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Chair: Mrs. Sherry Romanado



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• (1105)

[English]

The Chair (Mrs. Sherry Romanado (Longueuil—Charles-LeMoine, Lib.)): Good morning everyone. I now call the meeting to order.

Welcome to meeting number 25 of the House of Commons Standing Committee on Industry, Science and Technology.

Today's meeting is taking place in a hybrid format, pursuant to the House order of January 25, 2021. The proceedings will be made available via the House of Commons website. The webcast will always show the person speaking rather than the entirety of the committee.

To ensure an orderly meeting, I'd like to outline a few rules to follow.

Members and witnesses 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 floor, English or French. Please select the language of your choice.

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 Zoom video conference, please click on the microphone icon to unmute yourself. For those in the room, your microphone will be controlled as it normally is by the proceedings and verification officer.

A reminder that all comments by members and witnesses should be addressed through the chair. When you are not speaking, please make sure your microphone is off.

With regard to the speaking list, the committee clerk and I will maintain the order of speaking for all members whenever they are participating virtually or in person. For the sake of the interpreters, I ask you that you please do not speak over each other so that the interpreters can do their work.

If you do not have a headset with a boom and you are using a microphone that is on the wire, please make sure the wire is close to your mouth when you are speaking.

The most important rule is this. As is my normal practice, I will hold up a yellow card when you have 30 seconds left in your intervention. I will hold up a red card when your time for questions has

expired. As we have a very full agenda today, I ask that you respect the cards and keep an eye out for them so that I don't cut you off.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on November 5, 2020, the committee is meeting today to continue its study on the development and support of the aerospace industry.

I'd like to now welcome our witnesses.

With us today from AirShare, Inc. we have Rick Whittaker, chief executive officer.

From Bell Textron Canada Ltd, we have Steeve Lavoie, president.

[Translation]

We also welcome Mr. Marc Bigaouette, director, CH-146 Griffon Fleet.

[English]

From the Canadian Air Traffic Control Association, we have Doug Best, president and CEO.

From the Canadian Association of Defence and Security Industries, we have Christyn Cianfarani, president and chief executive officer.

[Translation]

We also have with us Mr. Gilles Labbé, executive chairman of the board of directors of Héroux-Devtek.

[English]

From Nav Canada, we have Ray Bohn, president and CEO; Jonathan Bagg, director, stakeholder and industry relations; and Ben Girard, vice-president and chief of operations.

From NorthStar Earth & Space, we have Mr. Stewart Bain, chief executive officer and co-founder.

Each witness group will present for up to five minutes, followed by rounds of questions.

With that, we will begin with AirShare Inc. and Mr. Whittaker.

You have the floor for five minutes, sir.

Mr. Rick Whittaker (Chief Executive Officer, AirShare Inc): Thank you, Chairperson.

Thank you to the committee for inviting me to participate in this important study on the aerospace sector. It truly is a privilege to share my perspectives as an aerospace manufacturer and as a proud Canadian.

By way of background, I am the co-founder and CEO of Air-Share, Inc., a Canadian company headquartered here in Ottawa that makes safe and cost-effective systems to help manage airspace and small aerial drones as they become increasingly part of our daily lives. Our systems are used in aerospace, commercial and defence applications.

Our company has developed an airborne rocket-powered robot that is used to safely intercept drones that may have gone off course, or which may have nefarious intent.

Our Prime Minister helped coin our tagline in a meeting we had in 2019, as we described our interceptor as the world's friendliest guided missile, something that could only have originated in Canada. So I feel the study and this undertaking that this committee is engaging in is vitally important to Canada and near and dear to my heart.

The input to the study I share today comes from the perspective of a small innovative manufacturer of equipment in the aerospace sector.

It will come as no surprise that the aerospace sector has been hit particularly hard by the pandemic, from reductions in air travel to disruptions in global supply chains. For our segment of the industry, drones and drone safety, there are no concerts, no large public gatherings, tournaments or events that would typically use drones and require drone safety systems as a routine business.

Suppliers of specialized components used in these systems have reduced their production, increased their cost, or have ceased operations altogether. The impact has been broad-reaching throughout the sector.

As a small company, we have had to react quickly, first by working with our key suppliers to develop alternative approaches to maintain product continuity. We then focused on the segments of the customer base that were still in business, and finally we developed new technology and capabilities for a post-pandemic reality.

We were grateful for the support we have received from the Canadian government thus far, utilizing the work-sharing program, for instance for our production staff, while our company funded the supplier, customer and technology changes that were necessary to our ongoing survival.

In terms of recovery, the pandemic has created a great upheaval on a scale we have never seen. While it's hard to see a silver lining, this does present an opportunity for Canada's aerospace sector, and in particular for autonomous aerial vehicles and government to work together on recovering and reinventing.

There are many measures that this committee may wish to consider, however, I'll just mention two in my opening remarks.

The first one is innovation. In a changing world, supporting innovation is even more critical. I have been honoured to see Canada's innovation system grow and adapt over the past 25 years.

We are now seeing a spectrum of support for innovation, starting from the lab and all the way up to market entry. There is lots to build on, and now more than ever, a lot more to do.

Countries like the U.S. have created a system that uses government needs as the market pull. We are now seeing that emerging in Canada with programs like Innovative Solutions Canada and IDEaS.

The U.S. innovation system, and in particular the small business innovation research program, SBIR, focuses heavily on government as the end-user and even funds early-stage projects intended to secure our government user as a first customer, creating memoranda of understanding, matching funding with the private sector investors, leveraging departmental funding and importantly, creating a pathway to large-scale procurement, up to \$250 million using other transaction authorities. This program provides continuity with multi-year, multi-stage involvement as the technology, company and customers progress. It would seem that some of these techniques could be applied to Canada's aerospace sector.

The second point is regulation. Government can play a big role by creating sandboxes for the aerospace development and testing that do not require complex regulatory approvals that are typically associated with commercial products' introduction. It goes hand in hand with the innovation emphasis I mentioned previously.

For Canada's aerospace sector to recover, it must reinvent.

From the perspective of our autonomous aerial vehicles manufacturing, this means testing new approaches safely and efficiently, and revisiting regulations in this regard would be most beneficial. We struggled with this aspect, having to fly across the country to get a few days of testing at an approved test site. We eventually purchased our own private test range, which is not sustainable for this sector, and which could have been solved with some regulatory innovation.

I could touch on many more topics, however I'll stop here with my gratitude to the committee for allowing me the time to share my passion for this sector.

Thank you.

• (1110)

The Chair: That's perfect timing, Mr. Whittaker. You're ready for QP.

Our next round goes to Bell Textron. You have the floor for five minutes.

[Translation]

Mr. Steeve Lavoie (President, Bell Textron Canada Limited): Madam Chair, members of the committee, on behalf of Bell Textron Canada, a leader in vertical takeoff technology and Canada's only helicopter manufacturer, thank you for hosting us today.

I am pleased to share with you our vision for creating opportunities for our industry and well-paid jobs for women and men across the country.

In Canada, the Bell journey began almost 60 years ago with the sale of the first commercial helicopter. In 1979, Bell left its first industrial footprint in Canada with the establishment of its Canadian service centre in Calgary, which, among other things, supplies and supports the Department of National Defence's largest fleet of aircraft.

This year, Bell celebrates the 35th anniversary of the establishment of our integrated commercial helicopter manufacturing centre in Mirabel, Quebec, where we have built more than 5,200 aircraft. To this day, our Mirabel facility is the only one in Canada where commercial helicopters are designed, developed, assembled, tested and certified. This means our facility has a key industrial capability unique in Canada.

Our successes are built on a highly skilled workforce and a supply chain of 550 suppliers from the Atlantic provinces to British Columbia. Our support services are also recognized as the best in the world. Bell directly employs more than 1,300 women and men in Canada and supports more than 6,200 other jobs across the country. Last year, Bell contributed nearly \$800 million to the gross domestic product and invested more than \$44 million in research and development, working with universities, colleges, technical schools and research centres across the country.

Since the beginning of this study, witnesses have reminded you of the importance of our industry and of having a focused and integrated industrial strategy, as well as a skilled workforce and government organizations such as the Canadian Commercial Corporation, or CCC, Export Development Canada, or EDC, the National Research Council, or NRC, Innovation, Science and Economic Development Canada, Transport Canada and the Trade Commissioner Service. Indeed, Canada must act quickly and decisively if it wishes to continue to compete against its international competitors.

With these important recommendations in mind, please remember that Canada needs a national procurement strategy to support its aerospace sector, which is currently lacking. The recommendations of the Emerson and Jenkins reports have never been acted upon. The Government of Canada must make domestic procurement a priority if it is to meet its needs for national security and defence products and services. Canada must implement a Canadian content-based procurement strategy and support its industrial capacity as all other countries do. This committee is looking for solutions to support our industry. We believe this is one and that Canada could implement it now, given the impending Air Force flight training program, which is being selected.

I am joined today by Mr. Bigaouette, Bell's director of the Canadian Armed Forces' Griffon helicopter fleet maintenance program. Prior to joining our company, Mr. Bigaouette served 37 years in our

Canadian Armed Forces, including positions as project director for a major acquisition, commander of the Canadian Air Force helicopter team in Afghanistan, director of pilot training for the North Atlantic Treaty Organization, or NATO, in Canada, and most recently, Air Force advisor at the Canadian High Commission in the United Kingdom in London. From 2013 to 2017, he closely observed how European countries, including the United Kingdom, prioritize their domestic industry by focusing on key industrial capacity for defence and security procurement. Mr. Bigaouette is able to explain and illustrate how a close ally of Canada's is able to combine the prosperity side with the defence and security sides, by transposing an \$8-\$12-billion Canadian procurement project, the Flying Training project.

In closing, I would add that the aerospace industry needs a focused strategy to keep this industrial capability alive, as well as an acquisition policy, like Buy Canadian.

Thank you for your attention.

● (1115)

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

[English]

The next presentation is by the Canadian Air Traffic Control Association.

Mr. Best, you have the floor for five minutes.

Mr. Doug Best (President and Chief Executive Officer, Canadian Air Traffic Control Association): Thank you, Madam Chair and honourable members. On behalf of the Canadian Air Traffic Control Association, we truly appreciate the invitation and opportunity to appear before your committee this morning.

CATCA is a Unifor local trade union representing now less than 1,800 air traffic controllers in Canada. Our number one mission is aviation safety and ensuring responsible working conditions for our members.

Before the pandemic hit, our members were responsible for the safety of three million flights per year and more than 162 million passengers who arrived, departed and overflew Canada.

This morning I want to bring to the committee's attention some significant information and very alarming statistics regarding the safety and economic recovery for the industry.

Pre-pandemic, we were short-staffed by 13%. Last year, through early retirement incentives, Nav Canada shed 94 more air traffic controllers. Today we are 18% short-staffed to our pre-pandemic numbers. To make things even worse, an additional 104 controllers have received either surplus letters or letters of vulnerability, which, if executed, will leave us more than 20% short-staffed based on pre-pandemic numbers.

In 2019 the transport minister recognized that safety was being compromised and ordered Nav Canada to overhaul its fatigue risk management system, mainly due to short-staffing and staffing policies that included almost \$100 million in overtime. On September 22 of last year, Nav Canada terminated 170 air traffic controller trainees. Today we have a handful in our system—a system that takes up to, and sometimes more than, two years to train an air traffic controller at a significant cost.

We understand that Nav Canada has seen a swift drop in revenue due to the pandemic and it needs to find efficiencies. However, this cannot come at the cost of safety for the air transportation industry. As you may have seen in the media earlier today, our union and our members have raised critical concerns over air navigation safety. We commissioned a survey of our members, and 1,400 of the almost 1,800 air navigation safety experts responded. That's an astounding 78%.

Just over 40% of controllers said the looming cuts pose a high risk to public safety, while an additional 40% indicated there would be a moderate safety risk if the cuts go ahead. Notably, only 2% of those surveyed said there is no safety risk. Before the decline in air traffic as a result of the pandemic, more than 71% were concerned or very concerned about staffing, fatigue and the use of overtime by Nav Canada. A full 92% of air traffic controllers surveyed said that Nav Canada's workforce adjustments, including layoff notices, have resulted in increased stress levels—this to one of the already most stressful jobs in the world. Finally, only little more than 6% of those surveyed said they trust Nav Canada management to put public safety first when making decisions about closures and cuts, while more than 83% of controllers said they do not trust management to put public safety first. This is simply staggering. It is a clear warning that there is serious problem.

I've provided you with staffing numbers and painted quite a bleak picture when it comes to safety. We have not discussed recovery. Decisions to reduce staffing in a system that was already understaffed will have an impact on service delivery as well, which will also have an impact on the economic recovery. Reducing staff numbers and control centres and closing towers will necessarily create significant delays for airlines and other customers by creating bottlenecks in the navigation system. The company is weakening the ability of the system to respond to demand, even at present levels. By laying off nearly all the trainees, the company has also damaged the ability of the navigation system to provide service in the future, as there are no additional people to meet the rising traffic demands during recovery and no replacement for current controllers who will retire.

Delayed service, restrictions and lost capacity will have a direct negative impact on the overall economic recovery, given the central role that air transportation and the aerospace industry play in Canada for both passengers and cargo. Nav Canada is making deci-

sions that will seriously impair the delivery of service for years to come in response to short-term financial pressures.

While Nav Canada is technically a private entity, it's in a unique position in that they are the only civil air navigation service provider in Canada. Their monopoly status allows them to raise fees, utilize government programs and petition the government for additional financial support to ultimately promote a sector recovery. We're asking this committee for a recommendation to government to provide Nav Canada with whatever financial support is required in the form of a grant to help them weather this temporary downturn.

In addition, a moratorium on layoffs is required. This company cannot afford to lose highly skilled professionals to other service providers around the world that are in high demand. We all need to reassure the travelling public that their safety will not be compromised, and know that we will be there as pent-up travel demand increases.

• (1120)

With fewer air traffic controllers and other industry professionals, any economic recovery will be jeopardized.

Thank you. I would be happy to answer any questions.

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

We now go to CADSI.

You have the floor, Christyn, for five minutes.

Ms. Christyn Cianfarani (President and Chief Executive Officer, Canadian Association of Defence and Security Industries): Good morning.

My name is Christyn Cianfarani, president and CEO of the Canadian Association of Defence and Security Industries, CADSI for short.

Our association represents several hundred firms across Canada that produce defence and security-related goods and services for both domestic and foreign markets. We have included the statistics for our sector on a supplemental handout.

A significant fraction of our membership is in the military and defence aerospace sector. For example, our members work in aircraft fabrication, structures and components; and military aircraft maintenance, repair and overhaul; and simulation systems.

As you've heard from other witnesses, the Canadian aerospace industry is going through a difficult time. This is particularly the case on the commercial aviation side. The defence side of Canadian aerospace has held up somewhat better through the pandemic. Defence departments around the world, including Canada's, have not curtailed capital and maintenance spending significantly, at least not yet.

I have one key message that I would like to leave you with today, namely, that there is an important opportunity in front of us to provide further support to this industry through the defence procurement function of government. This would constitute both smart procurement and, as I have referred to it elsewhere, cheap stimulus to help Canada's economy rebound.

As you know, four years ago the government published a new defence policy titled "Strong, Secure, Engaged", SSE. This policy committed to historically large budget increases to DND over 20 years, a significant fraction of which is devoted to recapitalization of the forces.

The government committed to growing the defence budget from \$18.9 billion to \$32.7 billion over 10 years, an increase of over 70%. This is not a trivial sum of money.

These funds were booked into the fiscal framework of the government pre-pandemic, and therefore they have no impact on the deficit. Let me be abundantly clear here: contrary to what you may have heard from other witnesses, this is not an ask for new money.

In conjunction with SSE, the government also published a document called the "Defence Capabilities Blueprint". A cursory examination of this document reveals at least 40 aerospace procurements of various sizes and scopes, with cost estimates and timelines provided.

We all know about the future fighter capability project, but this is by no means the only significant project the Royal Canadian Air Force has in its plans. I'll give you a few more examples. There are also the Canadian multi-mission aircraft, at over \$5 billion; future fighter lead-in training, at \$1 billion to \$5 billion; and the CH-149 Cormorant mid-life upgrade, at \$1 billion to \$5 billion, and I could go on. There are planned procurements involving new equipment; upgrades to existing equipment, operations and maintenance; and in-service support. Canada's aerospace industry can and should play a major role in these acquisitions because it has the capabilities to do so.

As for recommendations for your consideration, we proposed to the government months ago in CADSI's four-part plan, "Partners in Economic Restart", that defence procurements, in which Canadian industry has demonstrated capability, should be prioritized and pulled forward in the acquisition schedule.

The government should systematically and aggressively use its existing policy instruments—such as the industrial and technological benefits program and value propositions, the Canadian content

policy, national security exceptions, mandatory carve-outs and so on—to drive Canadian defence industry growth and jobs and, more specifically for your purposes, aerospace growth and jobs.

Critics of this approach will label it as protectionist. So be it, though I would point out that defence trade is exempt from most international trade agreements, and that all of our NATO allies are far more aggressive in favouring their domestic defence industries.

We're proposing what I've called smart procurement combined with cheap stimulus as a way to drive employment and investment in the defence aerospace business with projects that were already on the government's books and budgeted for pre-COVID.

It's a no-brainer. It's one key way to help the struggling Canadian defence aerospace industry and the aerospace industry.

Thank you. I look forward to your questions.

• (1125)

The Chair: Thank you very much.

[*Translation*]

We now turn to the representative from Héroux-Devtek.

Mr. Labbé, you have the floor for five minutes.

Mr. Gilles Labbé (Executive Chairman of the Board, Héroux-Devtek Inc.): Thank you, Madam Chair.

[*English*]

Thank you for letting me speak this morning about Héroux-Devtek, and also my view on what the government can do to help our aerospace industry. With the pandemic, of course, things are very difficult.

First, let me say a few words on Héroux-Devtek. We're a public company. We're traded on the Toronto exchange. We have close to 2,000 people around the world. We have factories in Quebec, Ontario, the States, Spain and the United Kingdom. Let me just say a few words about me and my team.

I've been in this business for 35 years. I have seen all sorts of things in this business. I acquired Héroux back in 1985. As a very small business, I did this with a partner. At that time Héroux was doing about \$10 million to \$12 million a year. Today, we're number three in the world in the landing-gear business. We do \$600 million in business. I will point out a few things later on. I think it's important to know that, because there was a partnership with the Government of Canada, it did help Héroux to become what we are today—not only Héroux, but many other companies in the aerospace business in Canada.

You met with the AIAC board leader and also Aéro Montréal. As you may know, I'm on the board of AIAC, of course. I've been chairman of Aéro Montréal—actually, I was one of the founders of Aéro Montréal.

Our industry in Canada is coast to coast. It's from the west to the east, so it's not only a Quebec industry, it's also really an industry across Canada. Our industry is the third-largest exporter of Canada, and we export “brain”—that's what we do for a living. We have 235,000 people. We contribute \$28 billion of revenue a year to Canada. The people we employ are very well paid, over the average by about 10%.

I want to speak about the partnership that did exist with the Government of Canada for a long time. As you may know, there was the DIPP back then. It was replaced by the TPC, then this was replaced by SADI. These programs had a big impact on our industry over the last 40 years.

Take an example of Héroux-Devtek. Back in 1985 it was \$10 million to \$12 million, and we were at the time mainly repairing C-130 landing gear for our Canadian Air Force. We were building the CL-215 for Canadair—the water bomber—and the nose landing gear for the Twin Otter.

Today, I will just mention only airplanes that we design, build and repair in the fleet in Canada: the C-130 Hercules, the Chinook, the Cormorant, the Kingfisher, the Hawk, the Twin Otter, the Aurora and the Cyclone. None of this was there when I purchased the business. I can go on and on like this, because we have also a commercial program such as the 777. We build the 777 for Boeing directly.

On the competition for the fighter—guess what?—we build the F-18 landing gear and the E/F main gear. We build complete Gripen landing gear for Saab, and we have many products on the F-35.

My point is that that partnership has been broken. There is no more DIPP, there is no more TPC and there's no more SADI program. I think if we really want to help the aerospace industry in a tough time we need to go back to basics. What we need is very simple. We need a sectorial program for the aerospace like we had in the past. If we have that, then we can develop technology—green technology, of course—more and more. We know that our planes have to be green, and we need to develop some technology to reduce the amount of CO2 and all of this, and design products that will meet climate change.

• (1130)

I think that's the point. The point is very simple: You have helped us to build our industry. Look at the impact of these programs on my business going from \$12 million to \$600 million and more, so that's my message.

Thank you all for your time.

[*Translation*]

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

[*English*]

We'll now turn to Nav Canada.

You have the floor for five minutes.

Mr. Ray Bohn (President and Chief Executive Officer, Nav Canada): Good morning. I'd like to start by thanking the chair, vice-chairs and members of the Standing Committee on Industry, Science and Technology for the invitation to appear here today. I am Ray Bohn, president and CEO of Nav Canada. I am joined today by Ben Girard, VP and chief of operations, and Jonathan Bagg, director, stakeholder and industry relations.

Nav Canada is responsible for the safe and efficient movement of aircraft in all Canadian-controlled airspace. Nav Canada's safety mandate is achieved primarily through the delivery of air traffic control and flight information services; the maintenance, update and publishing of aeronautical information products; the reliable provision of communications, navigation and surveillance infrastructure; and the 24/7 availability of advanced air traffic management systems.

We are responsible for more than 18 million square kilometres of airspace from coast to coast to coast and reaching halfway across the North Atlantic. Thanks to the work of our more than 4,400 employees operating out of more than 100 operational facilities throughout the country, Canada boasts one of the best air traffic management safety records in the world.

Since Nav Canada assumed responsibility for the Canadian air navigation system in 1996, we have invested more than \$2.7 billion to modernize our systems and our infrastructure to enhance service delivery. Many of the air traffic systems we use today are deployed in-house by our skilled and innovative workforce and deployed to facilities across the country as well as internationally.

We are a founding partner of Aireon, which has deployed space-based surveillance on a constellation of 60 satellites to provide global surveillance coverage and thus the ability to track flights anywhere in the world. This satellite-based technology provides radar-like coverage to places where the deployment of ground infrastructure, such as over the oceans or mountainous terrain, was not previously possible. Today it is being used over the North Atlantic and domestically to enable more direct routings, resulting in enhanced situational awareness, significant fuel savings for operators and reductions of greenhouse gas emissions.

We have also invested in Ottawa-based Searidge Technologies and their intelligent aviation camera technology that can fill line-of-sight gaps and is now featured in remote towers in several countries.

The result of our investments and our employees' efforts is an air navigation service that is a global leader in operational safety and efficiency, an air navigation service that has been able to both develop and integrate emerging technologies and an air navigation service that has helped reduce the environmental impacts of the industry.

Even today, as we weather the severe consequences that COVID-19 has brought on the industry, we have an eye to the future. This is because many of the platforms we will be using in the near future are precisely those that will provide for increased resiliency and sustainability, while allowing us to deploy services more flexibly and cost effectively in response to changes in demand and regional needs. For example, digital hub concepts will greatly reduce the costs of delivering the same or an enhanced level of service to our customers and communities and support Nav Canada in ensuring equal or better safety.

Financial assistance and investment from government for the industry as a whole, and for aviation infrastructure in particular, will certainly assist the aviation sector in its recovery and its future resiliency and also support a broader economic recovery.

Nav Canada is also supportive of policies that support a safe restart. A responsible recovery of traffic will have the greatest positive effect on the entire supply chain and limit future burden on airlines and the air travellers they serve. Nav Canada is currently working to ensure that it has the right workforce providing the right services in the right places to position the sector well for recovery. Every decision we make as an organization is made first in the context of safety. As part of the process for change, we have been listening to all stakeholders that directly and indirectly utilize our services and that pay our service charges. We're very encouraged by the light at the end of the tunnel made possible by modern science through vaccination.

We also know that, despite a potential surge in demand for air travel due to pent-up demand, a full recovery to 2019 air traffic levels is likely going to take several years to achieve. As a result, it is critical that the industry and government work together in lockstep to chart a course to the sector's recovery but also for Canada's position in the global marketplace now and in the future.

In this context, Nav Canada appreciates the opportunity to share our views as the committee undertakes its important study on the development and support of the aerospace industry.

Thank you, Madam Chair, and I welcome questions from members of the committee.

• (1135)

The Chair: Thank you very much.

Our last presentation is by NorthStar Earth and Space.

Mr. Bain, you have the floor for five minutes.

[*Translation*]

Mr. Stewart Bain (Chief Executive Officer and Co-Founder, NorthStar Earth and Space): Thank you, Madam Chair.

Honourable committee members, my name is Stewart Bain. I am the chief executive officer and co-founder of Montreal-based NorthStar Earth and Space.

I will be speaking to you today about a topic that may at first seem remote from the daily lives of Canadians, but is critical to our telecommunications, financial transactions, weather forecasting, automotive positioning, national security and our ability to combat climate change: protecting our space environment.

At a time of unprecedented climate emergency on earth, our planet's orbit is also in a precarious state, and traffic must be managed quickly and sustainably to avoid collisions that threaten the satellites providing the critical services I just mentioned.

[*English*]

Space is essential to our planet and our economy.

[*Translation*]

This global challenge must be met, and it presents a unique opportunity for Canada and its space industry. Our innovative company is growing rapidly and is well positioned to compete in this new space economy. Our 40 employees, soon to be a few hundred, are developing a state-of-the-art infrastructure that will produce information services supporting the sustainable development of our terrestrial and space environment.

In a context where an unprecedented number of satellites are coming to occupy orbital space, NorthStar offers for the first time, from its headquarters in Montreal, the most complete and accurate space object commercial tracking service. This positions Canada to become the backbone of the global space traffic management system as space traffic grows exponentially.

[English]

To put this in perspective, at the beginning of this decade there were just over 2,300 operational satellites orbiting the earth. By the end of this decade there will be over 100,000 operational satellites flying amongst millions of fragments of debris.

NASA recently reported in January of this year that the most critical feature needed to preserve the near-space environment is accurate tracking of space objects. With the support of the governments of Quebec and Canada, NorthStar has already demonstrated world-leading technology here in Montreal to address this concern. We must seize this economic opportunity to put Canadian innovation to work to protect our satellites, our astronauts, and to keep space safe and sustainable for everyone.

• (1140)

[Translation]

We encourage the committee to view this situation as an opportunity to safeguard the space environment and ensure the competitiveness of our economy by creating Canadian jobs with a promising future.

NorthStar submits the following recommendation to the committee: make sustainable space development a priority, including building on the best space traffic management services developed here in Canada. This will support all satellite operators in Canada and make Canada a world leader in sustainable space governance, a challenge being addressed by many countries as well as the United Nations.

In this spirit, our recommendation also echoes the report of the Industry Strategy Council of Canada, led by Ms. Monique Leroux, which recommends that Canada set a goal of being the world leader in environmental, social and governance fields, or ESG. The Industry Strategy Council of Canada states that: “When the government is the first buyer of innovative technologies [...], it enables our firms to scale more quickly, create more jobs and adopt an export orientation.” By adopting this strategic vision, we can put home-grown innovation to work for our environmental imperatives and greener, more competitive, and more sustainable economic growth.

[English]

As the father of six children, I'm reminded every day of the responsibility we all share to provide hope and ensure a sustainable environment for all future generations to come.

[Translation]

At the dawn of a green and sustainable economic recovery, Canada has an opportunity to make an impact on saving space and preserving our global environment. Given the tools at our disposal, it is our duty to act and seize a unique opportunity for our country to generate greener growth that will create the jobs of tomorrow.

Thank you for your attention.

[English]

Thank you.

The Chair: Thank you very much.

We'll now start our round of questions.

In our first round of questions of six minutes, we will start with MP Dreeshen.

You have the floor for six minutes.

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

Certainly, special thanks to all of the witnesses for joining us today. There are just so many interesting discussions that have been presented here.

I was fortunate enough to go to the Paris Air Show back in 2017 and I got a really good sense of the types of small businesses that we have here in Canada in the aerospace industry; that certainly opened up my eyes. When I was on public accounts, I had a look at the military procurement side of things as we discussed the fighter jet analysis and issues that many of the companies we've seen over the last few days would have had opportunities to be part of.

There are a lot of things that are there and I think a lot of Canadians don't understand just how the aerospace industry is incorporated into the fabric of this country.

My first question, though, I would like to address to Bell Textron Canada, as I know you have a presence in Calgary. I'm just wondering what the impact of government measures and the pandemic has been on your Calgary operations. I understand that facility is primarily responsible for sourcing materials for several Canadian Forces bases here in Canada and overseas. Have there been substantial reductions or staff layoffs? What is the general state for Bell Textron Canada in general?

Mr. Marc Bigaouette (Director, CH-146 Griffon Fleet, Bell Textron Canada Limited): MP Dreeshen, I would like to address your question.

Obviously, a lot of the activities that happen inside our Calgary centre belong to me, as I'm looking after the equipment piece of the Canadian Armed Forces.

Very interestingly, there hasn't been a single layoff yet. We have actually grown our capacity in Calgary during the pandemic as a result of demand by the Department of National Defence.

It's very important to understand that from the onset of the pandemic, one key worry of the Department of National Defence was supply security. My answer to them from the onset was that if the borders were closed completely, and if we continued to supply the fleet at its current rate, we would see no impact for a period of three months on our normal operations, and we could probably sustain that fleet, with very marginal impact, for the next nine months.

The reason I share that with you, sir, is because this is an important aspect of having an in-house, domestic capacity to support our military. We are able, through this facility, to de-risk the military operations and sometimes all the way to the deployed operations that we've had in Iraq and in Afghanistan, to both military and civilian lines of communication.

• (1145)

Mr. Earl Dreeshen: Thank you very much.

I'd like to go in a different direction.

We've heard testimony from the Canadian Federation of Independent Business that talked about the inefficiencies associated with regulation, and that it is somehow affecting businesses in being able to either create jobs or expand within the economy.

Again to Bell Textron, when we hear about regulatory concerns or regulatory issues that change the competitiveness that we have with other countries, is there a way of addressing that issue, or is it as significant as some people lead us to believe?

Mr. Marc Bigaouette: Yes, certainly there are things we can put in place, and I will speak here from the military procurement standpoint.

However, to understand those mechanisms, I would have to explain the difference between what our allies do and what we do in Canada. It is a very important distinction. We have to understand the key motivation of our allies, so if you would allow me, I will share some aspects of it with you.

As I occupied the position of air adviser at the Canadian High Commission in London between 2013 and 2017 I witnessed firsthand the way to go about it. This is about the domain of defence security, but I want to make it clear that the message we convey is not about defence. It is about prosperity and the way in which the U.K. leverages public procurement to create wealth.

I also wish to underscore that the monologue we share with you is not unique to the U.K. In Europe and elsewhere, defence and security is a means to an end and the reason is simple.

Defence is the largest user of public funds, and therefore it is a gold mine when it comes to leveraging the aerospace sector. I think that Christyn Cianfarani made that very clear earlier. Our allies have realized that, and they are capitalizing on this.

British defence and security policy is the result of a whole-of-government effort with the Department for International Trade occupying a place of choice. In Canada, similar responsibilities are split between ISED and Global Affairs Canada.

The key differentiator between our approach to defence policy and the British approach—and that of most European countries—is that industry is included in the definition of defence policy from the outset. By the time the British defence and security policy is stable, most of the companies selected to deliver the products and services have already been identified as part a defence industrial strategy.

In 2017, 56% of the U.K. procurements were sole-sourced with a large majority awarded to British industry. In their defence policy they have a stated objective of sole-sourcing a minimum of 50% of their defence procurement.

Mr. Earl Dreeshen: Thank you very much. I see the red card is up, so I will help the chair in that regard.

The Chair: Thank you, MP Dreeshen.

My apologies, Monsieur Bigaouette. I don't like cutting off our witnesses, but we have a very tight schedule today.

Our next round of questions goes to MP Jaczek for six minutes.

Ms. Helena Jaczek (Markham—Stouffville, Lib.): Thank you very much, Madam Chair.

I also would like to thank all the witnesses. You have made very clear presentations and some important, interesting recommendations.

Monsieur Labbé from Héroux-Devtek, I was extremely interested in your desire for what you called a sectoral program. I would like you to elaborate on what exactly you mean by that, what the elements of this program are and what specifically is lacking in what is currently available to the sector.

• (1150)

Mr. Gilles Labbé: We're looking for a program that will help us develop new technology, new products like we had on SADI and like we had in the past with TPC. I'm sure you've had presentations from the AIAC and Aéro Montréal that gave you the details of these programs.

I want to share with you the landing gear project, for example. Typically when we tried to win a new landing gear program it was all about a new airplane, so we have to design first and develop a new product. The ticket normally, depending on the size of the airplane, is anywhere between U.S. \$50 million to U.S. \$70 million, and the cycle time to develop this is long. It takes five years.

I'll give you an example. We were selected in 2007 to develop the CH-53K helicopter landing gear, which is the largest helicopter that will be built in the western world. We started in 2007, and in 2020 we are starting now to produce the first production units. You can see that the development cycle is very long and financially very tough to support.

If we have no support from the Canadian government as we have had in the past, we will not win these programs, and these programs will go somewhere else.

When I started, do you know how many design engineers I had? Zero. Do you know how many I have today? I have 200. Do you know how many employees I had when I started? I had 200. Today I have 2,000. That is the impact of these programs that were in place back then.

Ms. Helena Jaczek: Monsieur Labbé, it sounds like you're talking about increased government funding for R and D to a certain extent.

Mr. Gilles Labbé: Yes, a program that is similar to what we had in the past.

Ms. Helena Jaczek: Is there anything else relating to training? You mentioned the number of engineers, etc.

Are there any other aspects, specifically, that are possible for government to assist you with? You mentioned timelines. Is there some regulatory issue, something you could point to that could be changed?

Mr. Gilles Labbé: You have different demands for a hundred different things for which you have to make a choice. You're the government.

However, I think the most important thing for our industry is going back to building a program like we had in the past, and at the same time, developing green technology with this program. It could be on a hydrogen engine, developing composite products to be lighter on the airplane to save fuel and all this.

Ms. Helena Jaczek: Thank you.

Now I'd like to turn to the Canadian Air Traffic Control Association and Nav Canada.

It's good to see you again. I am member of the transport, infrastructure and communities committee, and you've certainly made very similar points.

In terms of public safety, obviously that's absolutely paramount. I can assure you and the members of this committee that at transport committee, we took it very seriously. We had assurances from Transport Canada that they are reviewing all the potential layoffs, etc., in terms of ensuring public safety.

I would also like to ask, perhaps starting with you, Mr. Best, in terms of the training of air traffic controllers, do you see the need for any changes?

We heard at this committee of the need for changes in terms of pilot training. It is a two-year course at the moment. Do you have any recommendations on online learning, some redundancies? Would you have any recommendations as to how to accelerate ensuring additional air traffic controllers...as they obviously will become necessary?

• (1155)

Mr. Doug Best: It's very difficult to speak about the training. We've attempted, I would say over the last 20, 30 years, to increase our success rates. We've tried many ways to do many things. We continue to reinvent the wheel.

I don't have any suggestions right now, if that's what you're asking, but I'm sure we'll look into it and get back to you.

Ms. Helena Jaczek: I would really appreciate that. I know we're running out of time for my questions. If you could submit a written brief to the committee, that would be valuable.

The Chair: Thank you very much.

Mr. Best, if you could make sure to send that to the clerk, we'll make sure it's circulated in both official languages to the committee members.

[Translation]

Mr. Lemire, you have the floor for six minutes.

Mr. Sébastien Lemire (Abitibi—Témiscamingue, BQ): Thank you, Madam Chair.

My question is for Mr. Bohn from NAV CANADA.

Mr. Bohn, I sincerely thank you for accepting our invitation to appear today.

The aeronautical studies that you are required to provide are necessary. They are done by NAV CANADA, which is both judge and jury. That seems a bit of an aberration.

To facilitate a process with integrity, transparency and credibility, shouldn't these studies be conducted by an independent firm to avoid NAV CANADA being the sole decision-maker and, more importantly, to regain the confidence of air traffic controllers and airport authorities?

[English]

Mr. Ray Bohn: From our perspective, certainly we believe that we have the appropriate consultation with all stakeholders in terms of system development at Nav Canada, with our largest customers and other stakeholders, and we'll continue to do so.

The governance structure that has been set out at Nav Canada includes representation and consensus amongst our four founding members: the air carriers, the Government of Canada, business in general aviation and our employees. We believe it's the appropriate structure to ensure appropriate governance with respect to investment in technology.

Mr. Jonathan Bagg (Director, Stakeholder and Industry Relations, Nav Canada): If I may add to that as well, just to clarify, when we complete an aeronautical study, there is an independent review by Transport Canada, which is our safety regulator. Nothing is implemented until our safety regulator has reviewed and approved any aeronautical study.

[Translation]

Mr. Sébastien Lemire: Thank you.

According to a survey commissioned by the Canadian Air Traffic Control Association, in which 1,400 of the 1,800 qualified controllers in Canada participated, 89% of air traffic controllers believe that the closures and cutbacks being considered by NAV CANADA could be detrimental to the recovery of the Canadian aviation system when air traffic returns to normal.

Since then, the International Air Transport Association has estimated that a return to 2019 levels of passenger traffic will not be achieved until 2024.

Mr. Best, the president and CEO of the Air Transport Association of Canada, has just challenged you by suggesting that any funding for NAV CANADA be reviewed. As a result, he is also calling for a moratorium on layoffs, to assure the travelling public that this is the priority.

What would you say to him?

[English]

Mr. Ray Bohn: Certainly I can comment on that.

We understand that CATCA is concerned about potential job loss. Changes to our workforce are always a very difficult decision, but the fact of the matter is that our safety culture permeates not only our air traffic controller employees but all the teams at Nav Canada and all levels of the organization. This is not something new or something that we're going to sacrifice during the pandemic. Safety will remain paramount as we look at reshaping our workforce to deliver the services that will be required through the recovery and beyond.

[Translation]

Mr. Sébastien Lemire: Mr. Bohn, as you know, security is a very worrying aspect in the regions, especially in a region like mine, in Abitibi-Témiscamingue.

I am thinking particularly of the Rouyn-Noranda Regional Airport, which is of direct concern to you. We want you in Abitibi-Témiscamingue; we want to maintain the NAV CANADA service. This heartfelt cry can be heard in all regions of Quebec and Canada where you offer services.

To do this, you must provide an impact study. Such a study makes it possible to see the economic consequences of closing a service like yours in the development of a regional economy like ours. It also demonstrates the limited impact on economic development. Of course, the studies show the opposite. We feel that there is a lack of predictability, we feel that this has consequences. Airports and cities are investing a lot in Quebec to be able to improve their airports, but they are still waiting to be reassured by you.

Can you send a clear message to these cities, like Rouyn-Noranda? Can you tell them that you will maintain a service there? Personally, I think there should be a five-year moratorium. This would be an intelligent solution that respects the regional economic reality. It would allow us to maintain expertise and jobs in the region. What do you think about this?

• (1200)

Mr. Jonathan Bagg: I will gladly answer the question, but I believe Mr. Bohn wants to add something.

[English]

Mr. Ray Bohn: Let me take a moment to talk about our aeronautical studies and the process to evaluate our service. We understand that they can generate a lot of concern by stakeholders. That's why our stakeholder input, which is central to our process, is so extremely important.

In order to further support awareness and effective input from our stakeholders, I want to let the committee know that we will be adding an additional step to our process to communicate our findings and allow stakeholders to make representations in regard to specific recommendations. This has not been part of the process historically, but given the circumstances, we believe it to be an important step before any studies are submitted to Transport Canada.

We also know that there has been a fair bit of narrative by some stakeholders that our outcomes are predetermined. While I'm not in a position today to tell you about the outcome of the studies, as we

continue to work on them through our very stringent process, I can certainly say that we're listening to stakeholders and I expect the results of many of our studies will prove this narrative to be, in fact, false.

We will continue to review the input, and as I said, introduce this extra step of consultation. While we have said before that the studies are warranted, we are listening.

The Chair: Thank you very much.

Our next round of questions goes to MP Masse.

You have the floor for six minutes.

Mr. Brian Masse (Windsor West, NDP): Thank you, Madam Chair; and thank you to our guests for being here.

I'll continue with Mr. Bohn.

At the transport committee, when I asked you questions about the situation there, about accessing government programs to extend the employees, you couldn't guarantee that if a government program of support were provided to keep the employees, it wouldn't be used for bonuses for managers and executives. Is this still the position of Nav Canada, or is there not some type of system in place now or a compromise whereby we could protect the jobs as we try to build back the airline sector, not undermine trained positions in public safety right now and also provide some fairness?

I think Canadians have shown their support for protecting jobs and protecting individuals in our economy but less tolerance for bonuses from their money.

Is that the same position you have today from when it was provided a few weeks back?

Mr. Ray Bohn: Certainly we would look at any government funding, by way of a grant, as something to consider as we look at plotting our future within the organization and determining our financial plan.

On the issue of what you referred to as bonuses, I want to clarify a few things. Management employees have a base amount of pay and what we would call or what I think you're referring to as bonuses as variable pay. Both of those elements have been reduced significantly due to the pandemic. Management regular pay has been reduced by up to 20% depending on the level of the manager.

Mr. Brian Masse: I'm sorry. I have limited time. That wasn't my question. You didn't pay out as much in bonuses, basically, at the end of the day. That's what it really is. I appreciate that. We can go back to that testimony if we want.

I'm going to go to Mr. Best. You have a survey from your workforce there. I proposed a bill on Tuesday in the House of Commons. It was tabled to allow the minister to suspend the Nav Canada studies. The government really has no excuse right now. They can do it through an order in council or they can take my legislation and make it law and stop this from happening right now.

As we know, we have heard from many community partners about public safety. In Windsor, we share Detroit airspace. Other communities across the country are concerned about economic development and building back.

I'm worried about if these continued layoffs.... It's interesting because they had hundreds of layoffs and they can still do the evaluations under this format. Now we're hearing that the format has been adjusted, so the original one obviously wasn't sufficient. It's good news that they have admitted that their current one is not enough.

As we start to lose some of these trained professionals, how difficult is it to keep them around, keep them relevant and keep them trained if we have growth like we had before?

• (1205)

Mr. Doug Best: Mr. Masse, I can't stress enough the fact that layoffs and service reduction go hand in hand. It's beyond me right now as far as some of the requests that have been made by our members regarding the safety study. I believe we did provide this all to you before committee today. I think that literally speaks for itself.

I have just heard that we're concerned about job loss. Of course we are. We're a union. That's what we do. We represent our members very well. This is only part of the issue. We're worried about the staffing levels that are going to be left behind. Currently, we're 18% short of our pre-pandemic numbers. When we go to an economic recovery, we all know there's pent-up demand. We can all crystal ball or look into the future where air travel will be in the aerospace industry, but nobody knows.

We're hearing from Nav Canada that it could be three, four or five years, but the reality is all you have to do is look south of the border. All you have to do is look over to Europe. As the vaccinations roll out, the common sense says.... Look at Air Canada and WestJet. They are now resuming service everywhere.

Staffing, of course, goes hand in hand with service delivery. The less staff you have, the less service delivery you can provide.

Mr. Brian Masse: I remember at one point there was an attempt by the industry—and it was blocked by Peter Julian and myself in the House of Commons—going back to 2008. We did a hoist motion when the airline industry wanted to go to its own safety management system, which was their own self-reporting. That's another story in itself.

I think that the Canadian public is going to have a lot of issues over travelling by air at first. There are going to be barriers. I think adding additional burden and barriers doesn't make any sense right now. It's another anomaly of trying to go back, but at the same time it adds instability.

With regard to your members, though, if they do not have job security here, will they potentially seek job security elsewhere? Is that something we have to worry about? In my region, people get plucked into the United States all the time if there isn't the proper employment here. Do we lose Canadians internationally if we don't have the employment here?

Mr. Doug Best: Madam Chair, I will be very quick.

Absolutely. In the testimony I had at the transportation committee.... We call it the brain drain. We're already losing some of our members who have received layoff notices. We're losing them to Europe and to other areas. The United States is actively looking for air traffic controllers. It's difficult to staff.

I will end it there.

Mr. Brian Masse: I know I'm almost out of time, Madam Chair. Thank you very much.

The Chair: Thank you very much, MP Masse.

We'll now move to our next round.

[*Translation*]

We will now have our first round of questions.

Mr. Généreux, you have the floor for five minutes.

Mr. Bernard Généreux (Montmagny—L'Islet—Kamouraska—Rivière-du-Loup, CPC): Thank you, Madam Chair.

I thank all the witnesses for being with us today.

My first question is for Mr. Labbé.

Mr. Labbé, first, let me congratulate you on your impressive career as an entrepreneur and developer in the aerospace industry. I have no connection to your company or shares in it—I regret that, by the way—but this is quite an achievement to add to what you have accomplished in your life, Mr. Labbé.

Earlier, you used the word “broken” to say that the federal government has let down the Canadian aerospace industry. What exactly did you mean by that word?

On the other hand, I know you've gone from \$10 million to \$600 million in sales, but, in practical terms, what have these programs allowed your company to put in place that has allowed you to accomplish what you have?

Mr. Gilles Labbé: Thank you, Mr. Généreux.

The programs that existed at the time were sectoral programs. So there were funds allocated specifically to the aerospace sector, that is, the aeronautics and space sector. There was money set aside for us that allowed us to see far ahead. In other words, even if the governments changed, these programs gave us the certainty of having the necessary funds to develop our products, our services and so on. That doesn't exist anymore. There are new programs, but they are not sector-specific. They are accessible to everyone. Also, there is not enough money available for an industry like ours.

I don't know if that answers your question.

• (1210)

Mr. Bernard Généreux: You've answered it in part. We're really talking about a strategy. We've heard from a number of witnesses about the importance of having a Canadian aerospace or aeronautics strategy in place to have, as you say, a long-term horizon. Yet, according to the witnesses we have heard from so far, it seems that, for the last four or five years, such a strategy no longer exists or it is not sufficiently known, because the federal government does not promote it enough.

Is this the reality?

Mr. Gilles Labbé: Yes, this is the reality. The people from Aéro Montreal and the Aerospace Industries Association of Canada must surely have pointed that out in their testimony.

What made aerospace successful was really this partnership that we had. Our country is huge and it's bordered by three oceans. Not long ago, we were the fifth-largest aerospace country in the world. Now we are ninth. The domestic demand for aerospace products such as civil aircraft and military aircraft, for example, is not sufficient. We really need to look to exports. So our industry has grown through these programs. We export 90% of our production, which means \$28 billion in revenue for Canada.

Earlier, I mentioned programs like the C-130J Super Hercules. We supply Canada, but we are Lockheed Martin's sole source of supply for that product. Every C-130J Super Hercules aircraft produced at Lockheed Martin is equipped with wheels and landing gear manufactured by us. We also do maintenance. I could go on and tell you about many of the products we have designed over the past several years.

That's also true for other Canadian companies located on the east and west coasts. There is, for example, Viking Air Limited on the west coast and IMP Aerospace and Defence on the east coast. There are several in Ontario. The Quebec industry is important, but there are also other companies outside of Quebec.

Mr. Bernard Généreux: I fully understand this. In fact, we've seen several examples that show this.

There are more than just subsidies among all the previous measures that a future Canadian aerospace strategy could put back in place. There are also forgivable loans, as they're called in Quebec, or a vision-based strategy.

Has this also helped you in the past?

Mr. Gilles Labbé: We'll need to develop products while taking into account the context of climate change. We'll need to make much greener products to meet needs. People are already working on engines that will run on hydrogen or fuels other than gasoline to reduce CO₂ emissions from airplanes. We need to have a long-term vision, but we also need to—

The Chair: Sorry to interrupt you, Mr. Labbé, but Mr. Généreux's time is up. You can clarify your answer during the next round of questions.

Mr. Gilles Labbé: Okay.

Thank you for the question, Mr. Généreux.

Mr. Bernard Généreux: It's never long enough.

The Chair: You're right, Mr. Généreux.

[English]

Our next round of questions goes to MP Jowhari.

You have the floor for five minutes.

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

Once again, thank you to all the witnesses for providing quite informative input into our study.

I'd like to start with Mr. Bain.

Mr. Bain, back on November 24, 2020, the CSA announced that your company had been selected as part of the smartEarth initiative for a project to advance state-of-the-art, multisource data fusion and apply machine learning technology to map Canada's environmentally critical wetland areas.

I'd like to get input from you. Can you share with us what the scope of this project is, and how is it balancing, in your opinion, the support for the aerospace industry, the support for R and D, and the support for environmental initiative, which is the forefront of our government platform?

• (1215)

Mr. Stewart Bain: We're very happy to be working with the Canadian Space Agency on that smartEarth project. It's a new initiative, as you all well know, from the Canadian Space Agency to look at developing technologies. It's an R and D project to develop technologies for Canada to be in the forefront of aspects related to climate change. NorthStar looks at climate change as a system of systems. Climate change is an easy, quick two-word phrase. It's thousands of things happening at the same time.

The founders of NorthStar are American. As the token Canadian, I convinced them to put the head office here in Canada, in Montreal, because climate change is a global problem that needs to come and have services from a trusted nation when you're providing information.

NorthStar uses satellites, but it is first and foremost a software algorithm company. One of the quotes I heard recently was about how the future of space belongs to the company that can generate the most data and process it in real time, so my team primarily consists of big data managers, big data systems, software and algorithms.

What we're doing with the Canadian Space Agency is developing systems where we can fuse data from other sources so that we can contextualize that data. It's not raw data coming from a satellite that requires a Ph.D. in hyperspectral imagery and a million dollars' worth of equipment in your office so that you can understand in a week and a half what just came down from a satellite. It's immediate so that you can have an app on your phone so that you can say, "I want to monitor the environment in near real time".

Our concept is billions of users working to help change the planet, and our go phrase is “Empowering humanity to preserve our planet”. This is a very important step, working with the Canadian Space Agency. It's R and D; it's not the long term. The long term is that you want to be able to sell these services, and a lot of my colleagues have talked about how smart or cheap stimulus.... Mr. Whittaker referred to the OT process in the States. It needs to go to the next step.

Mr. Majid Jowhari: Thank you.

Next I'd like to go quickly to CADSI and Madam Cianfarani.

You recommended four pillars or a four-part plan. I was looking at your website, and as part of the path forward, your organization made about nine recommendations. You specifically talked, when it came to defence procurement, about pulling forward and accelerating some of the projects with the federal government around defence. Can you expand on that, please?

Ms. Christyn Cianfarani: Like I mentioned, there's a very long shopping list of programs in the defence capability's blueprint. Essentially, that is what the Canadian Forces intends to buy across army, navy, air force, space systems, you name it, over the next 20 years. Largely, the capital acquisitions are in the next 10 years, and there are some hundreds of programs on the books for them to make acquisitions in. Some of those programs have a very natural intersection—

Mr. Majid Jowhari: Can you give us an example of one? I apologize, but I only have about 20 seconds left. Could you give us one example of what we could put forward and accelerate?

Ms. Christyn Cianfarani: Sure. Fighter lead-in training and future air crew training are projects that will need to be sourced. They could be pulled forward in the acquisition schedule to start them as quickly as possible. We have Canadian companies that are key industrial capabilities in those areas. These are two projects, just off the top of my mind, that could be pulled forward or accelerated.

Mr. Majid Jowhari: Thank you.

Thank you, Madam Chair.

The Chair: Thank you very much.

[*Translation*]

Mr. Lemire, you have the floor for two and a half minutes.

Mr. Sébastien Lemire: Thank you, Madam Chair.

I'll continue with Mr. Bohn from Nav Canada.

Mr. Bohn, as you know, Rouyn-Noranda is the third-largest airport in Quebec. For several years, the City of Rouyn-Noranda has been calling on you. However, your silence, as well as the silence of the Minister of Transport and his predecessor, is creating uncertainty. The answer that you gave earlier obviously isn't reassuring. The technology associated with the automated weather observing system, or AWOS, is creating a great deal of uncertainty and concern about the safety of passengers, pilots and staff.

The Kinojevis River is close to the runway and this affects the reliability of the automated system. The implementation of night services without a human presence also affects all medical services,

particularly emergency services for indigenous communities in northern Quebec.

Could you commit to responding positively to a request to meet with me and representatives of the City of Rouyn-Noranda? We could also invite representatives from Abitibi-Témiscamingue public health, our regional airlines that do business with the north, mining companies and Hydro-Québec, all of whom need your services in Rouyn-Noranda.

● (1220)

[*English*]

Mr. Ray Bohn: We would welcome the opportunity to have such a discussion, so please reach out.

[*Translation*]

Mr. Sébastien Lemire: That's fine.

I want to remind you how important the services of Nav Canada are.

I want to repeat my question from earlier. Would the vision of a moratorium on these studies, particularly on the economic impact studies, help to regenerate predictability, confidence and a long-term vision for our regional airports?

There has been a great deal of investment. I know that you're hearing this plea from other regional airports as well. We just heard my colleague from the Windsor area speak about this. The member for Cariboo—Prince George is also speaking to you about this.

Wouldn't it be good to see how we could talk directly with you? This type of meeting would give us more influence on the decisions made by your company to maintain services in the regions, which I believe are very profitable.

[*English*]

Mr. Ray Bohn: We have certainly consulted extensively in our aeronautical studies leading up to our conclusions and recommendations, which have yet to be formulated. As I mentioned earlier, we will be adding an additional step to the process to communicate the findings and allow stakeholders to make representations in regard to our specific recommendations before they go to Transport Canada.

The Chair: Thank you very much.

Our next round of questions goes to MP Masse.

You have the floor for two and a half minutes.

Mr. Brian Masse: Thank you, Chair.

Mr. Bohn, I'll give you a chance to outline that.

What would be the difference? You're going to have your study. When you come back to it, maybe some issues will be highlighted. Do you then challenge the veracity of the study? How does it get amended and then how does it get sent to the minister? Outline that process if you could.

Mr. Ray Bohn: I'm going to ask Jonathan Bagg, who is responsible for the level of service initiative, to respond to that.

Mr. Jonathan Bagg: What I can confirm about this additional process is that with our aeronautical studies, we communicate a term of reference, a scope of study. The outcome of a study can vary depending on what we find and feedback from stakeholders. This additional step will allow stakeholders to make representations on the specific findings of the studies, the outcomes and the recommendations before they go to Transport Canada. If any new issues are raised, we would consider them within the context of that study. It's an additional step for stakeholder input that we've added.

Mr. Brian Masse: Why was that added? This is a new practice, I guess. Was there a particular reason?

Mr. Jonathan Bagg: We've been hearing from our stakeholders that they have interest in hearing about findings before we submit them to Transport Canada. That's why we've proactively added that step.

Mr. Brian Masse: Thank you for that.

How long do you think that will take? Are there time frames for people to make these submissions to you after that and for when that goes to the minister?

Mr. Jonathan Bagg: We anticipate having a comment period of about 60 days to allow people to make written representations. As well, once we've completed that phase, we'll have to assess the input before we submit it to Transport Canada, so that might take a few weeks from there as well.

Mr. Brian Masse: That's why I hope the government just takes my bill and does it. I thank you for adding that, but that is another 60 days of uncertainty that the community, businesses and people have to live with. This is going to go on for a year or so in total. We started this in November, and you started preplanning before then. I hope the government just takes my bill and legislation through an order in council or passes it.

I think they're getting a lot of broad-range support from the NDP, the Bloc and the Conservatives on this. It seems like a lot of nonsense at a time when we have uncertainty. It's unnecessarily victimizing us and our airline industry for a few jobs and for qualified people who are good people.

• (1225)

The Chair: Thank you, MP Masse.

Our next round of questions goes to MP Baldinelli.

You have the floor for five minutes.

Mr. Tony Baldinelli (Niagara Falls, CPC): Thank you, Madam Chair.

Thank you to the witnesses who are here today.

I just quickly want to follow up on some of the questions I've asked at previous meetings and so on. There seems to be a coalesc-

ing of an idea about the need for a sector-specific strategy for the aerospace industry.

I've asked previous witnesses about the need for the retention, the retraining and the recruitment of the workforce. A previous witness said that there is probably going to be a need for 55,000 employees in the sector by 2025. One witness mentioned a loss of about 33% of her workforce.

As we move into the future, I'd like to ask Mr. Whittaker, and then Mr. Bain or even Mr. Labbé about the needs.

Are there things we can do as a government to help the retention, retraining and recruitment for that skilled workforce you need?

Mr. Rick Whittaker: Absolutely, there is stuff the government can do to both retain and retrain. The brain drain is something that has always been going on.

One of the things at this particular point in time that are perpetuating that are the programs that exist in other countries that could be redone. I think one of our witnesses talked this morning about continuity. These programs are particularly long term. They're very expensive and unique to this sector versus other sectors. Being able to have a program that allows employees to have certainty going forward in their companies, in their technologies and in the programs they participate in is really important.

Retraining and retention touch primarily on innovation and innovation support programs. We've heard multiple witnesses talk about the long term. Some of them are eight years long. The one we're in is five years long. Keeping an employee in uncertain times is difficult for a company to do on their own.

There is a silver lining. I think Christyn talked about this one. We're very thankful for defence procurement, because that's kept us alive. The commercial market completely disappeared on us, and we thank God for the defence sector because it kept us alive. Those things, leveraging those programs, will help us retain those employees.

On the retraining bit, I can't speak so much, but what I do know is that we're creating safety systems for autonomous vehicles that will ease somewhat the burden on air traffic controllers. It's not going to solve the issues that have been talked about this morning, but it should lessen the impact as we're now starting to introduce new things like drones into the airspace and have air traffic controllers deal with them as well as everything else.

I'll stop there, but those are two big themes that I would share with this committee on that question.

Mr. Tony Baldinelli: Thank you.

Is there anything you would like to add, Mr. Bain or Mr. Labbé?

Mr. Stewart Bain: Go ahead, sir.

Mr. Gilles Labbé: I concur with my colleague who just spoke.

I think CADSI said it very clearly. If we can accelerate some of the defence programs, this will help to retain our workforce. Also, then, if we put the specific sectoral program in place, this is going to really help on the R and D side to keep our Ph.D.s, engineers and all our brain power to stay at work and then to also hire some.

Training could be part of it also. I think it would be a great idea, and I think accelerating defence procurement is a great idea, and creating the sectoral fund for aerospace is needed. If we want to keep our people, especially our brain power, that's what we need to do, in my opinion.

Mr. Tony Baldinelli: Mr. Bain.

Mr. Stewart Bain: Retention and retraining of people happens because there's a demand for your services or your products, and that comes from being competitive in the marketplace and that comes from having clients who buy those services and products. I think Ms. Cianfarani made her point quite clearly that cheap stimulus means buying the services. Rick Whittaker referred to it in his reference to the U.S. government; they have a lot of programs they call OTA programs, "other transaction authorities", whereby non-traditional defence companies can get access. We are actually pursuing one in the United States. NorthStar is pursuing an OTA transaction through a public-private partnership with the U.S. Space Force to deliver the types of services I talked about today. I don't have a similar mechanism here in Canada, and that's frustrating, because I'm competing with U.S. people who want to be able to do what NorthStar can do. We need to keep a sustainable advantage; you can't just innovate without selling the services.

• (1230)

Mr. Tony Baldinelli: Thank you.

The Chair: Our next round of questions goes to MP Zann.

You have the floor for five minutes.

Ms. Lenore Zann (Cumberland—Colchester, Lib.): Thank you so much.

It's really great to hear all of you. What a very interesting topic this is. I want to say thank you so much for your work on behalf of Canadians.

I'd like to start with asking Mr. Best about the job of air traffic controllers. You had mentioned that it is one of the most stressful jobs in the world, and I have heard that as well. I've also heard that perhaps suicide rates within that industry are also concerning, especially in the United States, where they make, I believe, a whole lot less than they do in Canada, and it's a shame.

What percentage of your membership are women?

Mr. Doug Best: The answer to the question I believe is currently about 19%.

Ms. Lenore Zann: So there are 19% women. Could you just let us know what your members are saying about the stress in this job, in this particular field?

Mr. Doug Best: Yes, I can tell you a little bit about what we do. We're responsible for the safe, orderly, expeditious flow of air traffic. We're stationed in air control centres and control towers. We monitor aircraft position, speed and altitude in their assigned airspace, visually and by radar. We give directions to pilots by radio. The position of an air traffic controller is one that requires highly specialized knowledge, skills and abilities. We have to apply separation rules to keep aircraft at safe distance from each other and in their area of responsibility. We move all aircraft safely and efficiently through their assigned sector of airspace, as well as on the ground. We have a large responsibility while on duty, and we make countless real-time decisions on a daily basis. I think that this is the big one. We're constantly regarded around the world as being in one of the most mentally challenging careers, and it's one that has notoriously high stress.

Ms. Lenore Zann: Yes, because I would imagine they feel so much responsibility for lives. Thank you for that.

Earlier this month, a representative from the Aerospace Industries Association of Canada testified to this committee that the aerospace industry exists in a fierce, globally competitive marketplace, and because of this global competition, Canada would risk losing jobs and expertise to other countries in which the aerospace industry is recovering at a faster pace. I'd like to ask both Mr. Best and Mr. Bohn whether they share these concerns. How can the federal government help retain expertise and employment in this industry in the short and longer terms, particularly if, indeed, there are any layoffs planned?

Mr. Doug Best: Thank you, Madam Chair, I'll step up first, ahead of Mr. Bohn.

We're very worried. We're very worried about the over 100 who have layoff or vulnerability letters right now. We already have several who are looking to work in Europe. Now the United States is also looking. Around the world, we're in high demand regularly, and it's mainly because of the skills we have. If I had the answer to what those skills were, I'd be a very wealthy person, but the fact of the matter is, not a lot have them. We're very worried that with what's happening right now, we're going to be losing more. It costs a lot to train an air traffic controller. It's anywhere from half a million to a million dollars to train depending on where you work and how long you have to train for. We're certainly worried.

• (1235)

Ms. Lenore Zann: Thank you.

Mr. Bohn.

Mr. Ray Bohn: You asked the question about support as well. From our perspective, establishing targets for opening travel—with the appropriate science-backed safeguards, obviously, such as rapid testing and appropriate isolation time frames—would mitigate risk and could make a big difference.

As well, it would be our view, as mentioned earlier, that government assistance would also have a significant positive impact on the system and on jobs going forward.

Industry engagement through channels such as the government's aviation restart working group is certainly something we've been involved in discussions on and will continue to want to have impact upon as we reshape the recovery.

Ms. Lenore Zann: Thank you.

The Chair: We'll now start our third round of questions.

Our first round of questions goes to MP Poilievre. You have the floor for five minutes.

Hon. Pierre Poilievre (Carleton, CPC): Thank you, Madam Chair.

I would like to direct my questions to my constituent, Rick Whittaker, from Riverside South in the south end of Ottawa.

Rick, when you walked into my office with a missile, I have to say I was rather concerned. You laid that missile down on the desk and you told me that it was entirely for peaceful purposes. It took some explaining.

For those who are not familiar with your technology, let me just summarize it as I understand it. You can correct me wherever I get anything wrong.

Right now we have the problem of drones that try to spy over top of military bases or swoop in on outdoor concerts and gather up all of the music and entertainment so that they can beam it copyright-free onto the Internet and profit from it.

As I understand it, your technology, which you developed in your basement in Riverside South, takes a 3D-printed missile that shoots up into the air and, when it's in the vicinity of the drone, explodes a series of latex yoga bands that ensnare the propellers of the drone. Those elastic bands are attached to a parachute, which causes the drone to come gently down to earth to where engineers can recover it, erase any sensitive information from being transmitted to the wrongdoer who put it in the sky in the first place, and do so without harming anyone. You've described this as the world's friendliest drone missile.

Did I get that right?

Mr. Rick Whittaker: MP Poilievre, it's fantastic to see you today.

Absolutely. I have to say that I'm impressed with your memory and your description. I think we have to have you pitching for us in front of our customers more often.

Hon. Pierre Poilievre: I'm sorry to interrupt but, Rick, it was hard to forget. It's not every day that someone walks into my office with a missile, and if they did, many who would be walking in with different plans from those you had.

Anyway, go on.

Mr. Rick Whittaker: One thing we've noticed is that because it's friendly, it can be deployed at an airport just as much as at a military forward operating base. The idea of an explosion...it just

doesn't exist. We pop out a bunch of latex bands, trap the drone, and then down it comes.

Just as a quick update, we've gone a few steps further. I think one of my colleagues talked about big data. We now have the Sekor camera on the end of this. We're able to collect an awful lot of data on a lot of air traffic—and potentially space traffic, in the future—that can then be coordinated in real time. We're using fancy artificial intelligence machine learning techniques for this.

That, however, is expensive. Part of the talk today is: when we recover, what is needed? If you're doing anything in space, if you're doing anything in air traffic, it is very regulatory-intense and it's very long-term expensive—the two themes that we've hit today. This point applies equally as well to this 3D-printed friendly missile that we're talking about as to building landing gear, for example. Creating sandboxes in safe areas to fly drones or missiles where we don't have to worry about airspace concerns and regulations is a big deal.

Having long-term funding and certainty from the government is certainly something we could use. Our competitors, for example, in the U.S., are using the SBIR program to go from finding a government customer to now prototyping to now introducing it commercially to now scaling it up to \$250 million worth of business. That is just not something we have here. This puts us at a bit of a competitive disadvantage.

We are not, in any way, shape or form, going to become an American company. We can't be the world's friendliest guided missile and be one of those, but our competitors could very well do so on us. That's where our concern comes from.

I definitely thank you for your question. Thank you so much for your description and memory of our company and product and your support of us.

• (1240)

Hon. Pierre Poilievre: I have a question. I'm not interested in dream weaving about the future. In the present, are there any aircraft that are available on a large-scale, commercial, self-sustainable financial basis that do not use petroleum-based energy? Anybody can put up their hand.

[*Translation*]

The Chair: Mr. Labbé, please give a short answer.

[*English*]

Mr. Gilles Labbé: The answer is no, but Airbus is working on this and some others. Pratt and Whitney Canada has a project on that also.

Hon. Pierre Poilievre: Thank you, Monsieur Labbé.

If I can just conclude, Madam Chair, I find it very interesting that all the people who want to block our energy sector in Parliament are simultaneously seeking more subsidies for an industry that uses petroleum—exclusively petroleum—as its energy source.

Thank you.

The Chair: Thank you very much, MP Poilievre.

Our next round of questions goes to MP Erskine-Smith.

You have the floor for five minutes.

Mr. Nathaniel Erskine-Smith (Beaches—East York, Lib.): Thanks very much, Madam Chair.

I took, by the way, from my colleague's comments just now that he must mean that when we do potentially bail out the air sector we would put climate conditions as it relates to that bailout. I would agree with that, of course.

I have really a handful of constituents, I would say, who are passionate and they write letters to my local paper, they write letters to me, and they occasionally protest in really the friendliest way possible outside of MP offices here in the east end of Toronto. I don't agree with them all the time, but they are lovely human beings. They raise concerns about the \$19-billion proposed acquisition of fighter jets to say this is not the best-placed investment, there are competing priorities, and this isn't going to assist with our national security fundamentally from a Canadian perspective.

I wonder if there's anyone here on the panel who would assist me in answering those constituents.

Ms. Christyn Cianfarani: I can answer that question.

Mr. Nathaniel Erskine-Smith: That would be great.

Ms. Christyn Cianfarani: The Canadian Armed Forces is part of Canada's national security. We have a massive country. We are a fundamental NORAD partner, so we have responsibilities with the Americans to look after what they consider to be their northern territory from any incursions coming out of anywhere from China or Russia over the North Pole. That is our fundamental responsibility with our American partners and to do that we need assets such as fighter aircraft.

While Canadians may not feel these kinds of threats happening because they do not happen to us on a daily basis, I think our armed forces would say that they are very real and that we have very real responsibilities with our partners to the south to make sure that our borders and, by extension, their borders are very well protected, not to mention our responsibilities with NATO and our other allied partners.

I think I would just leave it at that, that it is an asset. Fighter jets are assets that are critical to not only Canada's national security, but to the security of the United States via the northern territories that we are responsible for.

Mr. Nathaniel Erskine-Smith: I appreciate that answer.

Just as a follow-up, when we look at increasing spending on defence—and \$19 billion, to my knowledge, is the second largest procurement of the Canadian government in its history as it relates to defence—in your view is that the best place for a defence procure-

ment of that size if we want to support Canadian strategic defence objectives? Is \$19 billion toward fighter jets really the priority that the government has made it out to be?

• (1245)

Ms. Christyn Cianfarani: The truth of the matter is I can't make that assessment as to where the priority for the Canadian Forces is. They need to look at all the requests that are being made of them from our strategic partners, from our close allies in the United States, and our own national security aspirations. Then they need to assess what kind of budget they need, as well as what kinds of assets they need to support our ambitions.

Is it the right amount? I'm not the individual to be able to make that call. It is indeed the Canadian Forces, and then that has to be done obviously in the context of what the country can afford.

I do think we have to be mindful of the fact that Canada has not recapitalized its armed forces since the 1950s, so our equipment.... And you can tell your constituents, they certainly don't like it when our Snowbirds fall out of the sky and our people die. That is the reality of not recapitalizing over a very long period of time, which is that our equipment gets old, our equipment needs to be refurbished, and it needs to be made coherent with the kinds of conflicts, wars and defence that we need today as a nation and that our allies are also providing around the world as we participate in these coalition contributions.

Mr. Nathaniel Erskine-Smith: I think the latter point is a really good one insofar as when we see such a significant proposal on the table for a federal expenditure that it be consistent with federal objectives, be consistent with our actual defence and security needs as far as it goes.

I think I'm out of time, but if anyone wants to weigh in later, it would be useful to know how that proposal, as it relates to procurement, would potentially support the aerospace sector in a broader way.

The Chair: Unfortunately, you're out of time. Hopefully we'll get back to that.

[Translation]

Mr. Lemire, you have the floor for two and a half minutes.

Mr. Sébastien Lemire: Thank you, Madam Chair.

My question is for Mr. Best from the Canadian Air Traffic Control Association.

Mr. Best, in terms of your concerns, what do you think of the responses provided by NAV CANADA?

[English]

Mr. Doug Best: Madam Chair, I don't know what to say. I haven't really heard very many responses with regard to our issues with the safety.

Never in a million years did I ever think I'd be here not with Nav Canada, but more or less opposing what's happening. I thought we'd be here together lobbying for money, but obviously we have diametrically opposed views on many things, and safety happens to be one of them in what's happening around the company.

Unfortunately, I have to report as well that we've had to set up a safety occurrence reporting form, mainly because last week our members received word from the company that they're no longer going to be..., or essentially dismissing legitimate and genuine safety concerns, because they called it a "letter writing campaign" when we asked our members to contact management.

As I said, I try not to bash, but unfortunately, safety is paramount, and the economic recovery. I won't say where it's going to be. It all depends on where we are with staffing at the end of this.

[*Translation*]

Mr. Sébastien Lemire: Thank you.

I would like you to elaborate on the five-year moratorium. We're talking about an in-depth study, a governance model, administrative costs, sequencing of objectives, obligations to the industry and user safety.

In your opinion, is the moratorium necessary to maintain aviation safety and a highly skilled workforce, critical issues that you emphasized?

Can you elaborate on this moratorium?

[*English*]

Mr. Ray Bohn: I'm assuming that was directed at me. I didn't hear the front end of it.

Certainly we believe the process we have in place is the appropriate one to review these issues. We will continue with that, engage with stakeholders and make the right decisions, because safety is our business. It is extremely important to all of us.

Our safety record is irrefutable, one of the best in the world, and we are doing nothing to compromise that. I think it's extremely important that everyone on this panel knows that as we work through these decisions, to look at right-sizing the business given the realities of the pandemic, safety is first and foremost.

• (1250)

The Chair: Thank you very much.

Our next round of questions goes to MP Garrison.

You have the floor for two and a half minutes.

Mr. Randall Garrison (Esquimalt—Saanich—Sooke, NDP): Thank you very much, Madam Chair.

I do want to say, just to begin with, that obviously other members of the committee have missed the first commercial electric flight that took place over a year ago by Harbour Air in a refitted De Havilland, and they seem to have missed the fact that Harbour Air is well on its way to becoming a fully electric commercial scheduled airline within the next two years. It has been set back a bit by the pandemic. Thus, there are things happening in terms of technological change.

The reason I wanted to come back into committee today is to talk about air traffic control. My father was an air traffic controller, even though it was many years ago, and I know the high stresses of the job. I know the concerns of air traffic controllers for the safety of the public, and I know they're always in demand.

My question for Mr. Best is this. Given the current uncertainties being created by NavCan, both over safety and over staffing, do you think we'll be able to actually ramp back up to full service, or have these uncertainties meant that people will leave the profession or leave for other employment?

Mr. Doug Best: It's very good question.

The answer is no, not at this time. The only way that we did it pre-pandemic was with overtime, and as I mentioned in my opening remarks, Nav Canada's overtime bill for the previous year was close to \$100 million, certainly not all for us, but I would say that the vast majority of that was for air traffic controllers.

The system was running on empty. That's probably the easy way to say it. Now, as we embark on a recovery, we're 18% short, potentially over 20% depending on layoffs or if Nav Canada follows through. I think those numbers pretty much speak for themselves.

Mr. Randall Garrison: Do you feel that your members have been adequately consulted on ways to tackle this problem of re-opening and recovering, or have you really been left out of that process?

Mr. Doug Best: I would say at this point that we've been left out of most processes. We haven't gone public with anything since probably the early 2000s. Now we feel like we're a whistle-blower, and it's quite a position to be in. It's certainly not enviable—I can tell you that; and no, we don't....

Mr. Randall Garrison: I'm sorry that you've ended up being placed in that position, and I thank you for your testimony today.

The Chair: Thank you very much. Our next round of questions goes to MP Généreux.

[*Translation*]

Mr. Généreux, you have the floor for five minutes.

Mr. Bernard Généreux: Thank you, Madam Chair.

Again, I want to thank the witnesses. Their evidence was very informative.

I'll now turn to Mr. Bain from NorthStar Earth and Space.

Mr. Bain, you said at the start of your presentation that your technology would make it possible to monitor, or at least know about, the existence and location of space objects.

This may sound like a silly question, but I'm asking it anyway. Are you talking just about satellites, or are you also talking about waste from spacecraft out there in the universe?

Mr. Stewart Bain: Actually, Mr. Généreux, you asked a very good and relevant question.

It's important to know that, normally, a satellite operator knows very well how to find its own satellite. This year, SpaceX, Mr. Musk's company, will launch 1,567 Starlink satellites into space. However, 10% of these satellites will be lost. We're talking about approximately 150 satellites in this case.

Mr. Bernard Généreux: You said that we'll lose these satellites, but where will they go?

Mr. Stewart Bain: Mr. Musk doesn't know. He has no control over the satellites, which move in space at a speed of eight kilometres per second and whose trajectories are unknown. This poses a problem. As an engineer, I calculated the kinetic energy associated with a 260-kilogram satellite moving at eight kilometres per second. It amounts to two tons of TNT moving through space and not being tracked closely.

All our GPS satellites, especially for meteorology, are part of these "bombs". We need to deal with this. The people at NASA said that the most important thing for the whole world and for our planet was that the observation of climate change was being done from space. The same is true for all our financial transactions. Losing access to space would be a major issue.

• (1255)

Mr. Bernard Généreux: So there's a real danger in terms of the movement of all these satellites in space. Telesat will launch 300 satellites, I believe. You're talking about 1,500 satellites.

Do you know how many satellites there could be in space in five years?

Mr. Stewart Bain: By the end of this decade, there will be 100,000 satellites in space. There are currently about 3,000. As you pointed out, there are millions of objects in space, waste, whose trajectories aren't being properly monitored.

We're proposing to map everything out there so that it's possible to properly navigate around the objects that pose a threat to the satellites operating in space.

Mr. Bernard Généreux: Mr. Bain, I asked Mr. Labbé earlier about the national strategy that has been implemented over the years.

Do you believe that this type of strategy would be beneficial to your company, as it was to Mr. Labbé's company?

Mr. Stewart Bain: I completely agree with Mr. Labbé. It's essential to focus on a program to specifically support the aerospace industry. It's even more important under the current circumstances, given the economic situation and the global pandemic.

It's very important, not only to support research and development and technology development, but to turn this into a market, with the support of the Government of Canada. It's a critical need. As part of the Government of Canada's strong, secure, engaged policy, I hope that engagement means working with the industry to accomplish something real and sustainable.

Sustainability affects not only the natural environment, but also the economic environment. The decision to play a role in this area lies with the Government of Canada.

Mr. Bernard Généreux: Mr. Bain, when we talk about a national strategy, there's the issue of funding.

Can you specify what this would look like specifically for your industry?

Mr. Stewart Bain: We need funding to develop technology specifically for the aerospace industry, as Mr. Labbé pointed out.

Also, as Ms. Cianfarani said, we need a cheap stimulus strategy and policy to support innovative start-ups and entrepreneurs who are launching their businesses.

Mr. Bernard Généreux: Thank you.

I want to thank the witnesses.

Mr. Stewart Bain: Thank you, Mr. Généreux.

The Chair: Thank you.

[English]

MP Ehsassi has offered his time to me for the last round of questions, so I will turn the clock button over to the clerk for the sake of transparency.

Mr. Clerk, if you could set the clock at five minutes for me, I'd appreciate it.

I wanted to take a look at what we've heard over the course of this study. Given Canada's geography, we cannot not support the aerospace industry. We've heard many people talking about it not just being a question of airlines. We're talking about MROs and the supply chain. We don't have the infrastructure across Canada to not support the industry.

Monsieur Labbé, you mentioned problems with what we would call policy lurch, for instance, changes in electoral cycles and changes in governments and then starting over from scratch, and the fact that for many of these projects, the R and D takes many years—five years, ten years. The reality is we need sustainable, projectable funding for the industry, and I hear you.

When it comes to Strong, Secure, Engaged, I think that was the point of the defence policy, that those plans continue based on the needs, to provide a plan for the next 20 years regardless of who is in government.

I want to pick up where my colleague MP Erskine-Smith talked a little about the question of why we need fighter jets. Many of you on this panel will know I am a military family with two children serving in the Canadian Armed Forces. I know full well exactly what the Canadian Armed Forces are being faced with, the fact that we haven't been able to recapitalize in many years, over consecutive governments.

Ms. Cianfarani, you talked a little about accelerating procurement. There are opportunities, if we were to leverage Strong, Secure, Engaged. Not only do we need to do these projects, not only do we need to recapitalize our military, but this is the smart thing to do in terms of economic and industrial benefits for Canada.

Can you talk a little about other projects that you think we should be advancing? You alluded to some, but also with respect to the north warning system, we know this also needs to be replaced. Given the Northwest Passage and the interest from Russia in our Northwest Passage, could you talk a little about some of the opportunities for us to put some of these projects forward and get some of these done.

• (1300)

Ms. Christyn Cianfarani: It's a bit of a challenge for me to talk specific projects, obviously. As you can imagine, we do have competitors within the association that would be positioning themselves, so I'll talk about it very generally.

One is that we need to look at projects on book that could potentially be advanced within the cycle, meaning the technology is available. We have capacity in the country, and we can look at Canadian firms that have world-leading, key industrial capabilities that could be sourced for those types of technologies or in partnership with other nations.

When we look at the north warning system, for example, most likely some of that radar will come from United States partners, so we need to look at how we could promote a partnership project that could move it forward and perhaps even take it out of what we would call the traditional fair and open procurement mechanisms, which we're not necessarily against, but we are against the very

lengthy 10-year processes that sometimes come with those types of competitive environments and sometimes not necessarily to the benefit of Canadian firms.

When I gave you that shopping list about using industrial and technological benefits policies much more firmly, or using what we call mandatory requirements or carve-outs where we say this technology exists in Canada, Mr. Partner in the United States, we are mandating you to use that technology because that supplier exists. That type of logic is used significantly in other countries. You will not see a fighter jet purchased by the United States government that is not made in the United States.

I'm not suggesting that we're going to start building fighter jets in Canada, but I'm suggesting when we look at things like training, we're the world leader in training systems in this country. It would be a terrible shame if Canadian firms were not sourced first and foremost for the training programs coming up. There's no reason we can't advance them in the procurement cycles.

Those are the types of thinking. It's not a question of can we do it, it's a question of willpower for us to do it.

The Chair: Thank you very much.

I think I am out of time. I'm looking at the clerk. Yes, I'm a little over.

Ms. Christyn Cianfarani: I ate up all your time.

The Chair: No. Thank you very much.

That's all the time we have today.

I'd like to thank the witnesses for being here, for your frank conversation. It's apparent there's a lot of work in front of us to look at how we can support the aerospace industry.

Again, a big thank you to our interpreters for the work they are doing, to our IT gang and, of course, to our clerk and analysts in the room.

This meeting is adjourned.

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