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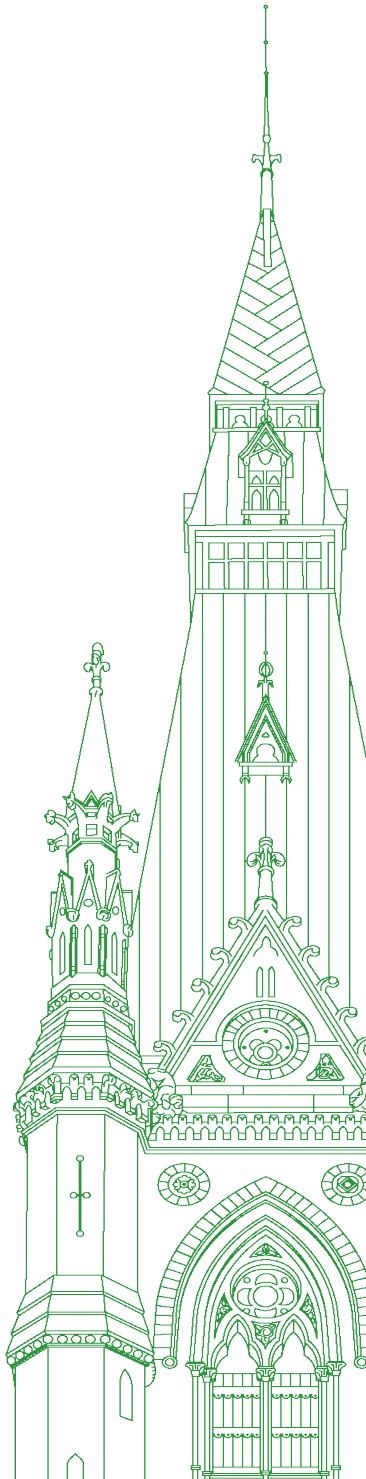

Chair: Ben Carr

Standing Committee on Industry and Technology

Wednesday, October 1, 2025

● (1630)

[*English*]

The Chair (Ben Carr (Winnipeg South Centre, Lib.)): Hello, everyone. I hope you've had a good week so far. I'm sorry that we're a minute late. I just learned a valuable lesson: Don't call a constituent back within 25 minutes of having to start a committee meeting, because you might not get to that meeting on time.

[*Translation*]

I hope all members had a pleasant few days in their constituencies.

[*English*]

This is meeting number five of the House of Commons Standing Committee on Industry and Technology.

Just as a reminder for colleagues, as well as our witnesses, that these headsets are meant to help you with your translation. If they're not plugged in, they can be wherever. However, if they're plugged in and not on your ear, we just ask that you place them on the stickers in front of you. That is done to protect the health and safety and well-being of our interpreters, who work very hard on our behalf.

Colleagues, pursuant to Standing Order 108(2), we very recently adopted a motion, on September 22, to talk about the study of Canada's industrial defence strategy, and this will mark our very first meeting in that regard. We had a good conversation about productivity last week.

We have a couple of officials here with us today. From the Department of Industry, Kendal Hembroff, associate assistant deputy minister, joins us by video conference. From the Department of National Defence, we have Wendy Hadwen, assistant deputy minister of policy-industry. Major-General Jeff Smyth, chief of air and space force development, from the Royal Canadian Air Force, is also joining us.

I believe, Mesdames Hadwen and Hembroff, you are each speaking on behalf of your respective departments, so we'll allocate upwards of five minutes to you each, in whichever language of your choice. Then we will begin with a line of questioning from members of Parliament around the table, starting with the Conservatives, and then rotating.

Since we have members of the armed forces here, both in uniform and civilian, I just want to take an opportunity—both on my behalf, as a member of Parliament, and, I think, on behalf of everyone around this table—to thank you very much for your service to our country.

With that, I pass the floor over to Kendal Hembroff for opening remarks.

Kendal Hembroff (Associate Assistant Deputy Minister, Department of Industry): Thank you very much, Chair.

I'm very sorry that I'm not there this afternoon with all of you in person, but, unfortunately, I had a mishap a few weeks ago, and I'm on crutches. I'm nevertheless very happy to talk to you about the views of Innovation, Science and Economic Development Canada concerning the defence industrial strategy.

Planned defence spending represents a generational opportunity to invest in Canada's defence industry and economy at a time when many of Canada's manufacturing sectors are facing unprecedented challenges. In 2022 the Canadian defence industry comprised over 620 firms, which contributed over $9.6 billion in GDP and 81,200 jobs to the Canadian economy.

Canada's defence industry is at the cutting edge of technology development, and our defence sector is a driver of innovation, investing at more than three times the research and development intensity of Canada's manufacturing sector. Beyond world-leading capabilities in the design and manufacturing of commercial aircraft, Canada also has strong capabilities in maintenance, repair and overhaul; training and simulation systems; unmanned aerial systems; earth observation; space robotics; combat ground vehicles; munitions; shipbuilding; sonar technologies and more. Canada also has established and emerging capabilities in dual-use areas like artificial intelligence, cyber, quantum, biomanufacturing and critical minerals.

● (1635)

[*Translation*]

As you will be aware, the government has committed to publishing a defence industrial strategy later this year aimed at strengthening our domestic industrial capacity to meet the needs of the Canadian Armed Forces and those of our allies. Our goal is to reduce Canada's long-standing dependence on foreign suppliers by leveraging Canada's traditional defence, commercial and dual-use strengths to support CAF requirements where feasible. This will require focused investment in key defence industrial priorities, as well as ensuring that federal procurements are leveraged to strengthen industrial capacity through various tools. Canada's domestic market is quite small, so we are also committed to ensuring that we create an industry that is well positioned for export opportunities.

[*English*]

The defence industrial strategy, DIS, has not yet been finalized, but ISED and the Department of National Defence are working together to advance this work. More details will be forthcoming in the coming months, but in the meantime, Chair, I'm happy to talk about some of the existing building blocks for a more comprehensive strategy.

ISED is well positioned to play a leading role in the development and implementation of the DIS, and the Minister of Industry has publicly discussed her vision for the strategy, using a framework of buy, build and partner. This means leveraging the government's purchasing power to create benefits throughout the supply chain, building up Canada's industrial capacity in key areas and developing strategic collaboration with international allies.

As you may know, since the late 1950s, ISED has housed various programs that have funded companies for civil and defence activities. Today, ISED has a number of programs, such as the strategic response fund, innovative solutions Canada and our global innovation clusters program, which support the development and commercialization of technologies across the industrial economy, including defence. There are opportunities to leverage existing innovation programs in the short term to get funds out quickly to Canadian industry.

Also within my department's portfolio, the National Research Council is a key partner for Canadian industry, helping to bridge new technologies to market through programs such as the industrial research assistance program. We are examining ways that the NRC, with its world-class testing and research facilities, can play a greater role in supporting defence.

I would also note the role that regional development agencies can play in supporting the development and integration of businesses, mainly SMEs, into defence supply chains. Our tool box includes the national shipbuilding strategy, which, since 2010, has been helping to restore our shipyards, to rebuild our marine industry and to create sustainable jobs in Canada.

Canada also has an offset policy—the industrial and technological benefits policy, ITB. The ITB policy requires that a firm awarded an eligible defence or Canadian Coast Guard contract undertake business activity in Canada equal to the value of the contract. It's estimated to contribute approximately $4.7 billion to Canada's GDP and over 40,000 jobs annually in Canada. Many of the most successful defence, aerospace and marine firms operating in Canada have benefited from the policy, including companies such as CAE, MDA Space, Héroux-Devtek, IMP, PAL Aerospace and Genoa Design.

The last point I'd like to make is that a defence industrial strategy must include procurement, which is our most powerful tool. Canadian defence firms have indicated that the number one thing that the government can do to support their growth is for the Canadian Armed Forces to purchase from Canadian industry, so we're reviewing ways to improve the procurement process and to ensure that Canadian industry is engaged early on.

In closing, and before I turn it over to my colleague, Wendy, the forthcoming defence industrial strategy will ensure that our historic investments are focused on building and sustaining Canada's defence industrial base to meet the needs of the CAF and our allies while driving economic growth, resilience and innovation across the broader Canadian economy.

Thank you.

The Chair: Wonderful. Thank you very much, Ms. Hembroff. We appreciate that.

Ms. Hadwen, I'll turn the floor over to you.

● (1640)

Wendy Hadwen (Assistant Deputy Minister, Policy-Industry, Department of National Defence): Thank you, Mr. Chair.

Members of the committee, thank you so much for the opportunity to speak today about the defence industrial strategy.

I want to begin by acknowledging that we're meeting on the unceded and unsurrendered territory of the Anishinabe people. Against the backdrop of yesterday being the day of reconciliation, I want to just say that my team's commitment to reconciliation and to strengthening relationships with indigenous communities is a big part of the work that we're doing at National Defence on a defence industrial strategy.

We have a unique moment to embed collaboration with indigenous communities from the start. We have forums, for example, the Inuit-Crown partnership committee, to work together to plan for equipping the Canadian Armed Forces with greater reach, mobility and capacity to operate in the north and to improve access to key defence supply chain resources while also bringing benefits to indigenous communities.

Let me take you back to the beginning.

[*Translation*]

Almost a year ago, I started in a new role at National Defence as the assistant deputy minister, policy-industry. Our deputy minister created the role to lead the entire defence team in a coordinated effort to get to a defence industrial strategy for Canada. One of my very close partners in this work is Major General Jeff Smyth, chief of air and space force development.

[*English*]

Major-General Smyth has joined me, in case you have questions about what capabilities the Canadian Armed Forces may need and how their requirements get set. I also work closely with many colleagues in the Canadian Armed Forces, principally those charged with force development.

As you can see, this is already a whole-of-defence effort that requires the expertise of both our military and our civilian members.

From a policy perspective, we work with colleagues from across the public service—but most closely with Kendal and her team at ISED—to prepare advice for the entire government on a Canadian defence industrial strategy.

[*Translation*]

I want to thank the committee for undertaking this study at a very important time for Canada. The threat environment is intensifying, and we are witness to a rupture in the economic structures and partnerships that have underpinned our approach in the past and which we may have taken for granted.

Perhaps the starting question today is why should Canada need or want a defence industrial strategy?

[*English*]

When we think about why we want to do this work, we think it's an opportunity to bring coherence to defence spending, which, by any measure, is a massive amount of money. Last year's defence policy, "Our North, Strong and Free", committed to the development of a defence industrial strategy for just this reason.

However, in one short year, things have changed drastically. The Prime Minister has just recently committed Canada to investing 2% of GDP in defence. This year, that means an additional $9 billion. The rationale for the DIS is, therefore, all the more important.

We believe this strategy can explain how defence spending will intersect with the Canadian economy and how the results will accrue to Canadians in terms of the defence of Canada and our shared national security.

We believe the DIS will help establish a renewed and more dynamic relationship between industry and the defence team—not just the Canadian Armed Forces but also the civilians who support them and other members of the defence family: the Canadian Coast Guard, for example, and the Communications Security Establishment.

The DIS will help us access industrial capabilities we need to meet the threats of today and the threats we see coming. As you are aware, our adversaries—North Korea, Iran, Russia and the People's Republic of China—are aggressively scaling their military industrial ecosystems, and they have our western alliance in their sights. In response, Canada and our allies are rearming, reshoring and racing to secure access to next-generation defence technologies.

● (1645)

We are guided by a sense of urgency as we think about three priorities for the DIS: strengthening the Canadian industrial base, as Kendal described, and ensuring secure access to the capabilities we need to defend Canada; enhancing the resilience of the Canadian economy by aligning defence investments with national industrial strengths; and, most importantly, safeguarding our national sovereignty.

These priorities have come to us out of a lot of effort over the past 10 months. Let me tell you what that looked like.

We did benchmarking by conducting an in-depth analysis of defence industrial strategies of more than 15 allies and partners. Of course, we found them on the Internet, but we also interviewed the authors, and our defence attachés and our policy people met with all of these 15. We are not above stealing a good idea.

We began speaking with industry about what they imagined a DIS could entail. Through many more engagements than I can count, we have learned a lot about the expectations that are out there in this country, and they are high.

We put this together and we did some analysis. We saw some important things. We went about understanding how access to capital is a barrier to industries operating in this sector. We began looking at the role of the supply chain in defence industries. We also looked at the unique advantages of some parts of Canada's sectors, such as quantum, for example. We have a unique ecosystem here, and it represents an advantage.

There are some other areas, like defence exports.

[*Translation*]

A recurring theme is the importance of communication and collaboration between government and industry. This strategy offers us an opportunity to create strategic partnerships unlike anything we've seen before. You may have noticed the announcement of some early examples, such as next-generation aircraft and pilot training.

Another point raised was the many advantages of Canadian industry: We have renowned researchers at major universities and research institutes, cutting-edge innovation in quantum and artificial intelligence, and key resource reserves.

[*English*]

One of the objectives of our strategy would be to optimize the way that all of these advantages exist in this country towards an objective that aligns with the defence of Canada.

[*Translation*]

Our allies are very adept at finding—and obtaining—what they need to defend themselves. We have the opportunity to do the same.

[*English*]

Fortunately, across our many government departments, programs and agencies already exist to support industry. Kendal has been through some of that list already.

I will simply conclude by saying that our goal for the defence industrial strategy is straightforward. We want to ensure that the Government of Canada has secure, timely and reliable access to the capabilities we need to defend the country, protect national sovereignty and meet current and future threats. In doing so, we expect that we will remain responsible stewards of public funds and be able to help Canada's industrial ecosystem.

Our teams are looking very much forward to following your study and to incorporating some of what you learn as we develop the DIS.

Thank you so much for the opportunity.

The Chair: Thank you very much.

We are going to begin our first round of questions, with six minutes allotted to members of each party.

Mr. Falk, the floor is yours.

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

Thank you to our witnesses for your testimony here this afternoon. It's very interesting.

I think it was Ms. Hembroff who indicated that we have 600-plus firms in our industrial complex that are supplying the defence industry, yet they supply only about half of all of our purchases for our Department of National Defence. When you talk to the suppliers that we have supplying our defence industry, what would be their top two frustrations in dealing with National Defence?

● (1650)

Kendal Hembroff: Mr. Chair, I guess I would say that, overwhelmingly, as I mentioned in my opening remarks, what Canadian defence companies are looking for is the opportunity to compete successfully in federal procurement processes. I really do think that requires a culture change in terms of how we approach procurement. It may mean looking at new and innovative procurement approaches. For example, that may mean looking more at strategic partnerships or direct procurements with Canadian companies that have leading capability.

I would also say that, overwhelmingly, Canadian companies have also told us that they're looking for opportunities to work within a broader Canadian supply chain. We are looking for leading companies in the defence ecosystem, whether they are Canadian companies or foreign companies with a major Canadian presence, to be able to work very closely with Canadian companies in the supply chain.

Ted Falk: When they tell you that, what do you think they mean by not being able to work closely enough with...?

Kendal Hembroff: For example, I would say that, overwhelmingly, the majority of Canadian defence firms are small and medium-sized enterprises. They depend very heavily on things like the industrial and technological benefits policy, which drives investment into different parts of the supply chain.

I would say that they are also keen to partner with larger firms and to work together in bringing forward solutions. They are looking for the opportunity to put forward made-in-Canada solutions as part of the procurement process.

Ted Falk: Okay.

Ms. Hadwen, you indicated that currently there is a “rupture” in our system. Can you expand on that a bit?

Wendy Hadwen: I think I was trying to recall the Prime Minister's remarks concerning a “rupture” in the trade and economic relationships that we have enjoyed in the past.

Ted Falk: You also talked a bit about procurement. Can you talk about what our suppliers are telling you about our procurement policies?

Wendy Hadwen: In all of the defence industrial strategies we've looked at, procurement is an essential piece of how governments orient themselves to support industry better. This government has announced the intention to create a defence procurement agency. I am not a procurement professional myself. I am just a policy person. Some of the best minds in the public service are working on this exact challenge.

Ted Falk: When it comes to policy for procurement, do we have a buy Canadian advantage in our tendering process? Is it a weighted system that would give more points to a Canadian supplier or manufacturer?

Wendy Hadwen: I can't help but want to refer this to Kendal.

Kendal Hembroff: The government announced just a few weeks ago that it would be introducing a new buy Canadian policy to the federal procurement process. This will apply to defence and other sectors. More information will be provided within the coming months in terms of exactly how this buy Canadian policy operates in practice.

The answer to your question is that currently we do not have a procurement regime that prioritizes Canadian solutions.

Ted Falk: Well, that's interesting.

This is along the lines of procurement again. I've had an experience in my office here on the Hill recently. We have a bubble in our carpet that we've had for a couple of years. We've been trying to get that addressed. We've had about nine or 10 different visits from Public Works Canada or the House of Commons maintenance people to try to address a simple thing like a roll in the carpet that needs to be fixed. It's still not resolved. This has been going on for over a year.

Is that a frustration we have in our procurement at National Defence? Can we not get anything done without having 10 visits from half a dozen people each time or four to six people coming to look at a problem?

● (1655)

The Chair: Mr. Falk, I hate to burst your bubble, but we have about 20 seconds left here. I'm not sure who the question was for.

Ted Falk: I would direct that to Ms. Hembroff again.

The Chair: Ms. Hembroff, you have about 30 seconds, please.

Kendal Hembroff: I'm sorry.

Chair, could the question be repeated?

Ted Falk: How many visits does it take to get something done through procurement? How many proposals and how many meetings have to be had?

We've talked about F-35s for I don't know how many years. We've studied them, and nothing ever happens.

Kendal Hembroff: Mr. Chair, I don't think I can answer that. I certainly don't have any data in terms of the average time it takes for procurement from start to finish. Every procurement is very different. It's very possible that PSPC might have some data on that front.

The Chair: Okay.

Thank you very much.

[*Translation*]

Ms. O'Rourke, you have the floor for six minutes.

Dominique O'Rourke (Guelph, Lib.): Thank you very much, Mr. Chair.

[*English*]

I agree with Ms. Hadwen. This is a really exciting time in terms of our economy, sovereignty, reconciliation and equipping our servicemen and servicewomen with made-in-Canada solutions properly and fit for the threats that we're seeing today. I'm very excited.

I'm wondering if you want to give us a picture of the range of things that the defence industrial strategy will be looking at. The quick description talks about everything from quantum and food to AI.

Can you give us a sense of what the landscape looks like?

Wendy Hadwen: I think this is the simplest way to start. Whatever the Canadian Armed Forces members need to do the job that the government is going to ask of them is therefore a capacity that we would like to have access to, in Canada, preferentially. That's where we start from. It is everything from food all the way to high-tech equipment.

If you think about it, the way we've gone about the strategy is to identify where we think there are structural gaps that prevent us from thinking about the conflicts of the future and the capabilities we're going to need. In this respect, we know that deep tech, AI, quantum, robotics and unmanned systems will all be part of any military requirement that we foresee.

We also know there are some structural barriers for industry to be able to work with the Canadian Armed Forces. Some of those include small businesses struggling to access capital because they are operating in the defence sector or because they are making something that might cause harm in a military conflict.

Some of the questions we get asked a lot by industry, or some of the frustrations we hear, are about who to talk to. Some industries we've heard of come to Ottawa and meet a lot of different—respectfully—assistant deputy ministers like me and they don't feel like they understand how they can get their problem solved or translate it into a contract.

We know that we want to position Canada to articulate sovereign capabilities. These are things that we would want to be Canadian from start to finish and where we would want to have the ability to draw on this capability—also because we're very good at it and because it's essential in wartime.

We have a shipbuilding strategy that represents a sovereign capability, but there might be opportunities for other things that you can imagine.

I'll just conclude with one more area that is so important. It is research and development, and the commercialization of technologies and capabilities, from landing gear systems all the way through to data integration. We have so many great and talented firms in Canada, and we have some opportunities to improve how they orient to a defence demand signal.

Dominique O'Rourke: Thank you very much.

I have a quick question on procurement and then, if I have time, I want to go to IP and ethics.

There is a company in Guelph that is woman-owned. She makes some pieces for export, machining parts for American tanks. The U.S. has a stream for small businesses. It also has a stream for women-owned businesses. For smaller contracts, there's a pool of those contracts and then it's easier for those small businesses to bid. The U.K. has a defence industrial strategy and it also has a stream dedicated to small business.

Is our defence industrial strategy planning to do that or will we be relying on the large industries—the large defence companies—to do their own subcontracting?

I think it's an interesting model and I'm curious to know whether we are planning to adopt a similar one.

● (1700)

Wendy Hadwen: As Kendal mentioned—and I might just ask her to add to this—so much of the Canadian economy is small businesses. Didn't we learn in the pandemic the way they can pivot so quickly, but also that they're very vulnerable in times of economic disruption?

We absolutely have our eyes on ways to make sure we can access the capabilities of the small businesses. ISED has some programs specifically designed to support them. They are not about defence, so our strategy could consider how to marry up programs that we already know work with small businesses and open a defence stream.

Kendal, did you want to add to that?

Kendal Hembroff: In the case of procurement, we are in the process now of taking a very careful look at the current procurement system. Part of that looks at what some of our allies are doing. I note the examples that have been provided by the member concerning the U.K. and the U.S. I think they're quite interesting examples.

The defence industrial strategy is still under development. That work has not yet been finalized, but we are certainly looking at other leading examples by other countries.

Dominique O'Rourke: Great, thank you.

Am I out of time?

The Chair: You have a brief amount of time, but, unfortunately, it's not going to leave us much for a response, Madam O'Rourke. I'll try to roll it over if I can.

Dominique O'Rourke: Our colleagues will ask the questions.

[*Translation*]

The Chair: Mr. Ste-Marie, you have the floor for six minutes.

Gabriel Ste-Marie (Joliette—Manawan, BQ): Thank you, Mr. Chair.

I'm not sure I would use adjectives as strong as the ones just suggested.

I'd like to thank the chief of the defence staff and the two deputy ministers for being with us and answering our questions.

My first question is about the supply of spare parts and software and the maintenance of devices, for example, that are done in the United States. We've seen the President of the United States start blocking exports, including to Colombia. The export of American engines for the Saab Gripens was blocked and we were told that all we had to do was buy American F-16V planes instead. The U.S. President has also blocked $400 million in weapons and munitions purchased by Taiwan because he is currently negotiating with China. If the U.S. President wanted to put pressure on Canada, he could block software updates or shipments of spare parts to make our devices ineffective.

In this context of great uncertainty, what are the risk analyses for dependence in the United States? What are the contingency plans for the Canadian Armed Forces or the department?

Major-General Jeff Smyth (Chief, Air and Space Force Development, Royal Canadian Air Force, Department of National Defence): Allow me to answer in English.

[*English*]

If I understand the question correctly, and I am paraphrasing, you are asking what analysis has been done to ensure we have access to the capabilities that we need.

We have to keep in mind very much that for things like fighter aircraft, or other really high-tech capabilities, there are very few countries in the world that actually do that type of production. Canada made a strategic choice in the fifties to no longer produce fighter aircraft. The challenge that we're up against is with countries that have invested over decades to develop those types of capabilities. We don't have a simple way to build that industry in Canada really quickly. This will take time, a lot of funding, and support from government to get us to a level where we don't have to depend on other countries for that type of technology.

The threat that we are up against on a daily basis is extremely high-tech. This isn't as simple as it might have been during World War II where we took an automotive factory and started producing bomber aircraft. When we get to the level of complexity in the weapons systems, the ecosystem that needs to support that is extremely important.

To speak more specifically to the question, as part of our assessment—and this isn't just the Department of Defence, this is also with PSPC and ISED—when we do a competition for capability, we look at the support ability as part of how that assessment is done.

While there may be a desire to keep everything within Canada, and we have incredibly advanced industry in many areas, supporting aircraft is one of those things where we have great industrial abilities, but we still don't have all of the capabilities we need to meet our operational requirements indigenously to Canada, if I could say that.

Therefore, we are relying on other countries in many cases to build some of the equipment that we need. We are very much aware of that, and we factor that into how we build our requirements and procurements.

● (1705)

[*Translation*]

Gabriel Ste-Marie: Thank you very much.

My next question is more for Ms. Hembroff.

I'd like us to talk about sort of the opposite of the subject that was just raised, namely, the importance for Canadian industries of exporting military equipment to the United States, our neighbour to the south.

How important are exports to the U.S. market for Canada's military industry?

[*English*]

Kendal Hembroff: Yes, the United States certainly represents a significant market for Canadian exports of defence goods and services. It currently represents 63% of Canada's total exports from the sector. Just to give you a sense of some of our other major export markets, Europe represents 11% and the U.K. 5%.

For that reason, the diversification of export markets will need to be something that we look at very carefully in the context of the defence industrial strategy. We need to make sure that we are providing international market opportunities for Canadian companies, especially given that the Canadian market, compared to a lot of other international markets, is quite small. In order to really build a very long-term sustainable industry we need to be also looking at international opportunities.

[*Translation*]

Gabriel Ste-Marie: Thank you very much, Ms. Hembroff.

My time is up.

Thank you very much, Mr. Chair.

The Chair: Thank you, Mr. Ste-Marie.

[*English*]

Colleagues, we now go into the second round for five minutes each.

Mr. Guglielmin, the floor is yours for five minutes.

Michael Guglielmin (Vaughan—Woodbridge, CPC): Thank you, Chair.

General Smyth, first thank you for your service.

Thank you to the witnesses for appearing today.

General, the federal government's review of the F-35 procurement has been repeatedly delayed despite public commitments to do so by the end of summer. Would you agree that such delays risk undermining both industry trust and the timely delivery of critical military capabilities?

Major-General Jeff Smyth: I would say briefly that the review process is ongoing. Of course, from an RCAF perspective we're very much looking forward to the outcome as soon as that decision is made.

Michael Guglielmin: The Auditor General's report also flagged a near 50% cost increase now totalling $27.7 billion. Would you agree that, without stronger cost controls and more transparent oversight, these escalating expenses could become a challenge in defence procurement?

Major-General Jeff Smyth: I will say very generally that the level of technology that we're looking at to be competitive and to be able to fight and win against the threats that we are facing is not something that you can buy off the shelf at a Walmart. I think we all agree that everything is more expensive given recent events within the economy. Cost growth within complex problems is something that has always been the case and will continue to be the case for the foreseeable future.

Certainly, when we look at the military threat that Canada is up against, we have to ensure that we can fill our capability gaps to defend Canadians as directed by the government, and basically in accordance with the government policies that we're given.

● (1710)

Michael Guglielmin: General, I spent my career in the private sector in the steel industry where there are a lot of timelines and accountability. I'm just curious about whether future defence procurements should include more rigorous timelines to improve that accountability that would be required with the public use of funds.

Major-General Jeff Smyth: I will say, as I'm now in my 37th year of service, I don't think we have ever delivered anything quickly enough for the demands of the soldiers, sailors and aviators who are out there and their lives depend on these on a daily basis. Of course, we'd love to do everything faster, but our ability to balance requirements with industry capabilities or good stewardship of public funds obviously has to be balanced within the process that we have. Of course, we'd always like to go faster, but we want to make sure in doing so that we meet our requirements and provide maximum benefit to Canadians.

Michael Guglielmin: Major-General, from your perspective with delays and ongoing costs that continually escalate, what do they say about the government's ability to manage complex defence procurement? How would you say this uncertainty impacts defence industry's planning and confidence?

Major-General Jeff Smyth: My perspective on that is that this is within PSPC's area of expertise. In many ways I am the requirements guy; like I said, I would love to have equipment as fast as possible. That's one where I don't think I have the expertise to be able to answer your question sufficiently.

Michael Guglielmin: General, from your experience and in your view, what are some of the fundamental flaws in the current system that continue to drive cost overruns and delays? Are there any specific reforms that you would recommend to truly fix some of the long-standing issues that you have seen?

Major-General Jeff Smyth: Certainly, our ability to equip industry with the security clearances that are required to address the threat....

I can maybe answer it in a different way. As I said, it's an extremely high-tech threat that adversaries are investing tens of billions of dollars, if not hundreds of billions of dollars or more, into. It's very agile. One of the challenges we have is that we've typically drawn up requirements and then handed them to industry to answer those requirements. What we're trying to do now.... This is what Wendy is trying to articulate with regard to the defence industrial strategy as well.

From my perspective, we would present an operational problem to industry, talk about it at the appropriate level of classification and then look for their innovation to help us solve the problem. We want to work more collaboratively with industry in full understanding of the threat when we're trying to solve that operational problem. Our ability to work more closely with industry depends on our ability to give them the security clearances that are required and to have the infrastructure, both in terms of information technology and in terms of physical infrastructure, to protect some of that intelligence information, as well as the intellectual property that goes with defining something to defeat it.

Those things are things that we have to improve on so that we can respond in an agile manner to the agility of the threat that we are facing.

The Chair: Thank you very much.

Ms. Acan, the floor is yours for five minutes.

Sima Acan (Oakville West, Lib.): Thank you very much, Mr. Chair.

Thank you very much for coming here today and being with us.

General, my question is for you.

Ms. Hadwen, if you would like to add any comments, I would be happy to hear those, too.

Based on your past deployments, can you identify specific operational challenges that stemmed from limitations in equipment, logistics or support systems?

● (1715)

Major-General Jeff Smyth: Yes, that's a great question. There are a lot.

With regard to challenges from deployments, living conditions are always one, but that's not necessarily an industrial challenge.

Our ability to develop and implement weapons that address the threat in a very timely manner is always concerning, not purely from an industrial perspective but also with regard to what happens when we get them into the hands of our soldiers, sailors and aviators, to make sure that they are properly trained and able to conduct planned operations. These things take time, particularly with the level of complexity that we're looking at with some of those weapons. Obviously, the number of resources that we invest into making that transition as easy as possible for the people who are operating with a weapons system is very important.

Sima Acan: Thank you.

Furthermore, could you elaborate how effective Canada's military plan, “Our North, Strong and Free”, is at addressing these issues in terms of procurement innovation and domestic capability development?

Major-General Jeff Smyth: I wouldn't necessarily have an opinion on “Our North, Strong and Free” in particular, other than to say that there's a lot of great capability that has been announced that fills capability gaps that we've identified for a very long time. In an ideal world, if we could get it from military requirement to field capability as quickly as possible, then that would be the ultimate aim for me.

Wendy Hadwen: If I could add, I would simply offer that our colleagues at Public Services and Procurement Canada might be interested in offering some of their perspectives as part of your study.

We know that our defence industrial strategy will definitely require a close partnership with that department on the procurement, which I think Kendal referred to as our most important tool. With the government having announced the creation of a defence investment agency and the consolidation into a more agile construct, there is every sign of a commitment to solving the procurement challenge. Our job is also to make sure that we're very clear about what it is that we need, what problems we're solving and how industry can help us. We don't have time to operate in silos.

Sima Acan: Thank you very much, Ms. Hadwen.

General, given your leadership role in NORAD capabilities and operational oversight, how have limitations within Canada's defence industrial base, such as procurement delays, supply chain constraints or lack of domestic production in capacity impacted our military readiness and interoperability with allies?

Major-General Jeff Smyth: I think the way you phrased the question bears a different type of answer. I would say that, given the relative recency with which the NORAD modernization policy came out, after “Strong, Secure, Engaged” and before “Our North, Strong and Free”, we have a bunch of initiatives that we're moving very rapidly right now through the procurement system.

I don't think it really has impacted our ability to deliver those, given the high-tech, complex nature of the operational problems we're trying to solve.

The Chair: Thank you very much.

[*Translation*]

Mr. Ste-Marie, go ahead, please.

Gabriel Ste-Marie: Thank you, Mr. Chair.

Last summer, on July 10, the Department of National Defence awarded a major contract worth $100 million for night-vision binoculars. The industry was very concerned and said that the technical requirements as drafted ensured that only one U.S. company was eligible. A U.S. competitor also said that these requirements did not reflect industry standards or NATO allies' requirements. There was also a complaint from Cadex in Saint-Jean-sur-Richelieu. The Canadian International Trade Tribunal ordered the government to suspend its purchase while it conducted the investigation. Two European companies sent letters to the tribunal in support of Cadex's complaint.

It reminds me of what happened when the CP-140 Auroras were replaced: the American company Boeing, rather than Bombardier, was favoured, given the wording of the call for tenders. We could also add the example of the F-35s.

There will still be benefits in Quebec and Canada, but why are calls for tenders so often drafted in such a way as to exclude suppliers from the Canadian economy?

● (1720)

Wendy Hadwen: Again, I would encourage you to invite our colleagues from Public Services and Procurement Canada to answer that question. I dare say that the government's new "buy Canadian" policy is intended to require public servants to do more business with Canadian companies. However, there will be special cases where the technical needs the general referred to earlier will require different treatment.

Gabriel Ste-Marie: I would like to ask you a very short second question, which concerns another topic.

Tell us about the importance of strategic and critical mineral reserves for defence in the country's economy. Why is procurement so important, particularly for NATO members and for the Canadian military sector?

Wendy Hadwen: This is a very important opportunity. We work closely with Natural Resources Canada, which is responsible for managing critical minerals, of which we have a certain amount, and trying to find a way for Canada to benefit from international markets. Just recently, in June, the Minister of National Defence signed an agreement with his NATO counterparts to further work in this area.

We see very clearly that Canada has a chance to take a leadership position, because our natural resources are only matched by those of Russia and China. There are many opportunities in the economies of the west and the alliance countries. We are paying close attention to this.

In addition, in the context of establishing a DIS, we are trying to provide good advice to the government to support mechanisms that will enable our department, in collaboration with Natural Resources Canada and Innovation, Science and Economic Development Canada, to take advantage of these opportunities.

The Chair: Thank you, Mr. Ste-Marie.

[*English*]

Mr. Bains, you will close off this round with five minutes, sir.

Parm Bains (Richmond East—Steveston, Lib.): Thank you, Mr. Chair.

Thank you to our guests, our deputy ministers, General Smyth and the members of the armed forces for joining us. Thank you for your service and your dedication to these efforts to make sure that we can enhance our national defence capabilities.

General, you talked about the technology ecosystem. When we invest in our defence, how important is it to have interoperable capabilities with our allied nations? How important is that to decision-making, when you're talking about everything from aircraft to ships?

Major-General Jeff Smyth: Interoperability is one of those issues that we hold very high in our requirements, I would say.

If you think back to the foundation of NATO, and Canada was a founding member, there was the ability to define standards that allow us to work easily with our partners. Those types of interoperability standards came as a result of thousands of casualties that the allies had during World War II. We've learned—and we've paid in blood—that we have to be able to work closely with our partners and allies.

When we look at an air domain perspective and the ability to defend North America, that's something we very much do with the United States through our binational relationship through NORAD. By the same token, when we deploy forces with a NATO force, we have commonality in terms of our doctrine, training and equipment so that our radios can talk to each other, for example, and our data links can share critical operational information.

In short, interoperability is incredibly important for our ability to work with our allies.

● (1725)

Parm Bains: Thank you for that.

You talked about unsettling lessons. I want to just go to Russia's invasion of Ukraine and how prepared we are as democratic nations. There are an estimated 120 different conflicts around the world at this time.

I think this includes the U.S. that, according to Reuters, did not produce NATO-standard 115-millimetre munitions from the summer 2014 to the fall 2015, the year of Russia's annexing of Crimea. It was worse prior to the invasion. The U.S. military's industrial plan involved sourcing explosives from overseas, including a factory in eastern Ukraine that is now Russian controlled.

What is necessary to provide stability for this kind of defence production in Canada? What regulations should we be looking at regarding demand production, pollution and those kinds of things?

Major-General Jeff Smyth: I'll say very simply that stability in funding is critically important. When it comes to buying weapons systems in Canada, there may be cases where we will need to buy something off the shelf from another country to fill a capability gap that exists right now. At the same time, we need to invest in the Canadian industry to develop the next thing that we might want to replace that with. That stability in funding is critical.

I can speak for the Royal Canadian Air Force right now. We're currently in a position where most of our aircraft are at the end of their service lives, and we have to buy something now to fill that gap. Canadians expect to continue to be able to defend. In some cases, an investment in Canadian industry to help us produce the next weapons system or capability is required, but it may not deliver for 10, 15 or 20 years because of the level of technology that's required in research and development and industrial production capability. Then there's also the requirement, in some cases, for us to buy something off the shelf for right now.

I leave it at that from a requirement perspective. I'll pass it over to my colleagues if they have anything they want to add on the industrial side.

Kendal Hembroff: Mr. Chair, I would just say that, especially given the discussion that's taken place in the last hour, one thing we hear a lot from Canadian industry is the need for early engagement to understand the needs of the CAF, allowing for better planning on the part of Canadian businesses. They're looking at how they can participate in the Canadian defence market. It also allows programs across the federal government, including programs at ISED, to make informed decisions about the types of projects we fund. That type of discussion and triage are really important in terms of making sure that we're effectively marrying up supply and demand.

Parm Bains: Thank you, and if I have just a quick, final—

The Chair: Unfortunately, Mr. Bains, that's all the time we have—and we're already running over. I apologize; I went to you more quickly than I ought to have.

Mr. Guglielmin, I apologize. The floor is yours for the final five minutes.

Michael Guglielmin: Thank you, Chair.

Major-General, building on the challenges highlighted with the F-35 procurement, Canada's defence procurement woes are further highlighted by the nearly $1-billion increase to the costs for navy supply ships, accompanied by significant delays and bureaucratic hurdles. Retired Vice-Admiral Mark Norman has bluntly described both the military procurement system and its relationship with the industry as “broken”, calling for a complete rebuild from first principles. From your experience, do you agree with that assessment?

● (1730)

Major-General Jeff Smyth: I would say that, in any complex system, there's always room for improvement, and we continually strive to improve how we do business on a daily basis.

Michael Guglielmin: Ms. Hadwen, how vulnerable is Canada's north to foreign influence when we fail to invest in our own infrastructure? Are you at all concerned that our inaction is leaving room for adversaries to fill the gap, either economically or technologically?

Wendy Hadwen: I think last year's commission of inquiry into foreign interference illustrated the extent to which our adversaries are attempting to manipulate Canadians all over the country.

I am observing, as the government launches the Major Projects Office and nation-building projects, a huge opportunity for us to get aligned with what we need to do to protect and build Canada. At the moment, I have a lot of positive impressions about our ability to meet this challenge because we all want the same thing.

Michael Guglielmin: Ms. Hadwen, given the significant public funds involved and, unfortunately, the public's declining trust, what specific accountability measures or reforms would you recommend to increase transparency, ensure that defence procurement projects are delivered on time and within budget, and meet both our military and industrial objectives?

Wendy Hadwen: There are a lot of accountabilities for each minister who is running a department with a role to play in this space. Because of the urgency of the threat, and our having resources now in National Defence, we are working extra hard with our colleagues in other government departments to make sure we all row in the same direction and, I would say, in the same boat. There is no room for silos at this time; it's not peace time.

Michael Guglielmin: Is your recommendation, then, to just open up the information sharing among different areas of the department?

Wendy Hadwen: Yes, and other government departments, so we have an opportunity to get really good at working together in the service of the defence of Canada.

Michael Guglielmin: You also spoke candidly about trust being hard won and lost, and how procurement suffers from a reduction in risk appetite due to past scandals and public complaints. Can you elaborate on what specific structural or cultural changes within the Department of National Defence are needed to rebuild that trust and improve risk tolerance?

Wendy Hadwen: I am not in a position to comment on the way procurement is managed or structured, nor where the trust comes from. I think we are all committed to trying to get the right capabilities into the hands of the Canadian Armed Forces and all those involved in the defence of Canada so that we can meet the moment.

Michael Guglielmin: What concrete steps is the department taking, or should the department be taking, to foster a more open, collaborative relationship with the industry?

Wendy Hadwen: As part of our work on the defence industrial strategy, we've come to understand very clearly the appetite in the industry to understand what we are doing and what we intend to do next, so that it can help meet us there and help us solve problems.

As part of our advice to government, we will be thinking about how we can create spaces. There are already quite a few tables where we sit with industry, but there may be an opportunity for more or to change how those work.

May I give Kendal a chance to speak on this?

The Chair: We are running put of time.

Ms. Hembroff, if you could be quick, that would be great.

● (1735)

Kendal Hembroff: Chair, I don't think I have anything to add on this.

The Chair: That's as quick as you can get. I appreciate the accommodation.

Colleagues, that brings us to the end of the first hour of our meeting.

Again, to our witnesses, thank you very much for being available here today.

Major-General, again, I just want to say to you directly, to your staff and particularly to those members of the armed forces who are here in uniform today, thank you very much for your service to our country. The sacrifices you and your families make to keep us safe, in the present and in the future, mean everything to our country. Thank you very much for your attendance here today.

Colleagues, we're going to suspend briefly. We will return once we're set up for the second half of the meeting.

● (1735)

_____(Pause)_____

● (1740)

The Chair: Colleagues, we are going to continue with the second part of our meeting today. We have three new witnesses joining us for this hour.

I'd like to welcome, appearing as an individual, Professor Ashwin Iyer, who is the director at the Centre for Applied Research in Defence and Dual-use Technologies at the University of Alberta; Madeleine Redfern, chief operating officer and northern director of CanArctic Inuit Networks Incorporated; and Heather Exner-Pirot, director of energy, natural resources and environment at the Macdonald-Laurier Institute.

Witnesses, you will each have upwards of five minutes. I'm typically not strict, but we ran a bit over time in our introductory remarks in the last session, so if you could time yourselves, or just rely on me to give you a bit of a wave at the five-minute mark, I'd appreciate it.

I'm going to start with you, Professor Iyer. The floor is yours.

Ashwin K. Iyer (Professor, Director, Centre for Applied Research in Defence and Dual-use Technologies, University of Alberta, As an Individual): Thank you very much, Mr. Chair, and members of the committee, for the invitation to speak today.

As Canada takes historic steps towards a more self-reliant defence industrial strategy, our post-secondary institutions must be considered strategic assets. They provide advanced infrastructure, educate the next generation of innovators, and connect forward-looking research to the practical challenges facing national security and sovereignty across critical defence and dual-use technology sectors, from manufacturing and advanced materials to sensing and navigation, to artificial intelligence and quantum computing.

Universities are trusted public institutions with deep regional roots. They have the capacity to bring together researchers, industry and military end-users in secure, mission-focused environments. They can rebuild and grow sovereign industrial capabilities. They can provide the mechanisms to capitalize on procurement opportunities for Canadian businesses in global defence supply chains.

Western Canada, in particular, stands to be a new bastion for national security, serving as an economic and strategic nexus with vital assets in energy, logistics, advanced manufacturing and innovation. Its geographic proximity to the Arctic, combined with a vast resource base and deep regional expertise, establishes its pre-eminence in supporting defence needs in emerging domains such as remote surveillance, uncrewed systems and cold weather operations. Anchored by advanced infrastructure and resilient supply chains in adjacent sectors, such as energy, western Canada is poised to play a central role in the nation's defence industrial strategy.

Alberta features the largest concentration of defence assets in western Canada. Canadian Forces Base Edmonton is home to one-third of the Canadian army's fighting power. 4 Wing Cold Lake serves as the country's premier fighter training facility, while Canadian Forces Base Suffield contains the world's largest land-based military training area.

The Edmonton international airport will be the western main operating base for the Royal Canadian Air Force's CC-330 Husky fleet and will provide the long-term maintenance of Canada's Leopard 2 main battle tanks. Edmonton's rich defence presence is complemented by Calgary's strong and growing aviation and aerospace ecosystem.

These activities are emboldened by a constellation of multinational defence companies. Lockheed Martin Canada, General Dynamics Mission Systems, Arcfield Canada, QinetiQ Target Systems and others have built significant operations in the province. Alberta is also home to several dynamic small and medium-sized businesses situated in and supporting the defence space, including Landing Zones, Canadian UAVs, UVAD, Scope AR, GN Corporations and Guardian Chemicals Inc.

The University of Alberta exemplifies how academic institutions can mobilize regional strengths in support of Canada's defence strategy and economic prosperity. Historically, it was a leading officer training school during both world wars, and established the Khaki University to sustain the education of Canadian soldiers serving overseas during World War I.

Today it continues its defence leadership as a founding member of the Canadian military, veteran and family connected campus consortium initiative, and as one of only two university-based NATO DIANA test centres in Canada. The university is registered in the contract security and controlled goods program, ensuring secure infrastructure and compliance with national security requirements.

The University of Alberta's centre for applied research in defence and dual-use technologies, CARDD-Tech, is Canada's sole university-based centre dedicated exclusively to defence and dual-use technology innovation. CARDD-Tech has engaged closely with prime contractors, Canadian and international tier one suppliers, small and medium-sized businesses, and Defence Research and Development Canada, mobilizing over $25 million in R and D projects within Canada's defence ecosystem in the past year alone.

What has been achieved at the University of Alberta is the vision for a regional ecosystem where industry and end-users, especially the Canadian Armed Forces, are co-located in secure environments for research, development, testing and evaluation. This model of collaborative innovation provides a template for other post-secondary institutions in Canada, demonstrating how local strengths can be mobilized to meet national defence needs. The approach is strongly aligned with the Government of Canada's recently announced defence innovation secure hub initiative, DISH, positioning universities and regions to accelerate defence technology readiness and commercialization for the country as a whole.

Integrated university-housed ecosystems, anchored regionally, will be vital to the acceleration of national defence readiness, keeping jobs, expertise and critical technologies within Canadian borders while strengthening local supply chains. Universities provide the foundation for mission-driven research, talent generation pathways and agile trusted partnerships needed for Canada to secure its future and meet its international obligations.

I believe that the single most important policy initiative that can unlock the full potential of Canada's universities as strategic partners in building a robust defence industrial strategy is sustained funding for secure research infrastructure, directed to proven university partners with demonstrated success in translating concepts to operational technologies with end-users and industry.

● (1745)

These universities need dedicated federal investment to build and maintain secure research environments optimally designed for defence innovation. Urgent infrastructure priorities include facilities to simulate and test the resilience of Canadian-made technologies against electronic warfare attacks, labs for developing advanced materials critical for drone and hypersonic platforms, and capacity to nurture a sovereign, secure semiconductor manufacturing sector. Universities serve as the ideal nexus to manage these secure regional hubs, drawing on operational guidance from co-located military and defence industry partners. This approach will expedite the readiness of Canadian-made technologies, strengthening domestic supply chains and enabling access to global supply chains.

In closing, I'd like to invite the committee to imagine a future where Canada's security, that vital shield protecting our sovereignty, our people and our prosperity, is forged in the classrooms, the labs and the innovation hubs of our universities, where some of our brightest minds turn science fiction into mission-critical technologies, delivering solutions for today's threats while also building capacity for tomorrow's. It's a future where our universities and their networks are viewed as strategic powerhouses, laser-focused on uniting research, industry and the military in a single, secure ecosystem where concepts become innovations, students become specialists, and the collective capability and sovereignty of Canada's defence industrial base are strengthened.

Today, as Canada faces complex global challenges, recognizing—

● (1750)

The Chair: Professor Iyer, I appreciate the picture you're painting. I hate to cut you off, but we're 90 seconds over. Out of respect for the committee's time.... I'm sure our colleagues will have questions to send your way that will permit you to expand on that.

Next is Ms. Exner-Pirot.

The floor will be yours for up to five minutes for introductory remarks. Thank you.

Heather Exner-Pirot (Director, Energy, Natural Resources and Environment, Macdonald-Laurier Institute): Thank you, Chair and committee members, for the opportunity to speak to you today. I join you from Washington, D.C., where my think tank was co-organizing an event focused on the G7 energy and minerals summit.

We've all noticed how energy and minerals have been, as Minister Hodgson put it in Berlin in August, recentred in Canadian foreign and domestic policy in this past year. Canada is blessed with a tremendous resource endowment, but we have rarely thought of using it in any strategic way. As our adversaries lever their market dominance in energy and minerals in ways that harm our interests and those of our allies, it is essential that we consider ways that Canada can contribute to the security of supply.

With regard to critical minerals and the defence supply chain, the NATO alliance has only recently emphasized the issue, putting out a list of defence-critical materials last December. The United States has acted with more urgency since the Russian invasion of Ukraine in 2022. It has made numerous grants, loans and equity purchases, including through its Defense Production Act, DPA, under which Canada is considered a domestic supplier. The U.S. has made seven awards in critical mineral mining and processing in the last two and a half years in Canada, six under the Biden administration and one under Trump.

The main concern that is focusing everyone's attention is this: In the event of a protracted conflict—for example, with China over Taiwan—the adversary would have an unacceptable ability to restrict key materials and components needed for the defence supply chain. In a war of attrition, China would surely have the upper hand with its vertically integrated supply chain and ability to simply produce more tanks, more ships, more planes, more munitions and more drones. We are already seeing in Ukraine how important an adequate supply of defence equipment and supplies is and how a country such as Russia, with a GDP just the size of Spain's, can leverage its significant defence manufacturing base.

Canada's defence industrial base has unfortunately been allowed to atrophy for many years, and it will take time to build it back up. However, we can play a very important role in the alliance in the short and medium term by providing our allies with the raw materials they need to enhance their defence equipment production. Which materials would those be? The list should likely be derived from a cross-reference of minerals and mineral products that China has a monopoly on or has put export restrictions on, and the NATO critical raw materials list; there is considerable overlap between those two. In particular, Canada can play a role in bolstering the availability of gallium, germanium, tungsten, titanium, bismuth, graphite and some rare earths, and Canada is already a fairly significant producer of cobalt and aluminum.

Although it takes a very long time to develop greenfield or new mines in Canada, most of the commodities I just mentioned are things we already produce and refine, are by-products of things we already produce or refine, or are commodities for which we have old mines where we could restart production. We can do quite a bit in a few years, not a decade, and this is where an industrial strategy comes in. For most of these niche minerals, China has manipulated the market, and there's not a solid business case for private actors to produce these things. I am normally a laissez-faire conservative, but in the case of defence materials, the market is not free. It's incumbent on the government to step in to secure supply.

Canada has committed to dramatically increasing its defence spending. While procurement takes time, Canada can make some strategic investments in critical mineral production and processing in the short term and, if it were for defence purposes, could count it as defence spending.

I'll just note that the DPA funding awarded by the United States was matched in Canada through Natural Resources Canada, not through our Department of National Defence. I think it would be very advantageous to fund and prioritize these projects through the Department of National Defence, to significantly ramp up the funding, to act with urgency and to count it as defence spending.

The whole Chinese critical minerals dependency challenge will likely take a decade or more to untangle, but the defence supply chain itself is a relatively small market, and Canada could go some ways towards displacing China. This is an issue that Canada should own, take leadership on and help solve for our allies. We don't want to detract from acquiring the assets and systems that we actually need for defence, but we can do a lot with critical minerals in the short term as we ramp up those medium-term pieces.

Thank you for your attention, and I look forward to questions.

● (1755)

The Chair: Thank you very much.

In the room with us today is Ms. Redfern.

The floor is yours for up to five minutes.

Madeleine Redfern (Chief Operating Officer, Northern Director, CanArctic Inuit Networks Inc., As an Individual): Perfect. Thank you so much.

For those who don't know me, I'm an indigenous woman from Iqaluit, the capital of Nunavut. I'm involved in the high-tech and innovation sectors of telecommunication, digital, transportation and energy. I am the chief operating officer of CanArctic Inuit Networks. The goal is to build 3,000 kilometres of marine fibre optic cable into Canada’s Arctic and interconnect with as many existing or proposed subsea and terrestrial fibre networks. We need redundancy. Of course, I understand and appreciate how interconnected fibre is with satellites.

I'm also the CEO of SednaLink Marine Systems. The goal is to put sensors on certain strategic elements of the subsea fibre optic, effectively allowing sensors to monitor and obtain the necessary marine data with respect to climate change but also with respect to knowing what is in our marine environment, whether that is submarines or unmanned underwater systems.

I'm also the northern director of Arctic360, Canada's only Arctic think tank.

Lastly—I wear many hats, as many northerners do—I am a special adviser to Canadian Nuclear Laboratories and an indigenous member on the nuclear energy leadership table. Our goal is to assist and assess the potential micro and small modular reactors that can provide a full energy solution in rural, remote and northern parts of Canada. Almost all major infrastructure, including fibre optic cables to ground stations, to data centres and to over-the-horizon radar systems, requires energy. We need it to be stable, reliable, abundant, affordable and ideally, of course, clean.

I forgot to say that I am also a director of the Canadian Arctic Innovation Association. We published a study on the viability of airships for civilian and commercial purposes that supplements the airships study that was done by DND. Being able to move large items into Canada's Arctic year-round is a truly transformative initiative that would support not only our communities but also the military.

We know that Canada's Arctic requires investments. We need the very best long-term technological solutions that support not only our communities but also our national security objectives—not just now, but also for the next 50 years. A lot of my involvement and interest in these spaces was due in part to my being mayor of Iqaluit for two terms, president of the Nunavut Association of Municipalities and a member of the Arctic Mayors' Forum, which had membership from all across the Arctic nations except for Russia.

In these various areas and capacities, the discussions have often centred on what is essential for critical infrastructure for our communities in our regions, which, as I said earlier, of course have been focused around transportation, such as expanding existing runways or seeing those runways paved so that we can actually see more large or specialized aircraft land in those communities, increase the size of the airplanes for food delivery or allow for air force planes to land.

We know that in the Arctic there are many intersectionalities and the necessity for integration. However, these different layers of government and various government departments often create silos, and by extension disconnections and divisions. What I have learned is that at the top, infrastructure priorities and requirements of our northern communities also nicely align with what the military want and need, but despite these, fragmentations and many non-strategic infrastructure investments that have been made in Canada's Arctic unfortunately continue on.

While we know that we're hearing the Government of Canada speak about the necessity of dual-purpose and multi-purpose investments, the reality is that almost none of our government departments know how to put this in practice. In fact, when government departments are pitched with true dual-purpose infrastructure, most will state that their departments have no role or responsibility. I could give you numerous examples, but I'm mindful of the time.

● (1800)

In closing, we recognize how important industry is in being part of the solution as are, as you also heard, universities, defence, our northern communities, our northern leaders and our indigenous leaders.

The challenge is how we ensure that, as we move forward in determining what strategic investments the Arctic needs, we invest in the right ones with the best outcomes that support not only our local security at the community level and our economic development aspirations but also our big national security objectives.

Thank you.

The Chair: Thank you very much, Ms. Redfern.

Madame Dancho, the floor is yours for six minutes.

Raquel Dancho (Kildonan—St. Paul, CPC): Thank you, Mr. Chair.

Thank you to our expert witnesses for being with us today and sharing your time with this committee on this important study.

My first few questions will be for Ms. Exner-Pirot concerning your expertise on critical minerals and the role they play in our defence sector.

I think most Canadians understand that we have critical minerals in Canada, but perhaps their appreciation for how very blessed we are relative to other countries is relatively unknown. We've had governments at all levels that have been opposed to various mining developments and the like or, if they do approve, it takes many years.

For the purposes of this committee in looking at a defence industrial policy, could you give us a bit more information on why it is critical that we take our natural resources in the mineral sector seriously and move more quickly to develop those resources?

Heather Exner-Pirot: It's obvious that we're in a geopolitical era that is marked by conflict, tension and possible outright conflict as we see that Russia invaded NATO airspace this week, last week and the week before. It feels like we are getting closer to conflict. The U.S. secretary of war just invited all the generals to D.C. to warn them to prepare for war.

How we won wars in the past was by having a better defence manufacturing base able to produce more and out-compete and outlast the competition. We have, in the last 20 years, very much globalized supply chains. China has absolutely been strategic in taking advantage of that and dominating some important supply chains that are essential. They're critical, as we call them.

We at least need to focus on being able to be independent in our defence manufacturing base. We cannot allow China, number one, but also other adversaries to control what we can produce and to hamper that production.

That's why we need to act with some urgency here. Not a lot of our NATO allies have the ability to do that, but Canada does.

Raquel Dancho: Thank you.

My understanding is that, while we have the raw materials—and of course we can do a much better job of ensuring we get them out of the ground—and that's a big asset, what we currently produce and what we could maximize for our allies.... We export raw materials, but perhaps not as much effort is on creating the defence things out of those raw materials.

Is that an accurate assessment, or are we doing both things well? Overall, what is your assessment there?

Heather Exner-Pirot: It is definitely accurate. Our manufacturing has declined, as has almost every Western country's manufacturing base, but Canada has a competitive advantage in raw materials production. We should work with our allies to figure out what part of the process we hand over. Is it materials or how processed or how refined they are so they could put them into their manufacturing base in the short term?

You can't produce anything if you don't have the raw materials. That is one area where Canada can shine and make sure that they are at a stage where we can hand them over to allies and their producers who can put them into materials.

Raquel Dancho: Can you just provide some basic examples for everyday Canadians, who may understand that yes, of course, there are things that go into these defence materials, of what Canada has and critical things for our defence procurement that we need that it creates or contributes to?

Heather Exner-Pirot: Yes, there are quite a few. I'll mention gallium and germanium because these are things that China has put export restrictions on recently. They are by-products of things we produce.

If you didn't know—and I think we all know—we are big aluminum producers. Gallium is a by-product of that, and the market for gallium wasn't very good. China kept prices very low. There was no incentive for anyone to turn that into a product, so China developed an almost complete monopoly on gallium. Again, the market is very small and niche. It's not a lot of money, but you still need that for components to make things.

It's the same with germanium. It's a by-product of zinc refining, which we do in Trail, B.C. Again, the market was so small that there wasn't a lot of private sector incentive to compete with China on it.

It won't take a lot for Canada to develop the things we already have and to develop a tack to start processing them so that we can use them in our own supply chains.

● (1805)

Raquel Dancho: What sorts of products would come out of that?

Heather Exner-Pirot: There are lots of lists you can see, things like munitions, materials like tungsten and bismuth you need to make things hard. Obviously, there's every component of a battery. A lot of warfare now is being conducted through drones. You need particular components for batteries for that and all the things that go into a battery, which China has dominated. There's aluminum. I mean, at the end of the day, when you're building all these things, you need a ton of aluminum. NATO actually declares that a critical raw material, even though we're having a hard time finding buyers for our aluminum in Canada right now with the tariffs. You would hate to lose that capacity, because in the event of a conflict, you would need so much aluminum production to keep up.

Raquel Dancho: Thank you very much for those examples.

Of course, we think of mining, and it can take a very long time certainly in this country, but you did allude to a few things we could do relatively quickly. I think you mentioned we could reopen mines that have been shut down.

Could you provide more detail on what we could do in the next, say, two years to move in the right direction?

Heather Exner-Pirot: Yes. For some of it, like germanium and gallium, it's refining the by-product we already have and developing the capacity to do so. For some things like tungsten, antimony and cobalt, we could do more. We're already a minor producer, and we could expand the production we already have. I think the last DPA award was for a tungsten mine in New Brunswick, the Sisson mine. We know where all these things are. In some cases they shut down production in the 1980s or 1990s because of competition from China, and they just became uncompetitive with global commodity prices. There are some things where the resource is so good, the deposit is so good, and we just need to go back in and start producing and have a price of the commodity where it makes sense for someone to do that. Someone has to buy it at the end of the day.

The Chair: Thank you very much, Madam Dancho.

Mr. Bardeesy, the floor is yours for six minutes.

Karim Bardeesy (Taiaiako'n—Parkdale—High Park, Lib.): Thank you.

I have two questions to start. One is on dual-use technologies and is for Madeleine Redfern and Ashwin Iyer. The second question is on the objectives of defence industrial policy and is for Heather Exner-Pirot, but the others can definitely jump in.

I wanted to share my appreciation, Ms. Redfern, for your description of the Arctic runway as a dual-use technology.

In the earlier panel, we talked about how we have to sometimes buy off-the-shelf technologies for things for which we don't have the capacity yet. We've also had a discussion in this committee about how the technologies we might need 10 or 15 years from now are the ones that are going to be very important and aren't necessarily ones we could even imagine or might be developing yet.

Ms. Redfern and Mr. Iyer, since you're both involved on the front lines of this technological work, what's your advice to us about how to set policy that will allow us to take some bets on some of those more innovative technologies that might not be currently in the mindset of those who are doing the procurement?

Madeleine Redfern: We are very fortunate to have quite a robust innovative sector on the west coast and the east coast with respect to marine technology. However, from my interactions with them, a lot of their technology hasn't been developed or tested for Arctic conditions and, as such, they would need some support and funding to be able to do that because it's very expensive to go to the Arctic. Ideally, you want to have those companies work with our local northern indigenous communities to build that capacity. We see companies or NGOs like SIKU, which means ice. Those partnerships are very successful.

With respect to dual purpose, I'll give you another example. We're seeing unmanned aviation or drones or unmanned underwater marine technology or similar technology being used for wildlife monitoring, but they also can and should be used for monitoring ships or other submarines or unmanned vehicles in the marine environment that may actually be foreign incursions we need to know about and how to respond to.

● (1810)

Karim Bardeesy: Thank you.

Ashwin K. Iyer: I could add to that as well.

Our experience as a university is really that our job is to look more forward. We're looking at technologies and their evolution over time frames of five to 10 to 15 years. We're always looking for the dual-use counterparts in the defence technologies, because this is where we tend to build basic science, and we tend to train our graduate students, build our labs and do our research. We're always aware and conscious of the dual-use counterparts to defence technologies.

A great example from Alberta is we have a very robust drone development ecosystem in Alberta, including in Medicine Hat, where we have several small and medium-sized enterprises related to drone production. Many of them are involved in wildfire monitoring and geophysical surveys. The same technologies that go into making drones resilient to those environments are the technologies that are required for defence.

Karim Bardeesy: Thank you.

My next question is to Ms. Exner-Pirot, but the others can definitely jump in, too.

In 10 or 15 years, how will we measure the success or failure of the policy that comes out? Is it company formation? Is it more women involved in this sector? Is it the number of patents? What are some of the ideas that you think we should be focused on in terms of the outputs that we want to be coming out of this over a 10- to 15-year time period?

Heather Exner-Pirot: That's a great question. For critical minerals, I'll speak to that. It would be independence in the supply chain, having a very clear line of sight on what the components are that go into all these assets and equipment, and knowing that they are all coming from the alliance or from allied countries and not relying on, for example, China or Russia. It's knowing what's in your supply chains. Usually you might have line of sight on the first or second layer, but you don't know what your contractor or subcontractors are providing. Right now China's actually selling some of these materials and components, requiring that companies indicate how they're going to use them, which gives China an excellent line of sight into the western defence manufacturing ecosystem.

Broadly and strategically, why we want to do this is to deter. If we have tremendous defence industrial capacity, if we can outlast and outmatch China and Russia, it will deter them from wanting to go into these interventionist campaigns, because they won't think that they can win. That's what we've been able to successfully do for the last 50 or 60 years with NATO spending, with that superior capacity, especially with the Americans, deterring them from even trying. I think, because we aren't as good on that and because they've caught up, they feel emboldened to be more conflictual.

The Chair: Unfortunately, that's all the time allotted, Mr. Bardeesy.

[*Translation*]

Mr. Ste-Marie, you have the floor for six minutes.

Gabriel Ste-Marie: Thank you, Mr. Chair.

Greetings to all the witnesses.

My questions will be for Ms. Redfern first.

Thank you very much for coming here to participate in the committee.

I would first like to ask you how the relationship between the Department of National Defence and your nation is going in your territory.

[*English*]

Madeleine Redfern: What I can say is that the military or the defence department has actually done better than some of the other departments in building relationships with our northern communities, in particular because of the northern exercises that they do and by working closely with our Arctic rangers. They have learned lessons from the mistakes they've made in the past. Of course, I always suggest that things can be improved upon, and there's a commitment to do so possibly by expanding the rangers' roles, not just a single activity, and also by supporting the junior rangers, because without a junior rangers program the Arctic rangers program is not sustainable.

[*Translation*]

Gabriel Ste-Marie: Thank you very much for the examples you just gave us.

There's a lot of talk about the Arctic Ocean sea route. What roles can your nation play in supporting the defence department and the armed forces?

● (1815)

[*English*]

Madeleine Redfern: Our people are definitely interested in learning more skills and having the capacity to participate in some of the technological developments. My Inuit organization, Qikiqtani Inuit Association, has quite an extensive program on AIS, the automated information systems, effectively training our people so that they can see what ships are coming into the region, but at the same time giving them opportunity to go out on the land more, whether that is for marine monitoring or land animal monitoring. It's building all those different skill sets.

The challenge that I've heard is that so much of it is fragmented. A more holistic approach, with an understanding that their skill set is important for defence but also important for research, the environment and food procurement would be much more beneficial.

[*Translation*]

Gabriel Ste-Marie: You talked about it in your presentation, but how could there be more economic activities by the Canadian Armed Forces and the Department of National Defence in your territory that would benefit your nation?

Can you tell us more about that and about what you just talked about?

[*English*]

Madeleine Redfern: In part, because of the Government of Canada committing billions of dollars for improving national security, along with the 5% set-aside for indigenous procurement, we have seen the creation of a lot more indigenous companies in this sector. I do caution and warn that we are also further aware that there have been a lot of fake indigenous companies. Indigenous Services Canada, ISC, has removed over 1,000 fake indigenous companies.

To ensure that our companies are truly indigenous or have adequate indigenous participation, it needs to be more than simply the 51% ownership. There needs to be also, as in Nunavut, a disclosure of how many Inuit are going to participate in the actual project, in what role, as well as how much Inuit training or capacity development is done. There needs to be reporting and the possibility of audits to prove that Inuit or indigenous people are not just tokens or front-facing parts of the company.

Ultimately, the purpose of that 5% indigenous set-aside is to ensure our true participation and that the wealth that comes from our involvement is going back to our families and our communities, and is not simply a boomerang effect where we levy a tax and all the benefits go to the south.

[*Translation*]

Gabriel Ste-Marie: Thank you so much for all of those answers. I have one last question for you.

In terms of surveillance and security, have you compared the collaboration between your nation or your community and the Department of National Defence or the Canadian Armed Forces to what is being done in Greenland, for example, which is also a member of NATO?

[*English*]

The Chair: Answer very quickly, please, Ms. Redfern.

Madeleine Redfern: Very briefly, the four Inuit regional corporations are part of a company called Nasittuq, in partnership with ATCO. These actually sort of fulfill that. There is a $5-million annual allocation to build up Inuit capacity. I think we can and we should do more.

The Chair: Thank you very much.

Madam Dancho, we'll go back to you for five minutes.

Raquel Dancho: Thank you, Mr. Chair.

Ms. Redfern, I appreciate your remarks very much. I'd like to talk more about what's needed for Arctic security.

Of course, when we talk about Arctic security, as you all know, we're not just talking about the security of our Arctic. We're talking about the national security of all 40 million Canadians. We're also talking about North American defence as well.

When Canadians look at a map, they know the Arctic is ours and they want it to stay that way, but we know that increasingly there's interest from Russia and China, which are coming into our territorial waters, seeing how we react and what our capabilities are and the like. Certainly, the case has been made that we need to do more in the Arctic to ensure that our sovereignty is protected.

Where would you start there?

What is critical to you to see in the defence industrial policy in terms of those Arctic investments? What do you need to see to have confidence that it's the right direction for what we need for continental defence?

● (1820)

Madeleine Redfern: One of the initiatives that Arctic360 has been pushing is the production of an inventory of all existing assets and the age and condition of those assets. It's effectively looking at where those critical investments need to be made in telecommunications, transportation or energy. We know that the information exists out there, but it's not been brought together in a concise, single location.

As well, there is the possibility of creating a system like a SimCity—for those of us who are older, like I am—where you can actually play with that and see, if you build a fibre optic cable, what that unlocks. Well, it turns out you can't build a fibre optic cable without sustainable and sufficient energy. It shows where those opportunities exist, but it also shows where those failures are.

I do believe that the military, to some extent, is doing some of that assessment for its own needs. The problem is that we're not doing it all together. We need the northern communities, industry and universities to be part of it, so we actually figure out what to do, where to do it and how much it's going to cost.

Raquel Dancho: Thank you very much.

Canada operates in continental defence through our NORAD agreement. Part of what we do, as you know, is surveillance. In a previous conversation with you, I was a bit shocked to learn that those over-the-horizon radar systems take 15,000 litres of diesel per day. I don't believe that Canadians are quite aware of the reliance on diesel by our northern communities. The pipeline and the grid infrastructure are just not the same in the Arctic.

You talked about energy a lot, and I know that you have been a proponent for MMRs and SMRs, or small modular nuclear reactors. Can you tell the committee why that is?

Madeleine Redfern: When I took a look at the various energy solutions, we learned, through quite a number of different independent studies, that for a full energy solution, for the most part, wind and/or solar won't get us there. For much of the Arctic geological situation, thermal power is not an option. Where there are rivers or large lakes, hydro may be an option. The challenge is that while the Arctic is melting, at the same time, we're actually seeing less precipitation. It's a weird situation where two truths can actually exist at the same time. The cities of Whitehorse and Yellowknife have actually had hydro dams that now require a diesel backup.

That leaves us very few options. Micro modular reactors, MMRs, which are in development—it's old technology that is now being repurposed with a possibility of a civilian or commercial use—would provide clean energy options.

We're seeing the industry out there producing everything from one-megawatt to 50-megawatt solutions. It's not the Darlington, which is 500 megawatts. They're being produced like batteries, so if you need 10, you might get two fives. I think we're going to see only three to five companies moving forward with real solutions.

Raquel Dancho: If we want to extend our operations militarily in the north, then we need better energy. You've made the argument that maybe we should be looking at nuclear.

Madeleine Redfern: Absolutely. We're not going to achieve our clean energy solutions, especially in rural and remote northern Canada, without it.

Raquel Dancho: Thank you very much.

The Chair: Mr. Bains, the floor is yours.

Parm Bains: Thank you, Mr. Chair.

Thank you again to our expert witnesses for joining us today. It's very insightful commentary we're hearing.

We've heard a lot about our capacity. I want to thank Mr. Iyer for shedding some light on what's happening in Alberta. My hometown, Richmond, British Columbia, is a powerhouse in aerospace and geospatial intelligence. In British Columbia, we have the shipbuilding that's taking place. Joint supply ships are coming online. We've seen oceanographic vessels.

Ms. Redfern, you talked a lot about the Arctic capacity and the technological advances of the ships or the technology that's available but not working in the arctic to some degree. I've had an opportunity to see the progress of the shipbuilding. With Boeing situated in my riding, we've seen the Poseidon aircraft and the capabilities that it has in the Arctic. There has been a lot of talk about Arctic capabilities and technology.

What are your thoughts on those procurement initiatives?

● (1825)

Madeleine Redfern: My cousin, Kirt Ejesiak, who owns Arctic UAV, has developed local capacity in the sector, but struggles to get either the government procurements or the partnerships that would actually ensure long-term, sustainable initiatives in the region. The challenge, in some cases, is being a northern or indigenous company competing with the really large companies in the south that sometimes do not want to partner or want to partner in a way that we are used as a token. Opportunities do exist, but it does take time to develop those business relationships and for those southern companies to understand that it's going to take time to build our capacity. We know that our people are interested and that they truly want to have those partnerships.

Parm Bains: Thank you. Vancouver Island is another example. Many indigenous companies there are supplying our submarine manufacturing.

Maybe I'll shift to you, Mr. Iyer. You mentioned Alberta and capacity. Once again, I want to look at other areas, at niche markets that Canada could be positioned for, like microwave-based optical devices as they relate to the defence technology sector. Like I said, we have a tremendous tech ecosystem in British Columbia. I'm wondering if there's an opportunity there.

Ashwin K. Iyer: Absolutely. The whole point that I was trying to get across in my opening remarks is exactly what you're saying. It's completely aligned with what you're saying.

We have intense regional expertise in so many different areas. British Columbia, as you mentioned, is a hub for aerospace, but also for maritime and AI and quantum areas. We need to be able to leverage these regional strengths. The universities are at the centre of those conversations.

In response to the previous question, the universities are looking ahead at next-generation threats. They're looking at what the local economies and local industry can provide. They're propping up small businesses. Universities have infrastructure that these businesses can access. Universities have mechanisms to accelerate the activities of these small businesses and connect them to the CAF and to DRDC. It's essentially what we normally do on an everyday basis.

UBC is a perfect example in B.C. and UBC Okanagan is an excellent example. You mentioned microwave. They have strength in microwave, and we have strength in microwave. Toronto has strength in microwave. It's important for us to decide our roles in the broader defence technology innovation ecosystem and really push hard on our regional strengths.

Parm Bains: Thank you for that.

Of course, once again I want to shamelessly plug BCIT. The British Columbia Institute of Technology in Richmond is also another great example of some of the training that takes place in aerospace.

Maybe I could—

The Chair: Unfortunately, Mr. Bains, we're out of time. I let you get your plug in, but I can't let you plug twice.

● (1830)

[*Translation*]

Mr. Ste-Marie, you have the floor for two and a half minutes.

Gabriel Ste-Marie: Thank you, Mr. Chair.

Ms. Redfern, climate change is opening up sea routes in the north, but it's making a lot of changes for your people and your territory, such as on the ice, the permafrost and so on.

Would you like to briefly outline the issues, from your point of view, and those that may affect defence?

[*English*]

Madeleine Redfern: I can tell you that in the human-built environment, in our communities, what we're seeing is also happening out on the land. There is melting permafrost. It does mean that almost every new sort of infrastructure that is built could and should actually address that inherent risk. Otherwise.... I remember saying when I was mayor that we have billions of dollars of infrastructure that is at risk because it's not melting uniformly.

There is innovation that has been deployed and used. I can tell you that underneath the tarmac of the Iqaluit runway there are insulation panels. As well, for the big new buildings, mostly Government of Canada or Government of Nunavut buildings, poles are put into the ground near the buildings and actually try to moderate the temperature, to reduce it.

We were also missing opportunities because the City of Iqaluit buried its water and sewage pipes in what we thought was permafrost like concrete. The problem is that as the permafrost melted, they were breaking. If we had put sensors on those pipes, or what they call “flexible couplers” on the joints, which would have allowed the pipes to not break..... The challenge was actually getting any money from the different levels of government to help mitigate those risks.

As it relates to the military, all that critical infrastructure that needs to be built needs to be climate change-proofed, and we need to make sure it is. What we often saw was that the extra 10% in an infrastructure project to climate change-proof was well worth the investment.

[*Translation*]

Gabriel Ste-Marie: Thank you very much, *nakurmiik*.

The Chair: Thank you, Mr. Ste-Marie.

[*English*]

Colleagues, thank you very much.

I'd like to take the opportunity again to thank the witnesses for making themselves available to the committee. There were lots of interesting insights from a variety of different ranges of perspectives. Thank you very much.

Colleagues, I'm going to dismiss the witnesses but just before you go, members, we've got just one small order of business. The clerk had sent around numbers on the forecasted budget for our studies.

I have just a quick note. You may have looked at some of those numbers and raised an eyebrow as I did. It is important to note that these are estimates in the event that we were to have witnesses coming from all regions of the country with the estimated costs associated. To be clear, these are not confirmed witnesses. Should we feel we need a further conversation to get into the depths of details, we can create an opportunity for us to do so, but I first wanted to present the budget to the committee so that if there was unanimous consent we could move forward.

I'm seeing yes from the Bloc, yes from the Conservatives. I'm seeing no opposition from the Liberal side. I'll consider that adopted.

Again, it's not what we're going to spend, simply the ceiling we're creating for ourselves.

Colleagues, it was a very productive meeting. Thank you very much. We'll see you again soon.

The meeting is adjourned.