

**WAYS TO STRENGTHEN THE ENERGY AND
MINERAL PARTNERSHIP BETWEEN THE
U.S. AND CANADA TO ADDRESS ENERGY
SECURITY AND CLIMATE OBJECTIVES**

**HEARING
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED SEVENTEENTH CONGRESS
SECOND SESSION**

MAY 17, 2022



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WAYS TO STRENGTHEN THE ENERGY AND MINERAL PARTNERSHIP BETWEEN THE U.S. AND CANADA TO ADDRESS ENERGY SECURITY AND CLIMATE OBJECTIVES

TUESDAY, MAY 17, 2022

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The Committee met, pursuant to notice, at 10:03 a.m. in Room SD-366, Dirksen Senate Office Building, Hon. Joe Manchin III, Chairman of the Committee, presiding.

OPENING STATEMENT OF HON. JOE MANCHIN III, U.S. SENATOR FROM WEST VIRGINIA

The CHAIRMAN. The meeting will come to order.

Let me, first of all, welcome all of our guests. We are just so delighted to have you all and I want to thank you again for the gracious hospitality that was shown to me when I visited with you all. I really, really enjoyed it. And the weather was all Canadian.

[Laughter.]

The CHAIRMAN. And I enjoyed that also. We will get started.

Today, I want to welcome our friends from the North, from Canada, to continue the Committee's very important conversation about how we pursue two critical goals—ensuring energy security and addressing climate change. These two goals are not mutually exclusive, and it is imperative that we address both. We all agree that Putin has used Russia's oil and gas resources as a weapon to inflict terrible pain on the Ukrainian people and on Europe. And other energy-rich autocracies are taking note. We would be foolish to think that Xi Jinping would not consider using a similar playbook, leveraging China's control over global critical minerals supply chains. But Putin's aggression is bringing the free world closer together than ever, setting the stage for a new alliance around energy, minerals, and climate. Building this alliance should start here in North America, and that is why I am excited to hear today about how we can strengthen the energy and minerals partnership between the United States and Canada.

Canada is our largest energy trading partner. They have strong climate goals and they share our democratic values. This is why I recently traveled to Alberta at the invitation of Premier Kenney. I spent two days getting a better understanding of our energy, minerals, and manufacturing partnership through meetings with representatives from Alberta, Saskatchewan, and in the Northwest

Territories, the Federal Government, and tribal and industry partners. Canadians and Americans share a deep history and are natural partners, sharing the longest land border on earth. Our people fought side by side in two world wars. In fact, some of the uranium used by the Manhattan Project was mined in Canada's Northwest Territories and refined in Ontario. We have cultivated a strong manufacturing partnership, particularly in the automotive industry, with Canada today being our biggest export market for vehicles. Cars assembled in Canada contain, on average, more than 50 percent of U.S. value and parts. Today, we also trade over 58 terawatt-hours of electricity, 2.4 billion barrels of petroleum products, and 3.6 trillion cubic feet of natural gas each year. In fact, energy alone represents \$120 billion of the annual trade between our countries. Across all sectors, the U.S. and Canada trade more than \$2 billion daily. That is \$2 billion daily. There is no better symbol of our energy relationship than our interconnected power grid, which is seamless and integral for the reliable and affordable electricity citizens and industries in both of our countries depend on.

We are here for each other during these times of need. Electricity workers from both the U.S. and Canada regularly cross the border during extreme weather events to help get the power back on when Mother Nature calls. Canada has ramped up oil exports to the U.S. to offset Russian crude, and members of our Committee led legislation to cut off the energy purchases fueling Putin's war machine. We know that a number of U.S. refineries are configured to run on heavy crude. Canadian heavy crude provides an alternative to sources like Venezuela, which we have sanctioned due to Nicolás Maduro's anti-democratic actions. Canada is also a leading supplier of uranium and critical minerals to the U.S., including those used in advanced batteries, such as cobalt, graphite, and nickel.

The U.S.-Canada energy partnership is strong, but also not without its challenges. I have not been shy in expressing my frustration when the Biden Administration canceled the Keystone XL Pipeline. In light of Putin's war in Ukraine and the global energy price surge, I think a lot of us wish that project had moved forward today. But to be clear, I am not holding this hearing to relitigate the past. We are here to advance a stronger and a cleaner U.S.-Canada energy partnership for the future. Our allies and trading partners in Europe are begging for North American oil and gas to offset the reliance on Russia. There is no reason whatsoever we should not be able to fill that void and do it cleaner than the alternatives. That is because American oil and gas is cleaner than what is produced in Russia and certainly in Iran and Venezuela. We can do better and learn from our Canadian neighbors and all of us working together.

On average, Canada produces oil with 37 percent lower methane emissions than the U.S. That is technology we can use also. And the Canadian Federal Government has set even more aggressive methane reduction targets. That is what I mean by climate and security not being mutually exclusive. Replacing Russian product has added the benefit of reducing the emissions profile of the energy Europe needs today. I also strongly believe that we need to be taking security into account as we invest in climate solutions. Accord-

ing to the International Energy Agency, stationary and electric vehicle batteries will account for about half of the mineral demand growth from clean energy technologies over the next 20 years. Unfortunately, China controls 80 percent of the world's battery material processing, 60 percent of the world's cathode production, 80 percent of the world's anode production, and 75 percent of the world's lithium-ion battery cell production. They have cornered the market, and we allowed it to happen.

It makes no sense whatsoever for us to be so heavily invested in electric vehicles as a climate solution when that means increasing our reliance on China because, right now, we are not simultaneously increasing our mining, our processing, and recycling capacity at the same rate in the United States. The Canadians are ahead of us on critical mineral refining and processing, and we have much to learn from them about how they are able to responsibly permit these activities in times that blow our timetables out of the water. I believe there is much that we can collaborate on with Canada to create a powerful North American critical minerals supply chain instead of increasing China's geopolitical leverage. I am sure our Canadian friends are happy to export minerals to us, but let me be clear, the United States also needs to contribute our part to a North American minerals alliance. So I am very interested in discussing how we can create an integrated network for raw materials to move across our borders for processing and manufacturing in both of our countries.

During this time, when the U.S. and Canada and our allies and friends are threatened, both by dictators weaponizing energy and by intense politicization over climate issues, we must work together to chart a responsible path forward that will ensure security and unlock prosperity for all of our nations. We are the superpower of the world, and are blessed with abundant energy and mineral resources. We cannot just sit back and let other countries fill the void and find ourselves in a more dire situation in the years ahead. We must be leaning into the responsible production of all the energy sources we are going to need, and strengthening strategic partnerships—building a North American energy alliance is the right thing to do.

With that, I am going to turn to Ranking Member Barrasso for his opening remarks.

**OPENING STATEMENT OF HON. JOHN BARRASSO,
U.S. SENATOR FROM WYOMING**

Senator BARRASSO. Well, thanks so much, Mr. Chairman, for holding this very important hearing. Thank you to the witnesses for being here. I especially want to recognize Premier Jason Kenney of Alberta for joining us. Thank you for being with us today, Mr. Premier. You know, Alberta has much in common with my home State of Wyoming. We have rolling prairies. We have stunning mountain ranges. And we both have an economy built on energy production. We both have an abundance of oil, of natural gas, of coal, and wind resources. We both appreciate the high paying jobs that come from energy development, and we are both hurt by President Biden's war on energy.

In 2003, Canada's estimated recoverable reserves of oil jumped about 175 billion barrels thanks to Albertan oil sands. A few years later, in the United States, a similar bounty was discovered. The application of advanced technologies like hydraulic fracturing and horizontal drilling launched an energy revolution. It had profound and positive impacts on our nations' economies and standings in the world. These developments in the United States and Canada shifted the world's energy center of gravity from the Middle East and Russia to North America. It is important that we strengthen the energy and resource partnership between the United States and Canada, but Joe Biden's policies are placing it all at risk. The Biden Administration made the United States an unreliable partner to Canada by killing the Keystone XL Pipeline. Not satisfied with just harming Canadian energy, the President went on, and his appointees are doing everything possible to discourage American energy production. We are now less able to support our friends in North America and around the world. We are less able to provide for ourselves.

Premier Kenney and I agree that this needs to change. We also need to expand our partnership with Canada beyond energy to critical minerals. This Committee has held several hearings this Congress on mining. Demand for minerals worldwide is skyrocketing. Some suggest we import minerals from Canada as an alternative to mining it here at home. I strongly disagree. There is simply no way to meet U.S. and global demand for minerals without opening new mines in the United States. Our nation's federal permitting process is the number one barrier to increased domestic production of minerals. It takes ten years on average to permit a mine in the United States. It took us less time to get to the moon. In Canada, it could take as little as two years for the similar permits. We should learn from Canada's best practices.

Our electricity grids are physically tied with Canada's. There are dozens of interconnections. Electrons know no borders. Our countries face similar risks from blackouts, even as we help each other keep the lights on. Electricity must be reliable and affordable. People suffer and sometimes die otherwise. Electricity policy in both countries could use a dose of reality. The United States and Canada cannot rely on the sun, wind, and wishful thinking alone. Although Canada has a different energy mix for its electric grid, it makes the most of its affordable, reliable, and abundant natural resources. The United States must do the same. We should learn from Canada's permitting success with hydropower and nuclear energy. North American energy is a tremendous geopolitical asset. That means we need a strong energy and mineral partnership with Canada that requires being strong ourselves by ramping up energy and mineral production here in the United States.

Thank you, Mr. Chairman. I look forward to the testimony.

The CHAIRMAN. Thank you, Senator Barrasso.

Before we get started, I am going to have a little housekeeping measure here. I want to announce that the Greek Prime Minister will be addressing a joint meeting of Congress this morning at 10:35. I am going to be staying here for this hearing. So we are not going to be recessing, but any of the members who might have to

leave or want to attend, it is understandable. I think this will be much more interesting though.

[Laughter.]

The CHAIRMAN. So I am going to now turn to our witnesses. I am going to introduce them.

We have Hon. Jason Kenney, Premier of Alberta, Canada.

We have Hon. Nathalie Camden, Associate Deputy Minister of Mines at the Québec Ministry of Energy and Natural Resources.

We have Mr. Francis Bradley, President and Chief Executive Officer of Electricity Canada.

We also have, joining us virtually, Hon. Jonathan Wilkinson. He is Canada's Minister of Natural Resources. I understand, Minister Wilkinson, that you have to leave at noon to attend a cabinet meeting, and we will be cognizant of your timing there. So hopefully, we will get our questions to you quickly.

With that, we are going to open up with Premier Kenney with his opening remarks.

OPENING STATEMENT OF HON. JASON KENNEY, PREMIER, ALBERTA, CANADA

Mr. KENNEY. Thank you so much, Chairman Manchin, and to you members of the Committee. Thank you especially for having visited us in Alberta. I am sorry we did not offer good weather, but come back in the summer.

The CHAIRMAN. It was great. I thought it was all Canada.

[Laughter.]

Mr. KENNEY. Senators, if you remember one thing from today's hearing, I hope it will be this—that the province of Alberta is, by far, the largest source of U.S. energy imports. U.S. energy security depends on Alberta. And Alberta can be a huge part of the solution to the problem of American energy inflation and the cost-of-living crisis. Senators, last year, over 60 percent of U.S. oil and gas imports came from Alberta—that is 6-0, not 1-6—60 percent. The U.S. Energy Information Administration reports that last year, the United States imported 2.2 billion barrels of crude oil, 1.4 billion of which, or 62 percent, came from Canada and virtually all of that, from Alberta. Let us put that in perspective. Last year, 13 percent of U.S. oil imports came from all OPEC countries combined and only six percent from Saudi Arabia. So Alberta supplies the U.S. with ten times more oil than Saudi Arabia and five times more than all of OPEC. The same is true for natural gas. Last year, my province shipped 4.8 billion cubic feet of gas per day to the U.S. That is 63 percent of your gas imports. And I am proud to say that Alberta is home to the world's third largest proven and probable oil reserves, about 180 billion barrels worth, and one of the world's largest reserves of natural gas. The province of Alberta owns those resources and has the exclusive constitutional jurisdiction to regulate their production.

Now, after your country has spent hundreds of billions of dollars in recent decades defending security in the Persian Gulf area, it turns out that the solution to the challenges of energy security is your closest friend and ally. Vladimir Putin's brutal invasion of Ukraine has proven the danger of allowing dictators to dominate

global energy markets and weaponize oil wealth, using it to spread violence, instability, and terrorism around the world. And that is why we were, frankly, so taken aback when President Biden vetoed the Keystone XL Pipeline. It would have safely delivered 830,000 barrels a day of responsibly produced Canadian energy to the U.S., more than displacing the 670,000 barrels a day that you all bought from Putin's Russia last year. We were also perplexed with the Administration's response to sky-high gas prices, which was to plead with OPEC to produce and sell more oil while working to lift sanctions on dictatorships like Iran and Venezuela. White House officials have reportedly discussed a Presidential visit to Saudi Arabia to press for more production of their oil and their exports to the U.S.—oil that is used to buy cluster bombs dropped on Yemeni civilians. Well, Senators, Calgary is a lot closer to Washington than Riyadh, and you do not need the U.S. Navy's fifth fleet to patrol the Great Lakes. To quote former Montana Governor, Brian Schweitzer, "We do not have to send the National Guard into Alberta."

Chairman Manchin, we truly appreciated, as I said, your recent visit to Alberta to see firsthand the amazing progress that is being made to reduce emissions and improve the environmental performance of Canada's oil sands, but to see also the deep partnerships between our energy producers and our indigenous people and to discuss the development of a North American energy alliance. We invite other members of this Committee to visit Alberta and see for yourself, judge for yourself, draw your own conclusions about whether Alberta is a preferable solution—as a source of imports—to OPEC. Between current unused capacity in the North American pipeline system and the prospect of pipeline optimization, plus the scheduled completion of the Trans Mountain Pipeline Expansion to Canada's West Coast next year, Alberta will be able to increase our crude exports to the U.S. by upwards of a million barrels a day over the next couple of years, helping to reduce prices at the pump. But with political will from Washington, we could also get another major pipeline built that would forever allow the United States to free itself from imports from hostile regimes.

Mr. Chairman, where there is a will, there is a way. The government of Alberta is keen to work with you and friends in the United States to get another major pipeline built to achieve the dream of North American energy independence and security. At the same time, we must work together to maintain current supply, and that is why I call on the U.S. Government to join Canada in demanding that the Governor of Michigan respect the 1977 Canada-U.S. pipeline transit treaty by abandoning her efforts to decommission the Enbridge Line 5 Pipeline that has safely delivered over 600,000 barrels of Canadian energy to the U.S. for six decades. Her plan to do this would only worsen the energy and cost-of-living crisis at the worst possible time. And we must work on both sides of the border to remove regulatory barriers to the production and shipment of energy.

Senators, replacing conflict oil imports with Canadian energy is not a threat to the environment. We take seriously the need to cut emissions and to address climate change. Alberta's oil and gas producers and pipeline companies have some of the world's highest

ESG rankings. Alberta was the first place in North America to implement carbon pricing. Through massive investments in clean tech, we have reduced the carbon footprint of an average barrel of Alberta oil by 36 percent since the year 2000 to below the global average for heavy oil. Our oil sands producers are committed to achieving net-zero greenhouse gas emissions in their operations by 2050, in part, through a big expansion of our world-leading carbon capture utilization and storage infrastructure. We are on track to reduce methane emissions by at least 45 percent. We are leading Canada right now in renewable energy investments and we are set to become a global hub in the production of net-zero and low-emitting hydrogen.

Thank you, Mr. Chairman. I look forward to your questions and ongoing collaboration on developing a North American energy alliance.

[The prepared statement of Mr. Kenney follows:]

Chairman Manchin, Ranking Member Barrasso, Members of the Committee,

If you remember one fact from today's hearing, I hope it's this: the province of Alberta is the largest source of US energy imports, by far.

US energy security depends on Alberta.

And Alberta can be a huge part of the solution to the problem of American energy inflation and the cost of living crisis.

Senators, last year over 60% of US oil and gas imports came from Alberta.

The US Energy Information Administration reports that in 2021 the United States imported 2.2 billion barrels of crude oil.

1.4 billion barrels of that, or 62%, came from Canada, almost all of which was Alberta oil.

Let's put that in perspective.

Last year, 13% of US oil imports came from all OPEC countries, combined.

And only 6% came from Saudi Arabia.

So Alberta supplies the US with ten times more oil than Saudi Arabia, and five times more than all of OPEC.

The same is true for natural gas.

Last year my province shipped 4.8 billion cubic feet of gas per day to the US. That's 63% of your gas imports.

I am proud to say that Alberta is home to the world's third largest proven and probable oil reserves, about 180 billion barrels; and one of the world's largest reserves of natural gas.

The Province of Alberta owns those resources, and has the exclusive constitutional power to regulate their production.

After the United States has spent hundreds of billions of dollars securing Persian Gulf energy over the last fifty years, it turns out that the solution to the challenge of energy security is your closest friend and ally!

Vladimir Putin's brutal invasion of Ukraine has proven the danger of allowing dictators to dominate global energy markets and weaponize oil wealth, using it to spread violence, instability, and terrorism around the world.

That's why we were so taken aback when President Biden vetoed the Keystone XL Pipeline.

It would have safely delivered 830,000 barrels a day of responsibly produced Canadian energy to the United States, more than displacing the 670,000 barrels a day that you bought from Putin's Russia last year.

We were also perplexed when the Administration's response to sky high gas prices was to plead with OPEC to produce and sell more oil, while working to lift sanctions on Iranian and Venezuelan exports.

White House officials have reportedly discussed a Presidential visit to Saudi Arabia to press for more production of their oil, and exports to the US.

Oil that is used to buy cluster bombs dropped on Yemeni civilians.

Senators, Calgary is a lot closer to Washington than Riyadh.

And you don't need the US Navy's Fifth Fleet to patrol the Great Lakes.

To quote former Montana Governor Brian Schweitzer, "we don't have to send the National Guard into Alberta."

Chairman Manchin, we truly appreciated your recent visit to Alberta, to see first hand the amazing progress that is being made to reduce emissions and the environmental footprint of Canada's oilsands, the deep partnerships between our energy industry and indigenous people, and to discuss the development of a North American energy strategy.

We invite other members of this committee to visit Alberta. See for yourself, and draw your own conclusions about whether we are a preferable source of energy to OPEC.

Between current unused capacity in the North American pipeline system, the prospect of pipeline optimization, and the scheduled completion of the Trans Mountain Pipeline Expansion to Canada's Pacific Coast in 2023, Alberta will be able to increase our crude exports to the US by several hundred thousand barrels a day over the next couple of years, helping to reduce prices at the pump.

But with political will from Washington, we could also get another major pipeline built that would forever allow the United States to free itself from imports coming from hostile regimes.

Mr. Chairman, where there is a will, there is a way. The Government of Alberta is keen to work with friends in the United States to get another major pipeline built, and to achieve the dream of North American energy independence.

At the same time, we must work together to maintain the current supply. I call on the United States government to join Canada in demanding that the Governor of Michigan respect the 1977 Canada-US Pipeline Treaty by abandoning her efforts to decommission the Enbridge Line 5 Pipeline that has safely delivered over half a million barrels of Canadian energy to the US for over six decades. Her plan to do so would only worsen the energy and cost of living crisis at the worst possible time.

And we must work on both sides of the border to remove regulatory barriers to the production and shipment of energy.

Senators, replacing conflict oil imports with Canadian energy is not a threat to the environment. We take seriously the need to cut emissions to address climate change.

Alberta's oil and gas producers and pipeline companies have some of the world's highest ESG rankings.

- Alberta was the first place in North American to implement carbon pricing;
- Through massive investments in green technology, we have reduced the carbon footprint of an average barrel of Alberta oil by 36% since 2000 to below the global average for heavy oil;

- Our oil sands producers are committed to achieving net zero greenhouse gas emissions in their operations by 2050, in part through major expansion of our world leading carbon capture utilization and storage infrastructure;
- We are on track to reduce methane emissions by 45%;
- We are leading Canada in new renewable energy investments;
- And we're set to become a global hub in the production of net zero and low emitting hydrogen.

Thank-you, Mr. Chairman. I look forward to your questions, and ongoing collaboration on developing a North American energy strategy that serves the security and economic interests of both the American and Canadian people.

The CHAIRMAN. Thank you, Premier Kenney.
Now, we are going to go to Nathalie Camden.

OPENING STATEMENT OF HON. NATHALIE CAMDEN, SOUS-MINISTRE ASSOCIÉE AUX MINES (ASSOCIATE DEPUTY MINISTER OF MINES), MINISTÈRE DE L'ÉNERGIE ET DES RESSOURCES NATURELLES (MINISTRY OF ENERGY AND NATURAL RESOURCES), QUÉBEC, CANADA

Ms. CAMDEN. Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, thank you for this opportunity to share Quebec's mining practices and present how we can grow our relationship. Canada and the U.S. are long-time friends, partners, and allies. During World War II, the U.S. built aluminum smelters for the allied war effort. Today, Quebec supplies around 60 percent of North American aluminum. And thanks to our energy, that is 99.8 percent renewable, it is the greenest in the world. This shared story is more important now than ever. New national security threats demand similar collaboration. For defense purposes, Canadian products are considered domestic and our trade is further deepened to the USMCA. Quebec stands ready to partner with the United States to address weaknesses in our supply chain.

How can we help? First, we have the minerals the U.S. needs and we are business-ready. Quebec's subsoil contains 46 of the 50 minerals deemed critical and strategic by the USGS, including lithium, nickel, cobalt, and graphite—all required for batteries. Our critical minerals action plan, the first in Canada, sets priorities from exploration to recycling. Quebec is recognized as the sixth most attractive mining jurisdiction in the world. We have 22 mines in operation, three in care and maintenance, and 33 mining projects. Second, the transition to EVs and renewable energy is increasing mineral demand. To meet this challenge, Quebec has developed a strategy to build a highly efficient and traceable North American battery supply chain from mine to wheel, and it is already taking shape. Recently, GM, POSCO, and BASF each announced a major CAM facility less than 100 miles from Vermont and Maine. The CAMs developed in Quebec will power GM's next factory in Michigan as well as facilities in Ohio and Tennessee. The GM/POSCO plan is proof that together, we can create jobs on both sides of the border. For EV manufacturing in North America to be globally competitive, it needs to be truly North American.

Like in the U.S., mining projects in Quebec require numerous permits and authorizations. We have streamlined these processes while increasing social acceptability and transparency. Through government reforms and the new Permits Coordination Office, we cut administrative formalities by over 30 percent. Cutting red tape generated substantial savings for industry without, of course, weakening our environmental stewardship. Industry knows that social acceptability and sustainable development are paramount in Quebec. Companies are adapting globally recognized sustainability certifications and standards. Sustainable development ensures sustainable economic returns. Quebec's hydropower provides stable electricity prices for consumers, be they mining in Quebec or a household in New England. Quebec is also home to many indigenous communities. We have concluded modern treaties with the

Cree, the Inuit, and the Naskapi that offer companies predictability. In addition to our required consultation process, we promote dialogue among indigenous communities, mining companies, and government at the earliest stage.

I want to close by stressing the urgent need to deepen and expand our collaboration. The situation in Ukraine shows energy and resource vulnerabilities of many allied countries. On battery, mineral, and energy issues, the message is the same. The U.S. must diversify its sources, and Quebec is here to help. Working together can ensure our competitiveness, security, and the environment for generations to come. Quebec is just an hour and a half flight from Washington. We invite you to come visit La belle province anytime and perhaps we will have nice weather, and merci beaucoup, and I look forward to hearing your questions.

[The prepared statement of Ms. Camden follows:]



GOUVERNEMENT DU QUÉBEC
BUREAU DU QUÉBEC
WASHINGTON

Testimony Submitted on Behalf of the Government of Québec, Ministry of Energy and Natural Resources, Office of Mines

Submitted by Nathalie Camden, Associate Deputy Minister for Mines
To the United States Senate Committee on Energy and Natural Resources
May 17, 2022

Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, thank you for this opportunity to share Québec's perspective on our mining practices. We welcome the chance to showcase how Québec's mineral assets and mining competencies are key to enhancing an already strong relationship with our friends and allies in the U.S.

The U.S. and Québec have a long history of mining collaboration. That foundation of partnership and trust can be leveraged to meet today's challenges of supply chain liabilities, resource dependence, and climate change.

These challenges and opportunities have spurred a renewed commitment by Québec to its mining sector. In recent years, we have launched strategies, strengthened our processes, and developed innovative financing streams. We are committed to developing our mining potential, but not at the expense of our competitiveness, environmental standards, nor the rights of Indigenous peoples.

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These plans have all been made with consideration to our deep economic integration with the United States, where 70% of Québec exports go every year. For Québec to succeed in this sector, given the supply chain vulnerabilities and rising demand for minerals, U.S. engagement and partnership is welcomed and essential. It is a matter of mutual strategic interest.

History of U.S.-Québec Mining Collaboration

Canada and the U.S. have been friends, partners, and allies through two World Wars, the Cold War, and beyond. From the 1936 Permanent Joint Board on Defense to the 1993 establishment of the National Technology and Industrial Base, Canada's industrial capacity, and particularly Québec's aluminium industry, have been an integral part of the U.S. Defense Production Program.

Canadian Air Force Base (CFB) Bagotville, the largest in Eastern Canada, was constructed in the early 1940s to protect the nearby Alcan aluminium smelter. This smelter supplied most of the aluminum to Allied forces during the war, thereby making an essential contribution to the "Arsenal of Democracy." During the Cold War, CFB Bagotville played an important role in NATO, and it continues to play an important role in NORAD.

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Right now, thanks in large part to our abundant hydropower resources, Québec's supplies 60% of North American aluminum. Nine of ten Canadian aluminum smelters are in Québec. As such, Québec stands out as a stable and reliable source of high quality, sustainably produced, aluminium. It is used extensively in U.S. defense industries as well as in the civilian automotive industry, aerospace, and in other key value chains.

This history is more important now than ever, in the face of new national security threats that demand similar levels of cross-border collaboration. As Canada is one of the few countries considered a domestic source under the Defense Production Act Title III, Québec stands ready to partner with the United States. Together, we can address strategic vulnerabilities in our current critical resource import structures, while securing the surrounding North American critical infrastructure for processing.

Provincial Jurisdiction over Natural Resources: Minerals

In the Canadian federation, provinces have the ultimate jurisdiction over natural resources, including mineral and metal resources. The Québec Office of Mines' 200 experts collect new data on our geology and resources. This data, which has been accumulated over the last century, is made available through an open-access database and interactive map. The Office's industry-focused team helps companies sustainably develop their projects, in accordance with domestic and global regulations and standards. Finally, the Office of Mines is rounded out by a team of regulatory experts focusing on mining site rehabilitation and permit delivery.

2

This provincial jurisdiction and the renewed focus on our resource potential have resulted in a substantial mining footprint. In 2021, the Fraser Institute recognized Québec as the 6th most attractive mining jurisdiction in the world. Québec currently has 22 active mines, three mines in care and maintenance, and 33 mining projects. Major world players, such as Rio Tinto, Glencore, ArcelorMittal, Newmont, Agnico Eagle, Alkem, and BHP Billiton, as well as new emerging producers like Sayona Québec, Nemaska Lithium, and Nouveau Monde Graphite, are all active in Québec.

Mining is only expected to expand, as Québec has the most diversified subsoil in Canada, in terms of mineral resources and richness. Here are a few nuggets on what you need to know about mining in Québec. Québec is:

- Home to the largest known lithium (spodumene) reserve in Canada and almost half of Canadian lithium projects;
- The world's second-largest producer of niobium and the only producer in the northern hemisphere;

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- Second in Canada for nickel production and third for copper;
- One of the rare jurisdictions in the world with all the minerals required to manufacture batteries, namely lithium, nickel, cobalt, graphite, and manganese, in addition to many aluminum smelters.

Following the release of the 2018 U.S. Geological Survey list, Québec determined we were a source of no less than 25 out of the 40 minerals deemed critical and strategic by the United States. These findings prompted our government to launch a new strategy to develop our mineral potential. The [Québec Plan for the Development of Critical and Strategic Minerals](#) was thus 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. It has sparked great interest internationally.

To maximize the economic benefits related to the extraction, processing, and recycling of these minerals, the government has provided funding for this Plan. The Plan includes financial support of CA\$130 million (US\$100 million), with more than CA\$32 million (US\$25 million) already appropriated. There is also an ongoing focus on investments in transportation and communications infrastructure, specifically fiber optics, to both support remote populations and grow the mining ecosystem.

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In addition to this Plan, our government actively engaged with USGS leadership to reaffirm Québec as a strategic supplier of these minerals to the United States. To that end, our Minister of Energy and Natural Resources, Jonatan Julien, came to Washington in September 2019, where he and then-USGS director James Reilly signed a joint letter of intent to strengthen scientific and technical collaboration between Québec and the United States in geological studies, the evaluation of mineral potential, and the dissemination of geological information.

As the demand for these minerals has grown alongside demand for electric vehicles (EVs) and their batteries, Québec developed a complementary battery strategy. This strategy focuses on building a highly efficient and traceable North American supply chain from mine to wheel, Québec's expertise, clean energy, mineral resources, and our proximity to the U.S., best position to support our closest neighbors in this evolving sector.

Now considering the 2022 USGS list, Québec produces or has the potential to develop 46 of the 50 minerals deemed critical and strategic by the United States. Québec will continue to advance collaboration in this sector through the aforementioned agreement with USGS, direct ties with the Government of Canada under the Joint Action Plan on



Critical Minerals Collaboration, and partnerships with the National Mining Association, SAFE, and the Battery Materials & Technologies Coalition.

Provincial Jurisdiction over Natural Resources: Energy

Provincial jurisdiction also extends to energy resources, which is critical to this conversation considering the energy intensity of mining and different parts of the battery supply chain.

Québec is the fifth largest producer of hydropower in the world. 99.8% of our electricity comes from renewable, clean, and reliable energy sources. In Québec, the cost of electricity is 30% lower than in other G7 countries, with special rates available for the industrial sector. This energy source is immune to the price volatilities creating waves in the United States and Europe following Russia's invasion of Ukraine.

It is worth noting that Québec has been working to export hydroelectricity to the Northeastern U.S. to combat this price volatility, decrease emissions and use our respective resources more efficiently. The New England Clean Energy Connect and the Champlain Hudson Power Express transmission lines are poised to be the largest cross-border clean energy projects constructed following the passage of the Bipartisan Infrastructure Law – with the potential of two-way electron flows and economic savings for consumers. The stronger our grid interconnections, the stronger the foundation laid for our mining and battery sectors.

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Whether it is being utilized here in the U.S. or in Québec, this energy infrastructure is essential for developing a mining industry that is profitable, sustainable, and globally competitive. In Québec, hydropower can ensure stability for companies, while also substantially lowering the carbon footprint of their operations. One Québec mining company, Nouveau Monde Graphite, partnered with the U.S. company, Caterpillar, to develop electric mining equipment for the world's first ever fully electric open-pit mine. Québec's electricity grid, which has a current carbon intensity of around 26 grams of CO₂ equivalent per kilowatt-hour, makes that possible.

This is true for the midstream as well. Our government is committed to growing our mining sector to support battery production, but while ensuring it does not undermine our greenhouse gas (GHG) emissions reduction goals. To enable these secure and clean grid interconnections, Québec has been developing the previously mentioned battery cluster in areas with existing industrial power infrastructure, like the town of Bécancour, a mere 90 miles north of Jay Peak, Vermont or 115 miles west of Jackman, Maine.

Government Regulation in the Mining Sector

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Carrying out an investment project in Québec obviously requires permits and authorizations. Our government has prioritized streamlining these processes while increasing social acceptability, environmental protection, and transparency on the front end of project development. The modernization of Québec's Mining Act and the launch of the Permits Coordination Office are two essential strides towards meeting these goals.

Between 2004 and 2019, our government reformed the Mining Act to reduce the cost of administrative formalities on Québec businesses by approximately 31.5%. Furthermore, last year we amended the Mining Act to reduce red tape for companies during the development of their mining projects. Following this passage, nine measures concerning the mining sector were adopted, generating substantial savings for industry.

The Permits Coordination Office was created to ensure better management of administrative delays in the allocation of rights and authorizations. Its mission is to work interdepartmentally and more efficiently without reducing requirements. This Office offers personalized support to optimize the permitting process. In the past year, the Office helped reduce the average time for issuing targeted authorizations by 42% compared to the ministry's previous processing standard in 2019-2020.

Social Acceptability and Sustainable Development in Québec

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Social acceptability and sustainable development are an integral part of natural resources development in Québec. Several tools and environmental regulations are in place to minimize the environmental impact of mining operations, including a strong public consultation process and a requirement to restore mining sites after their active life. Moreover, modernized treaties and new public consultation requirements have resulted in strong and sustained Indigenous engagement in the mining process. These steps have helped Québec secure stronger social acceptance and increased sustainability of the sector.

A key indicator of sustainability is our level of commitment to standards and transparency. In that regard, Québec has developed the world's first sustainable development certification for mineral exploration, called ECOLOGO. Further, 21 of the 22 active mines in Québec have implemented their operations with the Towards Sustainable Mining (TSM) standard, a globally recognized sustainability program developed by the Mining Association of Canada. National mining chambers around the world are adopting this standard to manage risks and increase transparency in mining.

Looking beyond the upstream, Québec contributes to the objectives of the Global Battery Alliance (GBA), an initiative of the World Economic Forum, which seeks to establish a



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digital traceability platform for EVs, batteries, and their value chains. With the GBA and in collaboration with electric mobility stakeholders, Nouveau Monde Graphite, and the Government of Canada, Québec is developing a battery minerals traceability system, to ensure battery components produced in Québec meet the highest sustainable procurement standards.

This focus on environmental standards transcends the full value chain, from extraction to reuse. Québec sees mining innovations through a circular economy lens. One Québec company, Lithion Recycling, has perfected an innovative process to recycle all types of lithium-ion batteries and recover 95% of their components, such as lithium, nickel, cobalt, manganese, and graphite. Last January, Lithion Recycling announced the construction of its recycling plant in Québec, with government support, with a recycling capacity of 20,000 batteries per year.

Québec is fortunate to count on a large Indigenous population with whom it has been able to establish modern treaties and build sustainable partnerships. Two examples are the James Bay and Northern Québec Agreement of 1975 and the Northeastern Québec Agreement of 1978, both of which ensure predictability for the sector. More recently, the Grand Alliance was signed in 2020 with the Cree Nation for natural resource and infrastructure development.

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In addition to these modern treaties and agreements, in 2019, our government adopted the Native Community Consultation Policy Specific to the Mining Sector. This policy, developed in concert with our Indigenous communities and mining industry, improves the coordination of government action and clarifies the roles and responsibilities of stakeholders. Above all, it strengthens relations between Indigenous communities, the government, and the mining sector. This new partnership-based approach will both decrease the liability of the mining companies and help them work with communities to have a sounder social license from which to operate.

That being said, we recognize this is an ongoing conversation. As such, we want to keep improving the process, for instance by increasing consultations with Indigenous peoples prior to extensive exploration work that may impact the land. We will carry on government-to-government conversations with our Indigenous peoples to create a stable, inclusive framework that allows our mining industry to thrive.

Stronger Together: The Urgency of Collaboration in this Sector

Beyond sharing our experiences and best practices in the mining sector, the key message of this testimony is the urgent need for Québec and the U.S. to deepen and expand our collaboration to secure these resources. This partnership must be ambitious, ranging from

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the resources to their end uses and the energy used to extract and build them, respectively.

The current situation in Ukraine underscores the energy and resource vulnerabilities of allied countries. Our long-term overreliance on individual countries, including some geopolitical competitors, for upstream inputs and battery processing only further emphasizes the need for action. Across the batteries, minerals, and energy supply chains the message is the same: the U.S. must diversify their sources and Québec is here to help. Not only by providing the raw materials of our hydro and minerals, but also by contributing to a coordinated North American critical minerals value chain supported by a secure, reliable, and highly integrated grid.

Cooperation must begin now. With non-market actors operating in this space, the only way we can be globally competitive is if we take advantage of our existing infrastructure and supply chains to maximize efficiency. When Canada and the U.S. secure offtake agreements and share resources, our dependency on non-allied nations and overall reliance on importing these materials changes for the better. The United States is uniquely positioned to help Canada develop our resources through trading opportunities. Working together, we can guarantee the highest environmental and labor standards and security of supply.

Leveraging Québec's resources, processing capacity, and high standards fits in perfectly with existing logistical value chain; the roadways, railways, seaways, and Great Lakes ports all connect the continent together. We can extract and process minerals in Québec to feed into the vehicle manufacturing lines in Ontario, the Midwest and the Southeast. All of this is highly integrated and tariff-free thanks to the U.S.-Canada-Mexico Agreement authorized by Congress. Québec is also a gateway to secure mineral imports from other trading allies, like Japan, South Korea, and the European Union, with which Canada has free trade agreements.

This vision of a strong North American EV value chain is already beginning to take shape. The U.S. company, General Motors (GM) – in partnership with South Korea's POSCO – as well as German company, BASF, have both announced CAM facility investments in Québec. The GM-POSCO investment is of particular interest: the CAMs will be developed in Québec, thanks to our cheap and abundant hydropower, which will make large-scale EV manufacturing in North America more competitive. The CAMs developed in Québec will power the next mega-factory GM is building in Lansing, Michigan. It will contribute to the development of GM's electric vehicle complex, with factories in Detroit and Hamtramck, Michigan, Lordstown, Ohio and a future factory in Tennessee. McKinsey estimates that battery manufacturing alone can create as many as 3,200 jobs per plant,

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with a similar number of jobs added via suppliers. This project is just one example of the job potential of this burgeoning North American industry.

In short, for EV manufacturing in North America to be economically competitive, it needs to be a truly North American industry. Canada and the U.S. must leverage each other's strengths and come together into a powerful engine of innovation and job creation. Creating these jobs in Québec will help create more EV jobs in the United States, not less, and vice versa. As the current U.S. Ambassador in Ottawa, David Cohen, likes to say, "the pie is growing."

There are ample opportunities for us to develop mining in the U.S. and Canada. Québec's approach is one way we can do this efficiently, sustainably, and with the protection of the human rights and environment in mind, without having to worry about strategic or geopolitical vulnerabilities. Working together, these resources can ensure our competitiveness, security, and environmental stability for generations to come.

We truly look forward to working with you on developing this new, latest frontier in mining and innovation. In the meantime, Québec's Office in Washington is here to act as a liaison between your offices and Québec as we continue this incredibly important discussion and seize the opportunities that await us.

Thank you very much.

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Mme Nathalie Camden

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Annex I – Map of Strategic and Critical Minerals in Québec

Annex II – Québec in the North American EV Market

Annex III – Québec Plan for the Development of Critical and Strategic Minerals ([online](#))

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A RELIABLE PARTNER



A Favorable Global Economic and Political Context

- > Strong and growing demand for technology and energy transition
- > Secure supply—a source of growth for many countries and companies



Significant Potential and Advantages

- > Diversity and richness of mineral potential
- > Strategic location for North American and European markets
- > Dynamic business environment with international investors based in Québec



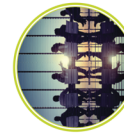
Strong Commitment to Research and Innovation

- The Government of Québec supports exciting research and development initiatives, including:
 - > The Population Québec cluster for electric and smart transportation
 - > Support for research and mining innovation, including support for a number of research consortia and expert groups



A Greener Economy

- > Environmentally friendly extraction and processing techniques

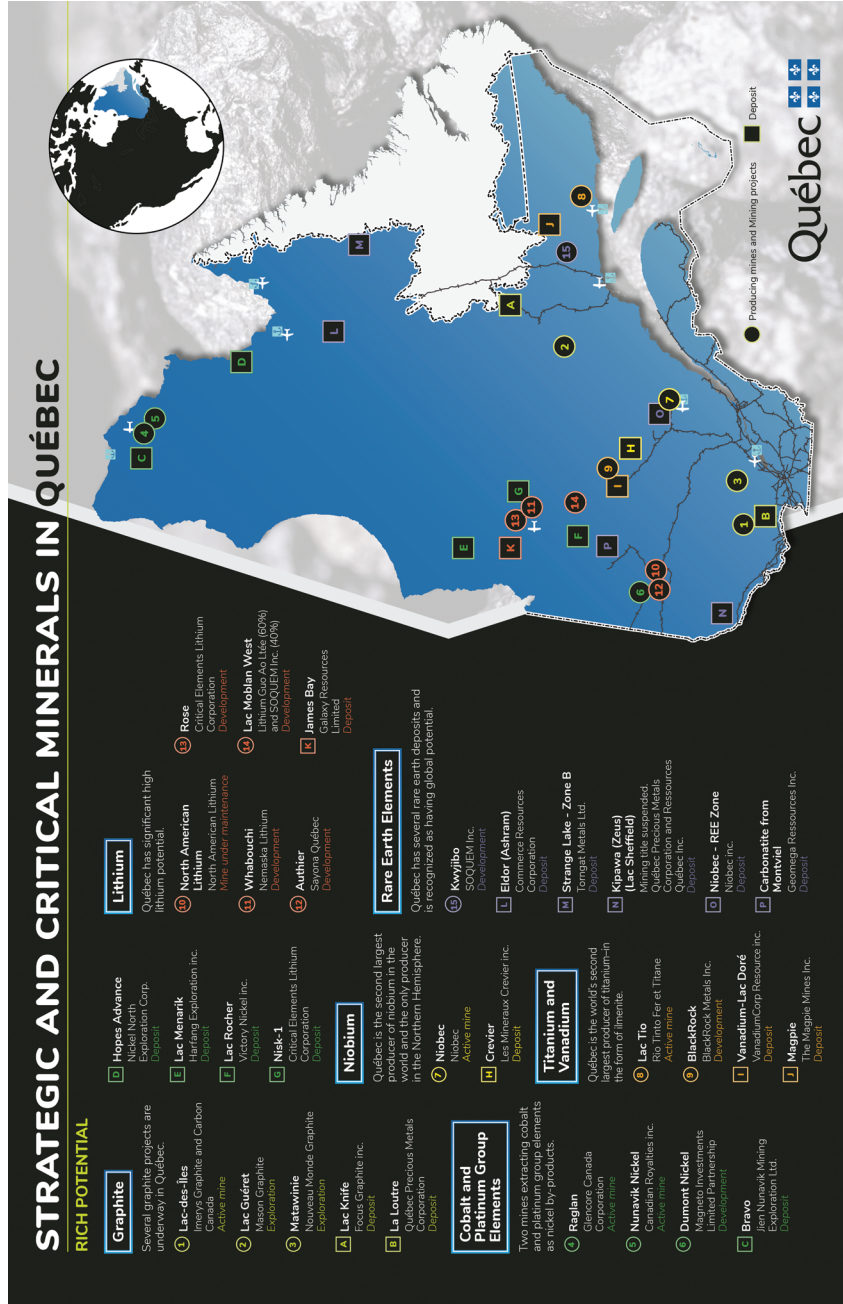


Best Practices in Social Acceptability and Environmental Stewardship

- > Customized support for all projects
- > Environmental Protection
- > Consultation and assessment process that ensures social acceptability for projects



*USD as of September 10, 2019



Québec's Strategic Location Within the North American EV Market

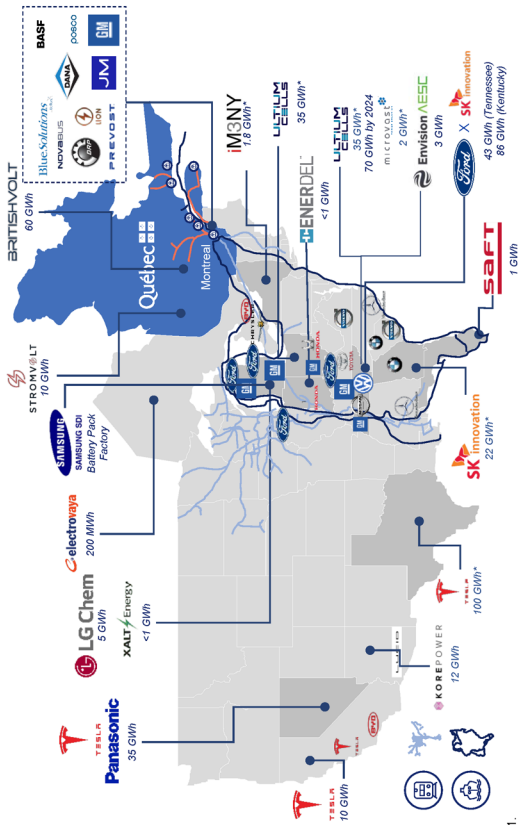
Tariff-free trade with battery and original equipment manufacturers (OEMs), providing security from supply chain disruptions and mitigating geopolitical risks

- North America with USMCA
- Asia-Pacific with CPTPP
- Europe with CETA
- South Korea with CKFTA

Proximity to "Auto Alley," rail links, and ~65% of North America's cell manufacturing capacity

Multiple deep-sea ports with the shortest route from Europe to North America

North American battery cell manufacturing landscape
Company announcements, 2019-2022



* Announced Capacity
Source: Québec Government Market Study, "Bloomberg Electric Vehicle Outlook", 2019 and 2021.

The CHAIRMAN. Thank you, Deputy Minister.
Now we are going to go to Mr. Bradley.

**OPENING STATEMENT OF FRANCIS BRADLEY, PRESIDENT
AND CHIEF EXECUTIVE OFFICER, ELECTRICITY CANADA**

Mr. BRADLEY. Good morning, Chairman Manchin, Ranking Member Barrasso, and members of the Senate Committee on Energy and Natural Resources. Thank you for the opportunity to speak about the mutually beneficial electricity relationship between Canada and the U.S. and how it bolsters shared goals for clean energy, energy security, reliability, affordability, and our economies. I am Francis Bradley with Electricity Canada. We are the voice of the Canadian electricity industry. Our members generate, transmit, distribute, and market electricity across Canada and the U.S. every day. The integrated U.S.-Canada electricity system is critical to the positive North American energy relationship. This relationship is recognized by the United States-Mexico-Canada agreement providing for tariff-free treatment of energy trade between our countries. As both countries seek to achieve clean energy goals and to ensure energy security, this partnership offers opportunities to increase the availability and development of reliable and affordable clean energy.

Canadians and Americans share a highly integrated electricity grid connected by over 35 high voltage transmission lines. Some 30 states engage in electricity trade with Canada each year. Canadian and U.S. electricity companies own and invest in assets on both sides of the border. They work in unity of effort to keep the grid secure and reliable in the face of energy transformation, new security threats, and more extreme weather. Canada has a low-carbon electricity grid, an abundance of reliable, affordable, and dispatchable power, and further clean resource development opportunities. More than 80 percent of electricity produced in Canada is non-emitting today—predominately dispatchable hydropower. And trade is not one-way. The U.S. exports electricity to Canada. Tangible benefits of electricity trade and to integration for Americans and Canadians include enhanced reliability and resilience through operational efficiencies and supply diversity, enhanced affordability through efficient price signals and larger markets, greater emissions reductions, and support for developing new renewables and clean energy technologies. Increased cross-border transmission infrastructure can enable further two-way trade and its benefits.

The second installment of the Department of Energy's Quadrennial Energy Review stressed that, and I quote, "additional cross-border transmission infrastructure with Canada has been projected to lead to lower overall system costs in U.S. border regions, and it could enhance reliability, backstop variable renewable energy development, and enable lower overall emissions of U.S. power consumption." As such, predictable regulatory regimes for energy infrastructure development are important. As in Canada, the U.S. has ambitious clean energy and climate goals at the federal and state level. To transition to net zero, both countries will need every megawatt of non-emitting generation. As such, Canadian non-emitting imports should constitute as clean energy under any climate or clean energy regime.

Electricity trade and integration are important tools for bolstering reliable and affordable clean energy supply and development. For example, the Champlain Hudson Power Express will provide clean power from Canada to New York, building on benefits already existing from electricity trade. Canadian hydropower can help bring more U.S. intermittent resources online by serving as backstop energy to solar and wind. A recent example is the Great Northern Transmission Line connecting Manitoba hydropower with U.S. wind. Further, Canadian hydro can act as a battery to help reduce U.S. renewable curtailment. A recent MIT paper found that Canadian hydropower can be particularly effective as a complement, not a substitute, for deploying more wind and solar in the Northeast. There is also cooperation on electricity technology leadership. For example, Ontario Power Generation and the Tennessee Valley Authority announced plans to work together on advanced nuclear technology. Another one of my members, Capital Power, is working on carbon capture initiatives at its Genesee facility to support near zero emitting natural gas-powered generation, and to convert captured carbon into carbon nanotubes. The U.S.-Canada electricity relationship extends to bolstering grid resilience. Canadians and Americans work together to address security risks and follow mandatory North American electricity standards. Canadian companies provide mutual assistance, crossing the border to help American electricity companies restore power to customers more quickly in the aftermath of major weather disasters.

In conclusion, Canada is a reliable and trusted electricity partner. This partnership has served Canadians and Americans for over 100 years. In the context of climate change and growing cyber and physical threats to the grid, the U.S.-Canada relationship is more important than ever. Thank you.

[The prepared statement of Mr. Bradley follows:]



Written Testimony of Francis Bradley, President & CEO

Electricity Canada

May, 2022

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Introduction

Electricity Canada appreciates this opportunity to submit comments in advance of the U.S. Senate Energy & Natural Resources Committee hearing to Examine the U.S.-Canada Energy and Minerals Partnership on May 17, 2022. This brief describes the positive and longstanding Canada-U.S. electricity relationship, and how it helps achieve clean energy, decarbonization and electricity reliability and security goals to the benefit of communities on both sides of the shared border.¹

About Electricity Canada

Founded in 1891, Electricity Canada (formerly the Canadian Electricity Association) is the national forum and voice of the evolving electricity business in Canada. Electricity Canada members generate, transmit, distribute and market electric energy to industrial, commercial and residential customers across Canada and the U.S. every day. Our membership includes provincially-owned and investor-owned utilities, many of which are vertically integrated; independent power producers; independent system operators; wholesale power marketers; and municipally owned local distribution companies.

Several Electricity Canada members own and invest in assets in the U.S., and U.S. companies also invest in electricity assets in Canada. Many Electricity Canada members are engaged in the buying and selling of electricity, ancillary services, and other energy and environmental products in markets across North America, including in Federal Energy Regulatory Commission-approved regional transmission organization/independent system operator ("RTO/ISO") markets as registered participants. Those with a footprint in the Bulk Power System also follow North American Electric Reliability ("NERC") standards. This bilateral relationship is both mutually beneficial economically, and also key in ensuring the reliability and resilience of the integrated North American power grid. Clean, dispatchable and reliable Canadian electricity can also help U.S. states and regions achieve their environmental policy goals.

Background

Canadians and Americans share a highly integrated electricity grid, connected by more than 35 high voltage cross-border transmission lines. Every Canadian province along the U.S. border is electrically interconnected with at least one neighboring U.S. state.

Canadian electricity companies engage in bi-directional trade with the U.S. across this integrated grid, and work with their American counterparts to keep the grid reliable and secure. Trade and integration form the backbone of a highly positive and mutually beneficial cross-border electricity relationship that provides economic,

¹ The comments represent the current position of Electricity Canada as an organization, but not necessarily the views of any particular Electricity Canada member with respect to any issue.

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environmental, resilience and security benefits, and which contributes to affordable and increasingly clean energy for customers in both the U.S. and Canada. This positive partnership has served American and Canadian businesses and communities for over 100 years.

The value of the cross-border energy and electricity relationship is recognized at the highest levels of government in the U.S. and in Canada. The *Roadmap for a Renewed U.S.-Canada Partnership*, unveiled by President Biden and Prime Minister Trudeau in February 2021, outlined opportunities to cooperate on electricity-related items, including “a coordinated approach to accelerating progress towards sustainable, resilient, and clean energy infrastructure, including encouraging the development of cross-border clean electricity transmission”. It also notes the imperative for secure electricity, and the value of allies working together to enhance the security and resilience of cross-border energy infrastructure.² The U.S.-Mexico-Canada Agreement (“USMCA”) also includes a U.S.-Canada side letter on energy that “recognizes the importance of enhancing the integration of North American energy markets based on market principles, including open trade and investment among the Parties, to support North American energy competitiveness, security, and independence.”³

Canadian electricity can help the U.S. meet resilience and clean energy goals affordably and reliably. Further, electricity cooperation, trade and integration offer increased energy security. Given the close integration of the North American electricity grid, Electricity Canada offers the following comments in the spirit of continued bilateral collaboration:

Trade and Economy

Over 70 TWh of electricity flowed across the U.S.-Canada border in 2021, representing an electricity trade relationship of over US\$3 billion⁴. Approximately thirty states engage in electricity trade with Canada each year. This two-way exchange enables electric supply to meet demand in the most efficient manner, increases resilience, supports affordability for customers, and helps regions meet policy and business goals on both sides of the border. Many Canadian and U.S. electricity companies own assets in both countries, and increased cross-border transmission infrastructure could enable further two-way trade and allow future balancing potential.⁵

² The United States Government. (2021, February 24). Roadmap for a Renewed U.S.-Canada Partnership. The White House. Retrieved September 14, 2021, from <https://www.whitehouse.gov/briefing-room/statements-releases/2021/02/23/roadmap-for-a-renewed-u-s-canada-partnership/>.

³ *Canada-United States-Mexico Agreement (CUSMA) Side Letter from the U.S./Letter from Canada (Energy)*, Nov. 30, 2018.

⁴ Canada Energy Regulator. *Electricity Trade Summary*. <https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/electricity/statistics/electricity-summary/electricity-annual-trade-summary.html>, May 3, 2022.

⁵ Dimanchev, Hodge & Parsons. *Research Brief: Two-Way Trade in Green Electrons: Deep Decarbonization of the Northeastern U.S. and the Role of Canadian Hydropower*. MIT CEEPR Working Paper 2020-003, 2020.





Although Canadian electricity sales to the U.S. accounted for 2 percent of total U.S. retail sales in 2017, the Canada-U.S. transmission interconnections are integral enablers to northern border states' electricity markets.⁶ In Vermont, for example, the largest share of electricity consumed comes from hydroelectric generators in Canada.⁷

Canada has an abundant clean electricity supply that can meet both domestic and cross-border clean energy demand, with additional clean energy development opportunities. Canada's strength in its electricity resources permits generation capacity in excess of domestic demand, thus creating an opportunity for Canada's plentiful electricity supply to meet both Canadian and American needs. With the majority of electricity trade between the two countries coming from hydropower generation in Canada, U.S. states – particularly in the Northeast – have taken steps to access and take advantage of this abundant and affordable source of energy supply.

Massachusetts, for example, has authorized long-term contracts of 15-20 years to procure hydropower electricity, and to leverage its environmental and reliability benefits. Further West, Manitoba Hydro has a strong trading relationship with Minnesota and Wisconsin with several power sale agreements in place. Some of these are seasonal diversity exchanges, with energy being sent south across the border in the summer and north in the winter; others are capacity sales,⁸ in some cases serving to 'store' surplus wind generated in North Dakota as hydropower in Manitoba. This mutually beneficial, symbiotic relationship also exists in the Pacific Northwest, with excess hydropower and wind generation in Washington State finding markets across the border in British Columbia.

In New York, the Champlain Hudson Power Express project ("CHPE") also recently secured its final approval from the state's Public Service Commission, and will provide clean power from Canada to the metropolitan area of New York, helping that region meet its clean energy goals. This project also builds on a positive longstanding New York-Canada relationship. A fact-finding report from the U.S. International Trade Commission found that hydropower trade with Canada has provided New York with economic and environmental benefits, including cost savings in the day-ahead market and emissions reductions. It also finds that existing and new projects with Canada, like the CHPE, will be "important tools" in helping New York meet ambitious statewide and local commitments to expand renewable power and decrease emissions.⁹

⁶ Stanley, Andrew. *CSIS Briefs: Mapping the U.S.-Canada Energy Relationship*. Center for Strategic & International Studies. <https://www.csis.org/analysis/mapping-us-canada-energy-relationship>. May 7, 2018.

⁷ U.S. Energy Information Administration. *Vermont State Profile and Energy Estimates*. <https://www.eia.gov/state/analysis.php?sid=VT>. July 18, 2019.

⁸ Manitoba Hydro. *Power sale arrangements*. https://www.hydro.mb.ca/corporate/electricity_exports/power_sale_arrangements/. Accessed May 10, 2022.

⁹ U.S. International Trade Commission. *Renewable Electricity: Potential Economic Effects of Increased Commitments in Massachusetts*. <https://www.usitc.gov/publications/332/pub5154.pdf>. January 2021.





The second installment of the Department of Energy's *Quadrennial Energy Review* stressed that "additional cross-border transmission infrastructure with Canada has been projected to lead to lower overall system costs in U.S. border regions, and it could enhance reliability, backstop variable renewable energy development, and enable lower overall emissions of U.S. power consumption."¹⁰ A study by the Center for Climate and Energy Solutions found that on a levelized basis hydropower is competitive with other forms of electricity¹¹, and a 2020 New York ISO report found that free-flowing ties with Ontario resulted in an estimated production cost savings of \$43 million in the Day-Ahead Market¹².

As further evidence of the benefits of Canadian electricity, the New England States Committee on Electricity ("NESCOE") released an analysis in 2013 of the economic and environmental impacts associated with hypothetical incremental levels of hydroelectric imports from Québec and Newfoundland and Labrador. Under different scenarios of increased imports during a 2014-2029 study period, the analysis found average annual economic benefits associated with reduced electricity prices in New England ranging from US\$103 million to US\$471 million, with cumulative reductions in customer costs during the study period ranging from US\$3.325 billion to US\$5.652 billion¹³. Significantly, it also estimated average annual reductions in electricity sector GHG emissions reductions in New England ranging from 1.3 million to 8.0 million tons, with cumulative reductions totaling between 58 million and 97 million tons.

Evidence of economic and environmental benefits of trade are further described in a study by the Midcontinent Independent System Operator ("MISO"), which found significant benefits of expanding the interface between Manitoba Hydro and MISO, including production cost savings and modified production cost savings, load cost savings, reserve cost savings, and U.S. wind curtailment reduction.¹⁴

Reduced electricity rates offer direct economic benefits to consumers, and they also offer enabling benefits in the form of fuel switching, and of lower operating costs for manufacturing, retail, and other industries.

Further, electricity options that are both clean and competitive will be increasingly attractive to the growing number of companies that are committing to clean energy targets.

¹⁰ U.S. Department of Energy. *Transforming the Nation's Electricity System: The Second Installment of the QER*. Page 6-4. January 2017.

¹¹ [Aarons, K. & Vine, D. Canadian Hydropower and the Clean Power Plan. Center for Climate and Energy Solutions. April 2015.](#)

¹² [Patton, D., LeeVanSchaick, P., Chen, J. et al. 2020 State of the Market Report for the New York ISO Markets. May 2021.](#)

¹³ [Black & Veatch. Hydro Imports Analysis prepared for New England States Committee on Electricity. 1-1. November 1, 2013.](#)

¹⁴ [Bakke, J., Zhou, Z. & Sumeet M., Manitoba Hydro Wind Synergy Study \(Final Report\). MISO 2013.](#)





Environmental Benefits

Canada has the advantage of a remarkably low-carbon electricity grid, and an abundance of clean, reliable, and affordable dispatchable baseload electricity, with further clean resource development opportunities. The Canadian electricity sector is among the most sustainable in the world, with more than 80% of electricity produced in Canada already non-emitting and predominantly dispatchable reliable hydropower. Hydroelectricity generation produces no air pollutants, and has extremely low levels of greenhouse gas emissions. From a full life cycle assessment basis, Canadian hydropower is amongst the lowest emitting resources available.¹⁵ Hydropower projects are also subject to environmental assessments as part of the Canadian approval process.

Since 2005, the Canadian electricity sector has reduced GHG emissions by more than 40% and will further decrease emissions by at least that much between now and 2030. Canadian electricity companies operate within various provincial and federal climate-change regulatory frameworks and carbon pricing regimes in place across Canada. Federal regulations were also announced in 2018 to phase out traditional coal-fired electricity by 2030.

Canada's electricity system represents one of the world's lowest-carbon electricity systems, with its predominantly clean, abundant, reliable and dispatchable electricity supply. Accordingly, Canadian electricity can offer additional tools to meet U.S. clean energy and climate change goals. There is precedence for recognition of this. For example, the Clean Power Plan recognized Canadian non-emitting electricity imports as an eligible way for states to meet clean energy targets. More recent federal Clean Energy Standard legislation, such as S. 1359 (116th) and the Climate Leadership and Environmental Action for our Nation's Future Act (117th), also recognize Canadian non-emitting imports as eligible for clean energy credits within their frameworks.

Canada's abundant clean electricity supply can be used by U.S. jurisdictions to meet U.S. clean energy and climate targets, as was recently highlighted by the Center for Climate and Energy Solutions.¹⁶ In 2017 alone, exported electricity from Quebec resulted in over 8.3 million metric tons of avoided CO₂ emissions.¹⁷ Additionally, there is seasonal complementarity between Canada and the U.S. for peaks in electricity demand, with each country experiencing demand peaks at different times of the year. This allows for an exchange of reserve services through cross-border interconnections which reduces the need for new generation capacity that may otherwise sit idle (except during peak times on both sides of the border), thus increasing efficiency.¹⁸

Many states are pursuing clean energy goals. In New England, for example, states have renewable energy standards. Recently, several of these states have taken further steps, directing the establishment of long-term

¹⁵ Waterpower Canada. Learn. <https://waterpowercanada.ca/learn/>

¹⁶ Vine, D. Clean Connection: Canadian and U.S. Electricity. June 2021.

¹⁷ Hydro-Quebec. International FAQs: Why is importing electricity from Hydro-Québec beneficial for customers in New England or New York? <http://www.hydroquebec.com/international/en/faq.html>.

¹⁸ National Renewable Energy Laboratory. Integrated Canada-U.S. Power Sector Modeling with the Regional Energy Deployment System (ReEDS). February 2013. <https://www.nrel.gov/docs/fy13osti/56724.pdf>





contracts for carbon-free electricity. One such state law from Massachusetts required the state to solicit long-term contracts for the procurement of 1.6GW of offshore wind power and 1.2GW of hydropower or other renewable resources.

Canadian hydropower imports could have a significant impact on the emission rates of importing states. For example, a hypothetical addition of 250 MW of imported hydropower electricity could help Massachusetts reduce its power sector emission rate by about 10 percent, moving it 32 percent of the way toward its proposed 2030 target. In Minnesota, imports from a new 250 MW project could help reduce power sector emissions by 5 percent, which would move the state 19 percent of the way toward its proposed 2030 target.¹⁹

Resilience and U.S. Renewable Development Opportunities

Hydropower is well positioned to provide overall grid resilience benefits, while also serving as a clean energy supply. For example, the 2017 U.S. Department of Energy Staff Report on Electricity and Reliability notes that resources such as hydropower offer essential reliability services and fuel assistance critical to electric system reliability.²⁰ It notes that hydropower plants can also support the dynamic behavior of grid operations by offering a full range of ancillary services.

Canada's clean, predominantly hydropower supply can support increased development of U.S. renewable generation, while providing reliability and resilience benefits. Canada's predominantly clean, dispatchable baseload generation fleet can serve as backstop energy to U.S. variable renewables, such as solar and wind, hence allowing more of these resources to come reliably online. Canadian hydroelectric power can play an especially unique role, allowing U.S. variable renewables to sell excess electricity to Canada which allows hydro reservoirs to reserve water, and can be used to generate power to be sold to the U.S. when needed in the future. The *Canada-U.S.-Mexico North American Renewable Integration Study* ("NARIS") also shows how considering interregional and international planning can support reliable and affordable renewable integration.²¹

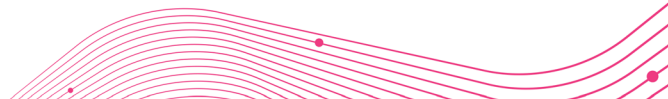
This mutually beneficial arrangement already facilitates two-way trade and cross-border projects like the Great Northern Transmission Line, which came on-line in 2020. Analysis in the 2013 Manitoba Hydro Wind Synergy Study demonstrates that projects similar to this one, pairing new U.S. wind generation with Canadian hydro and transmission, can offer significant U.S. load cost savings.²² This builds on previous benefits that saw imports of

¹⁹ [Aarons, K. & Vine, D. *Canadian Hydropower and the Clean Power Plan*. Center for Climate and Energy Solutions. April 2015.](#)

²⁰ [U.S. Department of Energy. *Staff Report to the Secretary on Electricity Markets and Reliability*. August 2017.](#)

²¹ Brinkman, Gregory, Dominique Bain, Grant Buster, Caroline Draxl, Paritosh Das, Jonathan Ho, Eduardo Ibanez, et al. 2021. *The North American Renewable Integration Study: A Canadian Perspective*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-79225. <https://www.nrel.gov/docs/fy21osti/79225.pdf>

²² [Bakke, J., Zhou, Z. & Sumeet M., *Manitoba Hydro Wind Synergy Study \(Final Report\)*. MISO 2013.](#)





Manitoba hydropower to U.S. utilities reduce GHG emissions in the Upper Midwest by an estimated 44-60 million tons between 2006 and 2012.²³

Resilience and Energy Security

The North American electricity grid is undergoing tremendous evolution to meet the challenges of an evolving resource mix and extreme weather incidents. This reality is captured in *NERC's 2021 State of Reliability Report* which notes that a pandemic, extreme weather, and cyber security and supply chain issues all impacted the transforming grid in 2020. At the same time, the system was overall reliable despite unprecedented conditions.

²⁴

The interconnected nature of the North American grid offers numerous reliability and resilience-related advantages to both countries, and electricity trade with Canada can help U.S. states and regions meet environmental and clean energy goals in a reliable manner. Advantages include: (1) a higher level of reliable service for customers through enhanced system stability; (2) efficiencies in system operation and fuel management; (3) opportunities to use power from nearby markets to address local contingencies; (4) opportunities presented by seasonal/time zone variations associated with diversified load; and (5) expanded access to low-carbon and competitively priced resources.

Similarly, Canada-U.S. trade serves to increase the diversity of supply available in certain regions confronting unique challenges, and integration and cross-border cooperation help both countries better manage increasing extreme weather events. Cross-border connections allowed Canadian utilities Manitoba Hydro and SaskPower, who are well versed in cold weather operations, to help serve U.S. load during extreme winter weather events in 2021.

Canadian electricity companies also assist their neighbors through mutual assistance, which remains a hallmark of the industry and has continued throughout COVID-19. During 2020, for example, Hydro-Québec sent over 200 crews across the border to help restore power, and in recent years, many other Canadian entities have deployed personnel to facilitate power restoration efforts following nor'easters, California wildfires, Hurricane Florence, and other severe weather events in the U.S.

Canadian and American Bulk Power System owners and operators understand that due to the interconnected nature of the North American electricity grid, its reliable and safe operation is a shared responsibility. The physical and market linkages between the U.S. and Canada are made possible by adherence to a common set of operational and commercial rules, especially the following: (1) electric reliability standards developed by the

²³ Manitoba Hydro. *Reducing Emissions*. <https://www.manitobahydropower.com/reducing-emissions/>

²⁴ North American Electric Reliability Corporation, 2021 State of Reliability: An Assessment of 2020 Bulk Power System Performance (2021). Retrieved September 14, 2021, from https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2021.pdf.





North American Electric Reliability Corporation (“NERC”), which are mandatory and enforceable in all provinces with a footprint in the larger North American bulk power system; and (2) the standard market practices and protocols utilized by RTOs, ISOs and other U.S. market participants. Compliance with these terms ensures greater liquidity in markets, and a greater diversity of supply options for customers throughout North America.

In addition to this coordinated regulatory adherence, Canadian and American security experts continue to work together in other forums to develop the tools, standards and best practices that protect the integrity of our shared grid. The Electricity Subsector Coordinating Council (“ESCC”) is an effective forum and a good example of effective U.S.-Canada security cooperation, which enjoys the participation of senior government officials and electricity industry CEOs from both countries. The Canadian electricity sector and Canadian government also participate in major incident response exercises, including the recent GridEx exercise in 2021, to practice and strengthen response plans for cyber and physical attacks on North American electricity infrastructure. The importance of these efforts, and of a unity of effort approach to energy security, has been underlined by the current geopolitical conflict in Ukraine.

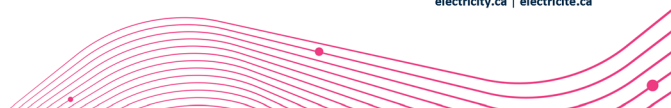
Technology and Innovation

Looking to the future, Canadian and U.S. electricity industries are working together to develop the advanced technology that will be needed to meet future demand. Ontario Power Generation and the Tennessee Valley Authority, for example, recently announced plans to collaborate on developing advanced nuclear technology, including small modular reactors, by drawing on complementary strengths of experience in recently completed projects and construction timelines.

Another example of clean energy innovation is Capital Power with respect to carbon capture and utilization. Capital Power is in advanced design stages of a nearly \$2 billion Carbon Capture and Storage project at their flagship Genesee Generating Station in Alberta, which is expected to capture up to 3 million tons of CO₂ annually from what will be best-in-class natural gas combined cycle technology. In addition, Capital Power is developing the Genesee Carbon Conversion Center, which will utilize emissions from the facility alongside a carbon conversion technology to transform captured carbon into carbon nanotubes. The company is exploring a number of commercial scale end uses for these nanotubes, including for use in concrete mixtures.

Future-enabling technologies, such as renewable energy storage and batteries for electric vehicles, will require not only processes, but key resources and stable supply chains. To that end, in the *Roadmap for a Renewed U.S.-Canada Partnership*, both countries affirmed the importance of strengthening the Canada-U.S. Critical Minerals Action Plan²⁵ and have recently announced sector support to boost and secure North American production.

²⁵ The United States Government. (2021, February 24). Roadmap for a Renewed U.S.-Canada Partnership. The White House. Retrieved September 14, 2021, from <https://www.whitehouse.gov/briefing-room/statements-releases/2021/02/23/roadmap-for-a-renewed-u-s-canada-partnership/>.





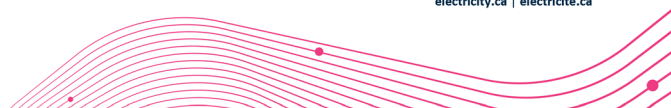
Conclusion

Canada remains a reliable and trusted electricity partner to the U.S. This positive partnership has served American and Canadian businesses and communities for over 100 years. Electricity Canada appreciates the opportunity to provide these comments to the U.S. Senate Energy & Natural Resources Committee, recognizing the key role that electricity serves in society, and the resulting benefits for decarbonization and climate change. Electricity Canada respectfully requests consideration of the comments raised herein, and looks forward to working with the U.S. Senate Energy & Natural Resources Committee to advance continued bilateral collaboration.

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The CHAIRMAN. Now we will hear from Minister Wilkinson. Minister Wilkinson, it is your turn.

OPENING STATEMENT OF HON. JONATHAN WILKINSON, MINISTER OF NATURAL RESOURCES, NATURAL RESOURCES CANADA

Mr. WILKINSON. Thank you, Mr. Chairman, and thank you to Ranking Member Barrasso for the opportunity to speak with the Committee about the interconnected double threat to the national security interests of both of our nations—energy security and climate change. I appear here to share Canada's perspective on these urgent matters with our neighbor, our closest ally, and our largest trading partner, in my role as my country's Minister of Natural Resources. I was, as well, until about six months ago, Canada's Minister of Environment and Climate Change.

Let me begin just with a brief word about Ukraine. This brutal, illegal invasion launched by President Putin against the people of Ukraine represents a violation of international law and an unjustified attack on a peaceful people. Canada's support for the Ukrainian people is unshakeable. To date, we have provided Ukraine consequential, humanitarian, military, and other support, and we are committed to continuing to do so.

The International Energy Agency defines energy security as the uninterrupted availability of energy sources at an affordable price. There are some in both of our countries who suggest that given the current urgency of the energy security issue, we must set aside concerns and actions relating to climate change. This position is neither thoughtful nor tenable. Domestic energy security and climate action are increasingly and inextricably tied together. As Canada works to help our European allies at this time of crisis, we are concurrently cutting oil and gas emissions, including from methane regulations and establishing clean fuel and electricity standards to achieve our ambitious 2030 climate target. If we look to the present situation in Europe, western European countries are working vigorously to secure predictable energy supplies in the context of an increasingly belligerent and irrational Russia. Short-term, Europe is focused on replacing Russian energy imports with those from other countries, while aggressively accelerating a transition towards renewables and hydrogen in the medium term. As the President of the European Commission stated recently, and I quote, "It is our switch to renewables and hydrogen that will make us truly independent." In this context, recent decisions by the United States and Canada to expand hydrocarbon exports to our European friends to displace Russian oil and gas for the short term are entirely appropriate, particularly since these actions are being taken very much within the context of our respective climate change plans.

However, it is the shift to domestically produced renewable energy and the hydrogen supplied by stable countries like Canada that will provide true energy security and national security to Europe and to both of our countries. A clean energy transition will deliver energy security in a sustainable future, enabling democratic countries to wean themselves from petro-dictators who weaponize energy. It will strengthen economies and create jobs and it will re-

spond to the urgent code-red for humanity, which is how the Intergovernmental Panel on Climate Change characterizes the climate crisis which presently confronts us. Given the challenging nature of current geopolitics, the need to be focused on energy security has never been greater, security that can be driven through a Canada-U.S. energy collaboration and through joint action on climate change.

Let us commit our countries to the further development of a North American energy powerhouse, one that will facilitate energy security while helping to advance our shared journey down a path to net zero. Canada and the U.S. already have deeply interconnected energy systems. In fact, 60 percent of U.S. oil imports and 93 percent of American electricity imports come from Canada, and all of this flows through a network of existing pipelines, very much including Line 5 and cross-border electricity transmission lines. Going forward, there will be a continuing relationship between our countries in the areas of oil and gas. Even in the International Energy Agency's net-zero scenario, there will be a need, beyond 2050, for about a quarter of current oil production and half of current gas production for use in non-combustion applications, such as petrochemicals, lubricants, solvents, waxes, and hydrogen. And clearly, countries that focus on producing hydrocarbons with ultra-low production emissions are likely to be the last producers standing.

In the context of the low-carbon energy transition, the opportunities for Canada-U.S. collaboration and mutual benefit are enormous. For example, critical minerals, all the way from mines to processing to manufacturing to recycling; hydrogen to fuel our trucks, planes, trains, industries, and even our homes; production of renewable energy and transmission of clean electricity across our borders; nuclear technology, including small modular reactors; carbon removal technologies; and in the research, development, and the scaling of a wide range of clean technologies. As we partner in these areas, we need to be clear-eyed, ensuring that in moving away from dependence on autocratic hydrocarbon producing countries, we do not inadvertently end up with similar dependence on other autocratic countries in areas such as critical minerals. I was in Washington last week to advance exactly these conversations because they are critical to the future of our economies and of our planet, and Canada is committed to working with you to enhance North American energy security, to fight climate change, and to create jobs and economic opportunity for the citizens of both of our great countries.

Thank you very much for the opportunity to be here today.

[The prepared statement of Mr. Wilkinson follows:]

Opening Statement Before the U.S. Senate Committee on Energy & Natural Resources
The Honourable Jonathan Wilkinson, Minister of Natural Resources of Canada
May 17, 2022

Thank-you, Mr. Chairman, for the timely opportunity to speak with the Committee about an inter-connected double threat to the national security interests of both our nations: energy security and climate change.

I appear before you to share Canada's perspective on these urgent matters with our neighbour, closest ally and largest trading partner in my role as my country's Minister of Natural Resources. I was, as well - until 6 months ago - Canada's Minister of Environment and Climate Change.

The International Energy Agency defines energy security as the uninterrupted availability of energy sources at an affordable price.

There are some, in both of our countries, who suggest that given the current urgency of the energy security issue, we must set aside concerns and actions relating to climate change, both mitigation and adaptation.

This position is neither thoughtful nor tenable. Domestic energy security and climate action are increasingly and inextricably tied together. As Canada works to urgently help our European allies, we are cutting oil and gas emissions, including through methane regulations, and establishing clean fuel and clean electricity standards to achieve our ambitious 2030 targets.

If we look to the present situation in Europe – western European countries are currently working vigorously to secure predictable energy supplies in the context of an increasingly belligerent and irrational Russia.

In the short term, Europe is focused on replacing Russian energy imports with those from other countries while aggressively accelerating a transition towards renewables and hydrogen in the medium-term.

As the President of the European Commission stated recently, "It is our switch to renewables and hydrogen that will make us truly independent. We have to accelerate the green transition."

In this context, recent decisions by the US and Canada to expand hydrocarbon exports to our European friends to displace Russian oil and gas for the short term are entirely appropriate – particularly since these actions are being taken very much within the context of our respective climate change plans.

However, it is the shift to domestically produced renewable energy and to hydrogen supplied by stable countries like Canada, that will provide true energy and national security to Europe - and to both our countries.

A clean energy transition will deliver energy security and a sustainable future... enabling democratic countries to wean themselves from petro-dictators who weaponize energy... it will strengthen economies and create jobs... and it will respond to the urgent “code-red for humanity” - which is how the Intergovernmental Panel on Climate Change characterizes the climate crisis confronting us.

Given the challenging nature of current geopolitics, the need to be focused on energy security has never been greater – security that can be driven through Canada-US energy collaboration and through joint action on climate change.

Let us commit our two countries to the further development of a North American energy powerhouse – one that will facilitate energy security while helping to advance our shared journey down a path to net zero.

Canada and the US already have deeply interconnected energy systems – in fact, 60% of US oil imports, 93% of American electricity imports, and 98% of natural gas imports come from Canada. Fully thirty-seven transmission lines now cross our countries borders.

Going forward, there will be a continuing relationship between our countries in the area of oil and gas. Even in the IEA’s net zero scenario, there will be a need beyond 2050 for approximately 1/4 of current oil production and 1/2 of current gas production for use in non-combustion applications, such as petrochemicals, lubricants, solvents and waxes. And clearly countries that focus on producing hydrocarbons with ultra low production emissions are likely to be the last producers standing.

In the context of the low-carbon energy transition, the opportunities for Canada-US collaboration and mutual benefit are enormous:

- Critical minerals – all the way from mines to processing to manufacturing to recycling
- Hydrogen – to fuel our trucks, planes, trains, and perhaps eventually our homes
- The transmission of clean electricity from Canada to the US
- Production of renewables energy and transmission of clean electricity across our borders
- Nuclear technology – including small modular reactors
- Low-carbon building materials and green building retrofits
- Carbon removal technologies
- And in the research, development and scaling of a wide range of clean technologies.

As we partner in these areas, we need to be clear-eyed, ensuring that, in moving away from dependence on autocratic hydrocarbon producing countries, we do not inadvertently end up with similar dependence on other autocratic countries in areas such as critical minerals. This highlights the importance of cross-border energy infrastructure such as Line 5.

I was in Washington last week to advance exactly these conversations – because they are critical to the future of both of our economies and our planet.

Canada is committed to working with you to enhance North American energy security, to fight climate change and to create jobs and economic opportunity for the citizens of both our great countries.

Thank-you.

The CHAIRMAN. Thank you, Minister.

Before we start our questioning, I would be remiss if I did not ask all of you to introduce your staff that has traveled with you, and we want to welcome all of them, but if you want to take time, and Premier Kenney, if you want to start?

Mr. KENNEY. Sure. Thanks, Senator.

So I am joined by Alberta's Minister of Energy, Sonya Savage.

The CHAIRMAN. Stand up. Stand up.

Mr. KENNEY. Minister of the Environment and Parks, Jason Nixon and Alberta's Senior Representative in the United States, James Rajotte.

The CHAIRMAN. Thank you all for being here.

Honorable Ms. Camden.

Ms. CAMDEN. Yes, I am not traveling with people from Quebec. [Laughter.]

Ms. CAMDEN. But I am supported by Quebec's Office in Washington, DC, led by Mr. Jean-Francois Hould, Abigail Hunter, and Justin Margolis.

The CHAIRMAN. Welcome to all of you.

Mr. Bradley.

Mr. BRADLEY. Yes, and my local support is Andrew Shaw. Andrew.

The CHAIRMAN. Andrew.

And Minister Wilkinson, do you have anyone here that you would want to introduce?

Mr. WILKINSON. Yes, my Deputy Chief of Staff, Kyle Harrietha, I think is there and I am not sure if Ambassador Hillman is there as well, but she has certainly been supporting us through this exercise.

The CHAIRMAN. Well, again, welcome to all of our neighbors. We appreciate very much you all making the effort to be here today.

And with that, we will start with our questioning. And I want to start with both Premier Kenney and Minister Wilkinson, this is for both of you. We all know that the demand with COVID-19 and also with Putin's war on Ukraine, the strain that is put on all of us, North American energy is going to be needed for years to come in order to offset that. We understand that. So I would ask either one of you, and both of you, to answer this. Have you been in contact with our Administration here or your counterpart, Minister Wilkinson, or Premier Kenney—any other than us speaking to you from the legislative branch? From the executive branch, is anybody speaking to you all concerning increasing oil and natural gas, the things that we are going to need in order to help our allies?

You can start with yourself and then I will go to—

Mr. KENNEY. Thank you, Senator.

The answer, well, I do not have a counterpart in the U.S. Government, as I am the leader of a subnational government, but yesterday I did have meetings with officials at the U.S. State Department that we initiated. I will say, we found it passing strange that following the invasion of Ukraine there were clear efforts by the Administration to reach out to OPEC, Saudi Arabia, Venezuela, and Iran, but we have no record of any effort by the Administration to reach out to Alberta, which, as I have said, provides 62 percent of U.S. oil imports.

The CHAIRMAN. Minister Wilkinson, did you all have any conversations or anyone reach out to your counterparts from the U.S.?

Mr. WILKINSON. Yes, thank you, Senator. Yes, we have had ongoing conversations with the Administration. Certainly, I have spoken with Secretary Granholm many, many times since the invasion of Ukraine and I was at the White House last week having similar conversations. As you know, we have had a number of in-person meetings to discuss how to address this. I think you and I actually met in Paris.

The CHAIRMAN. Right.

Mr. WILKINSON. At the International Energy Agency, when Secretary Granholm was there, and the focus, very much, in terms of increasing production, was our announcement of 300,000 additional barrels a day, which we worked with Premier Kenney and the industry on, was partly the product of those conversations because, of course, the offtake to get it to the Gulf has to come from the United States. And we continue to talk about issues like LNG exports, for example.

The CHAIRMAN. Have you all increased your production?

Mr. KENNEY. Well, yes.

The CHAIRMAN. For the U.S., for us to be able to help our allies around the world?

Mr. KENNEY. I will say yes. Last year was a record year for production and exports. We had, I think in December, 4.1 million barrels a day, but Senator, we believe, and we frankly do not agree with the 200,000-barrel estimate just offered by Minister Wilkinson. We have about 300,000 barrels of daily unused capacity in the North American pipeline system, which we expect to fill this year through increased production. Once that is filled, the economics will probably work for additional shipment by rail, which could be upwards of an additional 200,000 barrels a day.

In addition, if midstream companies get serious about it and if regulators approve, we could see a series of technical improvements through pipeline optimization and line reversals over the next year or so that could add upwards of another 400,000 barrels a day of potential capacity. And then finally, in Q4 2023 and Q1—

The CHAIRMAN. This would also reduce the American—the United States' reliance on OPEC or Saudi or—

Mr. KENNEY. Well, I think American refineries, I know, would prefer to buy locally, partly because they get our energy on a discount since we are currently, largely landlocked and so, we are price takers. And I do know that Gulf refineries are very keen to get more access to our heavy supply.

The CHAIRMAN. Let me, Minister, do you have anything to say on that, Mr. Wilkinson?

Mr. WILKINSON. No, I think, as Premier Kenney said, the focus in the short term has been on looking at ways to essentially utilize existing pipeline capacity. That is where the 300,000 barrel equivalence comes from and it was the product, obviously, of work that we did with the pipeline companies and the oil sector. And certainly, that is part of the contribution that Canada makes, in the same way that the Americans have made a contribution, the Brazilians have, to try to actually ensure that we are addressing the concerns associated with displacing Russian oil and gas—

The CHAIRMAN. Let me go to the Enbridge 5 Pipeline that we talked about, and you know, going under the Great Lakes. With that, we are concerned—and I am sure you would understand—we are concerned about the safety of that. We have had no problems, but you know, with the line's age and all that. Do you all have recommendations of how you could secure that and make it safer, and that way, less of a danger that people might be concerned about? From both of you.

Yes, Mr. Kenney.

Mr. KENNEY. Okay, thank you, Senator.

Well, first of all, Enbridge has proposed spending upwards of \$750 million on this new, high-tech, extremely safe, subterranean pipeline, and this is to replace the pipeline that has operated safely across the Straits of Mackinac now for six decades, delivering about 530,000 barrels a day of light sweet to refineries in Ohio and Pennsylvania as well as Ontario and Quebec, and what the Governor is trying to do is decommission the current pipeline without the replacement. So that would strangle much of the energy source for the upper Midwest. We appreciate that the Government of Canada has filed a complaint under the 1977 pipeline transit treaty, and I will hand it over to Minister Wilkinson to talk about that.

The CHAIRMAN. Minister.

Mr. WILKINSON. Yes, and I would say the proponent has indicated a willingness to do whatever needs to be done to address the environmental concerns, and certainly, the pipe under the Straits of Mackinac is a key element of that. We think the company has gone above and beyond what is required here, but we are obviously looking to find a resolution that is going to work for all sides. And certainly, we have invoked the treaty, which is a treaty between Canada and the United States, which relates to the free flow of pipelines and the products within pipelines. And we are looking to try to find a way to resolve this.

This is an important pipeline, not just for Canada, but I mean, Ohio, Michigan, and Pennsylvania get products from this pipeline.

The CHAIRMAN. Has that pipeline ever had—have we ever had a leak or a problem with that pipeline that you—

Mr. WILKINSON. Not to my knowledge.

The CHAIRMAN. Not to your knowledge.

Mr. WILKINSON. Not anything significant.

The CHAIRMAN. For six decades, correct? And they are willing to basically—I am understanding, encapsulate that in a tunnel type so it would prevent it from ever being a danger to the Great Lakes?

Mr. KENNEY. That is right, Senator. And I believe what Enbridge needs to proceed more quickly, which is what Michigan would like to see is an acceleration of the federal regulatory approvals of that. But to stop the current operation would jeopardize energy security for the upper Midwest, there is no doubt about that.

The CHAIRMAN. With that, we will go to Senator Barrasso for his questions.

Senator BARRASSO. Thanks, Mr. Chairman.

Premier Kenney, a couple things, and time is limited, so I hope you would answer yes or no on some of these things.

Did killing the Keystone XL Pipeline make it more difficult and expensive to move Canadian oil to U.S. refineries?

Mr. KENNEY. Yes.

Senator BARRASSO. So now, Canadian oil which would have traveled by pipe will have to be moved by train or truck. Is this more or less environmentally friendly?

Mr. KENNEY. Less.

Senator BARRASSO. Has killing the pipeline further exacerbated the supply chain issues between our two countries?

Mr. KENNEY. Yes.

Senator BARRASSO. And so, is it fair to say that President Biden's decision to kill the Keystone Pipeline increased cost, harmed the environment, and added to our supply chain troubles?

Mr. KENNEY. I think that is a reasonable conclusion.

Senator BARRASSO. So you noted in your testimony that Keystone would have been able to move 830,000 barrels a day of Canadian oil, significantly more than the 670,000 barrels a day of oil we imported from Russia in 2021. So if Keystone had been built, would Canada have been able to replace that Russian oil?

Mr. KENNEY. Oh, yes and in fact, the operator, TC Energy, had contracts to move that 800,000 barrels-plus per day.

Senator BARRASSO. In your testimony, you note that President Biden has pleaded with OPEC and Russia to increase oil output and has worked to remove sanctions on oil exports from Venezuela and Iran. At the same time, the Administration continues to block access to energy resources and the infrastructure needed to move them in Alberta and across the U.S., including in my home State of Wyoming. So I was just going to point out, in today's Wall Street Journal, today, Tuesday, May 17th, "Biden's Dance with the Dictator." It states "the Biden Administration's sanctions dance with the dictator"—and they are talking, of course here, about Venezuelan strongman, Maduro—"Dance with the dictator is taking place even as it acts at every turn to restrict U.S. oil and production."

So does Biden's policy make any sense for the people of the United States or of Canada?

Mr. KENNEY. Well, it is for you to figure out what works for the people of the United States, Senator, but I will just say this, we find it inexplicable that the Government of the United States has been more focused on encouraging additional OPEC production than Canadian production.

Senator BARRASSO. So, you know, I understand the provinces, rather than the Federal Canadian Government, take the lead on permitting many energy projects. So there are some differences in how we do things. Provinces largely own and have the authority to manage the natural resources within their borders. Your staff behind are shaking their head yes across the board. Provinces largely own and have the authority. So in Wyoming and other western states, the Federal Government owns and manages nearly 70 percent of the minerals within our state borders. This makes for a very inefficient system.

So, could you explain to all of us how provinces, rather than the Federal Government, make better managers of natural resources?

Mr. KENNEY. That is a great question because, Senator, we have found we have developed over, really since 1947 when the first major oil discovery was found in Alberta, we have developed huge

expertise—technical expertise, regulatory expertise, policy expertise—in oil and gas production. And so, I think it is fitting that our constitution gives exclusive authority to the provinces over the regulation of the production of natural resources. And I want to thank the government of Canada for having recognized that in having signed what we call equivalency agreements with Alberta over issues like the regulation of major greenhouse gas emissions, industrial emissions, as well as methane, because frankly, we are on the ground. We have the technical expertise much more so than, frankly, bureaucrats in Ottawa would have.

Senator BARRASSO. When you were here, I texted with the former Prime Minister Stephen Harper, and he responds back—I told him you were here—he said, Kenney is very strong. He was one of my best ministers. So thank you very much for being here.

Mr. BRADLEY, roughly 60 percent of Canada's electricity comes from hydropower, another 20 percent from nuclear power. Canada appears to be making the most of its God-given natural energy resources. The United States is blessed with major natural gas amounts, coal, and renewable sources as well. Do you believe in an all-of-the-above energy strategy that capitalizes on abundant, reliable, and affordable natural resources to keep the lights on?

Mr. BRADLEY. Senator, thank you for that question.

Yes, at Electricity Canada, particularly in the context of our expectations with respect to reducing greenhouse gas emissions, we have continued to advocate for an all-of-the-above approach for all types of non-emitting electricity in the future.

Senator BARRASSO. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Now we have Senator King.

Senator KING. Thank you very much for being here. Canada, of course, is a neighbor. Maine is the only state in the United States that borders only one other State, but we border two provinces. And I have always considered my foreign policy experience based upon the fact that I can see Canada from Maine, so.

[Laughter.]

Senator KING. Sorry, I couldn't resist.

Premier Kenney, picking up on some questions from Senator Barrasso, methane is the low-hanging fruit of climate change. It is the most potent greenhouse gas, 80 times more than CO₂. I note that in your testimony you have lowered it significantly. How did you do that? Was it regulatory? Was it a fee? Was it a carbon fee? What brought that about, because this is an important topic for our discussion here in the States.

Mr. KENNEY. Yes. Through a regulatory approach, really, with the application of technology that has been developed in the Alberta industry. Over years, we have committed—we are the first subnational jurisdiction in North America to commit to methane reduction targets to reduce methane by 45 percent below the 2014 baseline and to do that by 2025.

Senator KING. Did you tell industry you cannot emit more than X, and you have a vigorous inspection regime?

Mr. KENNEY. Well, yes, there is a target and there is a rigorous inspection regime. We have seen some incredibly innovative tech-

nology developed in our province, which has made a big difference. And a lot of that is now being marketed in the United States and we would be happy to share that expertise.

Senator KING. Thank you.

And I would appreciate it if you could follow up, perhaps have your staff give us a monograph on your methane policies because this is something that is very important to us.

Minister Wilkinson, again not for today, because we have such limited time, but perhaps you could have your staff give us some background on how you streamlined the permitting process. My position has always been that I want the most timely, streamlined, and effective environmental process with the strongest environmental safeguards. And I think that is your standard. How do you do it in Canada and what lessons can we take here for our permitting process so it does not take, as Senator Barrasso pointed out, ten years to permit a mining operation that we need.

So you do not have to answer now, but perhaps you could have your staff supply us with some thoughts on how your permitting process works and if they could compare it with ours, which is quite Rube Goldberg-ish, that would be very helpful.

Ms. Camden, Hydro-Québec, of course, we went through the difficult New England connect process in Maine with the connection from Hydro-Québec to Boston. What tripped that up, more than anything else, was a section of 56 miles through virgin forest in Northern Maine and that was the focus of a lot of the controversy. Could Hydro-Québec and the proponents of that proposal think about burying that section of line rather than a strip of clear cutting through the forest? And is that something that is under examination? Because that might relieve a lot of the controversy surrounding that project.

Ms. CAMDEN. Thank you, Senator, for your question, but this is not in my area of expertise in my portfolio, but I will make sure that the Quebec office in DC follows up with your staff with an answer on this question.

However, if you want, I could share with you the practices that we had put in place in Quebec regarding the streamlining of our processes regarding the issue permitting—

Senator KING. I would very much like to see that. Thank you.

Ms. CAMDEN. Thank you.

So there is a strong commitment from our government to reduce the administrative burden, and each department within the government has to provide a three-year plan with different measures, being regulatory measure or legal measures.

Senator KING. I do not want to cut you off, but I have a little clock in front of me that says I only have 36 seconds left.

Ms. CAMDEN. Okay.

Senator KING. I wanted to get one question to Mr. Bradley before I leave.

Ms. CAMDEN. Great.

Senator KING. I have always been fascinated by the concept that you articulated and I think needs to be further developed, and that is Hydro-Québec being, or Canadian hydro being the battery for New England. Norway is the battery for Denmark right now. And as we move in to offshore wind, we could have an excess of energy

during certain periods of the day which we could send north. You could store the water during those periods and then send us the dispatchable hydro. You mentioned this. Do you see this as something that is a feasible option for us?

Mr. BRADLEY. Yes, thank you. Thank you for the question, Senator.

Indeed, not only do I see it as a feasible option, I think this is going to be how we optimize the system in the future, and it would not just be in the northwest. It will be inter-regionally, all across North America. We do it at a smaller scale already today. I mentioned that the electricity flow is two-way between Canada and the United States. Often, that flow from the United States into Canada is—must run facilities in the United States that overnight are looking for markets and are essentially, today, being stored in reservoirs as giant batteries.

Senator KING. The big constraint on the development of renewables, of course, is intermittency, and intermittency is solved by some kind of baseload response. We are all talking about batteries and mining and lithium and cobalt and nickel, when we have a gigantic battery already in place in Canada. And I have always, for 20 years, thought that this was a way to offset the intermittency. So I hope that that is something we can work on, and to the extent you are aware of data on that concept and how it could be implemented, please let me know.

Mr. BRADLEY. Indeed, we sure will, and we have always thought of our reservoirs as giant batteries.

Senator KING. And Denmark and Norway are doing this right as we speak. So this is not an unprecedented idea. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Lee.

Senator LEE. Thank you, Mr. Chairman.

Premier Kenney, it is great to have you with us. Over the last few years environmental social governance, or ESG, has gone from being something that almost no one knew about, no one had ever even heard of just a couple of years ago, to something that has imposed a sweeping set of obligations imposed on companies, but imposed, at this point, not by government, but by financial regulators, by markets, and by institutions around the world with some government regulators stepping in and starting to embrace these and make them part of their regulatory portfolio. The number one goal of the ESG movement, or at least a primary motivating goal, seems to be to ensure divestment from fossil fuels in any and every way possible.

Now, I would imagine that the ESG insanity that we are seeing has made energy development riskier and more expensive in Canada as it has in the United States. What impacts are you seeing from ESG specifically on Alberta's energy sector?

Mr. KENNEY. Very significant impacts, Senator. It is one of our primary concerns because there has been, I think, particularly a prejudicial and inaccurate application of ESG principles against investment and financial services to the Canadian oil sands, in particular, with, as I say, nearly 180 billion barrels of proven and probable reserves. So our companies report difficulty accessing re-insurance, there is, you know, credit and equity investment, a lot

of this emanating from European financial institutions, a lot of it based on a misconception about the emissions profile of Canadian heavy oil, the Bitumen. And here is the peculiar thing—of the top ten reserves in the world, Venezuela, Saudi Arabia, Canada, Iran, Iraq, Russia, Kuwait, UAE, the U.S., and Libya—apart from the United States and Canada, the other eight top-ten reserves are in countries where energy is developed largely by state-owned enterprises or quasi-state-owned enterprises who are not subject to ESG criteria.

So if financial markets strangle the publicly traded, transparent companies in North America, all this will do is shift production to some of these world's worst regimes and their state-owned enterprises that are not subject to market conditions.

Senator LEE. So could that mean, sir, that they can be producing oil with really shoddy environmental standards?

Mr. KENNEY. Well, they are, and I think the invasion of Ukraine highlights the need for at least a second “S” in ESG—security. It is bizarre to us that, you know, we had European banks say they were going to pull out of the Canadian oil sands while they participated in the IPO for Saudi Aramco and continued to finance Gazprom and Lukoil in Vladimir Putin's Russia and they are not held to account for financing dictator oil that fuels violence around the world.

Senator LEE. Yes, funny how that works.

Now, I assume these things have translated also to higher gasoline prices for consumers in Canada?

Mr. KENNEY. Yes, sir.

Senator LEE. Now, the Biden Administration has been calling in the United States on U.S. oil and gas companies, calling on them to boost production. But he is doing that while simultaneously stalling—or in some cases, killing—energy infrastructure projects, pressuring companies to divest from fossil fuels and setting impossible-to-meet, never-to-be-satisfied emission standards to power companies. So have Canadian energy companies been hesitant or unable to deploy capital as a result of some of these American energy policies imposed by the Biden Administration?

Mr. KENNEY. Well, I would say yes, because the cancellation of Keystone XL, for example, has—look, there were Canadian upstream producers that had committed to 800,000 barrels per day. They were prepared to make the big investments to produce that and sell it to you. And obviously, they have taken that out of their capital plans.

Senator LEE. Now, on his very first day of office, President Biden began his war on North American energy. He began it by killing the Keystone XL Pipeline. His response to record high gasoline prices that are really causing American consumers to suffer has been to beg Venezuela and beg Saudi Arabia to ramp up their production. What message do those actions send to our Canadian allies, including to Alberta?

Mr. KENNEY. The message, we find it just, all I can say is inexplicable. I was in Houston at CERAWEEK talking about how we could get—look, if we really worked together, we could get you a couple billion more barrels a day of Canadian energy. When I was in Houston, I read that the President's advisors were suggesting he

should go to Riyadh to ask the Saudis to generate more. And I just—we have a hard time understanding that.

Senator LEE. As do we. Thank you for helping us understand that.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Hickenlooper.

Senator HICKENLOOPER. Just like that.

The CHAIRMAN. You almost missed it.

Senator HICKENLOOPER. Yes.

First, thank you all for being here. I am looking up at the screen as well. I appreciate you coming down. I was the Mayor of Denver, which is as close to a cousin of Calgary as we probably can get, and have had several trips to Alberta and actually, all across Canada. I am probably the loudest supporter you will get from what should be the brotherhood and sisterhood of Canadians and Americans. One of my best experiences growing up was taking the cross Canada train with two puppies that were in baggage. So we would have to get off at each stop and walk the puppies through all these beautiful little towns across western Montana. It was an experience of a lifetime.

Let me ask you each a question to start. Ultimately, if the world is going to meet its climate targets, we have to figure out how to decouple the cost of producing energy from the cost of emitting. And I know you all talked about this a little bit. Canada is, as you have demonstrated, one of the most ambitious nations on carbon pricing. Your price to set, if I remember right, was get to \$170 by 2030, which is very aggressive in starting. I think it is \$150 now.

Can you explain for us that pricing of carbon, how that enables your goals for both energy production and reducing emissions? Do you follow what I am asking?

Mr. KENNEY. Yes, Senator, I think that is probably better directed to Minister Wilkinson in Ottawa as that is federal policy.

Mr. WILKINSON. Sure, I am happy to talk about that.

Putting a price on carbon pollution—and let's be clear, carbon is pollution, it is the cause of climate change—is an important part of actually ensuring that that is taken into account in the context of everything that businesses and individuals do in terms of choices. It drives choices that are lower carbon and it incents innovation on a go-forward basis. It is one part of a much broader climate plan. I would tell you that Canada has, perhaps, the most detailed climate plan that exists anywhere on the planet in terms of how we will actually go about achieving our targets, but an important part of that is pricing of carbon pollution. And I will tell you, 99 and a half economists out of a hundred will tell you it is the most efficient and effective way to do it.

Senator HICKENLOOPER. Great. Thank you.

Mr. Bradley, let me ask. China is building a, I would say, almost an energy empire built on cheap renewable resources enabled by their build-out of interregional transmission, building a really massive grid. Since 2014, they have added 260 gigawatts of inter-regional transmission capacity, while we, in the United States, have added three gigawatts. Can you speak to how better integrating our grids via transmission could enable the U.S. and Canada to leverage our complementary resource strengths to compete with Chi-

na's clean energy growth strategy? And I heard the earlier discussions about the cross-border transmission, which I think is very, very important, but just within that sense of, you know, you look at China's coal consumption—it has been flat since 2010. They built more plants, but they are just not using it. They are continuing to do more wind or solar and part of it is this grid.

Mr. BRADLEY. Yes, thank you. Thank you for the question, Senator.

But yes, and our trajectory has been very different in Canada than in China. We are not building coal. We are phasing coal out. But yes, transmission plays an absolutely critical role to be able to enable more intermittent sources of electricity both within Canada, within the United States, and cross-border. And it is going to be a critical component for us to be able to further expand that non-emitting power. We are going to need more transmission if we are going to bring more intermittent power online.

Senator HICKENLOOPER. Okay. Thank you.

Ms. Camden, the hydrogen production goals, again, ambitious, admirable—I think something we in the United States are equally enthusiastic about. Most of Canada's hydrogen is currently produced via steam methane reforming without the accessory carbon capture. One of the main challenges we face here is that makes clean hydrogen much more expensive to produce, at least for now. How do you plan to ensure that as you scale up hydrogen production, that it moves toward clean hydrogen in an affordable manner?

Ms. CAMDEN. Thank you for your question, Senator.

Hydropower enables green hydrogen and we are working right now in Quebec on the strategy for hydrogen. Unfortunately, it will be released in a few weeks, so I cannot talk about it and it is not even in my portfolio. So we will make sure that you get the answer from our Quebec office in DC.

Senator HICKENLOOPER. Great. All right, thank you.

I will restrain myself on the questions on cobalt and lithium. I will put those in writing to you so that we can get the answers in the future.

I yield back my time, Mr. Chair.

The CHAIRMAN. Thank you.

Senator Marshall.

Senator MARSHALL. Thank you again, Chairman. You know, sometimes, the solutions to our problems are in our back yard. Thank you folks, all of you, and your staff, for making the trip down here in person as well as appearing online. I am, of course, from Kansas, and very much have a little oil patch there. Even some of the oil that was supposed to be coming down the Keystone Pipeline, our refineries had prepared some special instrumentation to accept that oil. So these types of decisions continue to impact all of us in many, many, many ways.

I think I want to start just a second with Premier Kenney, if you don't mind. You mentioned about just the improved carbon footprint, the decreased 36 percent per barrel of Alberta oil and methane emissions down by 45 percent. We admire that. What are you all doing that makes this work?

Mr. KENNEY. Technology. And as Senator Manchin has said, we are only going to get as far as tech will take us in reducing emis-

sions. With respect to reducing the emissions intensity for a barrel of Bitumen, it is true that extracting Bitumen is energy intensive. It requires huge amounts of steam to separate the oil from the sand. Increasingly, the companies are shifting to things like solvents instead of steam and also, changing their energy source, in one case from using petcoke to natural gas and other efficiencies right across the board. They are exploring with us the possibility of small-modular reactors as the future zero-emitting source of energy for extraction. And as I say, a lot of locally developed technology has helped us, actually, exceed our goals in methane reduction.

Senator MARSHALL. Okay, yes, thanks for sharing that. I have always said that innovation will solve the problem, not Federal Government, not taxation as well.

I want to talk to Minister Camden, just for a second, about potash. A large amount of the world's potash is made in Belarus and Russia. Probably some 20 to 40 percent of the world's exports of those fertilizers go through the Black Sea. The United States, on the other hand, depends very much on potash from Canada, for a lot of reasons. Evidently, we cannot mine it here. I don't know what is different, but it seems like our American companies have given up on mining. And right now, of course, the Chinese are buying lots of your potash as well and my American farmers are short-changed. Are there any solutions out there? What are you doing to gear up potash? What does the timetable look like? Is there any way we can prioritize American farmers—your good ally—over this potash?

Ms. CAMDEN. Thank you, Senator, for your question. Unfortunately, we do not have potash in Quebec, not at all. So if I may defer this question for the Premier.

Senator MARSHALL. Because it said Alberta, here I was trying to—I will spread the questions out.

Mr. WILKINSON. I am happy to take it.

Senator MARSHALL. Okay.

Mr. WILKINSON. I am happy to take it.

Senator MARSHALL. Sure.

Mr. KENNEY. Go ahead, Jon.

Mr. WILKINSON. Okay, so potash is certainly one, and I think this relates to the broader issue around critical minerals, it is uranium and it is nickel and it is cobalt, neither of which the United States has in abundance. So we are certainly focused, as we have discussed from an energy security perspective and a broader food security perspective, as it relates to potash, to try to ensure that we are going to be able to respond to the needs that the United States and Western Europe are going to have as we look to displace sources from Russia. And there is a process going on. Most of the potash is in a province called Saskatchewan, which is where I grew up. And we are looking to augment the production. And there is actually a large new mine coming onstream in the next few years. So that is a conversation that is ongoing.

Senator MARSHALL. Okay. Premier, anything to add?

Mr. KENNEY. Just my neighboring province, Saskatchewan, they have the second largest potash reserves in the world. So, and I should add, they also have the second largest uranium reserves.

Senator MARSHALL. But I guess I just want to make a point here though that you do not flip a switch and double your production. Is it going to take months or a year or two to kind of make that happen?

Mr. KENNEY. Jonathan.

Mr. WILKINSON. So the initial augmentation is actually ongoing right now. It will be done, I think, within certainly a year, but the new mine that is coming onstream, it is probably two to three years out. But certainly, we are going to see significant increases over the next little while which will help to ensure that we can wean ourselves off of Russian sources.

Senator MARSHALL. Thank you so much, everybody.

Chairman, I yield back.

The CHAIRMAN. Thank you, Senator.

Senator Cortez Masto.

Senator CORTEZ MASTO. Thank you, Mr. Chair.

Welcome to all of our witnesses today. Let me just talk a little bit about the environmental review processes. At a recent hearing this Committee had on critical mineral security, I discussed with a witness what we can be doing to improve our environmental review processes and identify conflicts earlier in the process, including ways to avoid litigation or other opposition before a project invests resources and money. The witnesses raised Canada's use of an environmental and social impact assessment. The social being the optimal component that helps identify and resolves social license-to-operate issues and other potential conflicts much earlier in the process when compared to our own environmental impact statement processes. And by the way, I am from Nevada, where over 80 percent of the land is owned by the Federal Government, so we have an important relationship that we have to constantly engage at the federal level.

But I guess my question to the panelists—and maybe, Minister Wilkinson or Deputy Minister Camden, we will start with you—can anyone on the panel elaborate on any differences between our permitting systems and where Canada may have more success siting and permitting projects on your public lands? And Minister Wilkinson, maybe we will start with you.

Mr. WILKINSON. Sure. So, a couple things. I mean, for mining, in particular, some of the permitting and regulatory processes are at the provincial level and some of them are at the federal. Most of the crown land in Canada is actually the responsibility of the provinces. But I absolutely agree with you that—and what we have tried to focus on with respect to environmental assessment—is having those conversations very early, identifying the critical issues that are going to have to be addressed, whether that is impacts on water, impacts on species at risk, or indigenous concerns, which are a very, very important part of our process in Canada. Trying to ensure that we are isolating the big issues early on and working to try to address those so that you are not five years into a process when you run into the wall where there are significant concerns that have not been addressed. Those are things that, you know, that while there are different views on environmental assessment processes, even within the Canadian federation, I think we would

all agree that having those conversations very early on is extremely important to expediting the process.

Senator CORTEZ MASTO. Anyone else?

Ms. CAMDEN. Yes, I would add that, like Minister Wilkinson said, we do have environmental, robust assessment review. We have an independent review board and usually, I would say that, when the environmental studies are submitted to the government or the board for analysis, it takes between 48 to 60 months before getting the authorization from the government. And during those times we have public hearings and all these studies are made public as well as all the questions sent to the mining companies and the answer given by the companies. They are all made public so it helps people and local communities and indigenous communities to learn more about what are the issues and concerns and, in that way, it helps for social acceptability too.

Senator CORTEZ MASTO. Has the analysis of the environmental and social impact assessment added to the timeframe it takes to get permitting?

Ms. CAMDEN. No. It is the 48 to 60 months. It is, at the moment you submit your environmental study.

Senator CORTEZ MASTO. Okay.

Ms. CAMDEN. And then we have the analysis phase, then we have public hearings, then after the public hearings, sometimes, often, the recommendation will change a project to improve the project and then the government will approve the project.

Senator CORTEZ MASTO. And at that time, you have all the stakeholders weigh in as well, correct?

Ms. CAMDEN. Yes, but all that information is public all that time.

Senator CORTEZ MASTO. Right, right. Thank you very much.

Mr. Chair, I yield the remainder of my time.

The CHAIRMAN. Thank you.

Now we have Senator Lankford.

Senator LANKFORD. Thanks, Senator Manchin.

So let me continue on that same conversation Senator Cortez Masto was talking about, and that is the permitting process. The 48 to 60 months there, so you are talking four or five years to be able to go through that process. We have multiple of our mining projects that may take 10 to 15 years to be able to go through the permitting. The question that comes up with all of our mining projects is, is there a deadline where a decision has to be made and the decision is done, because in the United States, you may go through the permitting process and at the end of it, there is a lawsuit by some outside group that then, they file suit and then there is the lawsuit process and then it goes through NEPA evaluation again because the NEPA is expired. And so that is the continual process.

One of the things that seems to be missing on our process is there is not a deadline where a decision has to be made and the decision is done. Do you have a point when you get to that 48 to 60 months that you have mentioned before where the decision is made, everyone has been heard, and it is done, whether it is going to happen or not happen?

Ms. CAMDEN. There is no timeline. But there is a strong commitment by all stakeholders to let people know what kind of informa-

tion is required in their application. So we have many guidelines. We help mining companies to prepare their studies and there is no real litigation matter in Quebec after approving mining projects.

Senator LANKFORD. So it is not allowed at that point?

Ms. CAMDEN. It is not allowed? Would you precise your question?

Senator LANKFORD. So that the litigation is not allowed, once the province has made the decision then the decision is made?

Ms. CAMDEN. It is possible, but it is just not happening. It is just not happening.

Senator LANKFORD. Okay. Minister Wilkinson, do you want to comment on that at all?

Mr. WILKINSON. Yes, I mean, look, the idea of certainty around timelines is really important, and to be honest with you, we also need to ensure that we are better aligning state level, provincial level, and federal systems. And we are actually in the process of launching a process to try to align permitting and regulatory processes more effectively because we actually have to get mines built more quickly, as we think forward of the challenges of critical minerals. But in terms of the process, there is a deadline. And once the decision is taken, yes, you could launch a lawsuit around issues around procedural fairness, for example, but by and large, you are at a point where projects will simply move ahead.

Senator LANKFORD. Okay. Well, we do not have that advantage at this point. We stretch things out for decades in the process and we need to build more mines here as well, but we cannot seem to be able to get through the permitting process to be able to get it done.

Premier Kenney, thanks for being here as well.

For all of you, President Biden's first foreign policy decision that he made, January the 20th of 2021, was to say the United States is not going to purchase more oil from Canada, we are going to purchase more oil from Russia. And then he then pressed on that to say actually, we are not going to purchase more oil from Canada, we are going to purchase more from Russia and OPEC. And that has proven to be a problem, obviously, for the United States. We need to purchase more from Canada in the days ahead and have the consistency of that.

You outlined that there is a process that you are currently walking through to be able to increase the capacity for existing pipelines and then to increase the capacity, you are saying, up to a million barrels a day of increase that could come from Canada based on what is happening right now. Walk me through that process now.

Mr. KENNEY. Sure. Right now, in the North American pipeline network, there is about 300,000 barrels of unused capacity that we could fill. And we anticipate that most of that will be filled.

Senator LANKFORD. What is preventing you from filling that now?

Mr. KENNEY. Nothing is happening. Secondly, there would need to be a bunch of technical changes in the network to increase our export capacity through what the midstream companies call pipeline optimization—some line reversals, an introduction of drag reduction agents, and other technical changes. And they estimate, collectively, the mid-streamers, that this could add up to 400,000

additional barrels of egress. And then finally, by Q1 of 2024, the Trans Mountain Pipeline Expansion, which is owned by the government of Canada, should be operational, adding upwards of 600,000 barrels that will largely be taken by tanker from Vancouver to West Coast U.S. refineries in Washington and California.

Senator LANKFORD. Okay. That's because we didn't put a pipeline through the middle of the country, we are having to drive tankers around the edge.

Mr. KENNEY. Well, both of those projects could have gone ahead. It is not an either/or. But the veto of KXL reduces our ability to ship 830,000 barrels a day.

Senator LANKFORD. Okay. Can I ask one more follow-up question on this? I am about to bump against time.

Senator Barrasso [presiding]. Go right ahead.

Senator LANKFORD. The price of a gallon, or a liter, however you all are going to determine it from province to province, the price of a gallon of gasoline in Canada is more than it is in the United States. What is the difference there? Why is the price higher in Canada?

Mr. KENNEY. Well, we nominate it in liters, so I am not quite sure how to do the conversion, but generally, higher taxes on the Canadian side.

Senator LANKFORD. Okay. Where does that break down? Is that the provincial, federal and then——

Mr. KENNEY. It is both.

Senator LANKFORD. And then you have the carbon tax mixed in there as well.

Mr. KENNEY. There are fuel excise taxes. There is a federal consumption tax and then there are carbon taxes. In Alberta, we have suspended the collection of our fuel tax because of inflation.

Senator LANKFORD. All right. What is the carbon tax level there per liter?

Mr. KENNEY. \$50 a ton, which comes out to, I think right now, about 13 cents a liter.

Senator LANKFORD. Okay. Okay. Thank you.

The CHAIRMAN [presiding]. Senator Murkowski.

Senator MURKOWSKI. Mr. Chairman, thank you, Ranking Member Barrasso, thank you for having this hearing. Thank you for inviting our friends and neighbors from Canada. I absolutely concur with Senator Marshall when he says sometimes our solutions are right in our back yard. Look to your neighbors first and for some strange reason, we have not done that as we have looked to our energy needs with this Administration. And Premier Kenney, you said you are having a hard time understanding the Biden Administration's approach on this. Know that there are many of us who are also having a hard time understanding where and why the Administration has taken the approach that they have. There is a lot of kinship between Alaska and Canada right now. We feel like we have been shunted off to the corner as well, and our opportunity to provide for America's domestic production has been effectively derailed by this Administration, whether it is the actions within the NPRA, the recent actions with regards to lease sales in Cook Inlet, or the opportunity that we have within our coastal plain

area. So we are also having a hard time understanding the direction from this Administration.

But I have to ask the question, because we saw the response from President Biden after Russia took that first step into Ukraine, and the effort was not to come to Canada as our partner, but to call on Venezuela, to call on Iran for increased production, to turn to OPEC. Is there something different in the product—in the oil itself, in the crude itself—something in Venezuelan or Iranian oil that American or Canadian oil does not have? Is it cleaner? What would give them that advantage over what we might be able to do here in the United States or in Canada? Is there anything?

Mr. KENNEY. Thank you, Senator.

I think the best comparator between our oil would be with Venezuela because both are largely heavy oil reservoirs and we are now at or below the carbon footprint for a barrel of Alberta heavy versus Venezuelan heavy. So there is no environmental advantage. I would add that, you know, the Venezuelans, that this is a state-owned enterprise in a kleptocracy with zero transparency and zero real commitment to North American styled energy standards. Whereas we are dealing with world-class, publicly traded companies that rank in the top decile of ESG performance for energy producers in Canada with incredibly ambitious environmental and emissions targets. So I think we probably end up, in a comparable sense, penalizing ourselves because we are so self-critical, we are so transparent, I do not think we really know what the emissions profile is of energy being produced in Venezuela and Iran, is my point.

Senator MURKOWSKI. Well, I would agree, and again, Alaska shares many of those same attributes in terms of how we are able to produce in a way that not only minimizes footprint, but in terms of reduced emissions, methane emissions, we are heads and shoulders above not only other countries, but many states as well. But again, it is absolutely incomprehensible why we would not seek those options and avenues that are cleaner, help not only our respective states, but again, this North American energy alliance which, to me, is just common sense.

You have highlighted two things that the Administration has taken that have harmed the ability of Canadian crude to reach our refineries, clearly Keystone, and you also have mentioned this Enbridge Line 5, which I hope the Administration is paying heed to your words here. You have talked about optimization. What more can this Administration do? We already know what they have done to limit our ability to have better relationships, better partnerships on this energy alliance, but what could they do today? What could this Administration do today to help improve this energy relationship between our two nations?

Mr. KENNEY. Well, one would be to join Canada in opposing the Governor's effort to decommission Line 5. Second, working with midstream companies on accelerating approval for the pipeline optimization projects that are likely coming forward. Third, apply the principle we heard earlier from Quebec about the application of Title III of the Defense Production Act to the development of critical minerals in Canada. Why not treat Canadian oil and gas the same way?

Senator MURKOWSKI. Those are good recommendations. Canada is one of the few countries that is considered a domestic source under our Defense Production Act, under Title III. So that is something that is an area of opportunity that I think we need to push this Administration to look to.

Mr. Bradley, nobody has really asked you many questions this morning, but as I was listening to your testimony about this great opportunity for electricity and sharing, I was reminded of the discussion that we had many years ago about this green pipeline that would run from Alaska islanded communities with our hydropower connecting with BC's wind and moving it down to California. It was a pipe dream at the time. People told us we were crazy. Obviously, it has not happened, but I think about the great opportunities that we have between our two countries for these shared resources.

And Mr. Chairman, I do not think there has been a more important and more timely hearing about what we can be doing right now from an energy security perspective than this cooperation and a true North American energy alliance. So my suggestion would be that we have an opportunity to take this Committee to Alberta for a little bit of a field hearing and see for ourselves, because I think we could learn a lot.

The CHAIRMAN. Senator Murkowski, you and I went to visit. You and I went up to Alaska and when I left you, I went right down to Alberta and talked to all of our friends there. I was, in a bipartisan way, we were both very embarrassed that our country did not turn to ourselves. Alaska was not asked. Our producers in America were not asked. Our friends in Canada were not asked to step up production to help us. Let us help the rest of the world, keep ourselves independent. All we are trying to do is use a common-sense approach. West Virginia is asking the same questions that you are asking in Alberta and all over Canada and the same as you are asking in Alaska. That was the reason I thought it was imperative that we invite our friends down to show the interconnections—that we each depend on each other. And we can basically do an awful lot and make North America not only energy independent, but we can help our allies around the world, the G7, all of them. We can bring all of our friendly countries in.

That is what we are trying to do and use all the best technologies. You all do some things that we think are very, very good and we do some things that we think that we can be helpful with. And together, we could truly, truly move forward. But I am happy about this too.

With that, we are going to go to Senator Daines.

Senator DAINES. All right.

The CHAIRMAN. Give me about five minutes—I am so sorry, Senator Hoeven, you made it before 11:30 and I was so proud of you. But Senator Daines beat you. That is a little inside joke here that we have.

Senator HOEVEN. He is a neighbor state.

The CHAIRMAN. That is okay. You are late and you are okay.

Senator DAINES. We love North Dakota. We love Alberta too. They are great neighbors. And Premier Kenney, it is good to see you here again.

As you know, Montana and Alberta have long worked together. They have strong economic ties. We share firefighting resources. Our electric grids are intertwined. Two of our national parks connect to form the Crown of the Continent. The partnership between Montana and Alberta, as well as the United States and Canada creates jobs, it provides energy and food security, and increases the economic prosperity of both of our countries.

Unfortunately, in one stroke of a pen, President Biden, hours after being sworn in, hours after talking about uniting America, then divided it when he damaged and undermined that partnership we had when he canceled the Keystone XL Pipeline. Premier, you know better than most what the Keystone XL Pipeline meant for jobs, revenues, and energy security. I have been spending time with leaders in Eastern Europe. Vladimir Putin has Eastern Europe and Europe over a barrel right now because of dependencies on Russian oil and gas. And that is why Alberta filed a suit against the United States seeking \$1.3 billion in damages.

Let me just read a line from that filing. The Biden Administration's decision to revoke the Keystone XL Pipeline, and I quote, "resulted in the loss of thousands of jobs, caused systemic harm to the American, Canadian, and Albertan economies, and diminished the highly integrated North American energy system upon which future North American prosperity will continue to rely." We just saw the gas price hit an all-time record. My Montana farmers and ranchers are driving up now and seeing diesel at nearly six bucks a gallon. That line from that lawsuit, I think, sums it all up.

As you point out in your testimony, when gas and energy prices hit record heights and families are struggling, instead of calling on U.S. and Canadian producers, President Biden went to OPEC, Venezuela, and Iran. It is like a Babylon Bee parody, but it was reality from this Administration. Energy security is national security and we should be increasing North American production, not going to foreign adversaries.

Premier Kenney, do you worry that the Biden Administration's arbitrary decision to kill the Keystone XL Pipeline—and I say, arbitrary because I do not see any sense from an environmental viewpoint, economic viewpoint. It is the most carbon friendly way to transport a liquid. Kills thousands of jobs. Could that possibly lead to further decisions to kill transport of power because, by the way, there are 70 operating oil and gas pipelines in the United States, again, as we wake up here today, 31 transfer oil, 39 natural gas. Could this lead to further decisions that connect Alberta and Canada to the United States, and what can we do to continue to strengthen the Montana-Alberta energy partnership?

Mr. KENNEY. Thank you. Thank you very much, Senator. Good to see you again. And the answer is yes. I am concerned it creates a very problematic precedent to retroactively veto a project that has been approved. The borderline—the border crossing of the KXL had been built between Saskatchewan and Montana with the Government of Alberta as a co-owner. So you have a foreign government investing in a project, making an investment predicated on the certainty of the U.S. regulatory process, clearly in the mutual economic interests of both countries, being retroactively vetoed. And frankly, I then looked at the political pressure coming from

Governor Whitmer to shut down Line 5, which her state depends on as a major energy source, wondering is it possible a U.S. administration, with the flick of a pen, will shut down a six-decade-old, safely operating pipeline? It has created a serious problem of investor confidence.

You are right, the U.S. State Department, under former Secretary Clinton, concluded not once, but twice, through exhaustive studies that KXL would have had a lower emissions profile than the alternative, which is increasingly shipping by rail. And I would point out that most of the major U.S. unions supported this—steelworkers, teamsters, building trades, and others. Now, it is done and dusted. KXL is behind us, but I hope that the invasion of Ukraine and the imperative of energy security causes a fundamental re-think about these issues in Washington.

Senator DAINES. Well, I hope it wakes up the woke because it is a dangerous ideology and people are suffering because of what this Administration is doing—this keep it in the ground, shut off fossil fuels. And it is a huge concern, as you have heard today from many on this Committee.

Premier Kenney, by failing to mirror the aggressive steps that Alberta has taken to increase and streamline timber harvest, the Biden Administration has also failed to be a partner to Alberta in pursuing climate objectives. Over the past two decades, forests in Montana have actually become a carbon source instead of a carbon sink. A healthy forest absorbs carbon, a burning forest emits carbon. For years, lack of management has had negative impacts on wildlife habitat, ecosystems, watersheds, rural economies, and public safety, but now, we are seeing even broader impacts on the housing market with the price of lumber. During the heights of the pandemic, the price of lumber more than tripled, and even now, the vol to lumber market has increased the average single family home price by nearly \$20,000. Despite this, Montana lumber production has actually decreased by 11 percent and we just had another mill close last December. When I was growing up in Montana, we had over 30 active sawmills. We are down now to what I can count on one hand and one finger. This is not for lack of supply. Montana has over nine million acres in need of treatment and our annual timber harvest is half of what the allowable sale quantity studied and approved in our forest plan.

Let me cut to the question here, Mr. Premier. How does this compare to the forestry permitting process in Alberta? And would you agree commercial timber harvest is often the best tool to accomplish our environmental objectives?

Mr. KENNEY. Yes.

Senator DAINES. Because we are going to see it takes over five years to complete an EIS.

Mr. KENNEY. Yes.

Senator DAINES. And initiate forest management projects here in the United States.

Mr. KENNEY. One hundred percent. Fortunately, under our constitution, provinces also regulate forestry production, and we have seen actually the exact opposite of your experience—a 30 percent increase in harvesting since 2011 and a \$6 billion increase in investment in our forestry industry. Last year was the best year in

terms of volume of fiber and revenue for the industry. And you know, I am glad the province regulates this because we have, within our province, a large federal park called Jasper, where the forests have been absolutely destroyed by pine beetle because there is no responsible harvesting policy. So I think this vindicates local regulation of forestry.

Senator DAINES. And we are seeing that in Montana. I will close here, Mr. Chairman, but our state lands—we are seeing those, you know, under the leadership of our Governor Gianforte of Montana—we are seeing increased harvests. Our federal lands, that is the problem. It sounds like it is a similar problem in Canada.

Mr. Premier, thank you.

The CHAIRMAN. Thank you so much.

And now, Senator Hoeven.

Senator HOEVEN. Thank you, Mr. Chairman.

And in 2015, the Chairman and I actually co-sponsored legislation. It was Senate bill 1, to approve the Keystone XL Pipeline. It passed the Senate, passed the House. It was vetoed by President Obama. Had it not been, it would today be bringing 830,000 barrels a day from Canada to the United States, which, obviously, would be of great help, and the likelihood is it would have been expanded and it would be, probably, well over a million barrels a day versus trying to get it from some adversary, be that somebody in OPEC or Venezuela or somewhere else.

So how do we go forward now as partners? And I am going to talk about another fantastic partnership we have. The Dakota Gasification Company in North Dakota takes lignite coal converts it to synthetic natural gas, captures the CO₂ and sends it to the Weyburn oil fields in Saskatchewan, and there it is put down a hole for tertiary oil recovery. And that has been operating successfully for well over a decade. What a great partnership. How do we go forward, Premier, and build on these partnerships? I will give you an example of one that, obviously, should be in place—Keystone XL—and another one that is in place and operating very effectively, providing coal-fired, in this case, electricity, but also synthetic natural gas, and then also producing more oil through the tertiary oil recovery—a great partnership between our two nations. Together, we have incredible resources. How do we cut through some of these regulatory decisions that have impeded our ability to produce more energy with the greatest technology and the best environmental stewardship? How do we cut through and get that message to people in both countries so we can get more of these things done?

Mr. KENNEY. Thank you, Senator, great question. I will not pretend that Canada or Alberta has an optimal system for regulation and regulatory certainty. To the contrary, we have had huge regulatory delays and uncertainty, particularly around pipelines. But with respect to production and permitting, that is primarily controlled by the provincial governments on oil and gas in Canada, and we have reduced by 20 percent the regulatory burden for permitting and we have accelerated by about 60 percent the speed of permitting for a conventional oil and gas project.

So I would just add, in Canada, one aspect of regulatory delays is often associated with the need of the government—the crown—

to consult adequately with indigenous people, with what we call our First Nations. And a key part of that is involving them in a beneficial way in the industry, in resource development. I think we are developing a very good model in Alberta of indigenous participation including equity co-ownership of major resource projects so that they feel fully like they are participants in resource development.

Senator HOEVEN. So what do you see in Canada today in terms of your resource development and working with the United States? Are you still committed to producing energy, not only for your own country, but you know, bringing it to the United States so that together, you know, as North America, we are truly energy sufficient, or are you dissuaded from doing that? What kind of things should we in Congress do to try to build that relationship and promote more partnering in energy development for the good of both nations?

Mr. KENNEY. Thank you, Senator. I think the predicate of your question is this concept of a North American energy alliance. I think it is manifestly in the interest of both the American and the Canadian people to develop that policy framework. As I mentioned earlier, the Administration regards the production of Canadian critical minerals as, for all intents and purposes, American critical minerals, under Title III of the Defense Production Act. I think a similar policy approach should be taken to Canadian oil and gas and other energy resources. You know, for starters, stop efforts to shut down current infrastructure, like Line 5 going through Michigan. Secondly, accelerate regulatory approval of pipeline optimization projects so that we can ship you more. Thirdly, let's work together to see if we can we bring back something like another major pipeline between Alberta and the United States. It may require governments participating in de-risking that, because capital markets have been, you know, the private sector has been spooked by that veto and I do not think you are going to have a pipeline company coming to market with a \$10 billion-plus project with so much political and regulatory uncertainty.

I think we, as governments, need to be more forward-leaning to de-risk projects like that.

Senator HOEVEN. Right, which takes both the provincial or the state government and our respective Federal Governments to work with us to do it, right?

Mr. KENNEY. Yes, sir.

Senator HOEVEN. Yes.

Thanks to all of you, I appreciate it very much.

Mr. Chairman, thanks for holding the hearing.

The CHAIRMAN. Thank you, Senator.

And we are going to do a second round. I am going to go right to Minister Wilkinson, if I may. Sir, I understand a little bit of what is going on, and I want all of you to understand. I want my Administration, I want my government to understand how important it is for this relationship and how much more we can both do. We all have a responsibility to the climate. We have a responsibility to the energy that we need and understanding what the world appetite is so that we can do it better and cleaner than any place in the world. Hydrogen, I know, Mr. Wilkinson, you come

from a hydrogen background and you understand it. I am very, very much interested in hydrogen and how we promote more of it in America.

We have been promoting EVs, and I think at the detriment of basically making ourselves totally reliant and being held hostage by foreign supply chains. That is why I think our relationship in energy and critical minerals is so important. I also believe that as we move forward in America, we are going to start requiring that all the pipelines that we do are dual-purposed, that they are properly coated to be able to carry both gas and hydrogen, as we transition. So if you can tell me what you all are doing in your government and how you are looking at hydrogen, and let's say that an area such as Alberta, Saskatchewan, some of your larger, energy-producing areas of your country, how can that be supportive and how can it be helpful?

Mr. WILKINSON. Thank you, Senator. And I agree with everything that you said. Hydrogen, I think, is going to be extremely important as an energy carrier as we move forward in a whole range of different applications.

The CHAIRMAN. And we can do it, we don't have to rely on any supply chains, any foreign supply chains. We can do it.

Mr. WILKINSON. Absolutely, absolutely. And both Canada and the United States are well placed to actually be producers of large quantities of hydrogen. In Canada, we can go both directions, one is producing using electricity, which is what Quebec would normally do. The other is producing ultra-low carbon hydrogen from natural gas, capturing the CO₂, which is Alberta/Saskatchewan. We see Canada as an emerging hydrogen vehicle for the world, certainly for Western Europe. We see working with the United States on ensuring that we are building up transportation corridors and linking up hydrogen hubs that we are both developing as a way for us to accelerate progress on this.

I totally agree with you that any infrastructure that we are thinking about putting into place going forward needs to be hydrogen-capable. We are looking right now at trying to enable liquid natural gas exports from eastern Canada to Europe, but it will need to be in the context of it being hydrogen-capable so that we can actually ensure that we are moving through this transition and we are not ending up with stranded assets. So I absolutely agree with you. This is an enormous opportunity for North America and it is something that we need to work on together.

The CHAIRMAN. And if I may ask, Premier Kenney and all three of you, what is the thing that we need to do most with the cooperation of our two countries? Any impediments that you are running into? We understand that your permitting process is about two years. Ours could go as long as ten, twelve, because of our court actions. We are trying to get that down to make sure that we can compete and do it in a timely fashion. But if you can give the greatest obstacle, any, all four of you, that might see that we could work on, the critical factor that you want us in the United States to give attention to that would be helpful for this relationship to continue to flourish because we need each other very badly.

Mr. KENNEY. Senator, I don't have enough familiarity with the U.S. permitting process to offer useful advice. I will just say that

in our own back yard, in Alberta, as I mentioned, we have cut red tape by 20 percent on permitting.

The CHAIRMAN. The greatest obstacle you have, Premier, as far as working with the U.S. Government or coming into our markets or us going into your markets or the transfer—is there any impediment there in the trade that you think that we have?

Mr. KENNEY. Well, I mean, look, I hate to come back to it yet again, but—

The CHAIRMAN. Well, philosophically, we know the difference—

Mr. KENNEY [continuing]. The veto of KXL sent a message that the government of the United States does not want substantially more Canadian energy. So this has, I think, impeded investor confidence. As I just said, you are not going to have a midstream company come into the market to risk that again, that kind of capital again. So I think we need a message from the Administration about regulatory certainty.

The CHAIRMAN. Sure.

Ms. CAMDEN. Thank you, Chairman.

I would add to that that for the mining sector, we are already having discussions with people from the Administration from the United States. A month ago, I was in Washington with colleagues from Quebec, and we had meetings with the DOE, DOD, the Department of the Interior, and the Department of Commerce. And we are looking at different ways of having greater collaboration, and it could be co-investing, it could be offtake agreements, but we need to have a transparent dialogue with all the stakeholders.

Mr. BRADLEY. Thank you, Senator. I am going to go in a bit of a different direction with this. From an electricity perspective, I think the greatest challenge that we face both in Canada and the United States is that our government and your Administration have both committed to a net-zero electricity grid by 2035. To be able to achieve that is going to take a significant effort, certainly in Canada. We are now getting a better sense of what the government's vision is for the pathway to 2035, but it needs to be done in a manner that is coordinated between Canada and the United States.

The CHAIRMAN. The largest world polluters are looking at 2050. They have moved it out 15 years, or 2050 is what they thought, and even then, they do not think they can make it at 2050.

You are accelerating at 2035 because you think that is achievable? Or it is a lofty goal for us to shoot for?

Mr. BRADLEY. Well, we are committed to a net-zero economy by 2050.

The CHAIRMAN. Got you.

Mr. BRADLEY. A net-zero electricity grid is a commitment that both President Biden and our Prime Minister have made for 2035. So from an electricity sector perspective, our focus is very much is on the immediacy of 2035 first, and we want to ensure that that is done in a coordinated fashion, given the interconnected nature of our electricity systems. And then, looking out at 2050, the 2050 target is one that is going to require, at least in Canada, two to three times more non-emitting electricity than we produce today. And so, that is a very significant lift and it will only be achieved

if we do it in a coordinated and a collaborative fashion between Canada and the U.S.

Mr. WILKINSON. And Senator, maybe I could just say a word. I mean, I completely agree that there needs to be a much more strategic approach to North American energy. And that certainly very much includes the energy sources and the associated materials that are going to be really required in the future. That includes hydrogen. It includes critical minerals. It certainly includes technologies around carbon capture and nuclear technologies, including small modular reactors. I think one of the things that we have to do—and I think there is complete alignment between the Biden Administration and what we are aiming to do in that regard—but I think one of the things that we have to collectively do is ensure that we do not allow irritants to get in the way of the kind of cooperation that we need to be having.

So this EV tax credit, for example, which would have had huge implications for the Canadian auto manufacturing industry because of the way it was structured. Line 5, which, you know, there is no point in going backwards here in terms of energy security. That would be a step backward. The same thing with, you know, American tariffs on solar panels that are manufactured in Canada. It was intended to go against China. It ended up boomeranging on Canada.

So we need to actually be strategic and thoughtful about how we partner in a way that is going to be good for both countries and allow us to advance to address climate change and energy security concurrently.

The CHAIRMAN. Thank you.

Senator BARRASSO. Well, thanks, Mr. Chairman.

I wanted to follow up, Premier Kenney, on something that Mr. Bradley just talked about. He talked about this commitment by President Biden and Prime Minister Trudeau with what I view as extremely aggressive goals for electric grids in North America, because by the year 2035—now we are in 2022, you are talking 13 years from now—the two leaders want to eliminate all natural gas and all coal as sources of electricity. In the United States, 61 percent of our electricity comes from natural gas and coal.

So Premier Kenney, are you concerned that such aggressive goals are going to create reliability problems at the border and for people in your—

Mr. KENNEY. Yes, frankly, yes, Senator, we agree about the urgency of reducing emissions and that is why, in fact, Alberta will have completely shifted away from thermal coal, which was, five years ago, our major source of electricity generation. So there are huge investments in coal-to-gas conversions, but we do not have hydro in Alberta. We do not have nuclear and obviously, it takes a long time-horizon to develop nuclear. And so, if the Federal Government requires us to move away from natural gas without a reliable baseload alternative, we will not have a reliable electricity grid, which would obviously be devastating to our economy.

So we want to have ambitious emissions reduction goals, but they have to be realistic. And natural gas is going to be part of our future. I agree completely with Minister Wilkinson. Alberta is

going to be a key global hub, for example, in producing low-emitting hydrogen products, but that requires natural gas feedstock.

Senator BARRASSO. So on the first day of office, President Biden killed the Keystone XL Pipeline, linking Canada and the United States. In May, he then lifted sanctions that allowed Nord Stream 2, linking Russia to Germany. I have been outspoken on my opposition to that. Nord Stream 2 ended up getting built. Keystone was not. Did the President oppose the wrong pipeline?

Mr. KENNEY. I would argue yes, Senator.

Senator BARRASSO. And then, you know, we talked about, a little earlier, the joint partnership between President Biden and Prime Minister Trudeau when they came out with their roadmap last year. And together they stated that it is a shared interest of the United States and Canada to revitalize and expand our historic alliance and steadfast friendship. They also pledged to recognize the important economic and energy security benefits of the bilateral energy relationship and its highly integrated infrastructure. I believe that since President Biden took office, he has not been a good energy partner or a good partner to Canada.

What is your assessment of that and would you—how can we improve this partnership?

Mr. KENNEY. Well, I have mentioned some ideas, for starters. First, do no harm. And I do not understand why the Administration of the United States, which is pleading with OPEC to ship more, is taking a neutral position about an effort to shut down the shipment of over half a million barrels a day of light sweet Canadian energy to the upper Midwest through Governor Whitmer's effort to decommission Line 5. Now, we appreciate that we are—the government of Canada and the Government of the United States—are currently in negotiations about resolving this as a treaty dispute, but I do not think there should have to be negotiations. I think the Government of the United States should make it clear that it is contrary to the national interests of this country to shut down that project, for starters. I think a strategic decision to treat Canadian energy as though it were American energy, really enter into a true alliance, would send a hugely important signal to our companies, our upstream companies and our midstream companies, that there will be a future market here, that you are not hostile to Canadian energy.

As I said, look, if we were serious about this, we could achieve, within five years, a complete elimination of North American imports of OPEC energy. That would be demonstrably good for the world environment and global peace and security.

Senator BARRASSO. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Hickenlooper.

Senator HICKENLOOPER. You know, I would just would like to add, again, my appreciation for your attendance and participation today, but also how much I support this, the vision of the greater North American energy all-of-the-above, and recognizing that our guiding light does have to be that the climate is changing much more rapidly than any of us would want. We are seeing an increase—there is a larger percent of our landscape that is increas-

ingly hostile to habitation and the production of food. And it is going to take a long time to—we have to find effective ways and efficient ways to get carbon out of the air. But I think some of the benefits that we could have by working together—and you have all pointed this out today—we are just stepping on our own greatest opportunity. I think the import of solar panels from Canada, was that Minister Wilkinson that mentioned that? We are going through that issue right now. The Commerce Department, again, is looking at the provenance of solar panels that could put our solar industry on its back for an extended period of time. For what real point?

I mean, I understand the arguments on both sides. I am not saying that—I should not say for what real point—but I understand the point. I do not think it is relevant in terms of trying to deal with a massive problem like climate, which is what all of you are clearly doing. So hopefully this hearing is a foundation that allows us to go forward and really begin looking at what an alliance would look like in a more pragmatic way. And I agree with all of you that that has to work on the state level and the local level as well, but it will never succeed without the cooperation and orchestration of the Federal Governments involved.

And I would hope that we could all work with Mexico as well. I think that they could be a very active and powerful partner in a lot of these issues, solar panels included.

Anyway, I have no further questions, just admiration and appreciation.

The CHAIRMAN. Thank you, Senator.

Let me say to all of you, I appreciate it so much. We have been looking forward to this for quite some time and it has been very, very helpful. What I will say is that I think the world is looking to North America right now, and that includes all of us working together.

What I do see as the problem, and I have said this, my Administration, with all the goodwill and intent that they have, and all of our concerns that we have responsibility to this beautiful planet that we have been able to occupy, we have to do the best we can, but with that, I have said this is called global climate. It is not called Canadian climate. It is not called United States climate. It is called global. And we have done more in the last two decades probably to clean up, using the fossils that we use in the cleaner fashion, which the world is depending upon.

And when I watch China—they keep talking about China and renewables, China and renewables. China has 3,000 coal-fired plants and they are building 400 more. They are not taking their foot off the pedal at all. India had 500 to up to 800 and they want to build 100 more. The United States is going down. You all have basically gone down. Everybody has tried to be responsible. You take the developing nations of the world and the leaders of the world such as us and you, and you take us out of the fossil industry before we have the replacement that the rest of the world could move into—God help us. God help the climate because the rest of them will not do what we are going to do. They will not do what we have done in this free democracy that we all live in and the freedoms that we all enjoy. We have done it because it was the right thing to do. But

taking us out of that industry before we have a replacement—and all I have said is the United States of America should go down our true path. We should basically make sure that we have reliable, secured energy for a period of time going through this transition as we are investing in the technology. You cannot eliminate your way to a cleaner climate. You can innovate your way to it. And when those criss-cross, and you give me as much out of what I am getting out of the fossil now—dependable, reliable and affordable—and when you can give me that, based on dispatchable, reliable power, whenever I want it, from the new technologies that are coming, and we will be designing and developing, that is when the market takes over. It is not us making government decisions. It will be the market that makes those decisions.

But we have everybody afraid. Well, if we do this and we build this great alliance in North America, we will become so good and so efficient at what we are doing, it will just be, basically, prolonging us using fossil when people want us not to. And I only said—I can speak from just my position and one vote as a Senator—that I will not vote to support the European model of what they are dealing with today. I think we can do it better. And that is why I came to Canada to see if you all would join us in a North American alliance and maybe we can get Mexico, Senator Hickenlooper. We want do that. But we have the ability, and I am scared to death that what Xi Jinping is watching what Putin did with energy is what he would do with the critical minerals for our computer chips, for basically the cathodes and anodes and the processing. And right now, I think both of our countries are dependent on what is coming from Russia in the technology end of it for us to be able to transition. I do not want to transition and be totally reliant on foreign supply chains. That is just me.

And Minister Wilkinson, that is why I said hydrogen is something I know we can do. So I have looked at that very astutely, and basically it is very encouraging, but there is so much more that needs to be done. But again, I can say, I do not think we can do it without each other. And I think we need each other. I appreciate it very much. We want to break down these barriers. We want to make common-sense decisions. We do not want to take away and shoot ourselves any more than we already have. And I think we can heal the wounds that we have. And I just appreciate and I hope you have a safe journey back home. I look forward to visiting you soon.

With that, let me just say, members will have until close of business tomorrow to submit additional questions for the record if they were not able to submit today.

I appreciate this climate partnership that we have been able to speak about. And also, I want to thank you again. This Committee will stand adjourned.

[Whereupon, at 12:03 p.m., the Committee was adjourned.]

APPENDIX MATERIAL SUBMITTED



Hon Jason Kenney
Premier of Alberta

Questions from Senator Mike Lee

Question 1: *How does the politicization of energy projects impact North American energy security?*

Politics should not drive decisions regarding the development of vital infrastructure – especially now. The fact remains that the world is going to continue to use oil and gas as we transition to lower emissions. That energy must come from jurisdictions like Alberta that are leaders in environmental standards, safety and reliability. Otherwise, it will come from places like Venezuela, Russia or Saudi Arabia that do not share Alberta's robust regulatory regime, transparency, or respect for human rights.

That's why we were so taken aback when President Biden vetoed the Keystone XL pipeline, which would have operated at a net-zero emissions level (a first-of-its kind commitment) and safely delivered 830,000 barrels per day (bpd) of responsibly produced Canadian energy to the U.S., more than displacing the 670,000 barrels a day imported from Russia last year. Keystone XL would have allowed Gulf Coast refiners to source some of the world's most responsibly produced feedstock from a reliable, affordable and stable neighbour.

We also call on our partners in the U.S. to help correct the record about Alberta's oil sands, which have been unfairly misrepresented as "dirty" or harmful to the environment. The fact is that Alberta oil and gas is produced under some of the world's most stringent environmental, social and governance standards (ESG). Alberta's oil sands producers have reduced emissions by 36 per cent per barrel since 2000 (22 per cent over the past decade); the carbon intensity of crude oil from many oil sands projects is now equal to or lower than the average for a barrel of crude globally.

Clearly, importing more Alberta energy is a better solution to America's energy and inflation crisis as opposed to urging Organization of the Petroleum Exporting Countries (OPEC) to produce more oil or lifting sanctions on Iranian and Venezuelan exports. Last year, about 62 per cent of the crude oil imported to the U.S. came from Canada, and virtually all of that was from this province. We supplied the U.S. with 10 times more oil than Saudi Arabia, and five times more than all of OPEC.

With political will from Washington, we could get another major pipeline built that would fully achieve North American energy independence and allow the U.S. to free itself from imports coming from hostile and less environmentally friendly regimes.

Question 2: *Energy stability and security must be a priority going forward, but these goals will be impossible to achieve if environmental issues continue to be weaponized for political gain. What actions should the U.S. federal government be taking to increase regulatory certainty for these critical energy infrastructure projects?*

In general, the regulatory environment for existing infrastructure provides a signal to future project proponents about the health of the investment climate and the stability of political leadership. A number of potential actions undertaken by the U.S. could serve to enhance regulatory certainty, reduce investment risk, and guarantee the security of both existing and future infrastructure projects, including:

1. Provide regulatory certainty for environmentally friendly critical energy infrastructure. Keystone XL was approved and came with a first-of-its kind commitment to operate at net-zero emissions but it was vetoed on the premise of misinformation and political gain. This is counterproductive to energy stability and security.
2. Strengthen and improve safety standards for existing infrastructure and implement risk management approaches to enhance coordination of emergency preparedness and continuity planning. This is not only a reputational enhancement for stakeholder relationships but will also minimize longer-term costs and foster innovation.
3. Continue to provide medium- to long-term economic incentives to help guide proponents through the energy transition. Additional financial support should be available if existing infrastructure is required to be upgraded to meet higher regulatory standards.
4. Establish suitable fiscal mechanisms to save for future environmental obligations and end-of-life reclamation. This would provide reassurances to any future administrations that these assets will be cleaned up or that there is funding to repurpose the assets for other unanticipated uses.
5. In cases where there is justification for repurposing or cancellation of current infrastructure, governments should have policies in place for sufficient timelines and predictable transitions. These policies should also allow for suitable repurposing of the existing assets (e.g., switching from a natural gas pipe to hydrogen).

Question 3: *In the U.S., as in Canada, there are policies in place to protect our national security interests in the foreign investment context. The Committee on Foreign Investment in the United States (CFIUS) is an interagency committee that serves the President in overseeing the national security implications of foreign investment in the economy. It reviews foreign investment transactions to determine if (1) they threaten to impair the national security; (2) the foreign investor is controlled by a foreign government; or (3) the transaction could affect homeland security or would result in control of any critical infrastructure that could impair the national security. National security interests are frequently talked about in terms of advanced manufacturing technologies like semiconductors and military applications. However, these interests in fact cover a broad range of technologies and include resources and infrastructure, such as oil, gas, chemicals and minerals—all areas of strength in Alberta.*

Given the fact that the USMCA has created in many ways one large North American market, does Canada have similar review processes? If not, do you believe it should?

Alberta recognizes the close integration of the North American marketplace and the shared opportunities and challenges it presents. The USMCA is an important means of promoting cooperation and protecting shared national interests, especially in the energy sector and critical infrastructure. As noted in Senator Lee's question, protecting national security interests across a range of sectors is essential for both Canada and the U.S. and includes the need for each government to carefully assess proposed foreign investment transactions.

Canada has a longstanding foreign investment review framework as set out in the *Investment Canada Act* (ICA). This federal statute is aimed at achieving a balance between encouraging investment, economic growth and employment opportunities in Canada while recognizing the need to protect national security.

A foreign investment is subject to a federal "net benefit" review if it exceeds the applicable financial thresholds and the required level of acquisition of control. Investments by foreign state-owned enterprises are subject to intensified scrutiny, including investments in oil sands projects. The ICA contains a separate section on national security reviews that involves a wide application to proposed foreign investments and which provides considerable discretion to the federal Minister.

The ICA permits federal consultation with provinces like Alberta and other stakeholders. Alberta recognizes the importance of cooperating on national security and economic issues and regularly provides feedback on proposed foreign investments that will impact the province.

Questions from Senator John Hoeven

Question 1: *The ratification of the 1977 Transit Pipeline Treaty between our two countries recognized and set into law protections for both of our nations' energy security and protections for unencumbered energy trade.*

How important has the 1977 Transit Pipeline Treaty been to North American energy security and do you agree that it is more relevant than ever, given what is occurring in our energy markets?

The 1977 Transit Pipeline Treaty is an example of the longstanding recognition of the need for the U.S. and Canada to cooperate to protect and support North American energy security and economic growth and prosperity. It provides a strong foundation that helps to ensure the stable, continuous and reliable movement of energy resources between our two nations.

The Treaty sets out a number of important legal precedents that ensure that pipelines are one of the most efficient and safe means of supply energy products on both sides of the border. For example, the Treaty requires that all governmental measures imposed by the Parties must be just and reasonable, applied in the same manner to all persons (in substantially similar circumstances) and, except as provided for in the Treaty, must not impede, divert, redirect or interfere with pipeline transmission of products.

It is unfortunate, but the 1977 Transit Pipelines Treaty is more relevant than ever. At a time when we should be working together to solidify our North American energy alliance, Canada had to invoke a decades-old treaty for the first time in history, in an effort to protect an existing piece of vital infrastructure that serves the needs of citizens on both sides of the border. Alberta stands firmly behind Canada in its decision, as shutting down the Enbridge Line 5 pipeline would only worsen costs of living and the energy crisis – and at the worst possible time.

Line 5 is a crucial transportation conduit for both U.S. and Canadian energy consumers. It is vital infrastructure, not just for Michigan, but for the entire U.S. Midwest and points beyond. Line 5 has operated safely and reliably in the Straits of Mackinac for nearly 70 years. The Great Lakes Tunnel Project will further enhance its safety.

It is imperative that we work together to maintain current supply, not interrupt it. We must work towards a solution, not exacerbate energy security issues. We will continue to call on the U.S. government to join Canada in demanding the Governor of Michigan respect the 1977 Canada-U.S. Pipeline Treaty by abandoning her efforts to decommission the Enbridge Line 5 pipeline that has safely delivered over half a million barrels of Canadian energy to the U.S. for more than six decades.

Question 2: *What other actions are necessary to protect our geopolitical security and North American economic competitiveness with regard to making sure we protect existing infrastructure?*

Supporting North American economic competitiveness is a critical issue that provinces and subnational governments can play a significant role in supporting, particularly with respect to the integration of supply chains.

Taking actions that enhance opportunities and capacity to be able to move goods efficiently and safely—whether via port, pipeline or pavement—are critical to our economic competitiveness and ensure North America can contribute to global security by being a supplier of choice for goods. Such actions could include:

- ensuring clear and predictable regulatory approval processes for key pieces of trade infrastructure;
- opposing policies that distort trade flows or discriminate against goods from each others' markets;
- expanding the U.S. *Defense Production Act* (S. 3), which currently lists Canada as a domestic supplier of critical industrial development, to prioritize Canadian oil and gas;
- modernizing agreements to provide protections for projects that have received a presidential approval for a project to move forward;
- sharing technologies, strategies and approaches to tap into our mineral, energy, and agricultural potential; and
- continuing to collaborate on cybersecurity at all levels of government to ensure key pieces of infrastructure cannot be disrupted by cyber attacks.

A strong and competitive North America ensures the safety of the continent, and reinforces our ability to act as an economic counterweight to bad actors elsewhere in the globe.



GOUVERNEMENT DU QUÉBEC
BUREAU DU QUÉBEC
WASHINGTON

June 17, 2022

The Honorable Joe Manchin III
Chairman
Senate Energy and Natural Resources Committee
304 Dirksen Senate Building
Washington, DC 20510

Dear Chairman Manchin,

In this document you will find the responses prepared by the Associate Deputy Minister of Mines and the Associate Deputy Minister of Energy, Innovation, and Transition, representing Québec's Ministry of Energy and Natural Resources, with collaboration from Québec's Government Office in Washington. These responses were prepared following the appearance of the Québec Government's witness, Nathalie Camden, the Associate Deputy Minister of Mines, before the Senate Energy and Natural Resources Committee on May 17, 2022. This participation was part of the hearing, *Ways to Strengthen the Energy and Mineral Partnership between the U.S. and Canada to Address Energy Security and Climate Objectives*.

Thank you for including the Québec Government's perspective in this important hearing and for the opportunity to provide further information to the Committee through these responses.

Merci encore.

Le directeur du bureau du Québec à Washington,

Jean-François Hould

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Questions from Senator Maria Cantwell

Questions: I understand that Canada's Provinces (which have generally been delegated authority for the federal or "Crown" land) charge a royalty, or in some cases a tax on profits of mining companies. That royalty ensures the mining company is paying its fair share for access to what we would call "public lands" here in the United States. This is something that we do not do here in the United States, but which I think is coming and long overdue.

- **Would you be able to share some information about where those royalties go, and what they support?**

Response: Québec's mining tax regime provides that an operator carrying out mining operations, other than for surface mineral substances, must pay the higher amount of either the mining tax based on the company's annual profit (at a progressive rate ranging from 16% to 28%, depending on profit margins) or the minimum mining tax based on the mine-mouth output value, at the following rates : 1% on the first US\$ 64 million (CA\$ 80 million¹) and 4% on the remainder. Since 2014, after the reform of the regime in 2013, Québec's mining tax regime generated more than US\$ 1.44 billion. For the year 2020 alone, royalties (mining duties) provided US\$ 504 million, which is more than twice the US\$ 239 million generated approximately between 2000 and 2009, before the 2010 reform.

The amounts collected under the Québec mining tax regime are allocated to two government funds:

1. The mining heritage component of the Natural Resources Fund, that serves the mining sector directly.
 - This fund finances activities that foster the development of mineral potential, including geoscience knowledge acquisition, research and development in mining exploration, mining site rehabilitation and restoration techniques, and support for the development of Québec entrepreneurship.
 - Since 2008, a maximum amount of US\$ 16 million has been paid annually to the mining heritage component of the Natural Resources Fund, by decree.
 - In addition, in 2020-2021, the Government authorized funding for the implementation of the [Québec Plan for the Development of Critical and Strategic Minerals 2020-2025](#) by contributing an additional US\$ 55 million in mining tax revenues over five years to the Natural Resources Fund.
2. The Generations Fund is allocated exclusively to the repayment of Québec's gross debt (the rest of the sums after deduction of the amounts allocated to the Natural Resources Fund).

¹ All figures presented in U.S. Dollars using U.S. Treasury 2021 exchange rate \$1.00 USD = \$1.254 CAD

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- Can you please share your perspective as we consider standing-up a hardrock mining royalty system?

Response: Québec's mining tax regime was designed to meet several economic and social issues. A royalty regime must be able to reconcile, in the best possible way, the different issues of stakeholders, namely government and business, while seeking a balance between revenue maximization, fairness, predictability and competitiveness of the regime.

Issues for the government	Issues for investors
<ul style="list-style-type: none"> • Maximization of medium-term tax revenue and long term* • Neutrality** of the royalty regime • Stability over time of tax revenues • Ease of collecting royalties 	<ul style="list-style-type: none"> • Profitability of mining projects • Equity according to the different types of projects • Limitation of stresses and distortions to production or exploration • Stability of the royalty regime
The government wishes to allow the maintenance of a dynamic mining industry and ensuring the fair share perceived by the community of the resource not renewable it owns	Investors want to be sure that the royalties will allow a profitability minimum in view of the risks of the project as well as the other investment opportunities
<small>*It is thus a question of finding the right balance between a sufficiently high royalty rate which will not have a significant impact on the number of projects. **Without influence on the decisions of economic actors. Sources: Free translation of World Bank, IMDC, Secor</small>	

Fairness

In Québec, we believe that it is imperative that the community gets a fair share of the benefits from the exploitation of mineral resources since they are non-renewable. This must be achieved while ensuring the profitability of the investments through which mineral resources become a source of wealth. It is a question of balance; the government must ensure an appropriate level of revenue for the development of its resources while maintaining a competitive business environment.

Given Québec's diversity of mineral substances and the differences in deposits mined and the costs to producers, it was determined that a profit-based regime was the best option. Therefore, the objective of Québec's mining tax regime is to tax the resource while exempting the value-added arising from activities downstream from extraction. Note that the value of the resource that belongs to Quebecers corresponds to the value at the time of its extraction at the mine shaft head. At this stage, the value of the resource has not been affected by the increase in value resulting from processing activities. This increase in value has no relation to the economic value of the resource and should not be subject to the mining tax regime. However, the gain in value resulting from processing activities is not exempt from tax. It is subject to the general corporate income tax system, like all other manufacturing activities.

It is also essential that the royalty regime is as fair as possible, not only for the community that owns the resource, but also for the investors who have incurred the risks behind its discovery and exploitation.

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Predictability

The 2013 reform of the mining tax regime allowed Quebecers to receive a larger share of the wealth generated by mining operations. The coexistence of a minimum mining tax and of a progressive mining tax on profit produce significant royalties for Québec, regardless of the prices of raw materials on world markets. The government has defined rules allowing investors to forecast the return they can expect on their investment, depending on the results of exploration work and the situation on world markets. Predictable rules are particularly important in a sector that can be highly cyclical. Royalty schemes cannot ignore the reality of these cycles, as they are a source of significant additional costs. Hence the importance of choosing the right royalty structure, which has varying impacts on mining companies' operating costs and investment decisions.

Competitiveness

It is essential that the regime be competitive because of the fierce competition among producers of mining resources. Also, since investment financing has become globalized, we believe that it is not possible to design a royalty regime that ignores the regimes of other major ore-producing countries.

Royalties are the price that mining companies must pay to compensate for the extraction of minerals from Québec soil. For these companies, this is one cost among many. The challenge for the government is to maximize its royalty revenues, that is, to have a rate high enough to have significant levels of royalties, without reducing investments, which would have the effect of reducing the tax base. An increase in the royalty rate does not necessarily translate into an increase in revenues for the government in the medium and long term.

In addition, we think it is important to support companies in the various phases of the mining cycle. To that end, Québec provides various fiscal measures, including a refundable credit for activities such as exploration and development of mineral resources.

Finally, we believe that the society must fully benefit from the benefits of the mining activity carried out on its territory. But these benefits necessarily stem from the level of this activity. If investors reduce their investments in the target territory, following a decline in competitiveness vis-à-vis neighbouring or comparable regions, particularly in the low periods of mining cycles, these benefits will fade. Thus, in order to develop an appropriate royalty regime, the government must consider the impacts of different royalty regimes and rates on investor decisions and government revenues while keeping in mind the provincial or state mining environment and price volatility.

Sources :

- [Un nouveau régime d'impôt minier équitable pour tous](#) (Gouvernement du Québec, mai 2013)
- [Les redevances minières au Québec](#) (Secor-KPMG et FMC, juillet 2012)

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Questions from Senator John W. Hickenlooper

Question 1: Canada has large natural reserves of both lithium and cobalt, two minerals crucial for scaling up the production of batteries, renewables, and other next-generation clean energy technologies. These resources are hard to find elsewhere in North America, and the US is currently heavily reliant on imports from other continents. How can the US and Canada work together to shore up the North American critical minerals supply chain, both in bolstering our trading partnership and through other strategies like enhanced recycling?

Response: Due to our shared economic and geographic space, Canada and the U.S. are natural partners for ensuring a secure supply of critical and strategic minerals (CSM), especially in North America. Our two countries enjoy a longstanding, mutually beneficial trade and investment relationship in minerals and metals, providing supply chain security to manufacturers, high-paying jobs, and responsibly sourced products to end markets. Keeping in mind that natural resources are of provincial jurisdiction in Canada – including mineral and metal resources – Canada’s provinces, such as Québec, are always in the best position to know what is happening with resources, their extraction, and their processing within their territory. Therefore, we think that the United States and Québec should strengthen our existing partnership, and work together closely to shore up the North American critical minerals supply chain.

Due to our business-friendly environment, our legislation and the quick processing of permits, Québec is ranked as the world’s 6th most attractive mining jurisdiction, according to the Fraser Institute (2021). Québec is therefore an emerging player in the critical and strategic mineral space, with 22 active mines, three mines in care and maintenance, and 33 mining projects. Major multinational players, such as Rio Tinto, Glencore, ArcelorMittal, Newmont, Agnico Eagle, Alkerm, and BHP Billiton, as well as emerging producers like Sayona Québec, Nemaska Lithium, and Nouveau Monde Graphite, are all active in Québec. Aside from having many mines in operation and mining projects, Québec also has plants for the processing of copper, zinc, graphite, titanium, ferromanganese, and minor metals such as tellurium and bismuth. Processing projects are also in development for magnesium and lithium. On this point, note that Québec has the largest lithium reserve in Canada and nearly half of Canadian lithium projects. Graphite, vanadium, scandium, and rare elements are also targeted by processing projects. But starting up a mining project requires considerable funds, often in the range of billions of dollars. Consequently, the search for financing and strategic partners becomes an essential activity for mining promoters.

In Québec, we want to deploy or optimize integrated sectors in partnership with other CSM-producing regions. Fostering the development value-added sectors surrounding CSM is possible when the winning conditions are combined, namely the availability and the access of the resource, the proximity of the markets, competitive operating costs, an ecosystem of innovative companies, and a growing global market. In terms of financing, our government

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provides various forms of financial support to structuring projects in exploration, transformation, recycling, artificial intelligence, and research and development. Indeed, the Québec Government offers a wide range of financial incentives, such as loans, loan guarantees, grants, rebates for large consumers of electricity, diverse tax credits, and a government equity partnership. This enables us to reduce the risk and share it with investors. These different tools, along with those provided by the Government of Canada, with which we cooperate closely, allow us to better respond to the needs of each of our partners. This also makes it more convenient for Québec and the U.S. to collaborate to secure the North American critical minerals supply chain.

Furthermore, Québec aims at creating a research network to increase the complementarity and synergy of researchers and to respond to their issues and needs. We recognize there are many interesting initiatives and scholars working on critical minerals. However, there is a clear need for coordination. To better respond to those challenges, Québec seeks to work with partners from different countries, such as the U.S., to accelerate the development of the expertise needed to facilitate mining projects.

Also, for electric vehicle (EV) manufacturing in North America to be economically competitive we believe that the industry needs to be truly North American. Canada and the U.S. must therefore leverage each other's strengths and come together into a powerful engine of innovation and job creation. Taking full advantage of the new USMCA agreement to enhance trade in this sector will benefit both our economies. Creating these jobs in Québec will help create more EV jobs in the United States, not less, and vice versa. As the current U.S. Ambassador in Ottawa, David Cohen, likes to say, "the pie is growing." Indeed, there are ample opportunities for us to develop mining in the U.S. and in Canada. Québec's approach offers a way to do this efficiently, sustainably, and with the protection of the human rights and the environment in mind, without having to worry about strategic or geopolitical vulnerabilities. In our subsoil, Québec has all of the minerals needed for EV batteries. Working together, these resources can ensure our competitiveness, security, and environmental stability for generations to come.

Beyond sharing our best practices in the mining sector, it goes without saying that there is an urgent need for Québec and the U.S. to deepen and expand our scientific and economic collaboration to secure the North American critical minerals supply chain. On that point, Québec and the U.S. already benefit from a strong partnership. In fact, on September 23, 2019, the Minister of Energy and Natural Resources of Québec, Jonatan Julien, signed a letter of intent with the Director of the United States Geological Survey (USGS), James Reilly, with the aim of strengthening scientific and technical cooperation in the fields of geological studies, assessment of mining potential, particularly CSMs, and dissemination of geological information. Subsequently, in January 2020, the Governments of Canada and the United States announced the conclusion of a Canada-U.S. Joint Action Plan on Critical Minerals Collaboration. This agreement seeks to increase mineral production and create supply chains between the two countries for several critical minerals to which the U.S. only has access through

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imports from countries that hold monopolies and that present major risks of security of supply: we believe that Québec could become a significant partner in this new collaboration. Indeed, although Québec does not pretend to dominate global production, it certainly offers a complementary solution to the U.S. for the supply of CSMs.

Finally, we think that it is essential that Québec and the U.S. maintain and foster our already strong collaboration to secure the North American critical minerals supply chain. To this end, we believe that this partnership must be ambitious, ranging from the resources to their end uses and the energy used to extract and build them, respectively.

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Question 2: Canada has very ambitious and admirable hydrogen production goals. Like the US, most of Canada's hydrogen is currently produced via steam methane reforming, often without carbon capture. One of the main challenges we face here is that clean hydrogen is more expensive to produce, for now. How do you plan to ensure that when you scale up your hydrogen production, it moves towards clean hydrogen in an affordable manner?

Response: First, green hydrogen, which the Québec government will support politically and financially, could benefit from significant cost reductions by 2030 due to its scale-up. Several energy organizations, such as [IRENA](#), the [Energy Transitions Commission](#) (ETC) and [BloombergNEF](#), estimate that green hydrogen, produced by electrolysis of water from renewable electricity, could be even cheaper by the end of the decade than blue hydrogen, produced by steam reforming of natural gas with CO2 capture, use and storage (CUSC). In a report published in January 2022, [IRENA](#) even estimates that this could happen as early as 2028 in Canada and the United States (p. 94).

This drastic cost reduction for green hydrogen would be possible thanks to the continuous cost reduction of renewable energies (wind and solar photovoltaic), as well as electrolyzers. The cost reductions of these technologies will be gained in turn from the industrialization of the manufacturing, the improvement of their efficiency, their operation, and their maintenance. This situation will benefit, to a greater or lesser extent, most of the countries that choose to develop green hydrogen.

In 2020, MERN funded a [study on the technical and economic potential of the hydrogen industry in Quebec](#) and came to the same conclusions: by 2030, green hydrogen could reach US\$ 2.65/kg and US\$ 2.48/kg by 2050, compared to US\$ 5.78/kg today. While hydrogen remains expensive today, even in Québec, our low-cost hydroelectricity, which allows us to have 99% renewable electricity at rates that are among the lowest in North America, makes Québec one of the lowest-cost jurisdictions for low-carbon hydrogen in the world. This trend is expected to continue through 2030, as assessed by the [Canadian Energy Systems Analysis Research \(CESAR\)](#).

Although Québec would benefit, like the United States, from this gradual and global reduction of green hydrogen costs by 2030, the government wants to act now to position Québec among the leaders in this field. The first [Québec Strategy on Green Hydrogen and Bioenergy](#), launched in May 2022, is a step in this direction. Considering our renewable electricity costs are already very low compared to other jurisdictions and that we have few levers to influence the decrease in electrolyser costs, public action is essential to stimulate both the supply of and demand for green hydrogen before it "naturally" structures itself with the decrease in production costs.

Although there is already a trend towards green hydrogen production through electrolysis in Québec, as evidenced by the commissioning last year of a 20 MW PEM electrolyser in

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Bécancour, the largest in the world at the time, there are various barriers to green hydrogen consumption, in Québec, as there is elsewhere:

- **The cost barrier:** green hydrogen as well as green products cost more than their fossil counterparts to produce.
- **The technical barrier:** if the industrial processes that use gray hydrogen today can use green hydrogen without any technical issue, it is not the case for other applications where hydrogen would have a strong decarbonation potential. For example, since green hydrogen is dependent on electricity produced by intermittent renewable energies, industries will have to resort to hydrogen storage - increasing costs - to operate continuously and not be dependent on the variability of intermittent electricity production.
- **Lack of a true market for green hydrogen, its derivatives, and green products:** there is currently no established way to place a monetary value on the benefits of hydrogen or green products, meaning there is no widespread compensation for the higher costs associated with their production, nor are there adequate economic disincentives to carbon-intensive products. Thus, the lack of demand is accompanied by a substantial lack of production and infrastructure, creating a "chicken and egg" problem: green hydrogen solutions are now prohibitively expensive, but without demand, the investment remains too risky for large-scale production that could reduce costs.
- **Policy is often short-sighted:** an incremental approach to emissions reduction may "lock in" emissions reductions (e.g., blue hydrogen or hydrogen produced by electrolysis from fossil fuel electricity). Rather than switching technologies as new and more restrictive policies are adopted, companies will then try to maximize the life of their fossil investments rather than switch to low-carbon technologies.
- **Carbon leakage risk:** Due to the high costs of complying with a state's climate policies, companies may be tempted to relocate their carbon-intensive facilities to jurisdictions where GHG emission constraints are lower, and thus green hydrogen consumption is not required. Climate-compliant companies may also face unfair competition from companies that have relocated their operations to countries with low climate ambitions.

There are political solutions to make hydrogen competitive with fossil hydrogen and fossil fuels. In Québec, for now, we intend to support the development of green hydrogen through the following measures:

- **Carbon pricing,** which will reduce the economic competitiveness of fossil fuel technologies and increase the competitiveness of low-carbon technologies as pricing increases. For example, with the cap-and-trade system established between Québec and

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California, a ton of carbon is expected to be around US \$75 by 2030, which should encourage the development of gray hydrogen.

- We want to **cover the additional operating costs** of converting to green hydrogen on a transitional basis to encourage its adoption.
- Québec intends to promote the deployment of green hydrogen production and distribution infrastructures in no-regrets market segments, notably in **regional energy ecosystems (hubs)**. This will link producers and consumers to accelerate the adoption of green hydrogen and reduce the costs associated with the transportation and storage of this hydrogen.
- Finally, the Québec government is supporting the development of a **hydrogen carbon intensity standard**, which will be developed by the Bureau de normalisation du Québec in collaboration with the Canadian Standard Association (CSA). This standard will provide a framework for quantifying the GHG emissions associated with hydrogen production, which will eventually facilitate the recognition of the low carbon impact of green hydrogen in the marketplace.

In addition to the measures already considered by Quebec and included in our Quebec Strategy on Green Hydrogen and Bioenergy, there is also a range of measures that could increase the competitiveness of green hydrogen compared to other forms of hydrogen that are currently considered low-carbon, such as blue hydrogen. Some of these options could be studied by Québec in the medium term:

- **Carbon Border Adjustment Mechanism:** in parallel with carbon pricing, this mechanism could be considered so that imported hydrogen is subject to the same low-carbon production standards as domestically produced hydrogen. This would avoid a distorted competition between a green hydrogen produced locally but sold at a higher price than a fossil hydrogen that would be imported. An alternative to a carbon adjustment mechanism could be legislation that would impose guarantees of origin on green hydrogen, to ensure that no matter where it is produced, it respects national low-carbon production standards (by imposing a maximum for the carbon intensity of its production, for example).
- **Mandatory ban and phase-out of fossil fuel-based technologies:** These measures set a deadline for the commissioning of new fossil fuel-based technologies and the operation of existing assets. These measures are crucial for the industrial sector as they would allow for the adoption of low-carbon solutions as early as possible in the industry's investment cycle, avoiding a long carbon "lock-in."
- **Binding green hydrogen consumption targets and quotas:** the growing demand created by a quota system would reduce the investment risk and financing costs of green hydrogen

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installations, facilitate investment in electrolyzers, while subjecting all players in the jurisdiction to the same obligation and similar additional costs.

- **Tax rebates:** the intention is to promote GHG emission reductions by reducing the overall tax burden faced by companies if they invest in low-carbon processes, such as green hydrogen consumption. The tax rebate could be determined by the reduction in GHG emissions per unit of production or the adoption of specific new processes that the government wishes to support. Carbon tax rebates could also be used to address the risk of emissions offshoring, without reducing incentives to reduce emissions.
- **Carbon contracts for difference (CCfD):** CCfDs can complement emissions trading schemes to make green hydrogen and green materials competitive. CCfDs are contracts between governments and producers of green materials. A CCfD would guarantee a fixed "strike price" for tons of CO₂ avoided for a predetermined number of years. If after a certain period of time (e.g., one year) the average carbon price has been lower than the strike price, the industrial producer would receive, for each ton of CO₂ avoided, the difference between the carbon price and the strike price. In this way, CCfDs could help ensure that a low-carbon industry is established without having to wait for a combination of economic conditions to justify the investment (e.g. a high carbon price).
- **Sustainable public procurement:** Sustainable public procurement can represent an initial and stable demand for green goods and materials, as governments often have high purchasing capacity and capital available to promote the adoption of green products. Sustainable public procurement can have a greater impact on creating a market for green steel than for other products such as ammonia, as steel is used in buildings, bridges, railroads and transportation fleets.
- **Product-related economic instruments:** Tax differentiation is a type of tax design in which rates on goods are adjusted to reflect a government objective: if producers do not pass on the tax to customers in the form of higher prices, the impact of the tax will be reflected in lower profitability, causing firms to switch to producing less taxed alternatives. Capital allowances may also be considered.
- **Eco-labeling:** Since green goods and materials - green hydrogen is no exception - are generally indistinguishable from their traditional counterparts, eco-labeling can be used to inform the public about which products do and do not meet environmental standards. Eco-labels are instrumental in creating a market that values sustainability, with this value translating into justifiable higher prices and improved economics for producers who meet sustainability standards. To implement eco-labeling, it is critical to create a traceability system that tracks each step in a product's value chain and quantifies the climate impact of each process.

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Overall, Québec intends to take advantage of lower international costs while supporting the emerging domestic demand to develop green hydrogen as a substitute for fossil hydrogen and fossil fuels. To support the change necessary for the development of green hydrogen, a combination of different measures will be necessary. Within this response are several references that may assist you in your thinking.

Considering some of these measures require a concerted effort between different levels of government and jurisdictions, we hope Québec can count on the important support of the United States in its efforts to develop the green hydrogen sector.

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Questions from Senator Maria Cantwell

Question 1: Hydropower makes up about half of all renewable electricity generation nationwide, and half of ALL the electricity used in Washington State. As we deal with increasingly intense and frequent extreme weather, we are going to need our hydro facilities and water storage projects more than ever. And we will need them to adjust to changing water cycles while still meeting our irrigation, fish habitat, recreation, and municipal drinking water requirements.

A key to unlocking hydropower's potential is increasing cooperative hydro generation exchanges with Canada and the United States by modernizing the Columbia River Treaty of 1961. We are ready to work together to get this vital treaty update done. Updating this treaty will facilitate coordination between power balancing authorities, increasing transfers of clean hydropower between the Western United States and Canada, and bringing power to where it's needed most, when it's needed most.

Updating this treaty will help address congestion in transmission that is impeding clean power transfers between British Columbia and the Pacific Northwest. And updating this treaty will help both our countries meet our decarbonization goals. Coming to agreement on this treaty will also unlock language that I included in the bipartisan infrastructure law to authorize almost \$1 billion dollars to improve electric power system coordination to facilitate clean electric power transactions between the Western United States and Canada.

However, I understand there are a few outstanding issues that we need to come together on including the Canadian entitlement. I saw you highlighted "the transmission of clean electricity from Canada to the U.S." in your testimony. In light of our shared goals, I would like to respectfully request that Canada step-up efforts and prioritize resolving any outstanding issues with the modernization of the Columbia River Treaty.

- Can you please comment on the importance of this issue and share this message with your government?

Response 1: Thank you Senator Cantwell, for highlighting the ongoing negotiations between our two governments to modernize the Columbia River Treaty. In Canada, the negotiating team is comprised of the federal government, the Province of British Columbia and Columbia Basin Indigenous Nations, working together to modernize the Treaty. I would be happy to share your message with those directly involved in this work.

The Treaty is a model of international cooperation on hydropower development and flood control, and has a long history of successful bilateral collaboration and mutual benefit for the U.S. and Canada. I share your interest in seeing the negotiations come to a successful completion resulting in a renewed Treaty that continues to create benefits and have them shared equitably between our two countries.

Although Natural Resources Canada is not directly involved in the negotiations process, it is my understanding that Canadian and U.S. negotiators have met four times over the past two months, in a small group setting, to clarify issues in order to advance the negotiations. As you know, Canada provided a proposal to the U.S. to modernize the Treaty in June 2020, and we are pleased that the U.S. has now tabled a basic framework, on 17 May 2022, to help advance the discussions. Canada is committed to working with the U.S. to make progress on the Treaty negotiations, including holding formal negotiation rounds over the coming months.

Question 2: I understand that Canada's Provinces (which have generally been delegated authority for the federal or "Crown" land) charge a royalty, or in some cases a tax on profits of mining companies. That royalty ensures the mining company is paying its fair share for access to what we would call "public lands" here in the United States. This is something that we do not do here in the United States, but which I think is coming and long overdue.

- Can you please share your perspective as we consider standing-up a hardrock mining royalty system?

Response 2: The 1982 amendments to the *Constitution Act, 1867* explicitly recognized provinces and territories' constitutional rights to manage their own non-renewable natural resources, forestry resources, and electrical energy. This includes the power to levy mining taxes and royalties.

Canada does not levy any mining taxes or royalties at the federal level, nor on federal land.

The common approach of mining taxes or royalties amongst the provinces and territories in Canada includes:

- Mining taxes are legislated (no mine-specific contracts)
- Mining taxes are mainly profit-based in most provinces and territories
- Mining and processing assets are depreciable
- Pre-production expenses are deductible
- Exploration expenses are at least 100% deductible
- Most provinces and territories have processing allowance
- Interest, depletion, cost of mining property are not deductible

The main variations amongst these mining taxes or royalties include:

- Tax structures vary from a single rate to two-tier rates to sliding scale tax rates
- Depreciation methods vary from straight-line to declining balance to the combination of the two
- Mining tax in some provinces and territories are commodity-specific, for example:
- Saskatchewan: metallic, potash, uranium
- Ontario: metals, diamonds

Questions from Senator John Hoeven

Question 1: The ratification of the 1977 Transit Pipeline Treaty between our two countries recognized and set into law protections for both of our nations' energy security and protections for unencumbered energy trade.

How important has the 1977 Transit Pipeline Treaty been to North American energy security, and do you agree that it is more relevant than ever given what is occurring in our energy markets?

Response 1: The 1977 Transit Pipelines Treaty is one of many bilateral agreements between the United States (U.S.) and Canada that address our mutual vital interests in continental security, energy security, and economic and environmental cooperation along the longest national land border in the world.

The 1977 Treaty was developed as an important element of U.S. and Canadian energy security. As set out in the 1977 record of the debate, consideration and ratification in the U.S. Senate, the Treaty was prompted by U.S. consideration of the option to transport hydrocarbon products from Alaska, transiting through Canadian territories and provinces, to the Lower 48. The U.S. desired, if it were to advance a pipeline, to have binding treaty commitments in place before such a decision to ensure that its national energy assets would be protected from shutdown while in transit through Canada.

The cooperation for which the Treaty is emblematic remains critically important to North American energy security to this day. As a recent American Petroleum Institute study explains, the close integration of U.S. and Canadian oil and refining markets, including U.S. refiners' sourcing from Canada of most of the heavy oil they use, protects both nations from significant risks including over-reliance on OPEC suppliers.

As with all bilateral treaties, the rights and obligations in the 1977 Treaty are reciprocal. The Line 5 situation in Michigan represents the reverse of the Alaska-Lower 48 situation (i.e., Canada's national energy assets, hydrocarbon products from western Canada, are transiting through U.S. states to central Canada (six refineries in Ontario and Quebec). The Senate record from 1977 identifies Line 5 as covered by the Treaty.

The Canada-U.S. energy relationship has never been more critical to continental and global energy security. The ongoing global energy crisis demonstrates the fundamental role our oil and gas industry can play in stabilizing energy markets while exporting responsibly produced, well-regulated, affordable and reliable energy to our allies and emerging markets across the world.

Canada and the U.S. benefit from an integrated energy system that supported over \$140 billion in two-way energy trade in 2021. This trade is in large part enabled by an established network of more than 70 oil and gas pipelines and 35 electric transmission lines, built over decades, that criss-cross the Canada-U.S. border. This infrastructure supports energy security and access to affordable energy products for businesses and consumers in both countries. In 2021, Canada supplied 61% of the U.S.'s daily crude oil imports, representing over 3.8 million barrels per day or 22% of U.S. refinery crude oil intake.

Canada and the U.S. have both set ambitious targets and implementation plans for emission reductions to meet climate change goals and commitments. At the same time, as we move through

this energy transition towards a decarbonized economy, credible energy projections indicate that Canada and the U.S. will continue to use fossil fuels over the next three decades.

Separately and simultaneously, Line 5 operates also as an export pipeline from Canada to the U.S., providing critical feedstock to four refineries in Michigan, Ohio and Pennsylvania. It is part of a critical system of transcontinental and transboundary energy infrastructure, also carrying U.S. Bakken crude that transits through Canada and the U.S. to eastern markets.

The Treaty is very important in the context of Enbridge's Line 5 pipeline and we remain committed to working constructively and cooperatively with the U.S., within the formal negotiations process found under the Treaty, to ensure Line 5 continues to operate safely. Line 5 is a critical piece of intercontinental infrastructure, which has safely operated at the Straits of Mackinac for over 65 years. Pipelines remain the safest, most efficient way to transport oil to refineries and natural gas liquids (NGL) to markets, and Line 5 is a reliable source of energy for Ontario and Québec, as well as for Michigan, Ohio, and Pennsylvania.

A Line 5 shutdown would have a profound impact on jobs, raise the cost of supplies in the region, and take a financial toll on many refineries in both Canada and the U.S. at this particularly difficult time for energy security and rising costs for consumers. Shutting down Line 5 will not result in safety or climate benefits.

To ensure Canada's rights under the Treaty are being respected by the United States, Canada invoked the dispute settlement provision of the 1977 Treaty on October 4, 2021. Canada and the United States have been engaged in productive negotiations and we hope these will lead to a resolution of the dispute.

To that end, Canada strongly supports the Great Lake Tunnel Project, which is currently undergoing state and federal permitting reviews. The pipeline would be placed in a tunnel bored deep underneath the Straits of Mackinac, which would also carry other utilities. Once operational, the existing pipeline in the Straits would be decommissioned.

Canada is also concerned with efforts to shut down another section of Line 5, in this case in northern Wisconsin. A section of Line 5 crosses the Bad River Band Reservation. The Band has declined to renew the easements for the line and voted to have it removed from the Reservation. While litigation is ongoing over the future of Line 5 within the Reservation, a re-route has been proposed that would take the line around and outside of the Reservation. This is a solution Canada supports.

Question 2: What other actions are necessary to protect our geopolitical security and North American economic competitiveness with regard to making sure we protect existing infrastructure?

Response 2: Canadian and American energy security is deeply interdependent, given the extensiveness of integrated infrastructure our two countries share. The recent global energy supply and security crisis has made clear that investments in energy production, transmission, innovation and trade continue to be required in North America and beyond—particularly while we work to transition the global energy mix to one that is significantly lower-emitting.

The ongoing global energy crisis demonstrates the importance of North American energy resources, including Canada's oil and gas exports, insofar as their role in satisfying growing U.S. and global demand. Canada produces a number of sought-after commodities, including value-added by-products

like diesel, for which there is a global shortage, as well as critical minerals that are pivotal to the generation of lower-emitting energy. Continental energy security and emissions reductions cannot be enhanced without the critical infrastructure required to transport energy in a safe and reliable manner.

The global goal of transforming how energy is generated and used to address climate change does not have to be at odds with the steps necessary for ensuring energy security as these transitions take place. This is why attempts to shut down existing critical energy infrastructure such as Line 5 must be rejected, as this infrastructure, which operates within Canada's climate framework, is essential to provide the energy and economic backbone necessary for energy transitions to occur. Pipelines like Line 5 will continue to play an important role in our energy system and in supporting our allies. They are the safest, most efficient, and most cost-effective means for the large-scale transportation of hydrocarbons and hydrocarbon products.

Canada and the U.S. must continue to leverage the great relationship that exists between them by working together to ensure adequate energy infrastructure to supply global markets while at the same time enhancing global energy security and fostering innovative technologies that will support the path to reducing emissions. These collaborations include, among many, innovations on liquefied natural gas (LNG - as a replacement for coal, a feedstock for hydrogen, and to displace Russian fossil fuels), as well as accelerating the shift to renewables, nuclear and hydrogen.

There are opportunities to capitalize on existing energy transportation infrastructure – for example, natural gas pipelines transiting the U.S. to the east coast of Canada, to support our European friends and allies and stabilize global energy supply and prices. Simultaneously, we must ensure that our countries can build on, and expand, our electric power transmission to support the energy transition. Our grid will become ever more resilient, capable and impactful as new cross-border clean power projects come on line.

Given the seamless, integrated nature of the North American energy market, Canada is already collaborating with the U.S. on key energy files including the development of North American zero emission vehicle charging and refueling corridors, the production, distribution and use of hydrogen and other clean fuels, as well as bi-national codes and standards for clean fuels and de-carbonization of transportation.

By respecting that the energy transition will be a journey, we can recognize the importance of ensuring the continued operation of essential infrastructure for today's energy systems, while advancing new projects to accelerate North America's energy transition and support global energy security.

Question from Senator John W. Hickenlooper

Question 1: Canada has large natural reserves of both lithium and cobalt, two minerals crucial for scaling up the production of batteries, renewables, and other next- generation clean energy technologies. These resources are hard to find elsewhere in North America, and the US is currently heavily reliant on imports from other continents. How can the US and Canada work together to shore up the North American critical minerals supply chain, both in bolstering our trading partnership and through other strategies like enhanced recycling?

Response 1: Canada is a leading producer and exporter of critical minerals and hosts substantial reserves, resources and exploration potential. Canada is also a global capital for mining and

exploration companies, including 298 with assets in the U.S. in 2020. These include Electra Battery Materials which is advancing the Iron Creek Cobalt- Copper Project in Idaho – the only primary cobalt-copper deposit in the U.S. — and is set to commission what will be North America's first cobalt sulfate refinery based in Ontario, Canada later this year. Regarding lithium, Canada has a number of advanced stage projects that promises to unlock new supply for our integrated downstream manufacturing sectors. These include the Nemaska Lithium project located in Québec, Canada, which is owned by U.S.-based Livent Corporation and Investissement Québec and is expected to start production in 2025.

Shoring up North American critical mineral supply chains requires a holistic approach, from early stage geoscience and exploration through to mining, mineral processing, manufacturing, and the circular economy. The Government of Canada recently made significant investments in the electric vehicle (EV) battery supply chain, including in EV and associated battery-manufacturing facilities in Ontario and Québec. These include a new facility being built by GM and Posco Chemical in Bécancour, Québec that will make cathode active materials needed for North American battery manufacturing.

Building on critical minerals related investments announced through Canada's Budget 2022 and the U.S. Bipartisan Infrastructure Law, Canada and the U.S. will continue to partner through the Joint Action Plan on Critical Minerals to secure a sustainable and competitive supply of critical minerals at home within North America. This includes working together on mineral processing options, leveraging Canada's expertise and capacity in this area to reduce our shared net import reliance on overseas sources. Free and unfettered trade between our countries across entire supply chains, from minerals to finished products (i.e. EVs, batteries, clean technologies) is, however, essential in helping our respective industries compete on the global stage, and further build secure critical mineral supply chains in North America.

Regarding the circular economy, Canada and the U.S. can work together to identify opportunities to streamline and promote recycling and secondary sourcing, including through mining value from waste, including mine tailings. Supply chain transparency and traceability is another area that promises to help introduce a global value proposition for the strong environmental and social standards that characterize our integrated critical mineral supply chains. Canada is also able to offer its recycling expertise through companies such as Li-Cycle and Lithion, which are helping to introduce sustainable battery recycling capacity across North America.



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May 31, 2022

The Honorable Joe Manchin
United States Senate
Committee on Energy and Natural Resources
304 Dirksen Senate Building
Washington, DC 20510

The Honorable John Barrasso
United States Senate
Committee on Energy and Natural Resources
304 Dirksen Senate Building
Washington, DC 20510

Dear Chairman Manchin and Ranking Member Barrasso,

The Aluminum Association (the 'Association') and its members appreciate that opportunity to submit a statement for the record for the May 17, 2022, Senate Committee on Energy and Natural Resources hearing to examine the U.S.-Canada Energy and Minerals Partnership. Aluminum is an essential element of modern life, and Canadian aluminum is essential to the U.S. aluminum industry. The Canadian and U.S. aluminum industries are deeply integrated and underpin continental supply chains that strengthen the security and global competitiveness of the North American economy.

The Association is the voice of the aluminum industry in the United States, representing aluminum producing companies and their workers that span the entire aluminum value chain from primary production to value-added products to recycling, as well as suppliers to the industry. Association member companies produce 70 percent of the aluminum and aluminum products shipped in North America, and the U.S. aluminum industry across the value chain directly employs more than 164,000 union and non-union workers and indirectly supports an additional 470,000 workers. Through its activity, the economic impact of the U.S. aluminum industry adds \$172 billion to the economy annually.

Canada and the U.S. share a highly integrated aluminum market with combined trade of \$16.9 billion in 2021. An aluminum product might cross the international border four or five times in various states of production before being sold to a customer for further assembly. To make up for a lack of domestic primary production, the U.S. imports more aluminum from Canada than any other country in the world, accounting for nearly 55% of U.S. imports. About 90% of Canada's primary aluminum production is exported to the United States, where it is used as an important input for further processing into products for U.S. domestic and export markets. In 2021, U.S. manufacturers produced an estimated 880,000 metric tons of primary aluminum. That same year, Canada produced an estimated 3 million metric tons of aluminum. Canadian primary imports have helped drive investments in the domestic mid-and-downstream aluminum sector totaling more than \$6.5 billion in the last 10 years. Domestic aluminum producers will continue to rely on a mix of domestic and foreign sources of primary aluminum, particularly from Canada, as well as secondary or recycled aluminum to meet the estimated 40 percent growth in demand for aluminum our industry is projected to experience by 2030.

As the committee considers ways to strengthen the partnership between the U.S. and Canada, the Association and its member companies welcome the opportunity to provide further input on our country's long-lasting trade partnership with Canada that will continue to be a strength for years to come.

Respectfully,

Virginia Gum Hamisevicz
Vice President, Government Relations & International Programs
The Aluminum Association