a minute after. That's when I jumped in.

With that, Mr. Simard, we're going to jump to you. You have six minutes on the clock.

[*Translation*]

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

Mr. Mousseau, if I try to summarize the answer you gave my colleague earlier, the best energy strategy to achieve net zero would be electrification. That would be the key.

Mr. Normand Mousseau: Yes. Electrification is the key because electricity is much more productive. An electric car will use three times less energy than a gas-powered car. An electric heat pump will use two, three or four times less energy than a natural gas heating system. There are other elements, as well, but that is indeed the key element.

Mr. Mario Simard: Earlier, in your presentation, you said that structuring approaches had to be developed and pilot projects stopped. So how do we get to the deployment of electrical power? Do you think there is currently a strategy in Canada or even in Quebec that is leading us in that direction?

Mr. Normand Mousseau: There is a strategy. The federal government has tabled the Clean Electricity Regulations. Money is being spent to increase production, but not at the scale of what is needed to meet the needs associated with processing. Even in terms of just meeting the 2030 or 2035 targets for the number of electric vehicles, investment plans to upgrade grids and upgrade production are largely lacking across Canada.

Mr. Mario Simard: If you had to make a list of priorities in the short, medium and long term, what should the federal government do in terms of electrification?

Mr. Normand Mousseau: The federal government is limited, as this falls under a provincial mandate. However, the federal government could take action by encouraging innovation to be more productive in the deployment of infrastructure, such as the transmission and distribution infrastructure. It could certainly also support the construction of new generation plants in the country.

● (1725)

Mr. Mario Simard: Correct me if I'm wrong, but I think I've already heard you say that we need to target greenhouse gas reductions before thinking about carbon capture and storage strategies. Is that right?

Mr. Normand Mousseau: You are correct because, even once everything has been decarbonized, there are a number of sectors that we do not know how to decarbonize today. So a lot of CO2 capture and storage will have to be done, and we're talking about hundreds of millions of tonnes a year. So if we choose not to decarbonize this or that by saying that we will rather capture everything, we won't be able to do so. So we absolutely have to focus on electrification and get as much carbon out of the economy as possible. Whatever is left will have to be captured, but it has to be reduced or we won't be able, technically, to build what we need to capture everything.

Mr. Mario Simard: Do you think that current federal policies using carbon capture strategies, particularly those involving hydrogen, are efficient?

I am asking the question because I personally feel that far too many resources are being invested in hydrogen projects, among other things. I know the minister doesn't want to talk about colours, but aren't blue hydrogen projects, for example, too high of a technological risk?

Mr. Normand Mousseau: At the moment, those aren't being done.

I'm also co-founder of the Transition Accelerator, which operates in western Canada. A hydrogen study centre is being piloted in Edmonton. In our view, we certainly need to test the technology and move forward with sufficient scale to see results. Today, we can't afford to reject potential solutions. Of course, as we move forward, we'll see what does and doesn't make sense. However, in the context of the west, relying on blue hydrogen is certainly defensible.

Mr. Mario Simard: When you say that we need to double electricity generation, it means that hydrogen could be one option among others.

Mr. Normand Mousseau: It is an option for electricity, but not for heavy transportation. One example is backup heating. However, it is not yet clear. If we don't test at scale, we won't be able to have a real vision of the role of blue hydrogen in Canada.

Mr. Mario Simard: What can be used to double the generation of electricity?

Quebec is unique with its hydroelectricity. However, in the rest of Canada, what would be the best sources to double electricity production? Is it wind? Is it the return of nuclear?

Mr. Normand Mousseau: If you look at the cost modelling, the cheapest options are wind energy, solar energy and electricity storage. For a real and safe context, however, nuclear power will probably have to be used to guarantee a base.

Mr. Mario Simard: If we try to give a timeline, what does that look like?

Mr. Normand Mousseau: It should have started yesterday. Canada is already lagging behind other countries.

The advantage is that there is a lot of decarbonized electricity in eastern Canada. However, more decarbonization needs to be done. We also need to increase electricity production. To do that, we need a true integrated vision. If each province does it independently, it will cost a lot more than if we also rely on interconnection networks. These are decisions that each province will have to make. At the end of the day, we have to move forward and increase electricity production.

Mr. Mario Simard: You're saying it should have started yesterday. So you feel that Canada is lagging significantly behind other countries.

Mr. Normand Mousseau: That is the case when it comes to planning.

Mr. Mario Simard: That is also the case in modelling.

Mr. Normand Mousseau: Modelling is another matter.

Mr. Mario Simard: I think my time is up.

[*English*]

The Chair: That's the end of the six minutes. Thank you.

We're going to go now to Mr. Angus, who will have six minutes for his round of questions.

Mr. Charlie Angus: Thank you, Chair.

Thanks to all of our witnesses for your expertise.

I'm going to start with Mr. McGowan.

The Alberta Federation of Labour and the energy workers you represent were really out front on this issue and really pushed the Liberal government on the issue of getting tax credits and a program like the IRA. I think it was widely expected that Alberta would be first out of the gate given the huge potential, level of expertise, opportunity and entrepreneurial spirit.

I'd like to get a sense of what it's meant since the Danielle Smith government decided to put a spike in clean energy investments. We've been told that upwards of $35 billion in projects are now on hold or pulling out. Could you tell us what the decision by the Conservatives in Alberta to attack clean energy has meant for energy workers in Alberta?

● (1730)

Mr. Gil McGowan: The UCP government's announcement of the moratorium on renewable energy development was, frankly, devastating and demoralizing for the workers we represent in Alberta and, frankly, for the majority of Albertans. It came out of the blue. We weren't expecting it, and it's exactly the opposite of what we need.

You know, I sent a letter on behalf of our 175,000 members shortly after the announcement, and I said that with this moratorium she and her government were undermining a thriving industry in the renewable sector and that they were killing current jobs and jeopardizing future jobs. Frankly, I argued that they were turning Alberta into an investment pariah.

As we've heard from other witnesses today and as we know from media coverage over the past six months or so, it's not just the Americans with the IRA. Basically every country in the world has looked at the devastation that climate change has wrought this summer—floods, fires, extreme weather—and citizens are demanding that their governments take action, so this is not an option for Alberta or for the country.

The energy transition is happening whether we like it or not. We can't choose to turn it off or turn it on. What we can choose, however, is how we respond to it. As many of the witnesses have argued today, the best way to respond to it is by embracing IRA-style government-led industrial policy in the public interest to pivot our economies toward a lower-carbon future. That might seem scary, but it's inevitable. We don't have the choice to go backwards, but it also presents all sorts of opportunities. Those are exactly the opportunities that are being crushed or at least postponed by the UCP's decision to put a moratorium on renewable energy development.

It's supposed to be a seven-month moratorium, but what we're afraid of and what I think many Albertans are afraid of is that it will make us an investment pariah even after they lift the moratorium, because it's already sent the message, and the message is that renewable energy investment is not wanted in this province, which is devastating in terms of investment, job creation and the future of our economy.

Mr. Charlie Angus: Thank you for that.

I certainly talk to a lot of people in critical minerals who are pumped. They're ready to move investment stateside on a dime because of the opportunities. Calgary Economic Development—hardly a left-wing think tank, but they could get heckled at our committee—said that 170,000 jobs would be created in Alberta alone by these investments in clean energy. We've been told that there's a fear these jobs and opportunities are going stateside because of the clear investments that are offered through the IRA. Are you concerned that we're going to lose those jobs from Alberta energy workers stateside as a result of the UCP's ideological attack on clean tech?

Mr. Gil McGowan: Yes. That giant sucking sound you hear is billions in investment and thousands of jobs migrating from Alberta down to the United States because of this moratorium. It's not a question of if we're going to lose investment and jobs. It's a question of when and how much. The Americans under the Biden administration have put in place a framework that is incenting literally trillions of dollars of investment, and if we do nothing, we're just going to lose all the investment and the jobs.

Mr. Charlie Angus: Thank you.

I have to interrupt you here because I'm running out of time.

I think what's a real concern is that Danielle Smith claims that the transition is decades away. I would like to get your sense of that, because we know Suncor just laid off 1,500 workers. Rich Kruger has said he's going to target workers in his effort to build up profits, and we've seen a 50,000-job loss in the oil sector in Alberta in the last 10 years. Is the transition decades away or is it happening now, and do we have to adapt to it for Alberta energy workers?

Mr. Gil McGowan: We represent workers on the front line, and they tell us every day that the transition is already happening. We hear it in the stories from our members, but we also see it in the labour force numbers. At the peak in Alberta, we used to have about 180,000 people working directly in oil and gas. We're down to about 140,000 now. Because companies like Suncor are producing more with fewer people as a result of automation, that number is going to continue to decline. The transition is upon us, so that's the question that I will pose on behalf of the Alberta workers we represent—

● (1735)

The Chair: Okay. I'm going to have to jump in.

Mr. Gil McGowan: —to all members of this committee: Where will the jobs and future prosperity come from in this global energy transition if we don't embrace an IRA-style industrial policy to pivot our economy?

Thank you.

The Chair: Thank you. We're out of time on this one.

We're now going to go to Mr. Dreeshen, who will be the first up. He'll have five minutes.

I'd just like to say we have lots of witnesses we haven't heard from yet. It is very much up to the members to direct the line of conversation, but if you have something you'd like to weigh in on, feel free to use the "raise hand" function. It will be up to the members to choose if they get to you or not. These next couple of rounds go even more quickly than the first one, but we want to make sure that everybody has a chance to chime in.

I know, Mr. Saik, you have to leave at six.

If any of the members don't get to any of you who are part of the panel today, and you have thoughts based on the conversation, we invite written submissions of up to 10 pages. That can be sent to our clerk, who has been in contact with all of you. That's another way of providing input based on the conversation if you can't weigh in today.

With that, Mr. Dreeshen, it's over to you for five minutes.

Mr. Earl Dreeshen: Thank you very much.

I'll start with Mr. Saik. I know that you have extensive experience in the development of technology, and you've consulted with many stakeholders for many years.

I wonder if you could characterize the current competitive environment in Canada compared with some of the other places in the world that you have focused on.

Mr. Robert Saik: First of all, there are a number of pieces the other witnesses have mentioned that I'd like to just touch on.

First of all, I have two public exits under my belt. They're both Canadian companies—both brilliant companies bought by U.S. companies. We have all sorts of innovation in the Canadian agriculture and agtech sector. I would echo Mr. Burany that there is this big gap right now between conception and basically proving an idea and scaling it, and we can't seem to get that kind of traction in Canada.

Point number two is that we, in agriculture, need phosphorous. Phosphate is critically important for the production of crops in agriculture. We should be supporting that initiative that he's working on, because it's vitally important to the security of Canada, if not North America. It would ensure lasting supplies of phosphorous, which is a critical ingredient in both agriculture and the industry in the electrification sector.

Now, on the agricultural side, the colleague from the United States said that we should just use crop residues. I agree with that. However, it comes with a caveat. That caveat is that 1% of organic matter equals 20 metric tons of carbon dioxide. The only way to increase sequestration of carbon dioxide in soils is through reduced tillage and the decomposition of the residue from crops into the soil organic manner. There are some places where you can burn biomass from crops, but it is not a large-scale solution.

The final thing I wanted to touch on is technology. There's all sorts of talk about agriculture getting a black eye and about agriculture being a problem. Agriculture is one of the few industries that can actually remove carbon dioxide through sequestration in soils, but we also have several mechanisms to reduce greenhouse gases from agriculture, including nitrification inhibitors to reduce the amount of nitrous oxide from fertilizer. These are technologies such as sectional control or variable rate technology that allow us to put fertilizer on more precisely.

You have to remember that many of the policies that are going on in Canada right now are punitive to Canadian farmers. Canadian farmers pay a carbon tax on the machinery they buy to grow the crops. They pay a carbon tax on the fuel necessary to put the crops in the ground, spray the crops and harvest the crops. They pay a carbon tax on the crop inputs and the fertilizer that are used. They pay a carbon tax on grain drying, because you guys can't agree on passing that legislation. They pay a carbon tax on hauling the grain to the elevator, and then all of the processors pay a carbon tax all the way through. This is something that our friends across the line in the United States have none of, so Canadian farmers in agriculture are differentially disadvantaged.

● (1740)

Mr. Earl Dreeshen: Thank you very much.

Of course, the U.S. does not have a carbon tax. They also didn't have the problems with the fires and so on, because it's been one of the mildest fire seasons there.

Getting back to the finite amount of land in the world, putting windmills and solar farms onto land that should be producing for farmers, I think, is an issue.

I'm not sure about my time, but I know that you, Mr. Burany, talked about the three companies that you had. I was at the environment committee when you spoke last and you said they had bought one. The U.S. now owns it. Where does some of that money come from?

Mr. Zsombor Burany: The first company you're talking about is my telecommunications company. That's telMAX. TelMAX has been the fastest high speed in Canada for the last two years. I raised the money from a Nova Infrastructure fund and from the Robinson family in the U.S. Nova Infrastructure is a $13-billion company, and it got its money from the Canada pension plan.

Ridiculously, when I approached the Canada pension plan and the other pensions, they wouldn't fund telMAX, but they would definitely give the money to a firm in the U.S. that would now buy telMAX and now owns 85% of the telcos.

Mr. Earl Dreeshen: Thank you. I appreciate that. It's one of those oddities that we certainly have.

I have just one last point. We talk about the moratorium. Part of the reason for that, of course, is that we need to have a plan for all of this land that is being used for windmills and for solar. That is the reason this discussion has taken place. If you go to the Alberta Utilities Commission, you'll realize that there is still a continuation. It's not the type of thing that we've been hearing from both the Liberals and the NDP.

Thank you.

The Chair: We're half a minute over, so I'll stop us there. Thank you.

We're going to go next to Mr. Sorbara, who will have five minutes on the clock.

Mr. Francesco Sorbara (Vaughan—Woodbridge, Lib.): Thank you, Mr. Chair.

Thank you to the witnesses here today. The testimony has been very insightful.

I want to go to the gentleman from the World Resources Institute, Dr. Daniel Lashof.

The United States' IRA, CHIPS Act and infrastructure act.... I like to think that the IRA was a catch-up from our biggest trading partner and closest ally in terms of coming to the clean energy table and in terms of decarbonization. For many years, we here in Canada have put forward policies in terms of decarbonizing our economy, growing our economy and growing new sectors.

You spoke about the five pillars of transformation. I found it quite insightful. I just want to get your take. What is the update on how the IRA is decarbonizing the U.S. economy along with the other bills? If you could just keep it to 30 seconds, that would be great because I do have a couple of follow-up questions.

Dr. Daniel Lashof: Sure. Thank you.

I think it's incredibly successful so far. It's only a year in, but as I said, it's over $200 billion of investment in a 12-month period from July 2022 to July 2023, so we're seeing a rapid acceleration. There are some hiccups. Wind has been mentioned. There has been a slowdown in wind. I think that's mostly due to higher interest rates, and I believe that will be temporary. However, in the meantime, we've seen record installations of solar, which is now the cheapest source of energy anywhere in the United States and in most places in the world.

Mr. Francesco Sorbara: My second question is on, I believe, the fifth pillar of the transformation, where you spoke about the natural and technological ability to remove carbon from the remaining greenhouse gas emissions. I take it that you would think that CCUS or carbon-capture sequestration would be one of those strategies?

Dr. Daniel Lashof: In pillar five, I'm really talking about carbon removal, so that would involve carbon sequestration underground after carbon that's already in the atmosphere is removed, for example, through direct air capture.

I do want to emphasize that I agree that this should be a secondary strategy, that at least 80% to 90% of the effort to decarbonize needs to be emissions reductions from sources. In fact, California has passed a law requiring that 85% of the reductions come from emissions reductions from sources, using carbon removal only for the remaining 15%.

● (1745)

Mr. Francesco Sorbara: In your view, what is the role of natural gas in this transition?

Dr. Daniel Lashof: Natural gas is a fossil fuel. It has both carbon dioxide emissions and very significant leakage of methane. We need to phase it out as quickly as possible, along with other fossil fuels. It will play a role in balancing the electricity grid over the next decade or so because it is flexible, but we will need to replace natural gas with other clean firm generation sources that can serve that purpose in order to achieve 100% clean electricity by 2035.

Mr. Francesco Sorbara: Thank you, sir.

I am going to move to the Alberta Federation of Labour.

Mr. McGowan, thank you for your testimony, and also thank you for your work in everything from pension reform to minimum wage and improving the benefits and the labour code with regard to employment standards, all stuff that I know Canadians across the board and, of course, here in Alberta are quite proud of.

The role of renewable power in Alberta has been discussed considerably. Alberta is blessed with a lot of sun and a lot of flat land, if I can use that term, to put in renewable power. Just how disappointing was it to see the pause, if it was an actual pause, on the renewable power contracts and projects that were going to occur?

Mr. Gil McGowan: It was devastating. I think the moratorium has to be put in context. Alberta was leading the country in terms of attracting investment in the renewable sector. In fact, there was no other province that was keeping up with us on a proportionate basis. We were attracting more investment. We were creating more jobs and more new generation from renewables. That's all been put in question.

Our politicians talk about an Alberta advantage. We had an advantage and we're giving it away.

Mr. Francesco Sorbara: Thank you, Mr. McGowan.

There has been a lot done in Alberta. TransAlta and a number of the companies there have removed coal production and decarbonized, so there is some great work being done in the province of Alberta.

The Chair: We're at the end of the five minutes now.

We have next up Mr. Simard, who will have two and a half minutes on the clock.

[*Translation*]

Mr. Mario Simard: Thank you, Mr. Chair.

Raphaël Gaudreault, from Arianne Phosphate, we've spoken before. I am not lying if I say that the phosphate found in the deposits in Saguenay is special because it has purity that is not found elsewhere, which makes it possible to avoid an operation to clean it up and perhaps use it in batteries, among other things.

I understand that, for a phosphate project to get off the ground and become part of the battery sector, phosphate would first have to be on the list of critical minerals. Is that correct?

Mr. Raphaël Gaudreault: Yes, that's correct. What this inclusion on the critical minerals list represents is access to research and development grant programs and support for infrastructure development programs to support the development of the mining project. It could also speed up the approval process for certain components of the project. In addition, it would be undeniable proof that the government recognizes the strategic importance of the mineral in question, which can be very important in attracting investors.

A number of other witnesses have talked about the ability to produce energy. The lithium-iron-phosphate battery is ideally suited to store the energy produced by wind farms and solar panels to meet energy needs during off-peak periods, as it is able to support multiple charge-discharge cycles while generating very little residual heat. So it is important for Canada to position itself and to be able to produce these batteries.

Mr. Mario Simard: Since I don't have much time left, I just want to emphasize another point. Right now, since phosphate is not on the critical minerals list, you do not have access to the critical minerals research, development and demonstration program, which means that you are being slowed down even more. That's my understanding.

● (1750)

Mr. Raphaël Gaudreault: That is indeed the case.

Mr. Mario Simard: I finished right on time.

[*English*]

The Chair: That's perfect. Thank you.

We'll now go to Mr. Angus, who also will have two and a half minutes for his round of questions.

Mr. Charlie Angus: Thank you very much.

Thank you, Mr. Lashof, for joining us. I heard you speak at the NATO conference recently in Washington, and I was really interested in having your expertise.

My office has paid very close attention to the proposal for the IRA, the haggling that went on and the negotiations. Something I've always found in my many years of public service—I had dark hair when I first came here—is that when you bring forth legislation it's like pushing a mountain. If the mountain moves two inches or a foot, you think you've exceeded all expectations, yet within 12 months of the IRA the numbers we're seeing are staggering. You mentioned something over $200 billion in private sector investment. We've talked a bit about offshore wind, but the offshore wind projects that are already up in Martha's Vineyard and Rhode Island will be powering 600,000-plus homes.

How important do you think the IRA is in terms of driving a new economy, creating new jobs and addressing the climate catastrophe that is unfolding all around us as we speak?

Dr. Daniel Lashof: Thank you for the invitation.

It's absolutely essential. I think we were playing catch-up. We were behind, and I think we've leapfrogged a bit. We're hoping that everyone else will join the race to the top.

As you say, it didn't achieve everything we wanted. There were some important provisions, such as a clean electricity standard, that were dropped in the legislative process. That happens, but nonetheless, it is transformative and it is really fantastic that the U.S. now has a solid climate policy in place.

I also had much less grey hair when I started working on climate policy.

Mr. Charlie Angus: Thank you.

Just quickly, last week the International Energy Agency stated that the end of the era of fossil fuels is imminent. Part of that was due to the IRA and the other part was from huge investments in Europe.

Have you read the IEA report on the need to transition quickly, because, otherwise, there are going to be huge climate and financial risks to those who stick with traditional oil and gas?

Dr. Daniel Lashof: Yes, I'm familiar with that report. Also, the World Resources Institute has a systems change lab that's tracking 40 indicators of the transformation. None of them are going fast enough. Everything needs to accelerate.

The Chair: That's great. Thank you.

We'll now move to Mr. Falk, who will have five minutes for his questions.

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

Thank you to all of our witnesses today. Your comments have all been interesting. I'd like to ask all of you lots of questions.

I will start with Mr. Saik.

In your presentation, you indicated that we have a significant need, in order to meet our climate aspirations, to increase crop yields, both for fuel stock but also from a food perspective. This NDP-Liberal government has placed a moratorium on fertilizer, which hampers the production of cropping. How can we increase our yields in that scenario?

Mr. Robert Saik: There's not an absolute moratorium. It's more like an altruistic goal to reduce nitrous oxide emissions by 30%, which we can achieve in a variety of ways. However, it is short-sighted to think that you can implement policies that handcuff farmers' ability to grow crops while at the same time asking farmers to grow crops, contribute to greenhouse gas emission reduction and help reduce climate change. Just in context, 50% of the protein in every man, woman and child on planet Earth comes from nitrogen fertilizer.

Now, we need to improve the efficiency of nitrogen fertilizer. Farmers should be given credit to do so and, rather than with sticks, we should be encouraging them to adopt new technologies with carrots.

Mr. Ted Falk: I'll move my questions now to Mr. Gaudreault.

You indicated that you have a phosphate resource that you would like to develop. Recently, this government gave close to $20 billion to two automakers to invest in production plants here in Canada. One of the targets they're pursuing is the production of batteries for the electric vehicle market. You need critical minerals to do that, and you have access to a phosphate resource. In addition to that, you have something that Mr. Saik needs, which is fertilizer for his crops.

Can you tell me how Bill C-69 has impacted your ability to open that resource, to exploit it and to actually contribute to meeting some of the climate aspirations these governments have?

● (1755)

Mr. Raphaël Gaudreault: I'm not too familiar with the bill you're referring to.

What I can say is that producing the purified phosphoric acid that's required for the battery industry is going to produce, at the same time, the phosphoric acid that's required for the fertilizer. That's especially more so with the grade of phosphate we'll be producing at Lac à Paul. We have a concentrate that is of very high quality and will have a high yield of PPA production, but also of regular phosphoric acid. It will be there and available for the traditional fertilizer industry.

Mr. Ted Falk: I appreciate that answer.

My point is, again, that the government lays forward these objectives and aspirations, but then doesn't give you the tools to do it. You've already articulated how difficult it is to exploit that resource, to open up this mine and to get it into production. Even though it's one of the requirements, it's not on the critical minerals list like it should be. It's one of the requirements that these battery manufacturers are going to need in order to produce their products.

Thank you very much.

Mr. Mousseau, I'd also like to talk to you. You talked about electrification. Maybe you can help me understand. You said that there's a huge demand for electricity right now, and I think you're right. You talked about increasing and improving our electrical grid. We studied this in this committee several years ago: electricity interties, so that we're compatible across the country. We recognize that there need to be proper interchanges.

I'm curious. Why do utility companies go to the public utility boards, ask for rate increases and then provide incentives to users for using less product? Can you help me understand that?

[*Translation*]

Mr. Normand Mousseau: In principle, using less electricity during peak periods helps reduce investment to meet the current demand. That is often how electricity systems are managed: A reduction in consumption is requested, often at specific times.

[*English*]

Mr. Ted Falk: If the market's there, why wouldn't they just expand their production capabilities?

Prof. Normand Mousseau: It's because of the regulation. I mean, there's a pressure on regulations to—

Mr. Ted Falk: Thank you.

The Chair: That's five minutes.

Mr. Ted Falk: Yes. I was watching my clock, Mr. Chair.

The Chair: What's that? Are you keeping me honest?

Mr. Ted Falk: I always watch my clock very carefully.

The Chair: We'll jump now to Ms. Dabrusin, who will have five minutes on my clock—and hers, if she's keeping time on it as well.

Ms. Julie Dabrusin: Thank you.

My first question is for you, Dr. Lashof, because I saw you'd written an article about closing the U.S. emissions gap after the Inflation Reduction Act. I'm interested, because it talks about what the non-federal governments, the subnational governments, also need to be doing if we're going to be decarbonizing our economies and moving toward green economies.

Could you maybe elaborate a little bit on that? What's the role of, in your case, state governments, I would say, but in our case provincial governments?

Dr. Daniel Lashof: Thank you for that question and for reading my article.

This is an “all hands on deck” moment. While in the United States in previous administrations there was no leadership from the federal government so all of the action was at the state and local level, we now have the federal government leading, but it really needs to be in partnership with continued action in the states. States are the laboratory of innovation, and that means both technology and policy. We've seen, for example, that California has the authority to adopt vehicle regulations that will require 100% electric or zero-emission vehicles by 2035. Other states are similarly adopting that policy.

We don't yet have that at the federal level, but that action in California is really driving the electric vehicle industry forward. In addition to the incentives in the Inflation Reduction Act, that's one example.

● (1800)

Ms. Julie Dabrusin: I guess another question is that, when we're looking at, for example, what the U.S. is doing, the EU is also working toward decarbonizing their economy. When we're looking at that, if Canada as a country does not take action to have a net-zero economy, what impacts would you see for us as far as our trade relationships and our economy are concerned?

Dr. Daniel Lashof: I think countries that are taking action and are decarbonizing are increasingly looking at border tax adjustments, as they're called, tariffs that are designed to ensure that their industries are not put at a competitive disadvantage from countries that are not taking action. I would certainly hope that Canada and the United States would be together and taking action maybe jointly, if there are other countries outside of North America that aren't taking action. That would be my expectation.

I think we're seeing that innovation is being driven in places that have a strong policy to deploy technologies as well. That's one reason we see so many innovative start-up companies in the United States across the board, including in carbon removal technology, hydrogen production and a wide variety of technologies.

[*Translation*]

Ms. Julie Dabrusin: Mr. Mousseau, you also talked a bit about the provinces and what we should consider when it comes to the provinces concerning electricity. What do you think we should ensure on the provincial side to ensure that we have a robust electricity system?

Mr. Normand Mousseau: What we want is for the provinces to work together to facilitate investments. Let's take the example of eastern Canada. We could imagine developing the wind energy sector offshore, in a network that would integrate all the Atlantic provinces, including Quebec, to facilitate deployment and balancing.

The federal government could play a role by funding—for example, through a Crown corporation—links and interconnections among the provinces to facilitate these exchanges. The provinces do not really want to go in that direction and are not very open to exchanges. However, building infrastructure would allow us to fund it, and these interprovincial exchanges would help achieve good progress.

Ms. Julie Dabrusin: Do you see another role that the federal government could play to ensure, by working with the provinces, the existence of an electricity grid that works from province to province?

Mr. Normand Mousseau: If the federal government directly funded, through a Crown corporation, interprovincial links by saying that they would always be there, whether they were used or not, they would quickly be used.

Ms. Julie Dabrusin: Thank you.

[*English*]

The Chair: That's great. Thank you.

Colleagues, we're at the end of the second round. We're not going to have time to go through a full third round, but I could do an abbreviated two and a half per side, if you'd like to do that.

I have one decision point we need to do in camera and two quick information items, so I'm going to suggest we go right into a final round, but of only two and a half minutes each.

With that, we'll go right to Mr. Patzer, who will have two and a half minutes on the clock.

Mr. Jeremy Patzer: Thanks again.

Mr. Gaudreault, just quickly, what are the challenges your project faces with regulatory assessment and approval? How long has it taken to get the approval to do your project?

Mr. Raphaël Gaudreault: We started the exploration process around 2008, and the first studies were released around 2012. The full regulatory process was only completed in 2018, when the port facilities got their permits.

Mr. Jeremy Patzer: Okay. What is the potential for Canadian industry to take advantage of phosphate for domestic battery production?

Mr. Raphaël Gaudreault: Carmakers are trying to build plants. Those plants will need raw materials to make the batteries. We're located close to those plants, so I think we'd be a good player to feed the raw materials required to make those batteries.

● (1805)

Mr. Jeremy Patzer: Correct me if I'm wrong, but did you mention in your opening remarks that lithium is another element that's needed in order to make those batteries?

Mr. Raphaël Gaudreault: It is.

Mr. Jeremy Patzer: At present, in order to get the lithium required, where is that coming from? Is there any potential that you see to get that lithium from somewhere domestically, rather than internationally?

Mr. Raphaël Gaudreault: Yes. There are some lithium mines currently active in Quebec.

Mr. Jeremy Patzer: To scale it up to the rate that's needed, how long is that going to take to get this battery production? How long does it take to scale it to where it needs to be?

Mr. Raphaël Gaudreault: We're looking at, with our project, that once we get the financing, construction is going to be somewhere between 24 to 28 months. Then, of course, there's the ramp-up period, so we're talking a few years before the supply chain can catch up to the battery production.

Mr. Jeremy Patzer: That's good. Thanks.

The Chair: Thank you.

Next is Mr. May, who will have two and a half minutes on the clock.

Mr. Bryan May (Cambridge, Lib.): Thank you, Mr. Chair.

Mr. Chair, I believe there isn't a path to zero emissions without nuclear. We haven't really talked a lot today about nuclear. I was very excited to participate yesterday in Minister Wilkinson's announcement.

For those in the room or online who aren't aware, Canada has signed an agreement with Romania for CANDU technology. This is a $3-billion loan, and that's billion with a “b”. The agreement calls on the Romanian government to spend that money 100% with Canadian companies and, of course, they have to pay that loan back with interest.

This is a win-win for Canada.

I'm wondering, specifically, Mr. McGowan, if you, first, were aware of this and, second, could speak to the potential impact this might have on the supply chain for Canada. Do you agree that we need to have a much more robust conversation about nuclear in Canada?

Mr. Gil McGowan: Our coalition that produced our economic blueprint looked at all of the avenues for development that we thought would support our economy and create jobs.

We did look at nuclear. We brought in a bunch of experts to give us advice. We chose not to put it in our final report as a pathway for development, because we didn't think it could be deployed fast enough to address climate concerns. It would create a lot of jobs in construction—there's absolutely no doubt about that—and a lot of good jobs in ongoing operations. Obviously, we're not opposed to that, but this is a very long-term solution. We're talking decades, whereas renewable energy projects can be developed and deployed much more quickly. We already have—well, we had—a large and thriving renewable energy industry.

On balance, we thought that if we wanted to move quickly—which we'll have to do in terms of the climate emergency and our ability to keep up with the unfolding energy transition—supporting our existing oil and gas industry to pivot towards materials that support renewable energy and building out our electrical infrastructure.... Those things were all higher on our priority list.

I'd point out that the Alberta business community put out similar reports to the labour community and came to exactly the same conclusions.

The Chair: Now we're going to go to Monsieur Simard, who will have two and a half minutes.

[*Translation*]

Mr. Mario Simard: Mr. Mousseau, I want to talk to you about net-zero emissions.

I believe that you, unlike your colleague Mr. Pineault, are not a fan of thriftiness. I know that Canadians account for 20% of emissions. I think I heard you say that, if we want to be successful and reduce emissions by 2030, the best way to do it is to significantly reduce emissions from the oil and gas sector. Is that correct?

Mr. Normand Mousseau: The Institut de l'énergie Trottier published a study in 2021 titled “Canadian Energy Outlook 2021: Horizon 2060”. The study says that, in order to meet the 2030 targets, in a techno-economic optimization context and because of the timelines, our modelling showed that we would have to reduce emissions from the oil and gas sector by 60% to reach a total reduction of 40% or 45%, as we don't have a solution for transportation, for example.

● (1810)

Mr. Mario Simard: I don't know if I am associating ideas in a stupid and bad way, but a 60% reduction means, in a way, that we can no longer afford to have new oil and gas projects.

Mr. Normand Mousseau: We do not feel it is possible, from a structural point of view, to develop CO_2 capture or storage quickly enough to continue to maintain or increase oil and gas production in Canada.

Mr. Mario Simard: I don't want to appear to belabour the point, but I still want it to be clear, as a report will be prepared on this issue. If Canada wants to meet its targets by 2030, it will be difficult to do so with fairly frequent announcements of new oil and gas projects.

Mr. Normand Mousseau: That's what we're seeing in our models.

Mr. Mario Simard: If I'm not mistaken, in your modelling, you also identify other types of industries that should be decarbonized.

Mr. Normand Mousseau: Yes. We can talk about the cement sector, the aluminum sector or others, but the problem is that we don't have the technologies to decarbonize those sectors quickly. Oil and gas production is the only sector where emissions can be reduced by decarbonizing.

Mr. Mario Simard: Thank you.

[*English*]

The Chair: That's the end of those two and a half minutes.

Now we go to Mr. Angus for his final two and a half minutes.

Mr. Charlie Angus: I'm just going to ask two quick questions of Mr. McGowan.

First off, in order to make this succeed we need an all-of-government approach. The government's approach to now has been to set up regional round tables. One is in Alberta, with the UCP government and Danielle Smith, who has made public statements that she doesn't believe the transition is going to happen for decades.

The first question is this: How important is it to have energy workers and the communities that are being affected in the negotiations and at the table for regional decisions that are being made?

Second, we hear this talk about retraining, as though workers are being left high and dry. I've been to the IBEW training centre in Edmonton. I've been to the Building Trades centre. Is this an issue of retraining, or is it, in fact, that your workers are trained and ready to go and actually just need more investments so they can build on the skills they have?

Mr. Gil McGowan: To your first question, it's absolutely crucial to have workers at the table when we're building an IRA-style industrial policy. We have to make sure that workers have input and that they're at the front line.

I would also say it's really important to have their input for political reasons. In order for any of this to work, we have to have a political consensus that supports us. If workers aren't at the table, they're afraid they're going to be on the menu. If they're at the table, they're going to have more confidence that their interests are going to be looked after. That's critical in order to develop the political consensus needed to pull off any of this stuff.

In terms of retraining, I want to make this really clear: We actually have more skilled trades per capita in Alberta, which is going to be the coal face for all of this—pardon the pun. The heavy lifting and the biggest transition will have to be done in Alberta, as we'll have to move workers from oil and gas to other sectors where other opportunities exist. We have more skilled trades per capita than any other province. They have the skills. They have the flexibility. It's not really a question of retraining. It's about creating jobs where these people can take their skills. In adjacent sectors like manufacturing, it's a pretty easy transition.

I really want to speak out against any move towards microcredentialing, dumbing down the trades. We have lots of good people, existing journeymen and master tradespeople, and lots of people in the apprenticeship pipeline. Let's give them work through industrial policy.

The Chair: That's perfect. We're out of time on this one.

With that—

Mr. Jeremy Patzer: I have a point of order, Chair, really quickly.

Mr. Charlie Angus: We'll take those skilled workers in northern Ontario.

The Chair: We have a point of order from Mr. Patzer.

Mr. Jeremy Patzer: Mr. Gaudreault, you made a statement that there was.... I ran out of time to get clarification on lithium-ion production in Quebec. I'm not aware of any active production in Canada at all. There are a couple of mines that are owned by China. I'm just curious if you would be able to table to the committee a list of those in production.

● (1815)

The Chair: As I mentioned, if anybody has any answers to questions we didn't get to, they can send them to the clerk. We can distribute them to the witnesses.

For the witnesses, if you have additional thoughts based on today's conversation—up to 10 pages, I think, is the limit we take—please feel free to submit them so we can draw on additional information and your expertise for the report we will be writing on this.

With that, colleagues, we're going to suspend and go in camera, because I have a couple of quick items to deal with.

Thank you so much to the witnesses. Enjoy the rest of your day.

For those of us in the room, the meeting is suspended.

[*Proceedings continue in camera*]

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