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Critical Minerals – Securing a Reliable Supply

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CRITICAL MINERALS – SECURING A RELIABLE SUPPLY

STEPHEN PETRAS: Ladies and gentlemen, we are about to start the second panel of our conference. We have a special guest with us today from the Government of Quebec, through their Delegate Office in Chicago, who is going to give us his welcoming remarks, Mario Limoges—former Assistant Deputy Minister at the Ministry of Economy and Innovation of Quebec, General Manager of Export Quebec, and Director General of the Greater Montreal Economic Development entity. Mario, we look forward to your comments.

MARIO LIMOGES: Thank you. Good morning, everyone. I'm Mario Limoges, the Delegate of the Quebec Office in Chicago. For me, it's a pleasure and an honor to be here with you today on behalf of the Quebec Government. The Quebec Office in Chicago is the official representative of the Government of Quebec, and we are proudly part of a comprehensive network of representation abroad, where the province can currently rely on a network of thirty-four offices, including nine in the United States.

The Office in Chicago was established in 1969 to promote Quebec expertise and Quebec interests in several sectors such as business investment, government institutions, education, Francophonie, and culture. The Office is also in charge of representing the Quebec government on several regional forums regarding the Great Lakes and the St. Lawrence Seaway issues in order to protect and to grow this important environmental and economic asset for the United States and Canada.

Quebec-US trade represents more than 70% of Quebec exports and more than 50% of Quebec's total international trade. In addition, as we are gathered here in Cleveland, I think it's important to mention that Ohio is one of our most important trade partners in the US and our largest trading partner in the Midwest. The Quebec Office has been a partner with CUSLI over the past few years. I'd like to sincerely thank Mr. Petras and his team for giving us the opportunity to introduce Quebec's perspective in the upcoming discussion about critical minerals.

The Quebec Government is committed to fighting climate change in all sectors of the Quebec economy, and our 2030 plan for a green economy must ensure that the province contributes beyond its borders and critical minerals are part of the equation. As we know, critical minerals are required in key sectors of the economy such as: aerospace, batteries, electric vehicles, AI technology, as well as life sciences. I hope we all take advantage of this event to learn and share about very important topics for our economies, and our future, and to further develop new Quebec-Canada-US collaborations. Thank you very much, merci.

STEPHEN PETRAS: Thank you very much, Mario. It's great to partner with the Government of Quebec. Thank you for your support for our conference and for CUSLI. Our next panel is "Critical Minerals: Securing a Reliable Supply". Here to moderate this panel is another member of our Executive Committee, Chris Sands. I did mention Chris Sands last night, but I'm going to do it again. Chris is a seriously recognized expert on US-Canadian relations. He is a professor at Johns Hopkins

SAIS School in Advanced International Studies. He's also the Director of the Canada Institute at the Wilson Center. Chris, I'm going to turn it over to you to introduce your panel and topic.

CHRISTOPHER SANDS: Thanks very much, Steve. And thank you, Mario. It was wonderful to have that welcome in both official languages of Canada. Very nice. We have an excellent panel talking about critical minerals here. And this has been a focus of the Canada-US Law Institute for some time now. And we're really pleased to be able to bring you this collection of all-stars. To my left, we have Jeff Labonté, who is Assistant Deputy Minister for Lands and Minerals for Natural Resources Canada. Further to the left is Russ Singer, who is Energy and Environment Officer in the Office of Canadian Affairs in the US Department of State. As already previewed by Mario, we have Jocelyn Douh  ret who is at the Quebec Ministry of Natural Resources and Forests where she is the Director of Mining Policy. We're really glad to have all of you, the order of introduction turns out to be the order of presentation by mutual agreement. I'm going to turn this over to Jeff.

JEFF LABONT  : Thanks so much, Chris. Thank you very much, as well for the opportunity to join you and for the invitation to join you again, here to talk a little bit about critical minerals, which is, I think, among the more interesting topics globally and certainly one that reinforces the ties and relationships that the panel earlier spoke about in remarks with respect to the relationship between Canada, the United States.

I'm going to sketch a little bit about why that matters a fair bit. My colleagues will probably do a little bit of the same. But hopefully that will help at least provide a little bit of a baseline for those who might not be as familiar with critical minerals or some of the elements of that particular topic, and then perhaps talk more about the relationship between Canada, the United States on critical minerals, and a little bit about where that sits going forward.

I think it's fair to say that there's an extreme amount of alignment between the United States and Canada with respect to critical minerals. It's equally fair to say that's happened over time, but it's really accelerated by a number of really significant global events. Those are [generally] things that shock us into thinking about the world differently. Generally, when you have relationships, like the one between our two countries, we become much, much closer together. It's part of the big things that you have to get right and that really matter, and you kind of worry less about the smaller things.

The events around the world with respect to the supply chain shocks that came from COVID, the impacts of the pandemic, and more broadly, the impacts around the Russian invasion of the Ukraine. And some of the actions that have happened globally around some Asian partners around the world or Asian countries, taking a particular part of supply chains and focusing their attention on that supply chain, that's created dependencies and bottlenecks that then kind of allow for the market to behave in different ways.

If you step back, the issues around critical minerals are really at the nexus of economic security, economic development, national security, and certainly, the clean energy transition. The transition to decarbonizing the economy and moving towards embracing lower carbon technologies and climate change require a whole new set of

minerals, new technologies, and new implementations. All of those things are fed by critical minerals.

If we think about energy security that we enjoy between Canada and the United States, we would recognize that we are equally dependent on each other with respect to energy security. We export from Canada to the United States substantial volumes of oil and gas out of western Canada, those are extremely important to maintaining energy security in the Midwest, in the southern US, right down to the Gulf Coast. At the same time, energy from the United States flows into eastern Canada, and we rely on the geography of our two countries and the relationship between our two countries to actually ensure that we each have the amount of energy and the energy in the most effective way possible. That's benefited both of our countries immensely. We are both energy secure because of each other, rather than, we are energy secure because of others. And that's a substantial amount.

When you look at the transition to what energy looks like into 2030, 2050 and beyond, energy in the future will be mineral dependent, driven by minerals that supply batteries, minerals that go into air capture, minerals that substantiate things like the electronic goods that we need to drive things that actually run energy systems, nuclear energy and other forms of energy. The transition of energy security into the future will require mineral security. That's a pretty broad policy space that both governments have come to recognize at a time when the world is kind of forced us to do so. That provides the foundation for why working on these kinds of topics and in the kinds of forums we're talking about today and the policy for it is extremely important.

When we think about critical minerals, they are the kinds of minerals that go into electric vehicle batteries and renewable energy technologies. They feed food security, another example. With the Russian invasion of Ukraine, the world's supply to potash for example dropped remarkably. Russia, Belarus, and Canada are the world's largest suppliers of potash. Potash from Canada became the most accessible and the most important supply of potash around the world. During certain parts of last year, most countries in the world that didn't have domestic supplies were looking to secure that. The element of critical minerals extended beyond energy to things like food security, it moves into the world of defense, electronics, defense equipment, advanced manufacturing, [and] the semiconductor world. All of those [are] manufacturing sectors and all of those technologies that we have supply chains that are globalized, require critical mineral access and a steady supply. The amazing thing about it that is super important from an economic opportunity is that it's expected that some of the critical minerals that we use and consume in the economy now will [see demand] increase by six, ten, twenty times between now and 2050. As a business and economic opportunity that requires policymakers, governments working together to marshal the private sectors' investment. It will be the private sector that drives the increased supply and processing and manufacturing of the critical minerals, that then feed the supply chains.

It's extremely important to recognize the basis from which this policy issue kind of forms itself. Then, it layers into when a country like Canada has a relationship, like that with the United States, the focus of the policy world, and attention is on the issues that matter. The issues around collaboration, building on our free trade

agreements, and building on our diplomacy work that we do globally, and building on the multilateral context in which we work, become [nodal] points where our values that fit together. Our policy alignment, on having similar outcomes of interest, function together as two countries that are working both together as partners, but also globally as partners, looking at bringing a bit more of a nexus to here in North America [as to] how we build our economy, and how we sustain our quality of life. That's the broad context of why critical minerals matter more or less [than] they do, within the context of the Canada-US relationship.

For its part, Canada has brought attention to critical minerals by launching a critical mineral strategy. That strategy is a national strategy that actually works collaboratively with each of the provincial and territorial governments, which in Canada, are responsible for developing the resources under our Constitution. We work together with our provincial colleagues, and one of them is here from the Government of Quebec today. But of course, depending on the particular part of Canada you're speaking about, there are different critical mineral resources from those jurisdictions. That's important because our perspective on how we work with the United States has to have a government-to-government, relationship-to-relationship foundation. That foundation works best when all governments are working on the same pathway. Our strategy that we have at the federal level is one in which we're really looking at supporting economic growth and competitiveness and the actions related to climate by ensuring that the ability to respond to climate change and deliver on climate outcomes is feasible.

In the landscape in Canada, resources are developed often with Indigenous Peoples and within traditional territories of Indigenous Peoples. Like the United States, we have a significant Indigenous community population and a lot of relationships with Indigenous Peoples that are part and parcel of how we develop our resources and have to be part of how resources move to markets. Then, we look at the workforces that we're building—do we have the skill sets and the opportunities for the automobile sector and the manufacturing sector, here in Ohio, in the United States, and parts of Canada? We have aging workforces wherein workforces require re-skilling that's necessary for the future. The final part of our strategy is to work with our partners globally. And no starting point other than here is more important than with folks in the United States.

As we look to what does the relationship with the United States focus on, we actually have and have had for a number of years an action plan, joint action plan on critical minerals. It's focused on industry engagement, innovation, defense supply chains, and information sharing, and mineral resource potential, and efforts in multilateral forums. We've had a five-point set of activities that we've been working through multilaterally, between jurisdictions, and working with our colleagues in the provinces. Here, a lot of the work happens, department-to-department, officials-to-officials, and we work through how we collaborate in terms of bringing things to bear.

Some of the things that we've worked through, for example, has been having the GLSL geologists and the science experts looking at the mineral resources and really trying to understand and use different models and use new technologies like artificial intelligence to reprocess data to understand at a higher level of sophistication, what

the potential looks like. We can minimize the amount of exploration work, for example, that happens where you have to kind of take the next step from a discovery to an economic opportunity.

At the same time, we're doing things where we've had shared business councils, where we've had investors from one country work with potential companies in another country, and we've had seminars in both Canada and the United States promoting the opportunity between companies and sort of trying to connect the dots between supply and demand, if you will, and building awareness of the geography and the neighborhoods that we work in.

Finally, the work around with the United States through the Defense Production Act, which was referenced in the earlier panel this morning, part with respect to the meeting between leaders that happened in Ottawa where, Canada has a privileged and unique relationship under the Defense Production Act that goes back for many, many, many decades. That relationship enables Canadian suppliers and Canadian resources to find their way to working into the defense supply chain much more elegantly and simply than is the case for many other players around the world. In that particular place, the US Defense Department has expressed an interest in acquiring more supply of critical minerals of which Canada has a substantial amount.

To close, I would like to comment on a few other areas where we would work through and then pass on to hear from my colleagues. There are really good examples of that collaboration already bearing fruit with investments and manufacturing facilities in Canada by US companies and then US companies securing offtake and agreement on some of the products and critical minerals they need to supply their operations in the US. We have great examples of minerals actually mined in the US, processed in Canada, and re-exported back into the auto sector into Ohio.

So, it's a really good example of how we have foundations that exist, built on our history of working together and being economic partners. But we now have a fairly large policy intention to supersize that and make sure that it's ready for the economy of the future. One in which it protects our supply chains that were so exposed to being vulnerable in the last number of years with a lot of geopolitical events. I'll omit that and look forward to the dialogue and discussion with colleagues. And thank you very much for having me join you today.

CHRISTOPHER SANDS: Excellent. Over to you, Russ.

RUSSELL SINGER: Thank you so much, Chris. Thank you to CUSLI, for inviting me back. I had the honor to come last year as well. It feels nice to be back among old friends. Thank you very much for your hospitality. I work in the Office of Canadian Affairs at the State Department, so I think about the US-Canada relationship – that's all I do all day. It's very nice to be in a room full of people who also similarly do that as well. It's a nice club to be back to be among, and as the previous panel noted, it's a relationship unlike any other relationship in the world. Canada is not a foreign country to us. And it's been a real personal honor for me to be able to work on that relationship.

This topic of critical minerals is really fascinating to watch over the last couple of years, how it's just risen in priority. It was really striking, looking at the joint statement from our two leaders at the recent meeting in March, [that] the number one thing that they talked about was clean energy and clean jobs. If you asked me ten

years ago, if there was a meeting between the leaders of the US and Canada, *what would be the number one topic?* I don't think anyone would have picked that it would have been that. As Jeff said, there's no clean energy without critical minerals, right? Critical minerals are a fundamental part of that story.

But if that wasn't enough, the Number Two on that list was specifically critical minerals. The top two things on the priority list of our two leaders are inherently tied to this discussion about critical minerals. That speaks louder than words.

It's really important to sort of step back and look at the last two years and figure out how we got here. As was mentioned, the US and Canada formed a joint action plan [on critical minerals] about two years ago, well, actually, no, it was in the end of 2019, beginning of 2020, and established a critical minerals working group, a bilateral working group, to work on these issues together. Back then the idea was how much can the governments do; this is really going to be driven by the private sector. The government was really much more in this kind of cheerleading role of sort of saying, how do we encourage the private sector to make these investments that we think are needed. What can we really do?

In the course of the years since then, there's been just an incredible transformation in the role of what the governments have done in order to really push this issue forward. And so, I thought it would be helpful to kind of look at that. I've been in the Office of Canadian Affairs for two years. One of the most amazing things to me has been how fast the governments have really mobilized to sort of progress, make progress on this file. I'm not going to say it's as sexy as the moon landing or the COVID vaccines. In a couple of years, when we look back, we will see it in that kind of light, as very impressive marshaling of government forces.

Why is this urgency around critical minerals? Jeff spoke to that very clearly. Number One, the climate crisis is clear. The recent report from the Intergovernmental Panel on Climate Change was very clear. We've done some things, but we haven't done enough. Not enough to meet the [warming limit] of a 1.5-degree target. If we want to succeed in meeting that target, we need critical minerals to support the clean energy transition. That's kind of a fundamental part of that story.

The second part of that story is what's going on with Russia's illegal and unprovoked war on Ukraine, part of that their weaponization of energy—natural gas—in their relations with Europe. That was kind of an eye-opening experience and touched on some of these issues about supply chains and resiliency. That has shaped the conversation on global supply chains.

Finally, the fact that we have an over reliance on certain countries regarding the current supply chains of critical minerals. This creates a vulnerability that we are all very much aware of. How do we deal with that moving forward? So, all of these things have led to an incredible urgency around critical minerals. It would be helpful to look at some of the things that the US has done over the past couple of years working with Canada to try and address these issues.

The first was back in February 2021 when the President issued an executive order looking at supply chains and vulnerabilities in supply chains. That order led to a report by the Department of Energy, which looked very deeply into [the] vulnerabilities in our critical minerals supply chains. It set the tone for underlining

this urgency and giving marching orders for the government to figure out how to address this issue.

In November of 2021, of course, the US Congress passed the bipartisan infrastructure law, which had quite a few provisions related to critical minerals. That law had seven billion dollars allocated to the Department of Energy to focus on the battery supply chain, including producing and recycling critical minerals. Looking at the whole lifecycle, as well as \$75 million for the US Geological Survey to look at the mapping of critical minerals resources, as part of their Earth mapping resources initiative. There was also a creation of a facility to study minerals at the Colorado School of Mines and some money devoted to workforce development, which is a key piece of that story.

In March of 2022, the President invoked our Defense Production Act, specifically for critical minerals, recognizing the role they play. Therefore, unlocking large amounts of money to support both US and Canadian firms. And again, Canada is considered a domestic source under the Defense Production Act, which is, I think, a very unique reflection on the relationship between our countries. Under the Defense Production Act, \$750 million, which was allocated in both one of the Ukraine supplemental bills and then later the Inflation Reduction Act, are now available for projects specifically targeting critical mineral supply chains. And again, that money is eligible, both Canadian and US firms are eligible to apply for that funding.

As Ben mentioned, that required a huge amount of outreach to companies to make them aware of these opportunities. That outreach was not just to US companies, but also to Canadian firms. My colleagues at the Defense Department, the Foreign Commercial Service, and the State Department have been incredibly active. Particularly a colleague at the Defense Department. It's very impressive the amount of work he had to do over the last year to sort of do some of this outreach to make companies aware of these opportunities.

In June 2022 the State Department, working with partners around the world, launched the mineral security partnership. There are thirteen partner countries, including Canada, that work together under the mineral security partnership, to share information about critical minerals projects around the world, to talk about financing and investment opportunities, and leveraging private sector money to start funding some of those projects. A great opportunity to create global networks of folks in like-minded countries [who] are really thinking about how we get money to some of these projects to start galvanizing critical mineral supply chains that are in countries that are a bit more resilient [and] that don't present some of the vulnerabilities that exist in current supply chains.

Then, in August of 2022 there was the Inflation Reduction Act—the largest, most consequential piece of climate legislation in US history, a huge amount of money devoted towards the fight to addressing the climate crisis, the EV tax credit being a huge part of that effort. And of course, again, as has been discussed, electric vehicles that are built in Canada, or with critical minerals from Canada, are eligible for those tax credits. This was another good example of driving progress in North America, as somebody with bird's eye view to the “diplomatic lobbying blitz” to make sure that was focused on North America. It was incredibly impressive to watch and effective.

Going back to the remarks from the opening speaker about joint efforts by the US and Canada to reboot our economies to sort of take advantage of this clean energy transition. That first point in the joint statement wasn't just the clean energy transition, it was the clean energy transition and clean jobs. And I think that's a really important piece. So again, the IRA, huge amount of money to sort of drive this transition forward.

Finally, in March of this year, as Jeff mentioned, the two countries sort of updated our joint action plan on critical minerals, to sort of take account of the fact that things have changed, and, since it was originally drawn up the focus is really on – as we've seen this development happen – where are the areas where we can really work together, where we've seen that we have the potential to really work together. So I don't want to repeat some of that, but just to sort of touch on the highlights. Again, obviously, the money that's available through the Defense Production Act is a hugely galvanizing step that allowed us to do a lot of outreach to both Canadian and US firms, to sort of make sure they're very well aware of that, and to encourage them to take advantage of that opportunity.

There's also been a lot of cooperation between the Department Energy and Natural Resources Canada on looking at recycling of critical minerals, which is, I think, a key piece, lifecycle assessment, unconventional sources, how can we figure out how to make sure that we're using all of the available sources we have for critical minerals. A good example of that was a team at the Department of Energy that worked very closely with a company up in Alberta to sort of look at the waste from oil sands, to see if they could recover any of the critical minerals; the waste that comes from the processing. It's a perfect example of the 'in the weeds' technical level cooperation happening between our two countries.

Likewise, our geological survey is working with Canadian counterparts on mapping North American critical minerals, resources, and making sure that we're using the same methodologies thinking about how we store the data – that kind of thing. Having looked at those kinds of steps that have been taken; I think the biggest question is "are all these things working?" The clear answer is an overwhelming "yes". If you look at some of the analysis in the media about the impacts of these steps, it's almost incredible.

There was just an article, I think, in the Financial Times last week, that said something like \$200 billion in new investment in the clean energy space directly due to some of these steps that we're taking. There's been, as has been mentioned, a stream of announcements about new investments. Ford – \$1.4 billion in Canadian EV production – General Motors has made a similar announcement. Volkswagen made an announcement about building a giga factory in Canada. A week doesn't go by when another one of these announcements isn't made, which I think is really kind of overwhelming proof that these steps are having the impact that we were hoping for.

In addition to that, I would say there's been a just a huge amount of network building in terms of all of the folks at least in the US government, as well in the Canadian government that are incredibly focused on critical minerals. All these folks now know each other, the networks we've been able to build over the last two years on making sure we're all aware of what everybody is doing, because there is a lot of work that's being done, has just been enormous and incredibly helpful. And so, I

think I wouldn't underestimate that – that's a huge part of the story, because of course, the US government has many parts that move in very different ways. And to get them all on the same page, it's a challenge. But I think we've sort of managed to do that. And that's been incredibly impressive.

On the last note, going back to where I started [with] the President's visit to Ottawa and his meeting with the Prime Minister. If you look at that outcome document, one of the things that stands out is the creation of this energy transformation Task Force, which was directly negotiated by the Deputy Prime Minister of Canada and the Special Coordinator on Infrastructure and Energy in the US—Amos Hochstein. Right? The idea around critical minerals—discussions which were happening several years ago at a low level—have continued to rise to the point where they're at the top level of [discussions] with both of our governments. That speaks to the strength of the cooperation we've had over these last couple years. That is only going to continue as we move forward.

I'll stop there, thank you.

CHRISTOPHER SANDS: Excellent, thanks Russ. Over to you Jocelyn.

JOCELYN DOUHÉRET: Thank you for the invitation, I'm very pleased to be speaking on a topic of "Critical Minerals: Securing a Reliable Supply" and to see how Quebec could be part of the objectives of our main trade partner, the United States of America. The green energy transition will grow the demand for critical minerals. We think that diversity, transparency, and security are the necessary foundations to build reliable supply chains for the fuels of the future. Quebec's current critical mineral ecosystem reflects these foundations. The Quebec government and its Ministry of Natural Resources have been very active in growing that ecosystem.

Just some information background about mining in Quebec. Quebec has the most diversified subsoil in Canada, in terms of mineral resources and richness as well. Our success in exploration and exploitation is due to our commitment to the higher standards and transparency in our mining ecosystem. Also, our electricity comes more than 90% to 99% from hydraulic electricity. Quebec is fortunate to count on a large Indigenous population with whom it has been able to establish modern treaties and build system-enabled partnership.

In terms of resources, we've talked a lot about lithium. Quebec is home to the largest known lithium reserves in Canada and almost half of Canadian lithium projects. We have the world's second largest producer of niobium, and [it is] the only one in the Northern hemisphere. Quebec is also the second in Canada in nickel production and third in copper. We're the number one for graphite in Canada, and we are the first North American producer of high purity scandium oxide from tailings. We are also one of the rare jurisdictions in the world with all the minerals required to manufacture batteries. We have lithium, nickel, graphite, manganese, in addition to many aluminum smelters.

First of all, we will need strategic minerals and, as Michael said, for the 2030 energy policy and the plan for a green economy 2030. But we've seen that the United States and other countries like Germany, France, Japan, South Korea, also consider those substances to be strategic for economic, technological, and military developments and are acting to diversify and secure access to supplies to critical minerals.

Following the release of the 2018 US Geological Survey List (USGS) we've seen that we could supply twenty-five out of the forty minerals listed as critical and strategic by the United States. As the demand for secure access to these minerals grew, we took a step back and we did our own work.

In 2019, we initiated a strategic review on the development of critical minerals, including a large public consultation process with the province's stakeholders, including First Nations. Parallel to this, Quebec signed a joint declaration with the USGS, with the aim of strengthening scientific and technological collaboration on mapping and analysis data on critical minerals.

In 2020, the Governments of Canada and the United States concluded the joint action plan on critical minerals collaboration. Due to all of these contexts and the need for critical minerals for us allies, we decided to work to implement a plan—the Quebec Plan—for the development of critical and strategic minerals. Published in October 2020, it was the first plan of its kind released in Canada at any level of government. The plan sets the government's priorities and covers all aspects from exploration to recycling, in a very comprehensive approach.

Our goal in Quebec is to become a leader in the production, transformation and recycling of critical minerals in partnership with local and Indigenous communities. In the plan we [envisage] different [lines of] action. Mainly, we will explore Quebec's potential for mapping and the data collection. We just created, researched, and developed a network that will unify all the stakeholders in the field. We also financially support projects in exploration, transformation, recycling, as well as R&D. We develop and consolidate transportation, energy, and telecommunications networks throughout Quebec northern territory. We also support the recycling and reuse of critical and strategic minerals. We promote Quebec internationally as a responsible partner for the supply of critical minerals.

We also work in another field to raise the provincial population's awareness on the importance of critical minerals in their daily lives. The plan takes into account the high standards of environmental protection as well as occupational health and safety already in place. We believe that the development of this strategic sector will allow Quebec to continue its energy and technological transition, as well as create quality jobs in the region. Still, contributing to the development of a greener economy it is clear that our mineral resources and our standards must fit the bill for a diverse, secure, reliable, and transparent environment. These features of our mineral resources are only one piece of the puzzle.

A truly competitive supply chain is one that is diverse, secure, and transparent across all the value-added components and when it is integrated with other jurisdictions. Here, we did our own work as well. Noting that one of the biggest demand drivers of the sector is EV batteries, we developed a complementary battery strategy, identified a major gap in the midstream of processing battery materials in North America, and looked at our strength, mining expertise, mineral resources, clean energy, low carbon footprint economy, existing logistics chain, and our proximity and economic integration with the United States.

The result was a strategy focusing on a highly efficient, reliable, secure and diverse North American battery supply chain. The strategy is led by [the] resource Quebec division of Investissement Quebec, the financial arm of the government and

the one stop shop for promoters. That vision of a strong North American EV value chain is presently already beginning to take shape. The US company GM in partnership with POSCO from South Korea, as well as a German company, have begun construction on a Cathode Active Material facility in Quebec.

The CAM development in Quebec will power the next mega factory GM is building in Lansing, Michigan. It will also contribute to the development of GM's electric vehicle complex. We have factories in Michigan, Ohio and in Tennessee. At the level of circular economy, which is really important, is lithium recycling. Such recycling is a perfect and innovative process to recycle all types of lithium-ion batteries and recover 95% of their components.

Last January, they announced the construction of a plant in Quebec with the help of the government. We have a recycling capacity of 20,000 batteries a year. The North American assembly and recycling provision and critical and battery sorting requirements impress upon industry the importance of securing your supply chain. To do this effectively, one final piece remains—*traceability*. With the new incentives and new budgets from the Quebec and American government, in the battery supply chain, it's now time to implement this vision. Creating mining processing and battery jobs in Quebec will help to create more jobs in the United States, not less, and vice versa.

In this global value chain we want to create, Quebec knows it can be a strong link. Without traceability, we cannot assure the origins of our inputs that are secured, though diverse, and maintain the higher standards we both prioritize. In other words, traceability is the key to make sure we will be part of the supply chain, and it will be certain that we are certified to be part of the EV battery and the EV industry in the US. The global value alliance, with the help of [the] Quebec company—Optel, and the Governments of Quebec and Canada—we are working towards developing a traceability system for critical minerals contained in batteries.

The system will assure governments and consumers that battery parts are produced in Quebec with local minerals. This meets the higher standard in responsible sourcing. Diverse, reliable, and secure supply chains are not just keywords for us. Quebec makes it happen. Thank you.

CHRISTOPHER SANDS: Thank you very much. This has been a great start. I have a couple of questions for these guys to draw them out a little bit. Jeff, I want to start with you. You talked about – in what you have [said] – the fact that the US and Canada have been collaborating since at least January 2020, they've been moving forward, we've seen this evolution from one agreement to another. Can you give us some examples? First, of progress, sort of breakthroughs, or significant achievements we've had so far, and at the same time, not to be a downer, some of the obstacles we still have to overcome, from your perspective.

JEFF LABONTÉ: Terrific. Thanks for the question. We've got some really sharp examples that can be drawn out. And they're easiest to see in the investments between companies that are making investments in Canada, or Canadian companies that are exporting and making investments in the US. And that flow has happened on R&D investments.

The recycling company, for example, in Toronto, that's got a facility in Kingston, is building its hub in Rochester, New York. It's a good example of where you're

taking critical minerals, you're taking technology development, you've got a publicly traded company, and it's working on both sides of the border. And it's got a business plan to sort of sharpen across North America, it's great example.

You had the example my colleague from Quebec talked about with General Motors and POSCO. The auto industry is probably the easiest one from which to draw examples because there's such a foundation for work. The transition of the auto industry into electrification is driving that similarly. Successfully, if the two governments continue to work on this path, we would expect an auto future in which there'll be a continued presence of trade and flow between both countries in the auto sector, for the number of decades to come, not dissimilar to the Auto Pact of many, many years ago that created the foundation for what we have today.

Interestingly, with both governments drawing investment from other countries' auto sectors who have to also maintain and actually build a presence in North America. The complement of IRA attracting investment into clean energy and electrification and transformation, with Canada's critical mineral assets and its ability to mine sustainably and to work around the world and bring mining outputs and to bring mining technologies to work in a sustainable way, actually complements together to sort of draw in other investment from other parts of the world. That's another example where I think you can kind of see the outcome from the work.

Also, there are dozens and dozens of projects where our researchers are working with US researchers. You have universities doing research and companies doing things. Overall, the two things that are most obvious in where we see examples. It's connecting the supply of critical minerals that are developed properly and appropriately into supply chains within North America, particularly in the auto sector, but also in the renewable energy and clean energy transition. And we see it in batteries for usage in much broader things. We see it in direct air capture. We see it in decarbonization in the oil and gas sector. We see it in the electricity sector as well. It's quite profound in terms of how it's happening.

CHRISTOPHER SANDS: And before I move on to Russ, Canada's Critical Mineral Strategy is published publicly. It calls on, or aspires, to have Canada do more processing. That's been a question we've talked a lot about with China, not necessarily producing a lot of minerals, but processing a lot of minerals.

How do you see the landscape in terms of moving forward? What does Canada need to be able to achieve its goals on processing? I know that's capital intensive and technologically tricky.

JEFF LABONTÉ: It's a good question. In reality, minerals first come out of the ground and have to be treated quite significantly and processed. Usually, that is very energy intensive and very capital intensive. One of the historical benefits of Canada's sort of large[-scale] mining communities [is that] there are a lot of existing assets that are operating. Some are operating below capacity. Some are operating in situations in which they have technological know-how, they have the ability to actually process more. We have advantages of building on what we have.

We have the opportunity to stimulate, and there were some good examples – because of the mining history – both countries – there's a lot of residual mining, waste overburden and other things that actually hold critical minerals that, three decades ago, if you were looking for nickel, you didn't spend a lot of time worrying about

cobalt, the market wasn't huge for it. Or that you might have actually spent mining aluminum, and you realize that there's actually other tellurium and scandium and other critical minerals that are coming out of that. But there was not really a market for it and that generally didn't drive investment in [mineral] processing. Now we can go and reprocess some of those, and it's happening all over Canada, it's happening in the United States as well.

We have an asset base for sure that we can capitalize on; there is a lot of incentive. There's investment going into it through our program in Canada with a \$4 billion investment in the critical mineral strategy. Huge chunks of that are actually targeting processing. Then the IRA provides some of the incentive in the US for the production. Russ can probably talk about that. But it also connects the virtuous chain of the supply with the processing that then is fed into the downstream or the manufacturing sector.

CHRISTOPHER SANDS: Russ, let me pick up with that a little bit. Are we moving sufficiently fast on this? There is this sense geopolitically that there's a rivalry with China. There's a lot of concern. You hear it a lot in Washington: are we moving fast enough? And is there a sense in Washington that we need to be maybe kick it up a notch?

RUSSELL SINGER: Well, that's always a tough question—are we moving fast enough? The answer is always going to be *no, we need to move faster*. That's always the case.

When you look at the dominance that China has over critical mineral supply chains, those are pretty alarming numbers. There's not going to be a speed that is good enough until we really address some of those vulnerabilities. This has gotten the attention of everybody in the US government at the highest levels. If you look at the pieces of legislation that have been passed, it's relatively unprecedented the amount of money and resources that are being devoted to this.

The private sector is going to drive this transition. The government can create the policy framework that is supportive and the incentives the draw the investment. As I said, we've seen that happen in the investments that are coming. Jeff made a good point about the fact that we're [even] pulling investment in from other parts of the [world] into North America. We're seeing progress happen – is it fast enough? It's a very hard question to answer. Everybody would say we'd like to see it happen even faster. But as everybody knows, the process of getting a critical mineral from the ground into a car is not a simple one. It's a very long timeline.

Probably, the one area that we need to focus on a little more, is permit reform—raised in both the US and Canadian context. This is not something that I deal with. There are certainly other parts of that process that we need to sort of look at and think about, and things where we can always do more.

CHRISTOPHER SANDS: Ambassador Jacobson was saying yesterday, there are those areas—few but important—in which Republicans and Democrats are generally cooperating very well. You work with the State Department so you don't want to say anything partisan, but China is one—we had talked about that last night—but critical minerals seems to be another. And one of the things that struck me about the Inflation Reduction Act was a provision that allows us to use reprocessed critical minerals that come out of an EV battery and deemed North American even if their original origin was someplace else. How do those details—some of the nook-and-cranny details

inside Inflation Reduction Act—how do you communicate those out and spread the word?

RUSSELL SINGER: That's a good question. This incredibly complicated topic. There's a lot of education involved with sort of explaining what even we're trying to do here. But I think the point of that is that, as mentioned, recycling is a huge part of the story.

These minerals have been around and had been used, and it doesn't make sense to sort of just build new mines if we can sort of build our supply by looking at some of the existing sources. And the fact that they came from China at some point, or other places at some point, the technology that's going to be used to recycle those is technology that we're building in North America.

I think that's a really important part of the story. And we want to be leaders in that part of the story. And I think that's the message that we're sending out. And Secretary Blinken, when he visited Ottawa last October I think it was, he went to visit one of these recycling facilities in Canada that's receiving money from General Motors to sort of work on that kind of recycling, and that I think that's an important part of the story.

CHRISTOPHER SANDS: Absolutely. And especially in the auto sector, where we're talking about a USMCA threshold is—75% North American content—that the cost of critical minerals is a key piece. Jocelyn, I want to ask you two questions. But first, I was struck by how forward-thinking Quebec has been about something we haven't talked about a lot today, which is social license, thinking about recycling and the circular economy as a way to convince the public to back mining, which, isn't a feel-good issue for some people in our societies.

How has that strategy of reaching the public worked? Has the public generally been supportive of the efforts that the Quebec Government has had because of those social license outreaches?

JOCELYN DOUHÉRET: Most of our resources are located in north Quebec. Since 1975, when the big dams were built, we have [had] modern treaties between some First Nations and Quebec. We're used to working with our partners. Lithium, for example, is mostly located in that place [Northern Quebec]. We're talking about 7% of all reserves of lithium on the planet. That's a huge reason why we keep a good relationship with the Cree Nations. They are part of development as well. In Quebec we have an advantage, because we have worked with First Nations for more than 50 years.

CHRISTOPHER SANDS: We've talked a lot about money. What's the investment capacity of Resources Quebec? That's always interesting to me as a provincial funding mechanism.

JOCELYN DOUHÉRET: Resources Quebec can invest in terms of shares, also offers some loans, that they have a fund of \$1.5 billion, which is not so bad for just Resources Quebec. Today, Resources Quebec is part of most mining projects and also part of the battery supply chain. Bécancour, which is the place where everything is taking place in terms of manufacturing and processing, is owned by the Government of Quebec for many years. It's a place where all of the government bodies are aligned to work.

CHRISTOPHER SANDS: Fantastic. Now let's turn to the audience for questions. Over to you.

AUDIENCE MEMBER: The reason why we saw the concentration in critical mineral production outside of North America was the price point.

What's the sort of the long-term solution to make it profitable to produce in North America long term in critical minerals versus other jurisdictions? We talked about the sort of zero-carbon processing, the environmental and labor standard advantage that you get by producing in North America, how does that get translated into a price premium going forward? Is there any way to quantify what that advantage is from a market basis? Thanks.

JOCELYN DOUHÉRET: No, I don't think there is a price premium. Today, lithium price is negotiated directly between a mining company and an offer taker. And usually the offer taker is working with that mining company, because the company reached the highest ESG standards we set up. We don't see that kind of premium. It's just a negotiation between the offer taker and the mining company. And also, the finance world today will invest only in projects where you have these higher ESG standards. That means there is no premium, but there is no investment if you do not reach the ESG standards. That's what you can understand from the market.

RUSSELL SINGER: To add, the world has moved on from an era in which we focused on the lowest cost supply chains to one in which we focus on resilient supply chains. I think, as was spoken to in the previous panel, we learned a lot through COVID, we learned a lot through the weaponization of energy. There's been a realization that when we think about our global supply chains, we have to think about more than just low cost. That's part of it. This thinking highlights some of the reasoning behind some of the things that went into the Inflation Reduction Act and other things.

I would totally agree with what was said about the fact that investors are looking at ESG standards. It's definitely something that's part of the discussion now. And I think that's something that's a real comparative advantage for North America, to make sure that we can show where these supply chains went, and what kind of standards were used in order to build this electric vehicle. So that helps as well.

JEFF LABONTÉ: There is a transformation going on in the market between companies who are really committed to recognizing the source material, and how it was produced. And that continues to gain momentum through the investment, but it also is through part of what's happening globally as well about standards organizations trying to sort of benchmark that product from one place has actually met a certain set of standards. And we see that in other sectors of the economy. It would be a normally naturalized place to go.

Jocelyn had mentioned the traceability, for example, and also tracing the source of mineral content. Canada, with the support of United States and a number of other countries, launched a critical minerals alliance at COP 15, which is really trying to focus on getting the supply side and the countries that are actually looking at procuring critical minerals and buying into offtake agreements and investment focused on sustainability.

[Sustainability] being one of the drivers, that is how the minerals are produced and how they're kind of repurposed. That's important because, overall, consumers,

Canadians, Americans, people around the world, are interested in achieving climate objectives. But if doing so results in a different environmental challenge and a set of environmental circumstances that is equally challenging as climate change, it would sort of be at cross purposes.

There's a continued push. We do it multilaterally with the United States and many others, making sure that trying to push on sustainability and ensuring that how things are produced—the minerals themselves—and how they're processed with cleaner electricity and low carbon electricity and low carbon sources of energy, actually contributes substantially to cost outcomes that are positive for companies that are looking at the broader ESG framework around how they produce their products and sell their goods.

CHRISTOPHER SANDS: I have a question from Larry Herman here, and then James.

LARRY HERMAN: This was excellent. This is a big story. If you look at it globally, some of the key strategic issues that Canada and the US are facing are on semiconductors and critical minerals. This is a big story. Why isn't this brought out publicly more often? The Canada-US joint action plan on critical minerals is a big story. Yet, we do not see much [about it] in the newspapers or media (e.g., *The Financial Post*) about this.

This is an incredible story that we're being told this morning about how Canada and the US are working together, developing a joint action plan, and a network on critical minerals. It should be an amazing thing that should be heralded every time Canada-US issues are discussed. Yet, maybe I'm wrong, but you don't really get much public comment about Canada and the US collaborating. Russ and I talked about it last night. I would like to hear what he has to say.

CHRISTOPHER SANDS: Russ, maybe contextualize that. We had a bilateral joint action plan that. I know it was worked on in late 2019, we had the roadmap which includes critical minerals and that was February 2021. And then we had the mineral security partnership which launched in 2022. There has been this iterative process, and we keep building in this direction. Is it a question of a complex issue that the public doesn't understand? You mention it but you don't expect it to be front page news? Or is this something that we all need to understand better?

RUSSELL SINGER: There's couple of aspects to the answer to this question. Number one, as everybody has said, and as you can tell from this conversation, it is incredibly technically detailed, and very hard to sort of have a sound bite or an easily digestible news piece that sort of captures this. But I would say there has been a huge amount of press on this there. There are stories about critical minerals in the *Financial Times* all the time, and many references to the work that people are doing.

Number One, though, I would go back to the idea that we know the private sector has to be the driver of this transformation. Our role is really just to catalyze that action, right? We don't want to give the impression that the US government and the Canadian government sit down in a room, and we're going to figure out how this is all going to work. Because that's not the reality of what needs to happen. So, we want to make sure that we're doing the things that send the right signals to the markets. And I think we are doing that. The private sector is responding.

You see the stories that should be there, which are there, are the stories about the investments that we've talked about, right? Ford's investment, GM's investment, the Bécancour facility, these are just kind of coming out all the time, and whether the joint action plan gets any credit for any of those is not really important at the end of the day. What's important is that the work is happening. Another aspect is probably a hesitancy to talk about government taxpayer money and how this is being used, whether it's going to Canadian firms, I'm not sure that plays into it.

At the end of the day it would be a very hard story to write about, and it is not clear to me that a lot of people would be that interested in the technical details of what the joint action plan is, and what we're doing. It's much easier to write about a \$1.4 billion investment by Ford, or that kind of thing.

CHRISTOPHER SANDS: Jeff, let me bring it to the Canadian context here. To me, the American press is much more about the geostrategic, perhaps, even military uses of some of these critical minerals, which is very important in our rivalry with China. Whereas the Canadian narrative is much more about climate change—another global crisis and challenge. Do you find that one or the other makes sense? Or are they essentially compatible narratives but it's a question of what sells well, politically in each country? How would you characterize that?

JEFF LABONTÉ: That's a good question, in the sense that it's true they think the climate narrative drives the conversation in Canada. Equivalent to Russ' comment about public investment and how public investment flows, there's always a narrative in Canada about resources being developed. The value of being grown in Canada, and about making the best use of the resources is to generate wealth in our own country. In our media, the conversation tends to be about Canada exporting all of its raw, critical minerals, so that other countries build the batteries. And then we, Canada, ends up buying the batteries from other countries. So that is the narrative that we have. And so, we work to kind of catalyze the conversation to talk about building all of the opportunity, and making the best use of the sort of existing relationships that we have with countries like the United States.

CHRISTOPHER SANDS: Jocelyn, first, can you characterize for us how does the Francophone French language press cover these issues? Is it similar? Secondly, Quebec is clearly a leader on this, as often it is, how are the dialogues with other provinces? And that is a very collaborative relationship, are others looking to your model?

JOCELYN DOUHÉRET: Well, we have, I would say, other provinces and states who are working with us to see how we organize things and how we collaborate with the [Canadian] federal government, because we collaborate, of course, with the federal government. At the level of the general population, as I mentioned, part of their plan is to raise awareness for people because they don't know. We have to communicate more about the resources we have.

As Jeff said, for us to do processing and manufacturing in Quebec is part of social acceptability for sure. Because we have to have value on what we produce and the resources we have, that we've seen that, having value and having value in Quebec is not incompatible with the value chain that we have with the US. We've seen it with GM. GM will produce something in Quebec, add value in Quebec, and it adds value for them in the US as well. It will fuel their factory in the US. So that means we're

able to do both, and that's the position we have in Quebec, and that's the position that will help definitely with the social acceptability in the general public.

CHRISTOPHER SANDS: Let's thank this terrific panel. Fantastic presentation.