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# Standing Committee on International Trade

EVIDENCE

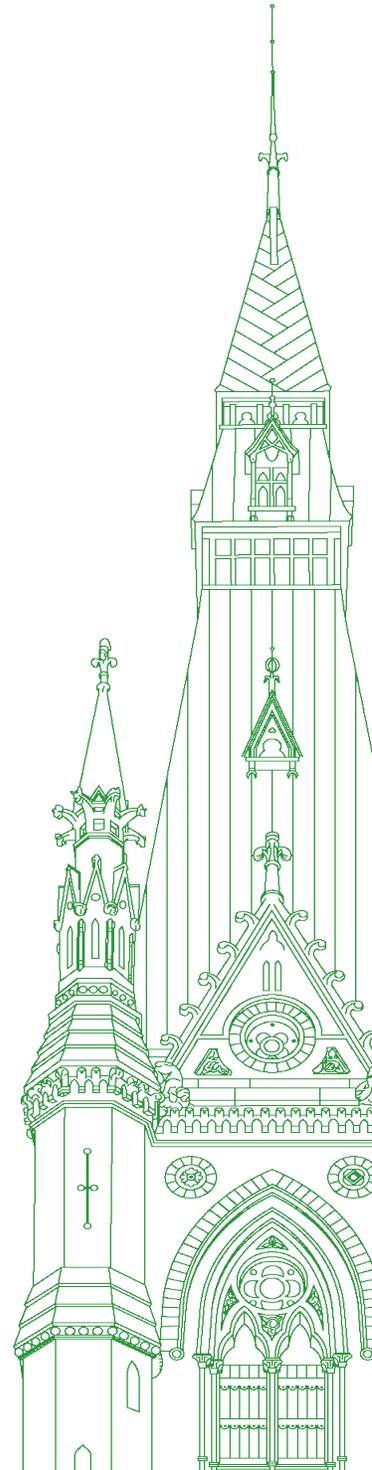
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Monday, March 21, 2022

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Chair: The Honourable Judy A. Sgro





## Standing Committee on International Trade

Monday, March 21, 2022

• (1535)

[English]

**The Chair (Hon. Judy A. Sgro (Humber River—Black Creek, Lib.)):** I call the meeting to order.

Welcome to meeting number nine of the House of Commons Standing Committee on International Trade.

Today's meeting is taking place in a hybrid format pursuant to the House order of November 24. Please note that the first hour will be public and the second hour will be in camera.

As a reminder, for all of us to remain healthy and safe, please note that masks must be worn in committee rooms except when members are at their place during parliamentary proceedings. All those inside the committee room should follow best practices of maintaining proper hand hygiene by using the hand sanitizer provided. As the chair, I will enforce these measures, and I thank you for your co-operation.

To ensure an orderly meeting, please note that you may speak in the official language of your choice. At the bottom of your screen, you have the choice of either the floor, English or French. If interpretation is lost, please inform me immediately and we will ensure interpretation is properly restored. The “raise hand” feature is on the main toolbar should you wish to speak. When speaking, please speak slowly and clearly. When you're not speaking, your microphone should be on mute. Finally, as a reminder, all comments should be addressed through the chair.

You would think that we could start to dispense with those opening comments, but anyway, welcome to the committee. I'm glad to see so many of us actually sitting at the table. It does feel a little bit like life is getting back to normal as we go forward.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Monday, January 31, 2022, the committee is proceeding with the study of Canada's exports of environmental and clean technology goods and services. The committee is resuming this study from the second session of the 43rd Parliament.

With us today by video conference are, from the Department of Natural Resources, Daniel Dufour, director general, innovation branch; Amanda Wilson, director general, office of energy research and development; Allison Christie, director, clean growth hub; and Anna van der Kamp, director.

We welcome all of you.

We will start with five minutes of opening remarks.

Mr. Dufour, the floor is yours, please.

**Mr. Daniel Dufour (Director General, Innovation Branch, Department of Natural Resources):** Thank you, Madam Chair. It's a great pleasure for my colleagues and me to be here today to talk about the clean-tech sector in Canada. Some of us have had the pleasure of joining previous committee sessions, so it's good to be back.

Again, my name is Daniel Dufour. I'm the director general for innovation at Natural Resources Canada. If you'll allow me, I'll start with an overview of the clean-tech sector in Canada.

Clean tech, broadly speaking, is an important sector in its own right, but furthermore contributes to all economic sectors, improving both environmental performance and competitiveness. Clean tech provides sustainable solutions, notably in reducing emissions, waste, and water use; in developing advanced materials and bio-products; and in extracting, transforming or producing natural resources goods more efficiently, which could be in energy, mining and forest products.

A strong clean-tech sector will be critical for Canada and the world to achieve net-zero goals. As we know, reaching these goals by 2050 will require widespread use of technologies. Based on the International Energy Agency, 50% of these technologies are not yet available.

The potential is huge, with the global market for low-carbon solutions expected to grow to over \$34 trillion through 2030. In order to better understand the clean-tech sector and its opportunities, NR-Can and ISED, Innovation, Science and Economic Development Canada, in partnership with Statistics Canada, launched the clean-tech data strategy back in 2017. As a result of this work, we now have some data on clean-tech contributions to Canada's economy and export, which I'll go over rapidly.

Clean-tech sector contribution to GDP was \$26.8 billion in 2020, and it grew faster than the overall economy between 2012-20. As you would know, the sector comprises mostly SMEs, about 80%. In terms of employment, it increased by more than 25% over the 2012-20 period, which was seven times faster than the rest of the economy. It employed over 200,000 Canadians in 2020.

In 2022, Canada ranked second in the world, after the U.S., in the global-tech top 100 list, with 13 Canadian firms being nominated or being successful on that list, and all of which received federal funding. Eight of these companies received funding specifically from Natural Resources Canada.

Canadian clean-tech companies are also important creators and holders of intellectual property, with over 65% of clean-tech firms holding IP, versus roughly 27% for all SMEs.

A large portion of Canadian clean-tech products and services are exported, primarily to the U.S. Clean-tech exports reached \$5.9 billion in 2020. Exports have grown 33% since 2012, outpacing overall exports, which grew 23%. In 2019, 73% of these exports went to the U.S., followed by Europe with 14%. The top clean-tech products and services that are exported by Canada are complex manufactured goods, scientific and R and D services, and support services.

With respect to the NRCan and other federal departments' support, they're offering a suite of programs that support clean-tech firms, from R and D to demonstration to deployment. In addition, support is offered for trade and investment promotion through Global Affairs Canada's trade commissioner services, and also EDC and Invest in Canada.

We also have the clean growth hub, which is co-led by NRCan and ISED. It supports innovators and adopters to navigate the federal system for funding and services. It also enhances federal clean-tech program coordination and aims to strengthen the federal capacity to track and report on clean-tech outcomes.

Let me close with a snapshot of key innovators that are active across Canada. Just to name a few, in B.C., we have Ekona, producing clean hydrogen. In Alberta, we have Recover, which makes valuable products from oil drilling waste. We have the Saskatchewan-based PapaBravo Innovations, which develops electric vehicles for underground mining. We have, in Ontario, Polar Sapphire, which provides cleaner alumina for batteries. In Quebec, we have Elkem metal, which replaces coal with biocarbon briquettes made from forest residues. We also have the Quebec-based GHGSat, which develops remote sensing to detect GHG emissions from industrial facilities. Lastly, we have, in Nova Scotia, Carbon-Cure, which is implementing carbon capture solutions by storing carbon dioxide in recycling wastes from concrete products. These are a few of the clean-tech innovators we have in Canada that are a source of pride and confidence in our future.

● (1540)

I want to thank you, Madam Chair, for your good attention. My colleagues and I are available to answer questions that the committee members may have.

Thank you.

**The Chair:** Thank you very much, Mr. Dufour.

We will now open it up to our committee members.

Mr. Lewis, you have six minutes, please.

**Mr. Chris Lewis (Essex, CPC):** Thank you, Madam Chair. Thank you, Mr. Dufour, for your intervention, and all the information you provided. It's a very important conversation, of course.

Ironically, I came from the sewer industry. In the sewer industry, we invented technology that we shipped across North America and the world. Instead of digging up the street, ripping up the pavement, cutting up the curbs and cutting the streets, we went in with robots, materials, and resins. We did it all in a day, instead of over the course of some six months, as an example. When you spoke about this technology, I listened with a very keen ear.

My first line of questioning is regarding clean technology. I believe I heard you correctly when you said that the biggest importer of Canadian clean technology is the United States. Did I hear you correctly, sir?

● (1545)

**Mr. Daniel Dufour:** That's correct.

**Mr. Chris Lewis:** Thank you.

Who does Canada import the most from? Is it equally from the United States?

**Mr. Daniel Dufour:** I'll ask my colleague, Anna van der Kamp, as she can answer that question.

**Ms. Anna van der Kamp (Director, Department of Natural Resources):** Yes, absolutely, it's from the United States.

**Mr. Chris Lewis:** Thank you.

Earlier on, you mentioned clean water. I'm going to speak specifically to my region of Essex, near Windsor. I'm quite sure that my honourable colleague, Mr. Masse, will also be talking about electric vehicles and the battery plants potentially coming down to that area.

In Essex County and Windsor, we're basically surrounded by water—three quarters of us—so we're almost an island in and of ourselves.

If we are the biggest importers of American clean technology, and the U.S. is the largest importer of our clean technologies, are the countries working in a united way to make sure we're working on the same fronts?

We've only got one type of water, of course, so do we work in a united way, or do we use two different types of technologies?

**Mr. Daniel Dufour:** This touches to a certain extent on the partnerships we have with our American colleagues. The government-to-government relationship has a variety of partnerships, but it's more a partnership in terms of the technology per se and to what extent the industry is actually joining forces on some of these developments.

Amanda, might there be examples you'd like to list of the collaboration we have with the United States?

**Ms. Amanda Wilson (Director General, Office of Energy Research and Development, Department of Natural Resources):** Thanks, Dan, and committee members.

I'm the director general of the office of energy research and development.

As Dan said, it really depends on the types of technologies you're talking about. Obviously, with some types of technologies, it's more important to have consistent standards and regulatory measures that span borders than others. One would be EV charging, for example. That's obviously an area where there is a benefit to have common standards across North America.

In other areas, we do work closely in partnerships with our relevant American colleagues. There are obviously a number of industry partnerships that happen at the company or industry association level. We also engage in collaboration with our partners in other governments around the world. A good example would be the U.S. Department of Energy, for example. NRCAN has had ongoing relationships with the Department of Energy, and MOUs in that space in a number of areas, over the past number of years.

**Mr. Chris Lewis:** Thank you very much for the answers to those questions.

Earlier on in the speech, there were remarks about parks. Ironically, one of the members of this committee raised in the House of Commons this morning the fact that a national park will be potentially created in both his and my ridings.

Can you speak to the clean technology that's currently being used in Canadian parks and what's on the table going forward on that front?

**Mr. Daniel Dufour:** I'm sorry, as this would be a question best addressed to my colleagues at Parks Canada, I'm not in a position to answer the question.

**Mr. Chris Lewis:** Okay.

We don't have Parks Canada here.

**A voice:** No.

**Mr. Chris Lewis:** Very well.

That's good, Madam Chair. Thank you.

**The Chair:** Thank you.

Mr. Sheehan, go ahead, please.

**Mr. Terry Sheehan (Sault Ste. Marie, Lib.):** Thank you very much to the presenters and for undertaking this important study.

I first started thinking about and introducing this to the committee back in 2019. It just seems that we've come a long way, particu-

larly recently even from 2021 until now, especially with some of the investments that have been made down in southern Ontario in the auto sector and across Canada. In my riding, with Algoma Steel you're seeing investments in green, clean technologies. In the case of Algoma Steel, they're going from a coal-based operation to an electric arc. That of course affects the supply chain, the downstream and the upstream. Even the market itself is demanding more clean green products.

Perhaps you can comment on some of the investments that have been made. In particular, since we're dealing with Natural Resources, I'm thinking of PDAC, the Prospectors & Developers Association of Canada, whose conference is coming up shortly. It's going to be sort of a hybrid. It will be in person in June, and it will also have a Zoom portion to it. I remember at the last one that we were assembled at in person, in 2020, there was an announcement of the various tax measures that were there for companies that employ clean technologies in the mining sector.

Perhaps you can comment on what we have seen recently over the last little while in terms of the various funds and activities that are available for Canadian companies to invest into themselves, into the clean green technologies.

• (1550)

**Mr. Daniel Dufour:** I'll look at the question in two ways. You mentioned the investment in Algoma. I think you touched on that. Then you asked questions around specifically the tax incentives we may have in terms of clean-tech adoption and clean-tech development. I'll take the first question, and then I'll ask my colleague Anna van der Kamp to talk about taxation more specifically.

With regard to investment by Algoma, one tool that has been used quite extensively of late to really help industry, including automotive, to decarbonize and adopt cleaner technologies has been ISED's strategic innovation fund. You may be familiar with it. Under the fund, a net-zero accelerator was launched. This is really an \$8-billion program with our colleagues at ISED, but NRCAN has been working hand in hand with ISED around the governance, going through the selection of projects that will help to decarbonize, achieve the most impact in term of GHG reduction, enable the transformation of the industry towards cleaner technologies, and build a solid environmental ecosystem.

If possible, I would now turn to Anna van der Kamp to tell us a bit about taxation.

**Ms. Anna van der Kamp:** I'll speak quickly to some of the various tax measures we have in the federal government that have been developing very quickly, as you say.

Of course, we have an accelerated capital cost allowance for clean energy and energy-efficient equipment, which allows with it Canadian renewable and conservation expenses. We also have a new ITC, investment tax credit, for CCUS, which I'm sure Amanda Wilson can speak to better than I. In addition to that, we have recently, of course, mentioned the manufacturers tax credit. That's a 50% general corporate and small business income tax credit. Those would go into effect January 1, 2022.

Then there are other additional investment tax credits for renewables, and potentially for hydrogen and clean tech, that have also been announced and are being worked on now. Plus, of course, there's the mineral exploration tax credit, which is maybe the one that you were referring to, which has been doubled for critical minerals.

**Mr. Terry Sheehan:** While we're sticking to mining, I have to be a good northern Ontarian and ask about the Ring of Fire. We have a provincial election coming up. I've seen that the premier has made some comments about it recently. We know that we need a road to get to the minerals. The minerals represent billions and billions of potential dollars, in particular for EV and clean tech.

Could you basically give us a summary of discussions that you might be having with the province and other stakeholders at this particular time?

**Mr. Daniel Dufour:** I'm sorry. I'll turn to my colleagues.

It's one that we're not in a position to answer, Madam Chair.

**Mr. Terry Sheehan:** I couldn't hear that.

**Mr. Daniel Dufour:** It's a provincial jurisdiction.

**The Chair:** They're not in a position to be able to answer that question.

That's most unfortunate. It would be interesting to get an answer.

**Mr. Terry Sheehan:** Yes. If there's any comment other than on the road.... I recognize that the road is a provincial jurisdiction, but if there are any ongoing discussions or anything that you wish to enlighten us about the Ring of Fire....

• (1555)

**Mr. Daniel Dufour:** We'll be happy to come back with written comments on the Ring of Fire.

**Mr. Terry Sheehan:** Okay. We'll wait for the written comments then. Thank you very much.

How much time do I have? About three seconds? Ringed with fire....

**Voices:** Oh, oh!

**The Chair:** We have Mr. Savard-Tremblay for six minutes, please.

[*Translation*]

**Mr. Simon-Pierre Savard-Tremblay (Saint-Hyacinthe—Bagot, BQ):** Thank you, Madam Chair.

I welcome the witnesses and thank them for their presence. Good afternoon to my colleagues as well.

We know that carbon capture and storage technologies are not infallible, but there are discussions about them and we know that they have some potential to help with the energy transition, particularly in Alberta. However, it is known that these technologies are not cost-effective and may not become so in the short to medium term.

Do you think it is justified to put so much faith in the development and export of this specific technology?

[*English*]

**Ms. Amanda Wilson:** I think that as we look toward the energy transition, as you've highlighted, and as we look toward the government's commitment around net-zero emissions by 2050, the government has been fairly clear that we need to look at all the tools in the tool box.

We need to deploy existing technologies to help reduce emissions to the extent possible—things like solar and wind and other clean technologies, like those we are talking about here today. We need to continue to develop emerging technologies and clean technologies so that they will be ready at a lower price point and at an increased rate of performance when we need them down the road.

We need to make sure that we can help reduce emissions through things like carbon capture utilization and storage, as you mentioned. This includes technologies that can reduce emissions at point source or where they are created at various industrial settings, whether that's in the oil and gas industry or in other heavy industries.

That also includes other what we call “carbon dioxide removal” technologies. These are earlier stage but increasingly proven technologies such as direct air capture, which can remove not just current emissions from the air but have the potential to reduce historic emissions or even get into negative emissions when you look at technologies like bioenergy with carbon capture and storage.

I think the approach that has been taken is to ensure that we are using all the tools in the tool box, essentially, and that we are not leaving behind technologies that could provide significant emissions reductions now and into the future.

The government, as Anna mentioned earlier, has committed to introducing an investment tax credit for carbon capture, use and storage. That was committed to in the last budget, and that is currently in the process of development. The government, in the last federal budget, did commit \$319 million to the research, development and demonstration of a full range of carbon capture, use and storage technologies.

My office at NRCan is currently working to help provide the funding to develop these technologies, both in our federal lab network and also with some of the very ingenious clean tech innovators that Dan mentioned earlier. These would be organizations like CarbonCure, where carbon [*Technical difficulty—Editor*] just to name a few.

Canada really does punch above its weight in the carbon capture, use and storage space. We were one of the global early adopters of the technology. We are world leaders in the technology. We believe that Canada really does hold a lot of potential to develop the technologies for our own needs, but then, from an export perspective, to help export these technologies around the world.

Thank you.

[Translation]

**Mr. Simon-Pierre Savard-Tremblay:** However, its cost-effectiveness has been criticized. I remember that it was the subject of an article by Radio-Canada's economic columnist, Gérald Fillion, last November.

On the other hand, the Trottier Energy Institute at Polytechnique Montréal considers that this technology should be reserved for certain sectors only, such as agriculture, because these are sectors that have more difficulty reducing their emissions at the source, and that in order to achieve carbon neutrality in general, governments should rely more on other solutions.

I would like to hear your impressions, comments and analysis, please.

• (1600)

[English]

**Ms. Amanda Wilson:** We listen very carefully to all comments and submissions that are made with respect to carbon capture, utilization and storage, or CCUS. We're currently in the process of developing a CCUS strategy for Canada for release, I think, later this year. As part of that, we have conducted a broad-based engagement with a range of stakeholders across the country from all sectors of society and all industries, so we are aware of those views saying that carbon capture should be limited to certain industries or segments of the industrial sector.

At the end of the day, we have to listen and consider these things carefully, but we also have to listen and consider groups such as the International Energy Agency and the IPCC, which are saying increasingly that if the world holds any hope of hitting net-zero emissions targets, carbon capture, use and storage is going to absolutely have to play a significant role in that—

**The Chair:** Thank you very much, Ms. Wilson. I'm sorry to interrupt. There's only so much time and so many questions.

Mr. Masse is up next for six minutes, please.

**Mr. Brian Masse (Windsor West, NDP):** Thank you, Madam Chair.

Thank you to our witnesses. I came in a little late, so I didn't hear all of your testimony. I will listen to it later.

There are a couple of things I want to hit on. To follow up on one of our studies that we're working on, what is our role with regard to electric vehicles and standards in the United States? Right now, we follow CAFE standards, as well as others, with regard to the exportation of vehicle emissions to the United States. What's your role on that and how well is Canada positioned there? We have seen one announcement and some potential future ones, but we also have an aging auto manufacturing base of other engines.

What's being done to bridge the improvements of those? Is there anything from your department?

**Mr. Daniel Dufour:** There's definitely collaboration on a variety of levels, but I don't think the one around electric vehicles standards is in NRCan's area. I think this one would be with our colleagues at Environment and Climate Change Canada in terms of these negotiations on vehicle standards.

**Mr. Brian Masse:** Is there anything with NRCan that's dealing with the auto industry to close the gap of some of the combustible engines that we have and the upcoming CAFE changes in the U.S.? Is there any work being done with the auto companies to improve engines?

NRCan in the past has been involved in some investments. Is there anything being done for that? We have several other plants producing aging combustible engines, and some could meet some of the new standards coming into place, though some of them may not. Are there any projects in that capacity?

**Mr. Daniel Dufour:** I'm aware of collaboration on the emissions standards, but I wouldn't be able to say the level of collaboration on codes and standards for ZEV components. Again, that would be a question for my colleagues at ECCC.

**Mr. Brian Masse:** We're meeting some clean-tech growth going into the United States and other places, but Canada has quite a reputation of sending plastics and other contaminants overseas. What has been done with regard to that? Is there anything in terms of ingenuity to change that? That's one of the things that, first of all, is questionable.

Second of all, are we increasing the environmental imprint of that as we continue to ship that garbage and other waste outside of our country?

**Mr. Daniel Dufour:** Again, I have to say that on plastics, that file is with our colleagues at Environment and Climate Change Canada. There is a plastic innovation fund that has been announced, so that would probably be an area of interest to look into to get a response to that question.

• (1605)

**Mr. Brian Masse:** That's fine, but wouldn't it make some sense for NRCan and others to get involved with regard to our exports that are actually contaminants—to get involved in cleaning them up—if we are going to continue to have them as export markets? It just seems one-sided to me. Why wouldn't we be using some of our strength in that component if we're going to continue to export?

We might make some minimum standards in the world. Some of it is actually quite shameful. The Philippines is a good example of that. I'm just a little bit surprised that there isn't some type of joint co-operation going on to actually improve...if we are going to continue to be a nation that exports contaminants.

**Mr. Daniel Dufour:** There is certainly a dialogue and some collaboration between NRCan and our colleagues at ECCC on the plastic file and some of the issues that you have raised. The lead on bioplastics and exportation is really with them. There's some level of collaboration, absolutely, but I'm not privy to a lot of the discussion or to some of the decisions that may be going forward around the plastic files, in particular.

**Mr. Brian Masse:** Fair enough, and I appreciate that.

You can go ahead, Ms. Wilson.

**Ms. Amanda Wilson:** I was just going to add that our colleagues in the Canadian Forest Service do have, through some of their programming.... They've been working on various forestry-based bioplastics. This doesn't go to your point about cleaning up contaminants from plastics, but it does speak to substitutions for them.

**Mr. Brian Masse:** Yes—

**Mr. Daniel Dufour:** I can close, just on circularity.... The circular economy is a file that, again, is under the lead of ECCC, which is looking into these very issues. We're certainly working with ECCC on that file. It would likely be an area that would be relevant to circular economy and to what's being done by the government on that file, in particular.

**Mr. Brian Masse:** Thanks. That's very much appreciated. That's what I'm looking at: seeing whether there is collaboration going on, on that end of it. We have some good research on the other end of what we're doing...on that side.

Lastly, with regard to the current trade agreements that we have, has there been any assessment of the new environmental chapters? It's still pretty early for some of those. This is one of the first times we've actually had environmental and labour standards. When you think of USMCA, or CUSMA, or whatever you want to call it—the new NAFTA—it is still relatively new.

Has there been any work done to evaluate the changes that have taken place? Those are actually in our trade agreements, and different from many others we have done in the past. I'm just looking to see if there has been any response to that initiative.

**The Chair:** Please keep the response very brief, if possible.

**Mr. Daniel Dufour:** Sorry, I'm not in a position to answer this one. That would be with Global Affairs.

I do want to come back, rapidly, to correct one thing about the collaboration on ZEV. ECCC works on emissions, but NRCan works on codes and standards per ZEV compliance infrastructure, so there is collaboration with the U.S. on that, in particular.

**The Chair:** Thank you very much.

We now have Mr. Baldinelli for five minutes.

**Mr. Tony Baldinelli (Niagara Falls, CPC):** Thank you, Madam Chair, and thank you to our witnesses for being here this afternoon and for their presentation.

When I was going through the report, I noticed it mentions that the U.S. was our primary export partner for environmental and clean technology—about 73.2% of the value of our Canadian exports. You indicated the highest value in 2019 was \$2 billion and that was in clean electricity.

As someone from Niagara, which is home to the Sir Adam Beck facilities and 2,200 megawatts of hydroelectric power, I think that's great to see. But the one thing that caught my eye was the notion.... I'm looking for the definition the government uses for clean electricity. We're talking about a North American integrated grid. Is it nuclear? Is it hydro? Is it natural gas? How does the department distinguish “clean electricity”?

**Mr. Daniel Dufour:** I will turn to my colleague, Anna van der Kamp, to answer this one.

Anna, please go ahead.

**Ms. Anna van der Kamp:** My understanding is that clean electricity is a non-emitting source of renewables and/or nuclear.

**Mr. Tony Baldinelli:** You're talking about a province that is 60% nuclear. I think that's an interesting fact and a thing that we're not going to get away from. In fact, we're looking at investments in SMR technologies.

Earlier, one of the officials indicated a need to assist emerging technologies, and that whole move towards the potential of SMRs.... In our move towards net zero, does the government see the potential benefits of SMRs?

• (1610)

**Mr. Daniel Dufour:** Can I turn to you, Amanda?

**Ms. Amanda Wilson:** Sure. I will give a brief answer, and then we can of course follow up with our colleagues as needed.

As you would know, NRCan released an SMR road map a couple of years ago, I want to say, but I might be a little bit off on that. We have been working across departments and with colleagues both inside and outside government to advance the technologies. I know that our colleagues, as I said, have funded an SMR-related project, and our colleagues in the nuclear energy division continue to work on that. We'd be happy to provide an update.

**Mr. Tony Baldinelli:** Thank you.

I'm just going to go a bit further about that whole notion of assisting emerging technologies.

There was an exciting opportunity in the renewable sector. In 2001 in Niagara—again within my own riding—there was a partnership among Walker Industries, Comcor Environmental Ltd., and Enbridge. It was a \$42-million project that captured methane from landfill waste. They said it had the potential to reduce greenhouse gas emissions by 48,000 tonnes, and actually heat up to 8,750 homes. In fact, what they're doing is working with local industries. I believe this project is working with the local General Motors facility and factory there on cogeneration facilities. They built some generators there to use for additional power transmission to save costs from its hydro facilities.

I'm wondering if that's something you're looking at as well, that whole notion of renewables from waste.

**Ms. Amanda Wilson:** Sure. Do you want me to take that, Dan?

**Mr. Daniel Dufour:** Please.

**Ms. Amanda Wilson:** Yes, we look at a broad range of technologies, which include, obviously, energy from waste and other sources. I'm not familiar with the project you're speaking about specifically, but I can tell you that we have funded a number of projects relating to energy from waste. I would say that this is a technology that has been talked about for some time and is still in development.

You also mentioned methane. As you know, the government has been working in the methane space for some time and has made some significant commitments there.

**Mr. Tony Baldinelli:** Thank you.

Madam Chair, how much time do I have left?

**The Chair:** You have 34 seconds.

**Mr. Tony Baldinelli:** I'll cede my time. Thank you.

**The Chair:** Thank you.

We'll move on to Mr. Arya for five minutes, please.

**Mr. Chandra Arya (Nepean, Lib.):** Thank you, Madam Chair.

On a related question, the European Union has declared nuclear and natural gas as green and sustainable. What are your thoughts on Canada's position on this?

**Mr. Daniel Dufour:** Amanda, could you take that?

**Ms. Amanda Wilson:** I don't know that Canada has put labels per se on natural gas and nuclear. I think we look more specifically towards energy intensity, understanding that it will be important to find the right mix of energy sources and technologies as we move ahead to net zero. With regard to natural gas in particular, as I'm sure you are aware, there is a lot of interest right now in the potential for combining natural gas with carbon capture use and storage to produce very low carbon-intensity hydrogen.

**Mr. Chandra Arya:** On the evolution of electric vehicles and the batteries that are required, obviously we are home to a lot of critical minerals. China has taken a lead in the manufacturing of batteries. More important than batteries is the processing of the minerals and other chemicals required for the manufacturing of batteries. Some parts of Europe have also stepped forward. The United States has seen the implementation of seven or eight multi-billion dollar plants for the manufacturing of batteries.

A couple of years back, there was a meeting of battery manufacturers, mining companies, battery technologies and electric vehicle manufacturers to find out how to develop Canadian companies in this field. That meeting happened in the U.S. Department of Commerce. However, when I look at the Natural Resources Canada website, I do see the listing of 31 critical minerals, but nowhere have I found what our strategy is for fast-tracking the development of everything from mines to mineral processing to technologies to the manufacturing of batteries.

You can say that part of it is with ISED. I understand that. Don't we think that we need, broadly, a team Canada approach at the top level, under which various federal government departments join hands with the provincial governments and industry bodies to develop and actually implement it? But even before going there, I'm sure you should be working in coordination with other arms of the federal government.

Is there any plan available for us to look at that shows the path we are going to take to develop mines? The development of mines takes five to seven years. Is there any plan we can see as to the path forward, the strategy, how it's going to be implemented and the players implementing it? Is there anything available to us?

• (1615)

**Mr. Daniel Dufour:** Since at least 2019 there's been a whole lot of stakeholder engagement. A lot of research has been undertaken and there has been stakeholder engagement to really inform actions to think through what is referred to as the federal battery initiative. It's not a document per se; it's more of a governmental approach in terms of positioning Canada on the battery file and figuring out the opportunities and the gaps. There has been a whole lot of that engagement.

We have also produced a report that was called "From Mines to Mobility: Seizing Opportunities for Canada in the Global Battery Value Chain". A lot of work has been done to date. A significant amount of work has been undertaken by the federal family on various aspects of the federal battery initiative.

There are multiple federal departments engaged in this: NRCan, ISED, Global Affairs and Invest in Canada. We've looked at expanding the "mines to mobility" initiative.

There has really been a strong focus on attracting anchor investment to build a domestic battery ecosystem linked to the automotive sector, but work has also been done by NRCan with other entities like Sustainable Development Technology Canada and Business Development Bank of Canada to look at innovation for stationary battery applications. There have been initiatives in that space like Impact Canada's "charging the future" challenge.

If you look at the recent ministerial mandate letter, you will see several priorities identified around the vision of developing sustainable battery innovation and an additional ecosystem in Canada. It's looking at the full spectrum, from minerals to manufacturing.

**The Chair:** Thank you very much, Mr. Dufour.

We go now to Monsieur Savard-Tremblay for two and a half minutes.

[Translation]

**Mr. Simon-Pierre Savard-Tremblay:** Thank you, Madam Chair.

In the last federal budget, tabled in the spring of 2021, it was stated that the government wanted to launch a consultation process on border adjustments for carbon within weeks.

This sounds something like what was voted through the European Parliament in March 2021. It involved a carbon adjustment mechanism or, in other words, a levy on imports of certain goods from third-party countries with looser climate rules.

Consultations were to take place in the summer of 2021; was that promise kept?

[*English*]

**Mr. Daniel Dufour:** Amanda, are you in a position to respond to this one?

**Ms. Amanda Wilson:** I am not. I'm sorry.

I wonder if this is something we can get back to the committee on or if this is within Environment and Climate Change Canada's mandate.

[*Translation*]

**Mr. Daniel Dufour:** I would like to ask for a clarification. Are you talking about carbon?

• (1620)

**Mr. Simon-Pierre Savard-Tremblay:** Yes, I am talking about a carbon adjustment mechanism equivalent to what has been adopted by the European Commission, that is to say, country-specific pricing.

**Mr. Daniel Dufour:** All right. I understand your question now.

This issue would probably fall more under our colleagues at Environment and Climate Change Canada. It would also perhaps fall under Global Affairs Canada, but primarily under Environment and Climate Change Canada.

**Mr. Simon-Pierre Savard-Tremblay:** Thank you.

I will keep that in mind, but I am surprised to hear it, given that we are still talking about trade and pricing at the border.

**Mr. Daniel Dufour:** I would be pleased to confirm it in writing.

**Mr. Simon-Pierre Savard-Tremblay:** Perfect.

Thank you for this information.

How much time do I have left, Madam Chair?

[*English*]

**The Chair:** You have 20 seconds.

[*Translation*]

**Mr. Simon-Pierre Savard-Tremblay:** I won't have enough time to ask more questions.

Thank you.

[*English*]

**The Chair:** Thank you.

Mr. Masse, you have two and a half minutes.

**Mr. Brian Masse:** Thank you.

With regards to our exports and imports of clean tech, Asia and Europe are just two big categories. Is there any dominant country that we're dealing with in Asia and Europe? From our notes, we just

have them as large blocs, which is pretty significant. I'm just wondering where there might be a significant connection.

**Mr. Daniel Dufour:** If I understand the question, you'd like to know whether we have dealings that are a bit more specific than just looking at large blocs such as Asia and Europe.

In terms of the level of co-operation we have on a variety of fronts, absolutely, we have science, tech and innovation treaties with a lot of these countries in Asia and Europe, by which we look at really specific collaboration in various areas, including energy and clean tech and other areas—

**Mr. Brian Masse:** Right but for Asia, for example, what's China as a portion of that? Do we have any idea? Do we have a couple of dominant nations? That's what I'm looking for.

**Ms. Anna van der Kamp:** I can answer that if you'd like. China is actually 2.8% of our total exports and then there's India at 1.4% and Japan at 1.2%. Those are the percentages of our 2019 exports.

**Mr. Brian Masse:** Okay, so China would be the larger, but the smaller portions...compared with the United States and everywhere else.

**Ms. Anna van der Kamp:** Yes, they're a much different scale.

**Mr. Brian Masse:** Yes, okay, thank you.

That's all, Madam Chair.

**The Chair:** Thank you very much.

We'll go to Mr. Martel for five minutes.

[*Translation*]

**Mr. Richard Martel (Chicoutimi—Le Fjord, CPC):** Thank you, Madam Chair.

Many thanks to the witnesses for being with us today.

I have several questions to ask.

As part of the green shift, we know that the demand for electricity in this country is growing. At the same time, we need to develop export markets. I wonder therefore if Quebec and Canada will be able to meet that demand.

**Mr. Daniel Dufour:** I thank the member for his question, Madam Chair.

That is a very good question. Right now, because of the energy crisis, we are assessing the availability of gas, electricity and oil. In truth, this question needs to be addressed one technology at a time.

In some cases, there is a bit of leeway, but not a great deal in others. In fact, given the supply to the United States, among other factors, full production has already been reached to a certain degree. On the other hand, this obviously frees up other sources of oil to help Europe get supplies.

**Mr. Richard Martel:** Thank you.

Do you consider green hydrogen and transforming natural gas to liquid with hydroelectricity to be part of the energy transition?

**Mr. Daniel Dufour:** I thank the member for his question.

Currently, no source is necessarily excluded. Obviously, there is a federal hydrogen strategy. So we are thinking a lot about the use of hydrogen as part of the energy transition, and we are also thinking about other sources. I would say that at this stage all these sources are being considered.

**Mr. Richard Martel:** How can we further develop and export them? Can you please give a brief answer?

**Mr. Daniel Dufour:** We invest in technologies and industries and we spread our investments across different technologies; it's not all concentrated. We offer them significant support through different government strategies to facilitate partnerships, research, investment and international collaboration. We use different strategies depending on the different sources, including hydrogen, which you mentioned earlier.

This is how we will support the ecosystem in its entirety.

• (1625)

**Mr. Richard Martel:** Thank you, Mr. Dufour.

I work a great deal with SMEs in my riding. Many of them are developing green technologies. I would like to know if financial assistance is available to them. They often ask me about this.

**Mr. Daniel Dufour:** We have the Clean Growth Hub, which is the entry point for small, medium, and even large businesses to direct them to federal funding for clean technologies. This is the place to go for that kind of information. It's a collection of 17 departments and agencies that support clean technologies in one way or another. It's really the gateway for all these industries.

**Mr. Richard Martel:** Thank you, Mr. Dufour.

My colleague has a question to ask and I will share my time with him.

[*English*]

**Mr. Warren Steinley (Regina—Lewvan, CPC):** Thank you very much. I'll be quick.

You talked about green energy and the fact that you don't know where nuclear lies, so how can you explain how nuclear energy was excluded from the green bond framework by this government?

If it was excluded from that framework, obviously this government isn't thinking that nuclear energy is green. Can you add to those comments, please?

**Mr. Daniel Dufour:** Go ahead, Amanda.

**Mr. Warren Steinley:** By the silence I'd say that it's concerning—

**Ms. Amanda Wilson:** I'm sorry. It was my double mute again. I'm so sorry.

**Mr. Warren Steinley:** Thank you.

**Ms. Amanda Wilson:** The Department of Finance is ultimately responsible for the green bond frameworks, so I would defer to them on—

**Mr. Warren Steinley:** I understand that. Are you saying that the Department of Finance didn't ask the natural resource department at all what should be in and what should be out of the green bond framework?

**Ms. Amanda Wilson:** NRCan obviously contributed to that framework, because a number of departments did, but we have not made the final decisions with respect to that framework.

**Mr. Warren Steinley:** So is NRCan's recommendation to have nuclear in the green bond framework?

**Ms. Amanda Wilson:** No, that is not what I said, sir. I said that the Department of Finance is best placed to answer the question with respect to the green bond framework.

**The Chair:** We have a minute or two left if you have a very hot question you want to get out there.

**Mr. Arif Virani (Parkdale—High Park, Lib.):** Thank you very much.

Thanks very much to the witnesses.

I have a quick question about the trade commissioner service and the promotion of clean tech. It's definitely a focus of the government. The minister held a global clean-tech advisory group meeting back in March of last year. We know also that, among the trade commissioner service, we have four clean-tech trade commissioners who are based in different parts around the planet.

Can you tell us about how that function is operating and also what you would foresee we need to do to enhance the trade commissioner service to better promote clean tech?

**Mr. Daniel Dufour:** I don't want to expand too much on the trade commissioner service. That is clearly with my Global Affairs colleagues, but I do want to say that we have been working extensively with the trade commissioner service in part by making sure that the relationship is strengthened between the TCS and NRCan in the various fields where we think there are opportunities for growth, or where we want to help some of our industries export their technologies and their expertise. There are strong linkages between the two. They are also part of the clean growth hub that I mentioned before. They are a member of the clean growth hub that comprises 17 departments and agencies.

This is how, from the NRCan perspective, we really work with TCS in beefing up their expertise and leveraging their capacity to really best support industry entering these markets.

**The Chair:** I'm afraid that we've run out of time.

Thank you very much to the witnesses. We appreciate your taking your time and sharing your expertise with us this afternoon.

We will now go in camera.

*[Proceedings continue in camera]*

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