HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

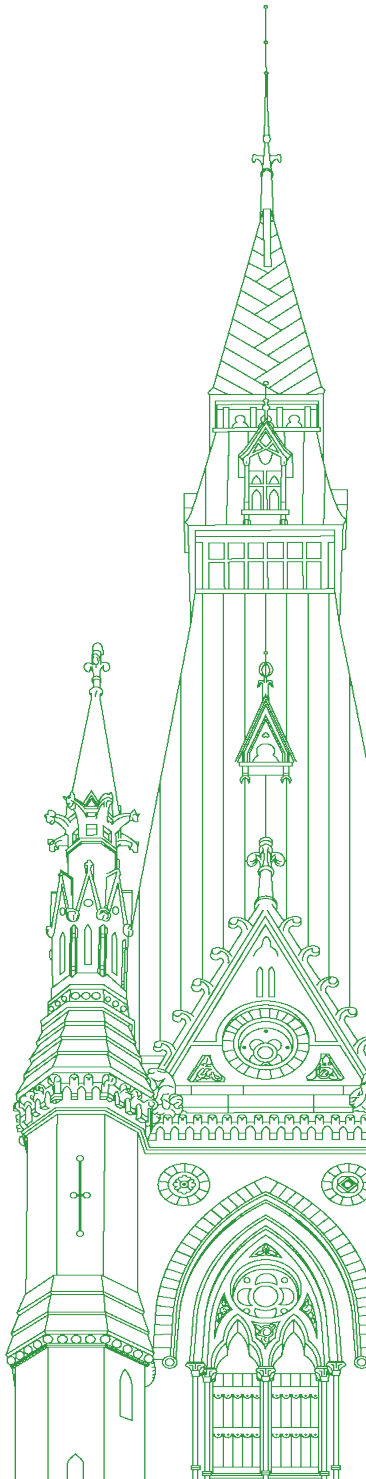
43rd PARLIAMENT, 2nd SESSION

Standing Committee on Environment and Sustainable Development

EVIDENCE

NUMBER 003

Monday, October 26, 2020



Chair: Ms. Yasmin Ratansi

Standing Committee on Environment and Sustainable Development

Monday, October 26, 2020

● (1645)

[*English*]

The Chair (Ms. Yasmin Ratansi (Don Valley East, Lib.)): I call this meeting to order.

Welcome to meeting number three of the House of Commons Standing Committee on Environment and Sustainable development. We are here to study zero-emission vehicles.

Today's meeting is taking place in a hybrid format, pursuant to the House order of September 23, 2020. The proceedings will be made available via the House of Commons website.

To ensure an orderly meeting, I would like to outline a few rules to follow. Members may speak in the official language of their choice. Interpretation services are available for this meeting. You have the choice at the bottom of your screen of the floor, English or French.

For members participating in person, proceed as you usually would when the whole committee is meeting in person in a committee room. Keep in mind the directives from the Board of Internal Economy regarding masking and health protocols.

Before speaking, please wait until I recognize you by name. If you are on the video conference, please click on the microphone icon to unmute yourself. For those in the room, your microphone will be controlled as normal by the proceedings and verification officer.

I'll remind you that all comments by members and witnesses should be addressed through the chair. When you are not speaking, please mute your mike.

Today we have four witnesses before us from the Department of the Environment, Department of Natural Resources, Department Transport and Department of Industry. In light of the tightness of time and the fact that the witnesses have already presented their speaking notes, I will deem their opening statements as read into the record.

[*See appendix*—Remarks by Helen Ryan]

[*See appendix*—Remarks by Sharon Irwin]

[*See appendix*—Remarks by Paula Vieira]

[*See appendix*—Remarks by Megan Nichols]

With that, we will start with Monsieur Godin.

I will be controlling the time.

[*Translation*]

Mr. Godin, I wrote in French what I just said, but the clock is ticking. I'll let you know when you have 30 seconds left.

You can go ahead.

Mr. Joël Godin (Portneuf—Jacques-Cartier, CPC): Thank you, Madam Chair.

Thank you to the witnesses for being here and for being patient, given the vote that was held in the House of Commons. After going over their presentations, I was wondering about something. I have a specific question for the witnesses from the four departments.

Can you confirm that Quebec and British Columbia account for 78% of all the electric vehicles sold in Canada? Kindly keep your answer brief.

[*English*]

The Chair: Who do you want to respond first, Monsieur Godin?

Mr. Joël Godin: Anyone.

The Chair: Who wants to go first?

Ms. Nichols, go ahead.

Ms. Megan Nichols (Director General, Environmental Policy, Department of Transport): Thank you, Madam Chair.

I can confirm that as of September 30 of this year, the majority of zero-emission vehicle sales have occurred in Quebec, B.C. and Ontario. The figures we have are 48% in the province of Quebec, 30%—

[*Translation*]

Mr. Joël Godin: Sorry to cut you off, but I'm looking for a specific answer. As you can appreciate, I don't have a lot of time.

My question is straightforward. Can you confirm that Quebec and British Columbia account for 78% of the electric vehicles that were purchased this year, yes or no?

[*English*]

Ms. Megan Nichols: Madam Chair, our most recent figures are 48% in Quebec, 30% in B.C. and 17% in Ontario.

Thank you.

The Chair: Ms. Ryan, would you like to answer?

[*Translation*]

Mr. Joël Godin: Madam Chair, I'm done with that question. I'd like to switch topics. I got confirmation that it was indeed 78%.

Thank you, Ms. Nichols, from the Department of Transport.

The purpose of this study is to determine the feasibility of federal legislation on zero-emission vehicles. A number of programs were rolled out, so I'd like to know how they were designed and examined to ensure they were as effective as possible.

Given the importance of respecting provincial and territorial jurisdiction, did you consult the provinces and territories? If so, which ones? That question is for whomever can answer first.

[*English*]

The Chair: Ms. Nichols, would you like to take that question?

Ms. Megan Nichols: I can confirm that we have a federal-provincial-territorial zero-emission vehicle working group. It has been meeting for a number of years. It meets to discuss best practices and lessons learned on how to increase the uptake of zero-emission vehicles.

[*Translation*]

The Chair: Mr. Godin, did you have another question?

Mr. Joël Godin: Yes, Madam Chair.

Ms. Nichols, can you tell me which provinces were involved in that consultation?

[*English*]

Ms. Megan Nichols: All provinces are members of this working group.

[*Translation*]

Mr. Joël Godin: Were they representatives from the provincial transport ministries or other ministries?

[*English*]

Ms. Megan Nichols: It includes a combination of ministries of transport and ministries of environment.

[*Translation*]

Mr. Joël Godin: Since the government has been in power, it has introduced various programs to achieve very specific targets: 10% in 2025, 30% in 2030 and 100% in 2040. In September 2020, Clean Energy Canada confirmed that Canada is going to miss those targets, just like the ones in the Paris agreement.

Do we have the tools we need to achieve them, and what's being done right now?

As a follow-up question, I'd like to know why Canada doesn't look to Quebec and British Columbia as models since they, alone, account for 78% of the electric vehicles sold in the country. I think the two provinces have expertise that the Canadian government should leverage to achieve Transport Canada's targets.

● (1650)

[*English*]

Ms. Megan Nichols: I can perhaps try this one as well, Madam Chair.

Certainly, Canada has set very ambitious ZEV sales targets of 10% in 2025, 30% in 2030 and 100% in 2040. We are making progress. In 2018 we were at 2% of zero-emission vehicle sales across the country. In 2019 we were at 3%. For the first half of 2020, we are at 3.4%.

Since the launch of the incentives for the zero-emission vehicles program, we have seen sales increase by 25% in the first year. We are making progress; however, we are continuing to assess progress to determine whether additional measures are required to meet these targets.

The Chair: Thank you.

We'll now go to Mr. Longfield for six minutes.

[*Translation*]

Ms. Monique Pauzé (Repentigny, BQ): I have a point of order, Madam Chair.

The Chair: Go ahead, Ms. Pauzé.

Ms. Monique Pauzé: Sorry, but I thought we were being given the opportunity to question one expert at a time. If I understand correctly, anyone can answer, but I have just two and a half minutes—

The Chair: No. Pardon me.

[*English*]

You have six minutes. According to the routine motions that we adopted at the first meeting, both you and the NDP have six minutes in the first round and you can ask any witness. Monsieur Godin chose Ms. Nichols, but you can choose whomever you want.

Now it's Mr. Longfield's turn to ask a witness.

Mr. Longfield, you have six minutes.

Mr. Lloyd Longfield (Guelph, Lib.): Thanks, Madam Chair.

I'd like to start off with Clean Energy Canada. It's a great report. It looks as if the think tank is doing a lot of really good work that we're going to benefit from in our report.

One think I was looking for was that there's a SCRAP-IT program in British Columbia for taking vehicles off the road and helping to get new vehicles on the road. Did you do any work on whether a program such as SCRAP-IT, which provinces would run, would help to stimulate the purchase of zero-emission vehicles?

The Chair: Mr. Longfield, who is this question for?

Mr. Lloyd Longfield: I said at the start of my question that it was for Clean Energy Canada.

The Chair: There's Helen Ryan from the Department of the Environment. There's the Department of Transport, the Department of Natural Resources and the Department of Industry. Which one do you want?

Mr. Lloyd Longfield: I'm sorry, but it was a report by Clean Energy Canada that I was referring to.

To Environment and Climate Change, I know this is a provincial program, but have we looked at provincial programs and how we might support them in taking vehicles off the road?

The Chair: Ms. Ryan, would you like to answer the question, please?

Ms. Helen Ryan (Associate Assistant Deputy Minister, Environmental Protection Branch, Department of the Environment): There has been work done to look at programs such as B.C.'s SCRAP-IT. I'll turn to my colleague from Transport Canada for further information with respect to assessments around the SCRAP-IT program.

Mr. Lloyd Longfield: Thank you.

The Chair: Ms. Nichols.

Ms. Megan Nichols: We are aware of B.C.'s SCRAP-IT program and of the success it has had in removing older vehicles from the road. As I mentioned earlier, we are continuing to look at potential additional tools to help us meet our zero-emission-vehicle sales target. I know that my colleagues at Natural Resources Canada and Innovation, Science and Economic Development may have additional information on such a program that they may wish to share.

The Chair: Madam Vieira.

Ms. Paula Vieira (Executive Director, Fuel Diversification Division, Clean Fuels Branch, Department of Natural Resources): Good afternoon, everyone.

This is one of the programs, one of the instruments that we have been looking at, to see how it can work together with the instruments and with the programming that is currently in place.

A SCRAP-IT program is used predominantly to accelerate fleet turnover. If that is the government's objective, to try to get consumers to make a purchase decision in advance of when they naturally would, then that instrument can be very effective. However, if what we're trying to do is simply to help incent ZEV purchases, then incentives are also very effective. It's really important to understand what the ultimate objective is. Is it to purchase more zero-emission vehicles or to accelerate the pace at which—

● (1655)

[*Translation*]

Mr. Joël Godin: Madam Chair, I have a point of order.

The Chair: Very well. You may go ahead.

Mr. Joël Godin: The interpreter just signalled that she can't interpret what's being said because the department official doesn't have the right tools to communicate clearly. That's a breach of my parliamentary rights. I would like access to interpretation. Can we find a solution?

[*English*]

The Chair: I'll just let Alexandre respond to it.

Alexandre.

[*Translation*]

The Clerk of the Committee (Mr. Alexandre Roger): Good afternoon, Ms. Vieira.

[*English*]

Could you just move your microphone a little farther? We're hearing popping sounds when you're speaking.

If you can just answer again, I think Mr. Godin will have the interpretation.

Ms. Paula Vieira: I apologize. Can we try that again? Is that better?

[*Translation*]

The Chair: Mr. Godin, is that better? I see it is.

You may go ahead, Ms. Vieira.

[*English*]

Ms. Paula Vieira: As I previously noted, it is really important to understand the objective of the measures that we would put in place. Something like a SCRAP-IT program is very effective in accelerating fleet turnover. What that means is—

[*Translation*]

Mr. Joël Godin: Madam Chair, I have a point of order.

The interpreters just signalled that the witness's microphone is too close to her mouth, so they can't hear what she's saying. Can she adjust it? I'd like to hear her explanation.

[*English*]

The Chair: Mr. Longfield, go ahead to the next witness. Thank you.

Mr. Lloyd Longfield: I'd like to reset the clock a bit. I think I've lost about a minute and a half.

The Chair: Yes, it has already stopped.

Mr. Lloyd Longfield: Thank you.

Thank you for your answers.

I'd like to go to Ms. Irwin from ISED.

Recently, there was the announcement about the Ford Motor Company producing EVs and batteries in Canada at Windsor and Oakville. Fiat Chrysler has an announcement on hybrid vehicles or EVs in Canada. One of the presentations showed the difficulty that dealerships in Canada have in obtaining EVs.

Could you comment on when these programs will roll out and whether that can help us get more EVs through the dealerships?

Ms. Sharon Irwin (Senior Director, Industry Sector, Automotive, Transportation and Digital Technology Branch, Department of Industry): Thank you for your question, Mr. Longfield.

With respect to the Ford and recent Fiat Chrysler announcements on the investments they're making, as negotiations with the unions came to a close in the last few weeks, certainly I think there is one thing we have to keep in mind. Those decisions are very key to the transformation of the automotive sector and in helping Canada reach its overall goals with respect to reductions of GHG emissions. It's important to understand that those particular decisions do take some time to be realized. The time between when a decision is made and when a firm brings that particular transformation to either a production or manufacturing line usually has about a four- to five-year window; so, of course, there will be a bit of a lag until we have that full, easy production within Canada. Certainly, it's a significant development in terms the transformation and electrification of the sector in Canada.

The Chair: You have 30 seconds, Mr. Longfield, if you want to give it to—

Mr. Lloyd Longfield: Thank you.

To Natural Resources, we've been working with the Ivy network in Ontario to get charging stations around the province to try to stimulate EV use and take that barrier away from its use. Could you talk about the progress of that system, please?

The Chair: Unfortunately, that will have to be in the next round.

We now go to Madame Pauzé.

[*Translation*]

You have the floor for six minutes, Ms. Pauzé.

● (1700)

Ms. Monique Pauzé: Thank you, Madam Chair.

Ms. Vieira, in your brief, you talk a lot about range anxiety, but I'm inclined to point out that, first, there have to be vehicles. Has your department considered adopting a policy along the lines of a zero-emission mandate to address the supply problem?

Bear in mind that, like British Columbia and Quebec, 10 U.S. states, including California, have such mandates and all of those states and provinces have a supply of vehicles.

Has your department examined that option?

[*English*]

The Chair: Madame Pauzé, are you having trouble with your mike?

[*Translation*]

Ms. Monique Pauzé: I asked a question. Did it not come through?

[*English*]

The Chair: Okay, I'll stop the clock for a minute.

Madame Pauzé, could you please speak into the mike.

[*Translation*]

Ms. Monique Pauzé: I'll start over.

My question is for Ms. Vieira. In her brief, she talks a lot about range anxiety. What came to mind when I read that was the importance of having a supply of vehicles, first. I would point out that, like British Columbia and Quebec, 10 U.S. states, including California, have zero-emission mandates and all of those states and provinces have a supply of vehicles.

Has your department considered the possibility of adopting a zero-emission mandate to address the supply problem?

[*English*]

The Chair: Madame Vieira.

Ms. Paula Vieira: Yes, as has been noted, we're looking at all instruments to increase the deployment of electric vehicles in Canada. We're looking at—

[*Translation*]

Ms. Monique Pauzé: Sorry to cut you off, but the interpreter is signalling that Ms. Vieira's microphone is too far from her mouth this time.

[*English*]

The Chair: Ms. Vieira, you need to move the microphone away from your mouth.

Ms. Paula Vieira: Is this better? Okay.

We are looking at all measures: regulatory measures, and whether those are existing emission standards, mandates and incentives. We're looking at all instruments to see how we can increase supply—

[*Translation*]

Mr. Joël Godin: I have a point of order, Madam Chair.

The Chair: Yes, Mr. Godin?

Mr. Joël Godin: The problem isn't that her microphone is too close; the problem is that it's too far this time. According to the interpreter, she needs to bring it closer to her mouth.

[*English*]

The Chair: All of us have these mikes, so we don't get into trouble. Try keeping it at a distance. Let's test your mike. I've stopped your time, so give it a try.

[*Translation*]

Mr. Godin and Ms. Pauzé, please let me know whether the interpretation is coming through or not.

You can go ahead, Ms. Vieira.

[*English*]

Ms. Paula Vieira: I apologize. We did test it, and everything was working fine. Is that better?

The Chair: Mrs. Vieira, yes, please continue.

Ms. Paula Vieira: Thank you. We are looking at all measures, including regulatory measures, to ensure that we're supporting the entire value chain. What can increase supply? What can increase consumers' adoption? What are the enabling measures like infrastructure? We are looking at what combination of instruments it will take to increase deployment of EVs in Canada.

So yes, we are looking at all instruments.

[*Translation*]

The Chair: Ms. Pauzé, did you have another question?

Ms. Monique Pauzé: Yes, Madam Chair.

My question is for Helen Ryan. According to her brief, Environment and Climate Change Canada has legislative authority under the Canadian Environmental Protection Act, 1999. Before that, she mentions heavy-duty and light-duty vehicles.

Has the department explored policy options to deal with this specific issue? After all, the department has legislative authority to regulate light-duty, heavy-duty and off-road vehicles.

● (1705)

[*English*]

The Chair: Madame Ryan, go ahead.

[*Translation*]

Ms. Helen Ryan: Thank you for your question.

As I mentioned in the brief, under the Canadian Environmental Protection Act, we also have regulations to control greenhouse gas emissions from heavy-duty and light-duty vehicles.

For light-duty vehicles, our standards are based on the performance of vehicle fleets, and there are incentives for electric vehicles, hybrid vehicles and hydrogen vehicles. Automakers have to meet certain standards, and one way to do that is to supply zero-emission vehicles.

Ms. Monique Pauzé: Coming back to the greenhouse gas emission regulations, I'd like to draw your attention to a study conducted by British Columbian John Axsen. He uses modelling to determine the failure or success rate in relation to the federal targets. The greenhouse gas emissions regulations alone won't ensure the targets are met.

Do you recognize that, in order to tackle climate change, the government needs to incentivize automakers to adapt and transition quickly?

[*English*]

The Chair: Thirty seconds for a response. Who do you want to respond?

[*Translation*]

Ms. Monique Pauzé: I'm still addressing Ms. Ryan. I'm referring to her brief.

Ms. Helen Ryan: As my colleague Ms. Vieira mentioned, we realize multiple elements need to be in place to increase the number of zero-emission vehicles, including incentives, infrastructure and education. The answer, then, is yes.

[*English*]

The Chair: We now go to Ms. Collins, for six minutes.

Ms. Laurel Collins (Victoria, NDP): Thank you so much.

Ms. Vieira mentioned in the written statement that it's essential to support consumers through the entire consumer continuum, and Ms. Nichols wrote about the initiatives to help meet Canada's ZEV sales targets.

What work if any has been done to support the purchasing of used EVs, second-hand electric vehicles? For many Canadians, purchasing a new vehicle, whether it's gas or electric, isn't an option. With the high cost of rent, child care, medication and other essentials, 50% of Canadians are living paycheque to paycheque, and they often turn to second-hand vehicle purchases.

What are we doing to support these people and to ensure that electric vehicles aren't just for those who can afford a tens of thousands of dollars purchase?

The Chair: Ms. Collins, to whom are you directing your question?

Ms. Laurel Collins: I said Ms. Nichols and Ms. Vieira—either one.

The Chair: Ms. Nichols, would you like to go first? Ms. Vieira, keep your mike ready.

Go ahead.

Ms. Megan Nichols: Thank you, Madam Chair.

Certainly while the incentives for a zero-emissions vehicle program do currently focus on new vehicle sales, we recognize there's an opportunity to make zero-emission vehicles more accessible to all Canadians. We also capture the used zero-emission vehicle market, and this was mentioned in ministerial mandate letters.

About 60% of vehicles acquired annually are done through the secondary market, so Transport Canada is currently exploring options to expand the program to include used vehicles.

Ms. Laurel Collins: Thank you for that. That's good.

Following up on Mr. Godin's question about targets, we did receive information from Clean Energy Canada, describing how Canada is not on track to meet its target of selling 100% zero-emission vehicles by 2040. They quoted Transport Canada:

> Analysis has shown that without any further action, Canada could achieve zero-emissions vehicle sales of 4% to 6% of all new light-duty vehicles purchased by 2025 and 5% to 10% by 2030.

Ms. Nichols, you mentioned that we're exploring all options, but is there going to be a plan that outlines how we're going to meet the 10% target by 2020, 20% by 2030, 50% by 2040 and 100% by 2050—if I've got those right?

● (1710)

Ms. Megan Nichols: As I mentioned earlier, we are seeing good progress towards targets. We started at 2% of sales in 2018. We reached 3% in 2019. We are at 3.4% of sales in the first half of 2020—

Ms. Laurel Collins: Ms. Nichols, I'm sorry to interrupt. I did hear those before.

When you're talking about good progress, if Transport Canada is saying that we're currently projected to only reach 4% to 6% by 2025 and 5% to 10% by 2030, this doesn't seem like good progress to me.

Ms. Megan Nichols: Yes. With the measures currently under way, we are hoping to see better performance than those previous numbers. We are closely tracking the progress made.

In budget 2019, $700 million was allocated to various measures to increase the uptake of zero-emission vehicles, not only the purchase incentive program but also additional funding for infrastructure as well as some other measures. So we do continue to assess progress to determine whether additional measures are needed.

Ms. Laurel Collins: Thank you so much.

It was mentioned that Environment and Climate Change Canada has legislative authority to regulate the sectors under the Canadian Environmental Protection Act. They've implemented six regulations under CEPA.

CEPA is over two decades old. It's in desperate need of modernization. Are there any current plans to develop regulations under CEPA that require automakers to achieve Canada's sales targets and a national zero-emission vehicle standard for passenger vehicles? This is probably for ECC.

Ms. Helen Ryan: We're currently undertaking a mid-term review of our light-duty vehicle regulations. The current regulations go out to model year 2025. They are aligned with the U.S. EPA regulations. We're undertaking a review, because when we first set those regulations, they were viewed by industry as quite ambitious.

Since then the U.S. has rolled back its standard and has put in place provisions that go out to model year 2026. We're finalizing our mid-term review to determine what action is needed in the context of our current regulations. We expect this work to be completed in early 2021.

With respect to exceeding our 2030 targets and getting to net zero by 2050, we're also evaluating what is needed with respect to the transportation sector, including for light-duty vehicles, heavy-duty vehicles and off-road vehicles.

Ms. Laurel Collins: Thank you.

The Chair: You have only 30 seconds.

Ms. Laurel Collins: That's okay.

I think Ms. Irwin, in her statement, mentioned the innovation and skills plan and the strategic innovation fund. I'm just wondering if work is going towards skills development training and transition for auto sector workers who have lost their jobs and want to work in electric vehicle production.

The Chair: I'm sorry, but there's no time for a response.

We now go to our second round of five minutes.

Mr. Redekopp, you have five minutes.

Mr. Brad Redekopp (Saskatoon West, CPC): Thank you so much.

To all of the witnesses today, thank you for providing your written comments. They really help a lot.

I want to focus my questions on heavy-duty equipment, class 8 vehicles, commonly known as semi-trucks.

To Ms. Irwin, has your department done internal studies on the feasibility of zero-emission heavy-duty engines for class 8 trucks?

Ms. Sharon Irwin: Specifically, to answer your question very directly, no. Our department has not undertaken studies to look at the feasibility of that in heavy-duty trucks. What we have been doing at ISED, through our programs such as the strategic innovation fund, is to engage with producers, parts manufacturers and others across the spectrum of light-duty vehicles and heavy-duty vehicles to see where we can support and incentivize research and development, as well as technology development for the lightweight reduction fuel efficiency. There are a number of elements there to help meet those targets.

But, no, we have not undertaken such a study.

● (1715)

Mr. Brad Redekopp: Thank you.

Ms. Nichols, for the transport sector, are there going to be similar incentives or subsidies to encourage the switch over to a lower carbon fleet?

Ms. Megan Nichols: Yes, we certainly are aware that the heavy-duty vehicle sector is a very significant source of greenhouse gas emissions in Canada. Of the emissions from the transport sector, it accounts for 35% of those emissions. It's certainly an area that needs to be addressed. There are a number of challenges and barriers that are unique to this sector. Certainly, one is the significant cost of the purchase of these vehicles. Another is that the technology is still very much in a development phase. While there are more and more models coming online, particularly for the return-to-base segment and shorter haul, there still remains a significant technology gap for long-haul, heavy-duty vehicles. There are barriers that need to be addressed across the spectrum. There's also the question of the availability of fuelling infrastructure, and also the development of necessary codes and standards. We continue to look at all of these areas. At this point it would be premature to comment on potential solutions the government may choose to bring forward.

Mr. Brad Redekopp: I might just ask, further to that, with CUSMA and other international agreements, are there going to be difficulties trying to subsidize or to encourage transitions? In fact, could that even be illegal under these treaties?

Ms. Megan Nichols: Certainly, the heavy-duty vehicle regulatory frameworks are highly integrated between Canada and the U.S. I couldn't comment on barriers from a trade perspective, though. I would have to defer to experts in our international trade department.

Mr. Brad Redekopp: I know that the Canadian Trucking Alliance has approached Environment Canada to create a working group to work together to develop a road map for decarbonization of the trucking industry.

Ms. Ryan, I'm wondering if there are any steps that have been taken to create such a working group.

Ms. Helen Ryan: I'm going to defer the question to my colleague, Marc D'Iorio.

Mr. Marc D'Iorio (Director General, Energy and Transportation, Department of the Environment): I'm not aware of direct work to create a working group. However, there are a number of measures being considered under the heavy-duty regulations to look at ways to decarbonize, as well as working with other departments to see what combination of measures will accomplish this. There are some programs that have been put in place by provinces looking at retrofitting the existing fleet, for example energy-saving devices like skirts on trucks, deflectors and tires. Those are the main measures that improved the efficiency of the current fleet.

Mr. Brad Redekopp: Are you saying that there have been no discussions to create a working group to get industry players in line with this, no efforts to get all of the people at the table to help develop these types of regulation?

The Chair: A 30 second answer, please. Yes or no?

Mr. Marc D'Iorio: Not that I'm aware of.

The Chair: Thank you, Mr. Redekopp.

We now go to Mr. Saini for five minutes.

Mr. Raj Saini (Kitchener Centre, Lib.): Thank you, Madam Chair.

I'd like to start with a question for Natural Resources Canada. One of the things that I've been reading about is that there's some consumer anxiety when it comes to the range of these vehicles—how far the batteries will last—especially in the winter. Are they going to have enough of a charge?

I know that Natural Resources Canada is undertaking a mass infrastructure program for mass EV adoption. What is your thinking on that range anxiety being one of the barriers to more adoption? What proposals do you have to limit that anxiety?

Ms. Paula Vieira: Range anxiety, absolutely, is a barrier to deployment. That is why Natural Resources Canada is spending over $300 million on two infrastructure programs to ensure that Canadians can charge coast to coast if driving their EV. In the coast-to-coast network, we are looking at having chargers every 65 kilometres on both sides of the highway. The reason we picked 65 kilometres—which is very much within the international standards for EV charging—is that even some of the lower technology vehicles have a range of at least 65 kilometres. Now many vehicles are well over 200 or 300 kilometres per battery recharge, but we wanted to ensure that there was quite frequent charging along the highways.

In 2019 we received an additional $130 million to get charging much closer to where Canadians work, live and play. It is really important to note that the lion's share of charging happens at home. The second most frequent charging happens at the workplace. Then you may think about highways and more public places. That is why, in our charging program, we are addressing all of those. We are addressing the highways, and having charging at home and in public places and the workplace.

● (1720)

Mr. Raj Saini: Thank you.

The next question is for Transport Canada. As you're well aware, there was a recent report given to your department, the Dunsky Energy Consulting report, and one of the things they found is that this is mainly about supply. The supply has been reduced by 24%, and the supply is basically in two provinces. Madame Pauzé touched on this. I think that we need to change some of our policy direction.

When you look at B.C., Quebec, California, and Canada, the States or even China, they're adopting ZEV standards to make sure that they increase supply. Part of that is to give them certain credits they can trade or they can keep and sell to other companies. How are we going to incentivize companies to increase supply when it's already being done? Why are we not trying to make this pan-Canadian in some sort of way?

Ms. Megan Nichols: Certainly there is low inventory of some zero-emission vehicle models at Canadian dealerships, but despite that, we still have seen quite good uptake of the incentives for the zero-emission vehicle program across the country, even in provinces that do not have regulations or mandates for sales in place. We've seen significant increases. For example, in Saskatchewan in 2019 we saw sales increase by 95%. In Manitoba they were up by 71%. In Alberta, they were up by 53% from 2018 numbers.

That said, we know that we need a greater diversity of models in Canada to meet the needs of Canadians living in all types of communities and situations, and it's certainly something that's at the top of our minds. In terms of supply, we do recognize that it's an important element of making sure we meet our sales targets. As I said, that is why we continue to look at what additional measures would help us to achieve those.

Thank you.

The Chair: You can ask a very brief question.

Mr. Raj Saini: Has Environment Canada thought about the uptick that will be required in electricity consumption as more people are adopting this technology? Madame Vieira was right that 80% of the charging happens at home. The other 20% is either at work or somewhere else. If more and more people on a street continually charge more and more, there will be an electrical uptick. Have we thought about how we're going to manage that surge in electricity?

The Chair: You can give a very quick answer.

Ms. Helen Ryan: Thank you, Madam Chair.

The answer is yes. That is an issue that we are paying attention to, and we are looking at our electricity generation and supply system in order to be able to service the growing demand for electric vehicles.

The Chair: Thank you very much.

We now go to Madame Pauzé for two and a half minutes.

[*Translation*]

Ms. Monique Pauzé: Thank you, Madam Chair.

My question is for you, Ms. Vieira. In your brief, you refer to a hydrogen strategy for Canada. The Pembina Institute contrasts green hydrogen with grey hydrogen and blue hydrogen. Is that something you've taken into account?

[*English*]

Ms. Paula Vieira: Yes, absolutely. The hydrogen strategy will look at all pathways to hydrogen production. What's really important is not the colour. There's actually an international initiative, of which Canada is a leading part, that is looking to get away from colours.

What's really important is the carbon intensity of hydrogen. With CCUS, we can produce hydrogen from natural gas in Alberta and in Saskatchewan that has the same carbon intensity as hydrogen produced from clean power—for example, through electrolysis. It's really important that we focus on clean hydrogen as well as carbon intensity.

● (1725)

[*Translation*]

Ms. Monique Pauzé: I'm going to stop you there, Ms. Vieira, since I have just two and a half minutes.

In Quebec, hydroelectricity can produce hydrogen.

My next question is for Mrs. Irwin.

Naturally, automakers want to make money and profits. Although there is a demand, it's not strong enough. The only way to stimulate production is to create a market that can't be ignored, and that requires regulations. Would you agree with that?

[*English*]

Ms. Sharon Irwin: With respect to your question as it relates to regulations, I would defer to my colleagues at environment and other departments to answer specifically anything related to that.

With respect to production, I think it's a fine balance in terms of our discussions with the industry, which is what ISED focuses on in understanding where the industry is at. There's a fine balance between the health of the industry, which is a major economic driver within the country, and supporting its transformation over a period of time, and the need to accelerate and to move more quickly towards electrification within our transportation sector in Canada. As—

[*Translation*]

Ms. Monique Pauzé: You often mention transition—

The Chair: Ms. Pauzé, your time is up.

Ms. Monique Pauzé: I don't even have 10 seconds left?

[*English*]

The Chair: Ms. Collins, you have the last word today, for two and a half minutes.

Ms. Laurel Collins: Thanks so much.

Maybe I'll repeat my last question. It was about the work towards skills development, training and transition help for auto sector workers who have lost their jobs and who want to work in the electric vehicle production industry.

Ms. Sharon Irwin: I believe that one was directed at me. Is that correct, Ms. Collins?

Ms. Laurel Collins: Yes.

Ms. Sharon Irwin: Okay. Thank you.

With respect to skills development and training for auto workers and other people who are looking to reskill and retrain, it's probably a question best directed at a colleague from Employment and Social Development Canada. Within ISED, our focus is on industry development and industry support, research and development, and technology, but certainly, in building those programs and working with the sector, those considerations about the benefits brought to Canada do come in, from both an economic and a social perspective.

Ms. Laurel Collins: Ms. Irwin, do you have a sense of how many jobs in the low-carbon vehicle production sector would be created through the strategic innovation fund?

Ms. Sharon Irwin: I don't have a fulsome number. I can speak to a couple of particular projects as to whether they are—

Ms. Laurel Collins: No, that's okay. If there is that data, could we maybe get that sent to committee in written form?

Ms. Sharon Irwin: I will certainly inquire with my colleagues around the program.

Ms. Laurel Collins: Thank you.

Some sectors are seeing a downward trend in emissions, but transportation-related emissions have been rising by about 8% since 2015. It doesn't seem that we're on track to meet our climate targets or our emissions targets with electric vehicles. Even if light-duty vehicle emissions peak and drop, the heavy-duty truck emissions seem to be increasing.

When it comes to hydrogen fuelling stations, the documents that were provided talked about metropolitan areas, but not so much key freight corridors. The focus was more on natural gas refuelling. Is that just because of the technology that's available now? I'm wondering why that was the case and if there are other barriers.

Ms. Paula Vieira: Certainly, in the new programming that we got in 2019, we are looking at hydrogen refuelling along freight corridors as well, because we do see that as having huge potential for long-haul trucking, whereas with a battery, you would have no room for payload. Hydrogen is absolutely a huge opportunity for long-haul.

The Chair: Thank you very much.

I have a question for all of the witnesses. Can we make your statements public? Are you comfortable with making your statements public?

Mr. Albas, on a point of order.

Mr. Dan Albas (Central Okanagan—Similkameen—Nicola, CPC): Madam Chair, because there are many other members who haven't had an opportunity to ask questions, would it be possible to extend the meeting by half an hour, so we can have another round?

The Chair: I have to ask the members, but I have to ask the clerk, first. Who has Zoom after us?

Alexandre, are we okay for an extension? If we are, then I'd like to ask the members.

● (1730)

Mr. Lloyd Longfield: I have a meeting I have to get to. I could provide a question to each witness, if that's what you want.

Mr. Dan Albas: Madam Chair, we don't plan on passing any motions or whatnot, so quite honestly, it's just to ask questions.

The Chair: Alexandre, go ahead.

The Clerk of the Committee (Mr. Alexandre Roger): The services in the room are all saying they can stay a further half an hour. It really depends on how the committee feels.

The Chair: Perfect.

Mr. Longfield, you had your chance to ask a question. Mr. Jeneroux is next, followed by Mr. Albas, Mr. Baker, Ms. Collins and Ms. Pauzé. All of you will have two and a half minutes each.

Is everybody in agreement?

Ms. Collins, you had your hand up.

Ms. Laurel Collins: I have a medical appointment, just a flu shot, scheduled in about 15 minutes. Is it okay if I switch over to my phone, and then I can jump back in?

The Chair: Sure.

Are the witnesses okay with staying an extra half an hour? I don't see anybody saying no, so we are going to go to Mr. Jeneroux.

Mr. Matt Jeneroux (Edmonton Riverbend, CPC): Thank you, Madam Chair.

I have a question for the transport department. You said that approximately 60,000 Canadians, or Canadian businesses, have benefited from the incentives for zero-emission vehicles program, the iZEV program.

Can you further break down that number? Of those 60,000, how many Canadians and Canadian businesses have used this program?

Ms. Megan Nichols: I'm afraid I don't have that specific piece of information at my fingertips, so we will have to get back to the committee with that.

The Chair: I'm going to ask the clerk to make note of the request made by Mr. Jeneroux.

Mr. Jeneroux, please continue.

Mr. Matt Jeneroux: Would it be safe to say, though, that the majority of those purchases would be by businesses?

Ms. Megan Nichols: No, in fact there is a limit to how many zero-emission vehicle purchases a business can make under the program. It's limited to 10 purchases per year. There is a limit, and it would be safe to say that the majority are by individual Canadians.

Mr. Matt Jeneroux: You're indicating that, essentially, more Canadians are walking into a dealership and buying a zero-emission vehicle than businesses. I get that there's a 10 limit per business, but that doesn't limit all businesses from going and then purchasing vehicles, is that correct?

Ms. Megan Nichols: We will get back to the committee with the specific number, so that we can confirm that information.

Mr. Matt Jeneroux: Obviously, the cost is a major deterrent to purchasing a vehicle. That said, there's also the convenience or ability to ensure that you'll make it from point A to point B, mostly referring to Canadians who live in rural areas.

You've addressed a little bit of this, but I'm hoping you can answer this specific question. If the goal is to have everyone driving a zero-emission vehicle, what is being done to ensure that rural Canadians can conveniently charge their vehicles?

Ms. Paula Vieira: I believe that question would be for Natural Resources Canada. That is administered in the infrastructure program.

We are working with all jurisdictions to ensure that we are supporting projects in not only urban centres, but in rural locations as well. Actually, a lot of our coast-to-coast network does cover some rural locations.

We are working with stakeholders and provinces to amplify the availability of the program every time we put out a request for proposals. It is important to note that the business case in the rural communities where the charging will be very infrequent makes the business case very difficult. We are dependent on the private sector approaching the government to help de-risk those purchases. We are seeing that it is difficult to get the private sector interested in deploying infrastructure in locations where there is just not going to be large volumes of charging.

We are looking at making changes to the program, making the program more attractive and working with industry to ensure that we are enabling rural deployment of infrastructure as much as possible.

● (1735)

Mr. Matt Jeneroux: Thanks, Madam Chair.

Any time that I have left I'll share with Mr. Albas.

The Chair: You have at least a minute.

Mr. Albas.

Mr. Dan Albas: Thank you to all of our witnesses. I appreciate the work you do.

Regarding the electric vehicles subsidy for consumers, of the 60,000 users, how many purchases were replacing a gas-powered vehicle and how many were adding another car to their household while keeping the existing emitting vehicle? Do you track that information?

Ms. Megan Nichols: No, I'm afraid, Madam Chair, we do not track that specific information at this point in time.

Mr. Dan Albas: Have you done any work to see how you might be able to track that kind of important information? It's kind of important to know, for an incentive such as this.

Ms. Megan Nichols: We have certainly looked at conducting some surveys of consumers who have benefited from the program. It's still a fairly new program, so we're still in the early stages, but we certainly—

The Chair: Thank you.

Mr. Albas will ask you in the next round.

Mr. Baker, you have five minutes.

Mr. Yvan Baker (Etobicoke Centre, Lib.): Thank you to all of the witnesses for being here today and for presenting to us.

My first question is around the impediments to zero-emission vehicle adoption. We've talked about a number of them here. I've read about a number of them. Impediments could be things like the range of vehicles, performance, reliability, the cost of purchasing the vehicle, the cost of the fuel or the electricity and the cost of maintenance or extra repair and parts. Maybe there are other obstacles.

I wonder if you could tell me what the most important obstacles are [*Technical difficulty—Editor*] to achieving the adoption levels that the government has laid out as targets. Which of those things that I've mentioned—or maybe there are others—would you identify as the most important obstacles to people adopting zero-emission vehicles?

I don't know if this question is is best placed for Ms. Ryan or for Ms. Nichols.

Ms. Megan Nichols: I can begin if that is acceptable, Madam Chair.

There is general agreement amongst experts that there are about four key barriers that need to be overcome. The first is the affordability barrier, as you mentioned. Zero-emission vehicles presently have higher purchase prices compared to ICE vehicles. The second one, as we've touched on several times this afternoon, is related to sufficient supply to make these vehicles in large numbers and available to Canadians. The third is the importance of access to charging and refuelling infrastructure to support more zero-emission vehicles on the road in all parts of the country. The fourth is around consumer awareness of zero-emission vehicles.

Those are really the four key barriers that there is quite wide consensus on.

Mr. Yvan Baker: Thank you for that answer. That's very informative.

As a result of that, is it fair to say that these are the areas where you're focusing your analysis or an evaluation of options to provide the necessary incentives? Not incentives necessarily.... Are these the areas where you're trying to identify incentives, where that's appropriate, and address some of the challenges that you've identified?

Ms. Megan Nichols: I think it's safe to say that. In budget 2019, $700 million was allocated to addressing many of these areas, such as the purchase program to address affordability and new funding for infrastructure to address the infrastructure question. That is certainly where we see most of the analysis that needs to be done.

Mr. Yvan Baker: Okay, that makes a lot of sense.

I used to be a member of the provincial parliament in Ontario prior to being elected federally last year. One of the things that I know has changed is the Government of Ontario's policy with regard to incentives around zero-emissions vehicles.

Ms. Nichols, this is directed to you.

Could you quickly describe what the change in that policy has been and what the impact has been of that?

● (1740)

Ms. Megan Nichols: I can't speak specifically to the change in Ontario's policy. I can say that we did see a decrease in the percentage of zero-emissions vehicle sales in Ontario following that change. As I mentioned earlier, we have seen those numbers increasing again over the last year, specifically coinciding with the federal incentive purchase program.

The Chair: Mr. Baker, you have a minute, but I think we've lost your connection.

Mr. Baker.

Mr. Yvan Baker: Unfortunately, my connection must have broken off a little bit. I lost what was said in response.

The Chair: You have a minute.

Mr. Yvan Baker: Okay, I'll get the answer from the evidence.

My follow-up comment would be that the change in Ontario concerned a reduction or elimination of incentives for consumers to buy those vehicles.

It would helpful, Ms. Nichols, if you could help us understand the impact of the changes recently in Ontario in terms of the adoption of zero-emissions vehicles.

Can you quickly comment, in the remaining 40 seconds or so, on what the cost of reducing emissions is when we talk about zero-emissions vehicles relative to other emissions-reduction opportunities?

The Chair: A very brief answer.

Ms. Megan Nichols: That's one that will be difficult to be brief on.

We don't necessarily have a specific cost-per-tonne estimate yet for this particular program—again, being that it's fairly new. We do know that of the 60,000 vehicles that have been incentivized to date, they will bring reductions of about 207,000 tonnes per year. If you look over the vehicle's lifespan of about 12 years, it's about 2.5 million tonnes.

The Chair: Thank you.

We're going into the third round of questioning.

Mr. Albas, you have five minutes.

Mr. Dan Albas: Thank you very much, Madam Chair.

I would like to pick up where I left off.

Does the department track the average household income of people accessing the subsidy?

Ms. Megan Nichols: Madam Chair, if you can bear with me, I have information on some of the trends on some of the consumers who have taken advantage of the incentive. About 61% of the purchasers were between the ages of 35 and 59. About 86% of claims were from Canadians living in centres with a population of 30,000 people or more.

We are continuing, as I mentioned earlier, to gather more information on who, for example, is taking advantage of this.

Mr. Dan Albas: So you have no average household income. Is that correct?

You're not tracking that actively.

Ms. Megan Nichols: We are not actively tracking that at this point in time.

Mr. Dan Albas: Are you concerned about the situation where a manufacturer sets a base model just under the threshold price so that the purchaser can access the subsidy, and then later charges them extra for add-ons, ensuring that the taxpayer is essentially underwriting a luxury purchase?

Ms. Megan Nichols: Madam Chair, the way that the program has been designed is that if a vehicle meets the eligibility criteria the department has set out, then higher-priced trims on that vehicle can also be eligible, up to a certain cap.

I'm happy to go through that if the committee wishes.

Mr. Dan Albas: No. I would appreciate if you could send the information on what you are tracking actively.

Now people of less means generally don't buy new vehicles. These programs are essentially helping people to buy new cars. Is there something in place to help people access used ones?

Ms. Megan Nichols: Certainly while the current program does focus on new vehicle sales, we know that about 60% of vehicles purchased by Canadians are purchased on the secondary market.

There was a commitment and ministerial mandate letters to explore a used zero-emissions vehicle program. That is something we are currently exploring expanding the current program to include.

Mr. Dan Albas: Okay.

What is the total lifetime greenhouse gas emissions impact of the average electric vehicle, including its manufacturer, and what is the greenhouse gas reduction impact per taxpayer dollar spent for this subsidy?

Ms. Megan Nichols: I'm sorry, Madam Chair. Can I please hear the question again?

Mr. Dan Albas: Sure. What is the total lifetime greenhouse gas emissions of an average electric vehicle, including the manufacturing process, and what is the greenhouse gas reduction impact per taxpayer dollar that is spent on the subsidy?

● (1745)

Ms. Megan Nichols: Madam Chair, I'm not sure I can provide specific numbers today. We might have to follow up on that.

Mr. Dan Albas: If you could, I'd appreciate that.

Ms. Megan Nichols: Certainly.

Mr. Dan Albas: We actually do know, though, that your department has said that the estimated cost per tonne of greenhouse gas reduction from the subsidy was almost $900. This is highest per tonne of any government emission reduction program.

If the subsidy is expensive and only helping wealthy people buy cars that they were actually going to buy anyway and is not resulting in commensurate greenhouse gas reductions, what is the policy justification for this subsidy?

Ms. Megan Nichols: Madam Chair, we have set the eligibility thresholds for eligible vehicles to be within the range that we know Canadians do spend on vehicles on average, so that is why the current cap is set at $45,000 for base models for most vehicles and $55,000 for vehicles that seat more than six people.

Mr. Dan Albas: You don't track household income. You don't track some of these other metrics we've talked about. Are we not essentially allowing people to subsidize a luxury car purchase? You said before that the base model has workarounds.

Ms. Megan Nichols: Madam Chair, I would just like to clarify that I don't think I mentioned anything about workarounds earlier. What I did say is that for vehicles whose base model costs $45,000, other trims up to a limit of $55,000 are also considered eligible. For vehicles that will accommodate more than six people, that base model can go up to $55,000. Then there is a cap for other trims set at $60,000.

Mr. Dan Albas: I would say that most people consider $55,000 a luxury vehicle.

Thank you.

The Chair: Thank you, Mr. Albas.

We now go to Mr. Scarpaleggia.

You will be my last round, because I need to ask the witness to verify that they would like their documents to be made public.

[*Translation*]

Mr. Francis Scarpaleggia (Lac-Saint-Louis, Lib.): Thank you, Madam Chair.

I'd like to thank Ms. Pauzé for suggesting this study. It's clear that the work we are doing is timely and important to tackle climate change.

I'd like to piggyback on what Mr. Albas was saying. The electric vehicle subsidy for reducing greenhouse gas emissions is $900 per tonne. Did I hear that correctly? I'm not sure who can answer that. I believe I heard $900 per tonne of greenhouse gas emissions.

[*English*]

Ms. Megan Nichols: Madam Chair, I can just respond that this is not a figure that comes from Transport Canada.

[*Translation*]

Mr. Francis Scarpaleggia: Did that figure come from Mr. Albas? I see it did.

Is your figure different from $900? I'm not sure whether I'm making myself clear. I'm trying to find out what the cost per tonne of greenhouse gas emissions is as far as reductions go.

[*English*]

Ms. Megan Nichols: Madam Chair, I assume that the question is being directed to me.

I would just like to clarify, as mentioned earlier, that there are a number of ways to define and calculate cost per tonne. As I mentioned earlier, because the program is still in its early months, we have not yet finalized what that cost per tonne is.

I can say that, of the 60,000 vehicles incentivized to date, according to our estimates they brought reductions of about 207,000 tonnes per year and about 2.5 million tonnes over their lifespan. Also, the average reduction that is brought by a zero-emission vehicle on the road is about 3.5 tonnes over its lifetime.

[*Translation*]

Mr. Francis Scarpaleggia: When Canada reaches its target of replacing all gasoline-powered vehicles by 2040, do you have a general sense of how much it will reduce Canada's total greenhouse gas emissions, percentage-wise? I'm not looking for an exact figure.

● (1750)

Mr. Marc D'Iorio: Madam Chair, allow me to answer that.

In Canada, passenger vehicles produce about 83 megatonnes of greenhouse gas emissions annually.

Mr. Francis Scarpaleggia: Those 83 megatonnes would therefore be eliminated?

Mr. Marc D'Iorio: Yes, once there are no more gasoline-powered vehicles on the road.

Mr. Francis Scarpaleggia: Great. That's clear.

Am I to understand that all charging stations being installed across Canada right now are for electric vehicles? Are some for vehicles powered by other fuel sources—ones that are more or less clean—like hydrogen? Are they all EV charging stations, or are there other types?

[*English*]

The Chair: Who do you want to answer—Ms. Vieira?

Mr. Francis Scarpaleggia: I think so. Yes.

Ms. Paula Vieira: We are incentivizing the installation of electric vehicle chargers, fast chargers, and level 2 chargers as well as hydrogen stations and natural gas stations along key freight corridors.

Mr. Francis Scarpaleggia: Natural gas, hydrogen, and electricity are really what we're talking about, but when it comes to passenger vehicles, the major source would be electric charging stations. You seem to mention that hydrogen and natural gas are more useful for freight vehicles. Is that correct?

Ms. Paula Vieira: That's correct. For light-duty vehicles it would be predominantly electric vehicle charging, although hydrogen stations are being deployed in metropolitan centres—for example, in Montreal, in Quebec City and in Vancouver—where original vehicle manufacturers are also deploying some hydrogen fleets.

The Chair: Thank you very much.

I thank you, witnesses, and I repeat the question I asked to all of you who are here: can we make your opening statements public?

Ms. Paula Vieira: Natural Resources Canada says yes.

The Chair: That's Natural Resources.

Alexandre, are you making a note?

How about Department of the Environment?

Ms. Helen Ryan: That's fine.

The Chair: Department of Transport.

Ms. Megan Nichols: Yes, we have no concerns.

The Chair: Department of Industry.

[*Translation*]

Ms. Sharon Irwin: Yes, Madam Chair.

A voice: I thought they were open by default.

[*English*]

The Chair: I know, but unfortunately we have to ask the question, and so that's that.

Ms. Laurel Collins: Madam Chair, on a point of order.

[*Translation*]

Ms. Monique Pauzé: Madam Chair, I have a point of order as well.

[*English*]

Ms. Laurel Collins: It's just a quick question. I was in transit while that was happening. Were there two rounds that went by? Did we not pass a motion whereby the Bloc and the NDP were supposed to get their turns in between the Conservative and Liberal second rounds? Is that not correct?

The Chair: Actually, I print only what the clerk gives me, and that printing says that in the first and second rounds, you got your two and a half minutes, and in the third round you were supposed to get your two and a half minutes, but we extended the time, and I had to clarify. You won't be able to ask the question, because the interpreters say they would not be able to translate if you are not—

Mr. Dan Albas: Can we try for five minutes? Maybe let her—

[*Translation*]

Ms. Monique Pauzé: Yes, but I'm not using a phone.

[*English*]

The Chair: I don't mind, as long as....but the interpreters say they cannot interpret from the phone.

I'll give Madame Pauzé two and a half minutes, and Madame Collins, if nobody complains about not having translation, I'll give it to you as well.

Madame Pauzé.

[*Translation*]

Ms. Monique Pauzé: Thank you, Madam Chair. I had turned on my microphone for the same reason.

My questions are for you, Mrs. Irwin. I'd like to know whether the automobile industry has to meet any specific conditions to access funding under the strategic innovation fund.

● (1755)

[*English*]

The Chair: Ms. Collins, please mute yourself. We can hear you.

[*Translation*]

Ms. Pauzé, you may continue.

Ms. Monique Pauzé: I asked my question, but I'll start over. I hope it won't come off my time.

Does the automobile industry have to meet any specific requirements to access funding under the strategic innovation fund?

[*English*]

Ms. Sharon Irwin: With respect to the strategic innovation fund, there is a series of criteria applied, whether it be for an automotive company that applies through the program or others, setting out the economic benefits, the risks, societal benefits, etc. Certainly I should be able, if you wish, to give you a more detailed list as to what the criteria are for companies in making an application [*Inaudible—Editor*] for that program.

[*Translation*]

Ms. Monique Pauzé: Sorry, but I'm going to stop you there to frame the question in a clearer way.

Does it have an environmental responsibility component? Specifically, are companies in the automobile industry held to account for their environmental performance as a condition of their funding? In other words, do you assess their environmental efficiency under the innovation fund?

[*English*]

Ms. Sharon Irwin: Madame, right now, I don't have that information directly at hand, but certainly I would be more than willing to respond to the committee and to your question on that.

[*Translation*]

Ms. Monique Pauzé: I have another question about the strategic innovation fund.

Is there any dedicated funding to train industry workers, for instance, so they can learn new technical skills to manufacture zero-emission vehicles?

[*English*]

Ms. Sharon Irwin: The strategic innovation fund does not have a direct stream related to skills, retraining and those sorts of things. The streams that are within the fund relate to research and development, that promotes facilitating growth and expansion of firms in Canada, retaining and attracting large investments, projects that advance industrial research, development and technology demonstration, as well as large-scale national ecosystems.

In short, the program has an industry sector focus, and that's across a number of industries, of which the automotive sector is one that is a strong participant in the program.

The Chair: Thank you very much.

Madame Collins, it's your turn. If the interpreter can't hear you, you can give me your questions and I'll ask on your behalf. We'll have to be creative.

Ms. Laurel Collins: I just want to go back to my question about the Canadian Environmental Protection Act. Would ECCC mind forwarding some written information about the specific regulations under CEPA that have to do with electric vehicle emission targeting, and additionally any reports or work that's being done or plans to develop regulations under CEPA that require automakers to achieve Canada's sales targets?

Ms. Helen Ryan: Madame Chair, in the written material that I provided in my opening statement, I included the links to our regulation, as well as the links to our annual report. If I'm not mistaken, I also included the links to the work being done on the mid-term evaluation. I'll see if there is any further documentation that we might have.

Ms. Laurel Collins: That's wonderful.

In that, I believe the six regulations under CEPA might have been mentioned, but I wonder specifically about the plans to develop or any work that has been done around regulations requiring automakers to achieve the targets.

The next question is to follow up on Madame Pauzé's question and Mr. Saini's question, that despite the growing demand for electric vehicles, we're still seeing the number of them accessible at dealerships decreasing—or at least they were in the past few years. Of the dealerships in Canada, 70% didn't have a single EV available for purchase, and the vast majority of them cited wait times of three to six months before someone could actually drive it off the lot.

In dealing with some of those accessibility issues, can you speak to the specific instruments that the government is employing to ensure that there are EVs available without long waits?

● (1800)

The Chair: We need a quick answer. Who is answering?

Madam Collins, who did you target?

The Zoom of whoever it is got frozen?

Ms. Laurel Collins: I believe it would be for either Transport Canada or Natural Resources, but whoever they think would be best to answer.

The Chair: Could Transport Canada give a 30-second answer, please?

Ms. Megan Nichols: Certainly, Madam Chair.

To build on previous answers, despite the low inventory of models across Canada, we still have seen some good uptake. However, we do recognize that limited supply continues to be a barrier to greater uptake of these vehicles. To that end we are continuing, with the other departments, to assess additional measures that we will need to consider to put Canada on track to meet its sales target.

The Chair: Thank you, committee members. Thank you, witnesses.

Yes.

Mr. Dan Albas: Madam Chair, I know Mr. Scarpaleggia sought the same answers I did. A reporter had a story where their math was 270,000 tonnes per year, at a cost of $186 billion in rebates; that's where the $900 per tonne comes from. Transport Canada has not yet answered if it has its own estimate. Could Transport Canada supply the committee? Mr. Scarpaleggia, I believe deserves an answer.

The Chair: I think the clerk has taken note of every request you guys have made, and will send the requests to the respective departments.

Mr. Dan Albas: Will that be included?

The Chair: Yes. Remember, the clerks are very good at listening to everyone and making notes quickly.

Mr. Dan Albas: I hope Ms. Nichols was paying attention, too.

Thank you very much, Madam Chair.

The Chair: Oh, don't worry. Ms. Nichols will get that request from the clerk.

Thank you very much. Thank you for staying half an hour. Mondays are always a bad day; we seem to end up having votes on Mondays. Thank you to the witnesses for coming in early. We hope that every witness comes with the right headset from now on.

Take care. Have a good evening.

OPENING REMARKS

Standing Committee on Environment and Sustainable Development

Zero-Emission Vehicles in Canada

ISED Appearance

OTTAWA, ONTARIO
October 26, 2020

Word Count: 695

CHECK AGAINST DELIVERY

Good afternoon Madam Chair and Honourable Members. Thank you for the opportunity to appear before you today to discuss zero-emission vehicles.

My name is Sharon Irwin and I am the Acting Director General of the Automotive, Transportation and Digital Technologies Branch at Innovation, Science and Economic Development Canada, also known as ISED. The Branch focuses its work on research, policy, and engagement specifically related to automotive, transportation and digital technologies.

Which, of course, means that zero-emission vehicles is of key importance. For ISED, this means a focus on ensuring a competitive environment that encourages investments by automotive manufacturers, as the industry transitions towards clean technologies, to ensure that it remains vibrant and is positioned for success today and in the future.

With over 550,000 direct and in-direct jobs, the automotive sector is one of the largest sectors of the Canadian economy and contributes $16 billion to our gross domestic product.

As such, automotive manufacturing is a touchstone of Canada's economy, and it encompasses expertise in advanced technologies, a highly skilled workforce, an abundance of natural resources, and a world-class IT cluster. Combined, these attributes well position Canada in designing and building the vehicles of the future, while also working towards achieving a carbon-neutral future.

Through the Innovation and Skills Plan launched, ISED has shaped a policy environment designed to strengthen the

competitiveness of the Canadian automotive industry.

As part of the Innovation and Skills Plan launched in 2017, the Strategic Innovation Fund was established, also called SIF; its objective is to spur innovation providing funding for large projects (over $10 million in requested contribution) and we continue to ensure that this flagship program is an effective tool in attracting new investments to Canada.

Since the launch of the SIF, ISED has announced over $555 million in support of

the automotive sector, leveraging more than $4.6 billion in total investment. This includes the recent announcement from Ford, as it pivots to begin to produce battery electric vehicles, a first for Canada's automotive sector, one that we expect will shape and influence production and adoption of EVs in Canada in the coming years.

Over the past number of years, SIF has made important investments in the automotive sector, from modernizing automotive manufacturing plants, upgrading

assembly lines to make them more flexible, to retooling production lines.

In addition to recent support to projects to electrify transportation and the automotive industry, SIF supports large-scale, transformative and collaborative projects that help position Canada to prosper in the global knowledge-based economy.

SIF plays a key role in the continuum of innovation funding, providing support for projects through simplified application processes, accelerated processing, and

assistance that is responsive and focused on results.

In addition to investments through SIF, ISED supports the research and development that will lead to the next generation of transportation.

We are seeing the automotive sector adjust to meet the demand for the vehicle of the future – connected, automated, shared and electric.

Advances in vehicle technologies, such as zero-emission vehicles, have the potential

to enhance the productivity, efficiency, and environmental performance of Canada's transportation system as well as drive innovation and economic growth.

As the country transitions to a carbon-neutral future, another area of focus in the transportation sector is the manufacture of batteries. Canada has the resources – from nickel to copper – needed to support the supply chain for these clean technologies.

Canada is the only nation in the Western hemisphere with an abundance of cobalt, graphite, lithium and nickel, the minerals

needed to make next-generation electric batteries.

This, combined with Canadian expertise – is Canada's competitive edge.

There is potential for Canada to seize this opportunity by working with industry to attract zero-emission vehicle manufacturing facilities through large-scale investments.

We can also use our Canadian research expertise to carve out a niche for solving barriers to ZEV adoption, such as the

challenges of operating electric vehicles in cold weather.

By supporting investments through SIF, as well as our collaborative work with interdepartmental colleagues, the work of ISED is helping to position the Canadian automotive sector to be a leader on electrification across the supply chain, while supporting the competitive needs of the industry and seeking to attract further investment.

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OPENING

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******I am pleased to have this opportunity to talk to you about Natural Resources Canada's measures to support the decarbonization of transportation.

I want to thank my colleague(s) from Environment and Climate Change Canada for [his/her] great overview.

The efficient movement of people and goods is an essential part of a strong and resilient economy. Given the impacts transportation has on the environment, decarbonizing it will be critical to achieving net zero by 2050.

For more than two decades, Natural Resources Canada has been working to ensure consumers and businesses have the information they need to choose the most fuel efficient, lower carbon options to meet their transportation needs. And for four decades, NRCan has been providing support for zero emission vehicle technology innovation.

Over this time, our programming has spanned the transportation value chain, addressing key barriers at every turn, from incenting low carbon fuel production, to end-use and all of the essential enabling components in between, like the development of code and standards, deployment of charging and refuelling infrastructure, awareness and education and much needed research, development and demonstration of alternative fuels, vehicles, and next generation infrastructure.

Our current activities deliver on commitments made in the Pan-Canadian Framework for Clean Growth and Climate Change, the Generation Energy Council Report, and Canada's zero emission vehicle sales targets.

Our existing suite of programs builds off our long-standing experience to ensure we continue to meet the needs of consumers, commercial fleets, and industry more broadly, in the rapidly evolving transportation sector.

And we're achieving results! Specific programs include:

- The recently modernized **enerGUIDE label for vehicles** and our on-line annual Fuel Consumption Guide, that now includes zero-emissions vehicles. We're also developing customizable apps that make personalized information available based on an individuals day to day driving behavior.

- We also know it is essential to support consumers through the entire consumer continuum, as they consider purchasing a new advanced technology vehicle – an EV for example.

  They must go from general awareness, to real knowledge, acceptance, adoption and hopefully replication, if the experience is positive. This requires different interventions at each phase and we have programming that does just that.

- The success of our awareness programming is fully dependant on the strength of our strategic partnerships with industry, provinces, territories,

municipalities, academia, and non-government organizations.

- A consumer or fleet manager's decision to purchase an advanced technology vehicle is highly influenced by the availability of charging and refuelling infrastructure where and when they need it. We have all heard of "range anxiety" as a key barrier to adoption.

- That is why we are delivering more than $300M in **electric vehicle and alternative fuel infrastructure programming** through which:

    - We are supporting the establishment of a coast-to-coast network of electric vehicle fast-chargers as well as chargers where Canadians live, work and play;

    - natural gas refueling along key freight corridors; and hydrogen refuelling stations in metropolitan areas where these vehicles are being deployed.

- We invest in innovative charging and refuelling solutions through real-world technology demonstrations that help Canadian stakeholders implement new technologies in market segments such as multi-unit residential buildings, electric bus charging infrastructure and autonomous vehicles.

- Canada's federal labs also support this effort. For example the National Research Council is developing new electric motor designs that use less heavy rare-earth elements to bring down the cost of motors while maintaining their performance and efficiency.

- Other NRCan innovation programs such as our **Clean Growth Program** is investing in two underground mining vehicle electrification projects. This will demonstrate the technical and economic viability of not only the electric vehicles in this harsh environment but also the positive impact on air quality in the mines.

- Meanwhile, a project under the new **Breakthrough Energy Solutions Canada** will be supporting the development of an ultra-fast charging technology that could help accelerate the mass adoption of electric vehicles.

- We are also working with industry, the provinces and territories and the United States – through the **Regulatory Cooperation Council** - to develop and align codes and standards for low carbon vehicles and charging and refuelling infrastructure.

  These activities ensure new technologies can safely enter the market, and that they are fully compatible and inter-operable across all jurisdictions. For example when driving on vacation to the sunny south, consumers need to know, that when it is time to stop and charge their vehicles, that the charger will work with their vehicle.

- To further tackle consumer range anxiety and support freight operators to make day to day

charging, refuelling, and trip planning easier, we have also partnered with the US Department of Energy to develop and maintain an **online interactive map** of all publically available electric and alternative fuel stations in Canada and the US.

- Whereas many of our activities focus on light-duty transportation, we know that as the economy grows, and demand for just-in-time delivery continues to increase, emissions from freight will grow with it. That is why we are delivering programming that targets greening the freight sector. This includes:

    - Delivering the Canadian version of the US EPA's **SMARTWAY Program**, which enables shippers and freight companies to benchmark their fuel usage and identify areas for continuous improvement.

    - Through our **Green Freight Assessment Program**, we're also helping freight companies asses their fleets and overall operations, to identify areas where retrofitting with fuel

efficient technologies, and fuel-switching can reduce fuel use and lower emissions as well as supporting them to implement these changes.

- But we know that how you drive the vehicle also plays a role in your fuel use and resulting emissions, so we have worked with industry, and governments to develop a **master curriculum for fuel efficient driver training** which is being used in driver training schools across Canada and is being emulated and delivered in several countries in South America.

- Taken together, these actions are helping freight companies to drive down both their fuel costs and emissions, ensuring they remain competitive in an industry where the profit margins are very tight.

- We are also taking action on our government fleet. Through our **Greening Government Fleets initiative** – we help analyze fleet usage using telematics, and determine the least emitting options to continue to

meet the fleet's operational needs – including identifying opportunities for downsizing a fleet, electrification and fuel switching, as well as the supporting infrastructure required.

But, our programming does not just focus on electrification. We know that in a net zero future, Canada's economy will be powered by two essential energy forms, clean power and low carbon fuels. We therefore also enable and encourage fuel switching to lower carbon fuels like renewable natural gas, renewable diesel, and hydrogen. Diversifying the low carbon fuels we use, is essential as we know that there is no single fuel or technology that fits all operations.

One important and growing opportunity for fuel switching is hydrogen. For the last 3 years we have been working with governments at all levels, the private sector, academia, and Indigenous organizations, to develop a **Hydrogen Strategy for Canada**.

Expected to launch this fall, the Strategy will lay out an ambitious framework and foundational actions that

cement hydrogen as one of the key pathways to achieve our goal of net-zero by 2050, driving down emissions in some of the hardest to abate sectors of our economy, including transportation, resource extraction, mining, and industrial processes. It also positions Canada to be a supplier of choice to the world, for low carbon hydrogen and the technologies and services required to use it.

Our actions to decarbonize transportation don't just stop at our borders, either. Through a variety of bilateral and multi-lateral *fora,* like the **Clean Energy Ministerial**, we collaborate with governments around the world to foster greater electrification and fuel switching in transportation – including in passenger cars, buses, and freight – as well as across the other sectors of the global economy.

- In May 2019, at the Clean Energy Ministerial held in Vancouver, we launched the new **CEM Hydrogen Initiative**, which is the cornerstone of global hydrogen deployment efforts.

- At CEM 2020, last month, Canada led the development and launch of the **Global Commercial Drive to Zero Campaign**, focussed on electrification of medium and heavy-duty vehicles,

- As well as a new **Biofutures Initiative**, which is facilitating greater production and use of advanced biofuels across the economy.

We see international collaboration as essential in the global path to net zero, and we're helping Canada lead the charge, showcasing our technologies and innovative spirit on the international stage, which can lead to both export market growth for Canadian products and services, and can attract direct foreign investment to Canada.

Decarbonisation of transportation will take an all-of -government approach. As you will hear today, that is what the Government of Canada is doing, working with all levels of government, including international partners and the private sector to take action across the entire value-chain.

Thank you for the opportunity to present today and I look forward to seeing how the work of this Committee could help to further inform our policy and program development.

Introductory Remarks for ENVI Appearance

- Good [morning/afternoon] Madam Chair. I want to thank you and the Committee members for the opportunity to provide Transport Canada's perspective on this important and timely subject.

- As members may know, promoting an environmentally responsible transportation system in Canada is a core tenet of Transport Canada's mission.

- By displacing the purchase and use of internal combustion engine vehicles, zero-emission vehicles offer the potential to significantly reduce emissions from light-duty vehicles, particularly over the longer-term as uptake of these cleaner vehicles increases. This is why increasing zero-emission vehicle uptake is a key element of the Pan-Canadian Framework on Clean Growth and Climate Change.

- In January 2019, Minister Garneau announced that the Government had set sales targets for zero-emission vehicles to reach 10% of new light-duty vehicles by 2025, 30% by 2030, and 100% by 2040.

- These targets are focused on light-duty vehicles, where zero-emission technologies are both proven and commercially available. Work continues to advance the uptake of medium and heavy-duty zero-emission vehicles, where technologies are still nascent.

- There is general agreement amongst experts that several key barriers need to be overcome to meet these sales targets. The first relates to affordability, as zero-emission vehicles presently have higher purchase prices when compared with internal combustion engine vehicles. The second barrier relates to ensuring there is sufficient supply to make zero-emission vehicles available to Canadians. The third barrier pertains to the need for new charging and hydrogen refueling infrastructure to support more ZEVs on the road. Finally, there is the need to improve consumer awareness of zero-emission vehicles.

- Given the importance of our automotive and resource sectors, we also want to ensure that Canada is well-positioned to benefit economically from the global shift towards zero-emission vehicles that is currently underway.

- In Budget 2019, the Government announced $700 million in new initiatives to help meet Canada's ZEV sales targets. While my colleagues can speak to their relevant initiatives stemming from Budget 2019, I would like to focus on Transport Canada's Incentive for Zero-Emission Vehicles ("iZEV") program.

- The iZEV program is meant to address the purchase price barrier I referenced earlier, by providing purchase incentives that encourage Canadians to purchase and lease more affordable zero-emission vehicles. This purchase price gap, which is largely attributed to higher battery or hydrogen powertrains, keeps these vehicles out of reach for most Canadians. Experts anticipate

the purchase price gap is expected to close by around 2025, as technology costs come down with increased manufacturing.

- Until this price parity is reached, governments can play a role to help address this barrier. As seen in other jurisdictions, measures that help to close this purchase price gap are instrumental to accelerating the adoption of zero-emission vehicles.

- We have seen significant uptake of the iZEV program, since it was launched in May 2019. Over 60,000 Canadians or Canadian businesses have taken advantage of the program to date, totaling over $255M in incentive claims by the end of September 2020.

- Combined with other supportive measures, particularly purchase incentives in Quebec and British Columbia, the iZEV program is helping to boost zero-emission vehicle sales. In 2019, for example, registrations of all zero-emission vehicles were up by 27% over 2018.

- Transport Canada's analysis of IHS Markit's data shows that the market share of ZEVs in Canada has grown from 2% in 2018 to 3% in 2019.

- Another key barrier to greater ZEV uptake relates to the limited availability of some models of zero-emission vehicles. Due a number of factors, including their higher manufacturing costs and battery production constraints, the supply of zero-emission vehicles is low in some parts of the country.

- We know that additional measures are needed to achieve our sales targets, and this has been confirmed by both external and internal projections that take into account current policies in place. This is why Transport Canada is working closely with colleagues in other federal departments to analyze potential additional measures to ensure that there is adequate supply to meet increased demand.

- We therefore welcome the work before the committee to consider the merits and implications of additional measures, as it will help to inform the Government’s own analysis.

ECCC Opening Remarks – ENVI Committee

- Good [morning/afternoon] Madam Chair. I want to thank you and the Committee members for the opportunity to provide Environment and Climate Change Canada's perspective on this important and timely subject.

- Together with my colleagues from Transport Canada, Natural Resources Canada, and Innovation, Science, and Economic Development Canada, we will provide you with an overview of the light and heavy-duty vehicle sectors in Canada and the approach to achieve our targets for Zero Emission Vehicles.

- I will also speak to emissions from the transportation sector and provide an overview of the current regulations for light-duty and heavy-duty vehicles.

- My colleagues will address their Departments' responsibilities, including vehicle safety, ZEV purchase incentives, market-enabling measures for ZEVs, and the economic market profile and considerations for automakers.

- The on-road transportation sector is composed of light-duty vehicles (or passenger vehicles) and of heavy-duty vehicles such as delivery vehicles, garbage trucks, buses, long haul transportation trucks.

- There are over 24 million passenger vehicles on the road today consisting of cars, SUVs, and pick-up trucks. These passenger vehicles are on the road for, on average, almost 13 years. Manufacturers currently offer over 400 different new vehicle configurations and each year Canadians purchase about 2 million new passenger vehicles.

- The heavy-duty vehicle sector is composed of a range of heavy-duty vehicles that perform a broad range of services. Vehicles in this sector range from delivery vehicles, garbage trucks, buses, to long-haul transportation trucks.

- There are approximately 2.5 million heavy-duty vehicles on the road. Some classes of heavy-duty vehicles remain on the road for, on average, 10-15 years, while other classes often remain on the road for more than 20 years. Each year there are over 150,000 new heavy-duty vehicles purchased in Canada.

- The off road sector is the most diverse. There are approximately 210 types of equipment that range from industrial heavy-duty diesel machines used at mines, such as dump trucks and excavators, to personal hand-held gasoline equipment used by homeowners to maintain lawns and gardens, such as lawn mowers.

- Year over year, the transportation sector accounts for approximately a quarter of Canada's greenhouse gas emissions. In 2017, that was 193 Mt. Of that, the light-duty vehicle sector accounted for 43% or 83Mt and the heavy-duty vehicle sector was second at 31% or 60Mt.

- In 2018, transportation and mobile equipment were the largest emitters of carbon monoxide and nitrogen oxides; respectively emitting 56% and 51% of Canada's total emissions of these substances.

- Specifically, light-duty vehicles are the major contributor to air pollutant emissions of nitrogen oxides and polycyclic aromatic hydrocarbons. In addition, transportation associated with the combustion of gasoline is a major contributor to emissions of volatile organic compounds and carbon monoxide.

- Environment and Climate Change Canada is responsible for the development and implementation of regulations to reduce greenhouse gas emissions and air pollutants from light-duty and heavy-duty vehicles, as well as off-road vehicles.

- Environment and Climate Change Canada has legislative authority to regulate these sectors under the Canadian Environmental Protection Act, 1999 (CEPA). ECCC has implemented six regulations under CEPA.

- Environment and Climate Change Canada works with Health Canada during the development of regulations to assess the health and environmental impacts of the changes in primary emissions of air quality criteria expected to result from regulations developed and administered by Environment and Climate Change Canada.

- Emissions modelling (completed by Environment and Climate Change Canada) indicates that by 2030 the emissions from light-duty vehicles will have peaked and will be decreasing while emissions from the heavy-duty vehicles will continue to increase.

- Additionally, the air pollutant emission trends, published by Environment and Climate Change Canada, indicate that although transportation and mobile equipment are the major contributors of some air pollutant in Canada, the sector's emissions of nitrogen oxides, polycyclic aromatic hydrocarbons, volatile organic compounds, and carbon monoxide have decreased substantially since 1990 due to effective implementation of federal regulations.

- Government is considering further policy options to reduce GHG emissions.

- The *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations,* establish progressively more stringent GHG emission standards for new light-duty vehicles offered for sale in Canada starting with model year 2011.

- The performance-based nature of these standards allows companies to choose the most cost-effective technologies to comply. The regulations include multiplier provisions to encourage the introduction of advanced technology vehicles such as plug-in hybrid electric vehicles, battery electric vehicles and fuel cell vehicles by awarding these vehicles extra credit when a company calculates its emissions performance.

- Environment and Climate Change Canada releases an annual report on the performance of these regulations. The *Greenhouse Gas Emissions Performance for the 2018 Model Year Light-Duty Vehicle Fleet* report highlighted that the regulations have resulted in new 2018 light-duty

vehicles emitting 15% to 20% fewer GHGs than comparable vehicles of the 2011 model year. The increasing number of vehicles on the road, the associated increased in kilometres driven and shifting consumer preferences towards larger vehicles mean that overall emissions from light-duty vehicles have not been falling in line with the reductions in per vehicle emissions.

- Environment and Climate Change Canada also administers the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* that establish greenhouse gas emission standards for the whole range of new on-road heavy-duty vehicles, including heavy-duty pick-up trucks and vans. The flexibility provisions in these regulations include multipliers to encourage the introduction of zero-emission heavy-duty vehicles. The multiplier provisions award extra credit to plug-in hybrid, battery electric and fuel cell vehicles when a company calculates its emissions performance.

- In addition to GHG regulations, Environment and Climate Change Canada also administers a range of regulations to reduce air pollutant emissions from transportation, and are aligned with the standards of the U.S. Environmental Protection Agency.

- The *On-Road Vehicle and Engine Emission Regulations* set progressively more stringent air pollutant emission standards for light-duty and heavy-duty vehicles of the 2004 and later model years.

- The *Off-Road Small Spark-Ignition Engine Emission Regulations* set progressively more stringent air pollutant emission standards for small engines such as those found in residential lawn and garden equipment, portable generators and small logging equipment.

- The *Off-Road Compression-Ignition Engine Emission Regulations* set progressively more stringent air pollutant emissions standards for large diesel engines such as those found in construction, farming and mining equipment.

- The *Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations* set progressively more stringent air pollutant

emission standards for gasoline-fuelled engines found in personal watercraft and off-road vehicles such as snowmobiles and ATVs.

- As demonstrated in Environment and Climate Change Canada's published emissions, inventories and projections, since their implementation, these regulations have reduced both greenhouse gas and air pollutant emissions from the transportation sector. This have resulted in improved air quality and health benefits for Canadians and their environment.

- That said, the long-term technological transformation of the transportation sector remains a significant challenge.

- Success will require all departments to work collaboratively to use their respective authorities and programs to increase the deployment of clean technology and zero emission vehicles in order to exceed Canada's 2030 Paris target and enable Canada to achieve net-zero emissions by 2050.

- ECCC is willing and ready to work collaboratively with others to take the necessary actions to achieve the results needed to meet Canada's targets and goals.

Thank you for your time. I would be happy to answer any questions.

Links to ECCC publications referenced above:

National GHG Emissions Inventory
https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/inventory.html

National GHG Emissions Projections
https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/projections.html

National Air Pollutants Emissions Inventory
https://www.canada.ca/en/environment-climate-change/services/pollutants/air-emissions-inventory-overview.html

Greenhouse Gas Emissions Performance for the 2018 Model Year Light-Duty Vehicle Fleet report
https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/greenhouse-gas-emissions-performance-2018.html