Unlocking Québec's Lithium Opportunity

BY DOMINIQUE BARKER, CFO AND HEAD OF SUSTAINABILITY, LITHIUM ROYALTY CORP.

Québec is known as 'La Belle Province', or 'Beautiful Province'. In our opinion, Québec's beauty is not limited to its natural and cultural attributes but includes its potential to help electrify the global vehicle fleet through its advantaged positioning in the battery value chain, in particular lithium.

The reasons are many: it has a long history of supporting mining projects and favourable geology, top-tier infrastructure, access to tidewater, abundant zero-emission electricity and a cooperative government that is willing to back the EV battery chain. Crucially, it is blessed with lithium resources that we believe are comparable to those of Australia, which to date has been the largest global producer of lithium. We see a path for Québec analogous to the lithium development history of Australia over this past decade – at least on the geology side – with the potential to make Québec a major global lithium producer.

Global companies look to Québec and Canada as a safe and stable jurisdiction

Headwinds such as global political tensions and resource nationalism seem to be leading key original equipment manufacturer (OEM) players to look for alternatives to diversify their supply chains. Global companies are beginning to look to Québec as a favourable jurisdiction for the battery value chain.

In this paper, we discuss why Lithium Royalty Corp. sees Québec as an attractive place to allocate our own capital, and why we expect Québec to be at the nexus of the energy transition globally over the next decade.

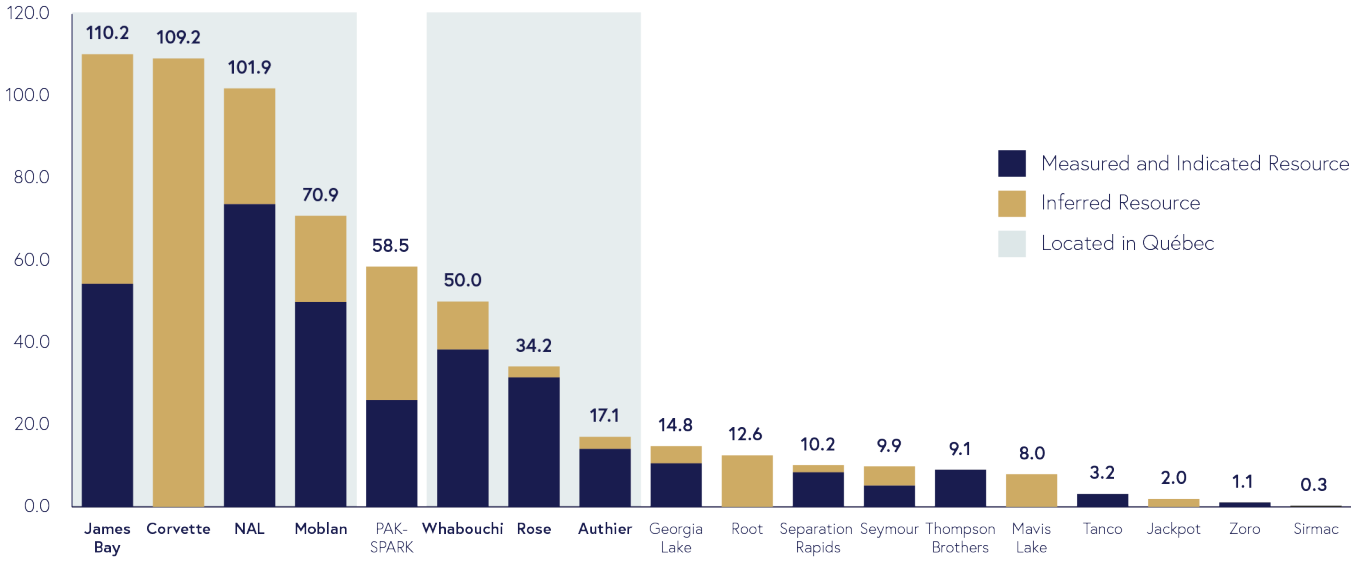
QUÉBEC IS RICH IN LITHIUM RESOURCES

Québec has been recognized as having rich deposits of lithium. Lithium Royalty Corp. already holds royalty investments over a number of hard-rock (or spodumene) investments in Australia; we believe that Québec will prove to be an analogue to that geology and have accordingly committed our own capital to royalties over a number of lithium projects in Québec. The mineral reserves announced so far in Québec total 930,000 tonnes, as of December 31, 2022. This compares to 6,200,000 tonnes in Western Australia, which has a lithium mining economy that produced US$6.8 billion of sales in the 2021-2022 financial year, compared to 0 in Québec. Production of lithium is already underway – Sayona announced its first shipment in August 2023 from its North American Lithium (NAL) operation in Québec, owned by Sayona (75%) and Piedmont (25%). Piedmont is taking a large portion of the output, in order to fulfill its obligations to deliver 150,000 tonnes of spodumene concentrate (the 'hard rock' that contains the lithium) to Tesla over the next two years. The deal allows Piedmont to fulfill its contract with Tesla while its North Carolina mine is delayed by local opposition.

This paper focuses on investing in Québec *lithium mining* but we note that Investissement Québec, an agency of the Québec government, has recently published 'The Québec Battery Initiative', which advocates for investments in *battery manufacturing* in Québec. In addition to the abundance of natural resources essential for battery production, it cites Québec's strategic location within the North American EV market and free trade agreements as among the province's other strengths.

CANADIAN SPODUMENE MINERAL RESOURCES (MT)

7 of top 10 in Canada are located in Québec



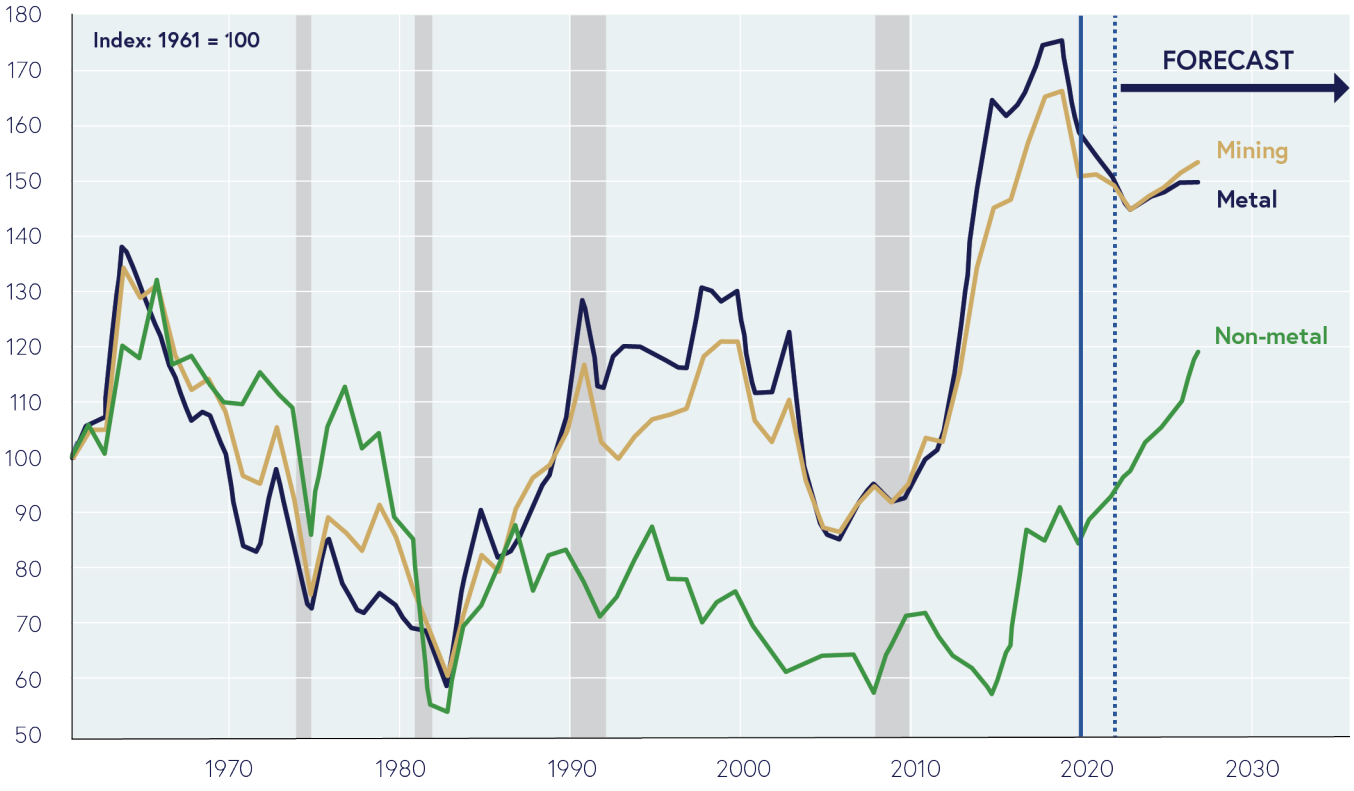
Source: MRE data as of July 31, 2023 from corporate disclosure of NI 43-101, JORC 2012, or available information.

LONG HISTORY OF MINING AND GEOLOGICAL KNOW-HOW – QUÉBEC IS LOOKING TO GROW ITS MANUFACTURING VIA THE EV VALUE CHAIN

Québec has a long history of mining in the province.

QUÉBEC: NON-METALLIC MINING SECTOR PRODUCTION DOWN

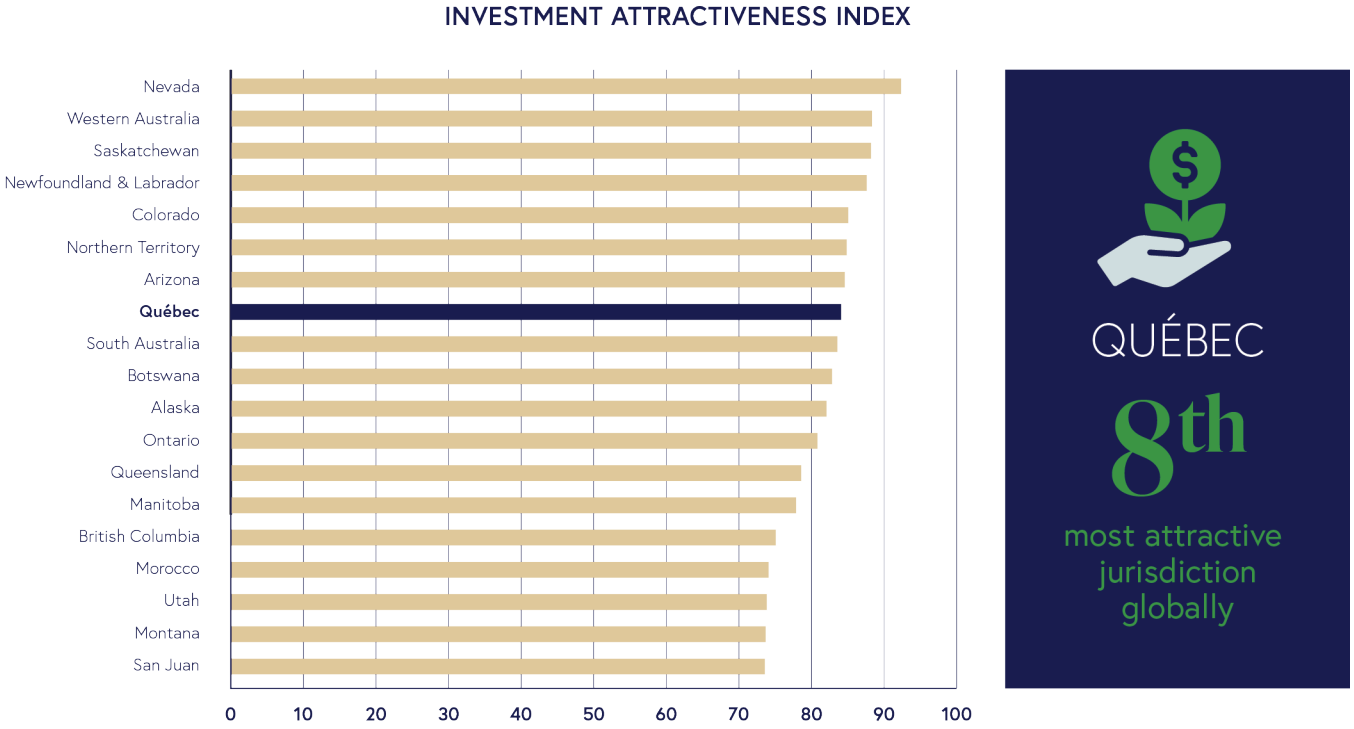
Real production level, mining sector, metallic & non-metallic mining subsector



Source: NBF Economics and Strategy (data via Conference Board).

The province hosts mining projects for about 30 commodities, making it the most diverse resource base in Canada. Critical mineral operations in Québec include copper, graphite, niobium, zinc, cobalt, titanium and lithium. In addition to critical minerals, Québec is also home to a number of other metals and minerals. The Abitibi region has the world's largest Archean volcano-sedimentary belt and is known for its gold, copper, zinc and silver resources. Canadian Malartic mine in Québec is the second largest operating gold mine in Canada. This project was developed in 2011 for C$1.3 billion. Compare this to the cost of developing a lithium mine – the James Bay Lithium Project being developed by Allkem is estimated to cost only C$380 million, with an expected annual production of 330,000 tonnes per annum of spodumene concentrate. The geological know-how in the province is strong: there are approximately 200 active mines, quarries and sandpits throughout Québec today.

Québec has been recognized by the Fraser Institute as the eighth best jurisdiction globally for mining. The Fraser Institute has been assessing and judging jurisdictions for mining since 1997 and ranks mining jurisdictions based on Policy Perception Index (PPI), considered a 'report card' on the attractiveness of governments' mining policies.



Source: Fraser Institute 2022 Mining Survey.

A DEEP HISTORY OF MANUFACTURING

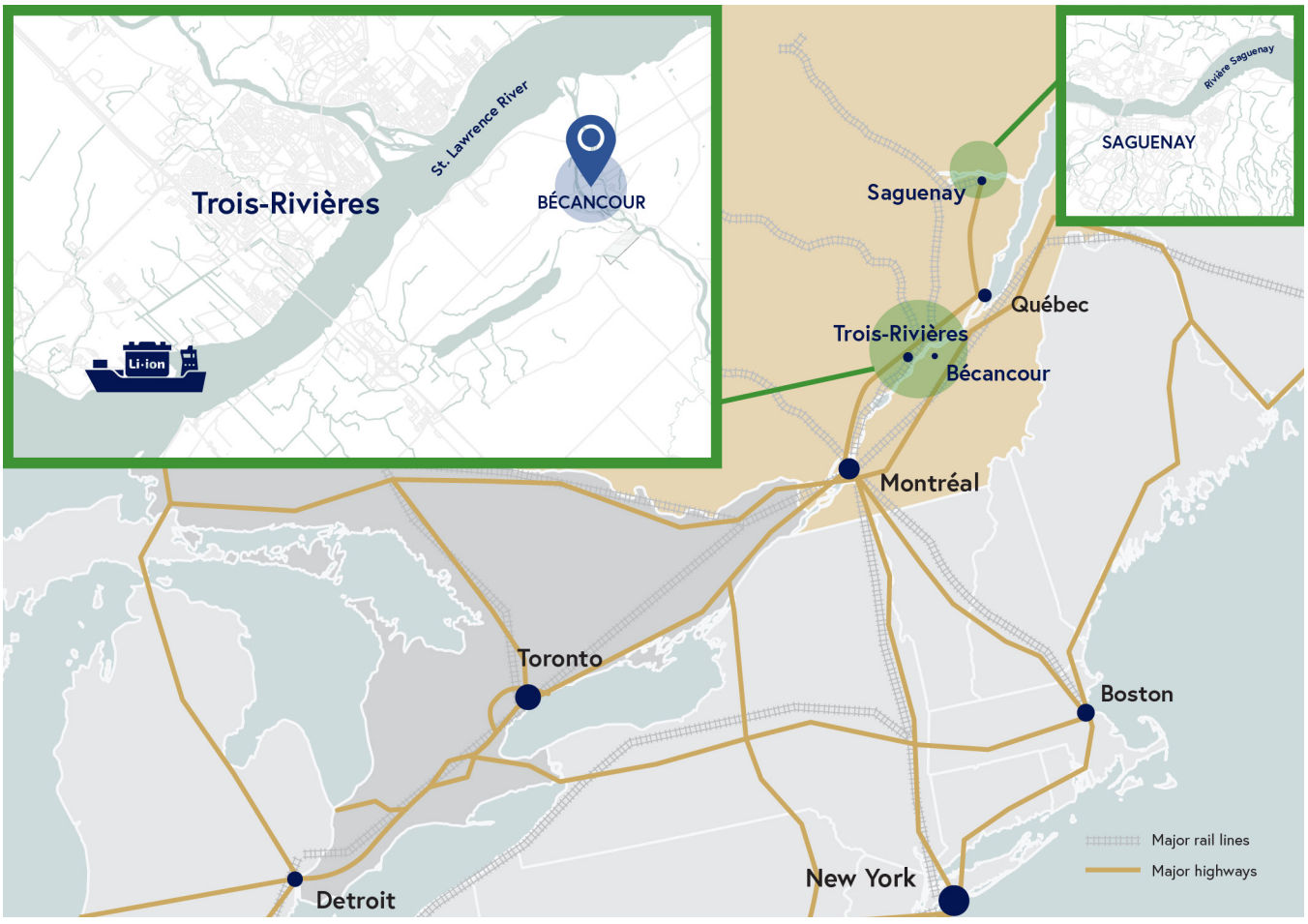
However, the key to being a leader in the EV value chain will not solely come from upstream operations – mining – or downstream – the OEMs. It will really come from strength in what we call the 'midstream', or battery manufacturing and assembly. Compared to other global jurisdictions, Canada is well positioned to take this lead, both in Ontario and Québec. Manufacturing comprised 13.5% of Quebec's nominal GDP in 2019, according to Statistics Canada, but historically it had been as high as 21% in 1997. The Québec government sees the opportunity, which is why it has rolled out the welcome mat at industrial facilities and made allocating capital to battery manufacturing an easier decision – the key benefits for battery manufacturers are infrastructure, clean electricity, labour force and, of course, a ready supply of the necessary raw materials, notably lithium.

BÉCANCOUR IS EMERGING AS THE NEXUS OF THE BATTERY VALUE CHAIN IN QUÉBEC – SAGUENAY TO FOLLOW?

According to the website of Société du parc industriel et portuaire de Bécancour, in the early 1960s the Québec government acquired over 7,500 acres of land that it intended to develop and make available to the steel industry. Over the years, these plans changed – and the industrial park worked to attract other heavy industries to make use of its access to roads, rail, water, a deep-water port and electricity.

Bécancour is quickly becoming the nexus of the battery value chain in Québec, if not North America

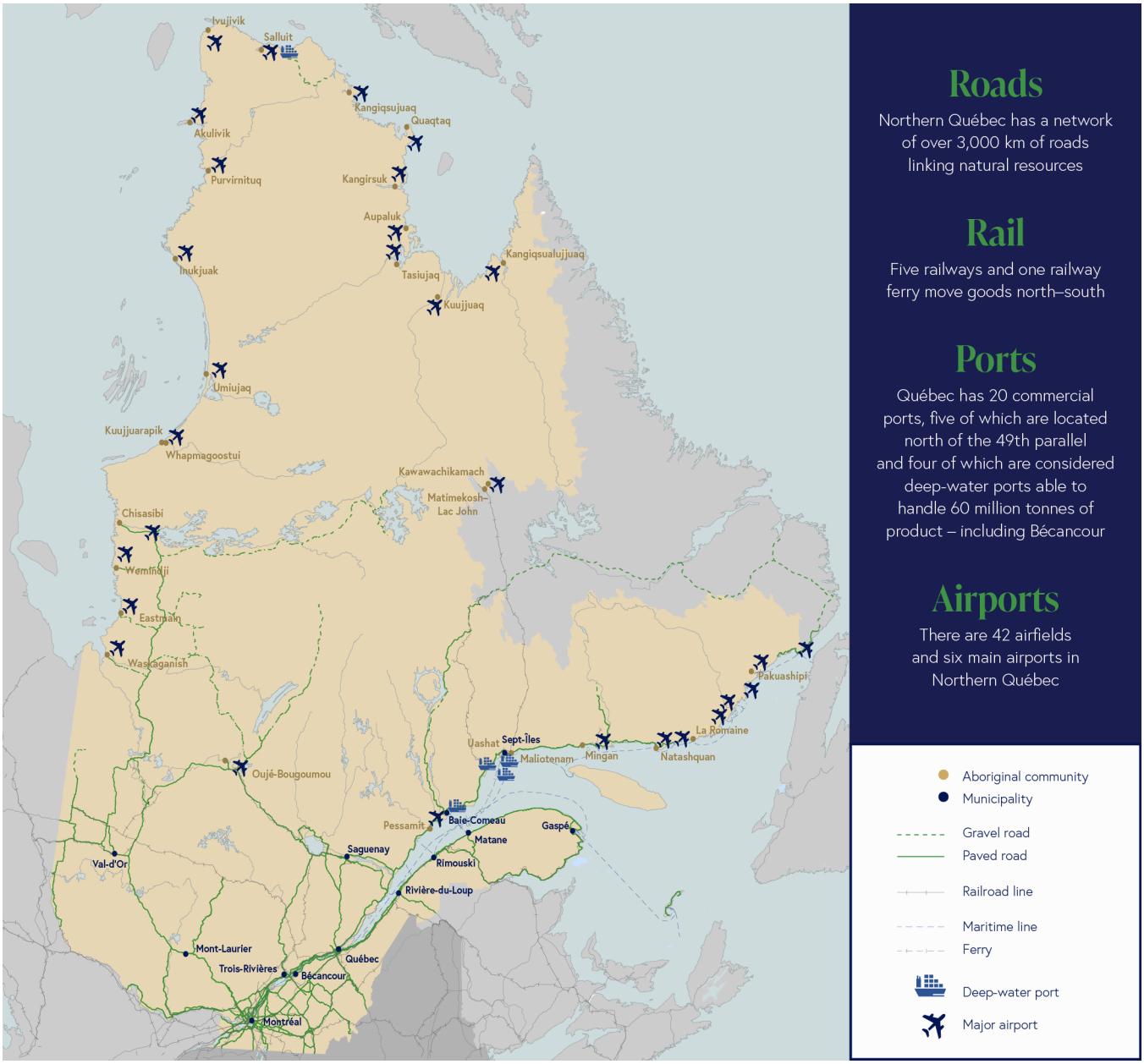
Bécancour is quickly becoming the nexus of the battery value chain in Québec, if not North America. It has attracted over C$5 billion of projects, with possible expansion plans, according to Pierre Fitzgibbon, the province's Minister of Energy and Economy. And no wonder – the government of Québec is intent on making Bécancour a success and is planning to spend C$350 million on new infrastructure. Private sector engagement has followed: so far, GM and POSCO Future M Co. have announced a cathode plant in Bécancour for batteries supplied to GM's Chevrolet Silverado pickup truck and GMC Hummer EVs, as well as other EVs. BASF and Vale are other large tenants at the industrial park, and a group made up of Ford, EcoPro BM (South Korea's leading battery material producer) and SK On are planning a new cathode facility. The South Korean companies have dedicated teams to review upstream opportunities and are positioning themselves for an expected shortage of the resource. Other South Korean companies that have been investing directly, or at least exploring opportunities in Québec include LG Energy Solution, LG Chem, Hyundai Motor Group, Samsung SDI and LX International.



We expect the Port of Saguenay to follow the lead of Bécancour as a battery centre

We expect the Port of Saguenay to follow the lead of Bécancour as a battery centre. Saguenay is located on the Saguenay River, about 200 km north of Québec City, and is the only navigable fjord in North America, and a natural gateway to Northern Québec and its extensive natural resources. The Port shipped over 645,000 tonnes of cargo in 2022, including bulk materials. The Port and the city of Saguenay are supportive of making the Port a hub for EV batteries and critical minerals, including lithium. Management from the Port as well as local government representatives have hosted international visitors, and the Québec government, through Investissement Québec, has allocated C$105 million to support development at the site.

TRANSPORTATION INFRASTRUCTURE



Source: Société du Plan Nord Québec.

TOP-NOTCH INFRASTRUCTURE

One of the differentiating factors that make Québec attractive for investment in the EV market is the high quality and diversified base of its infrastructure. Québec has initiated 'Plan Nord', which is an economic development plan for the north of Québec where lithium mines are situated – this area comprises approximately 75% of Québec's landmass. While the initiative was launched by a previous government, the ideas are still valid today – the government wishes to ensure that the environment is welcoming to business, and wants to attract EV OEMs and battery manufacturers, which are scouting the globe for the best places to invest.

The northern portion of Québec has several highways, roads, rail, port and airport assets. Of note is the world-class port infrastructure at Sept-Îles. In 2016, the Québec government acquired railway and port infrastructure in Sept-Îles through Société ferroviaire et portuaire de Pointe-Noire, LP (SFPPN), to make it accessible to potential users. To date, these users have been from the iron ore sector – but we can see a potential for this port to be used more extensively in the critical minerals segment.

ELECTRICITY IS A KEY STRATEGIC ADVANTAGE FOR QUÉBEC

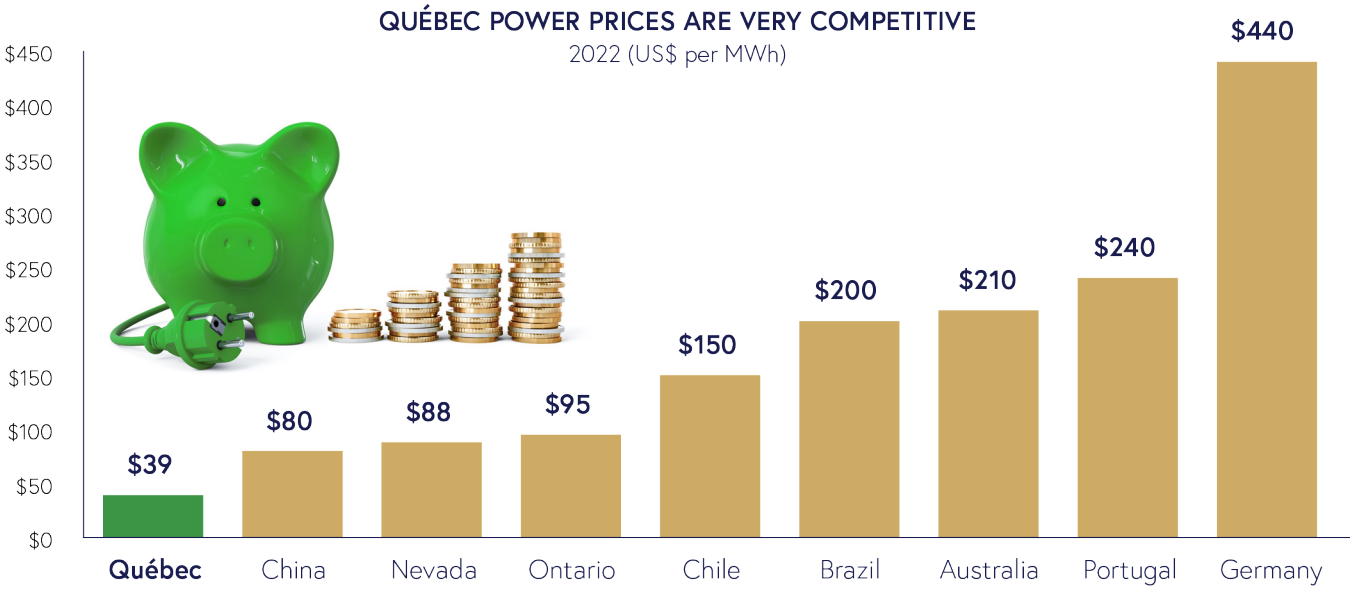
Perhaps the most attractive element of Québec's infrastructure is its power grid. Québec has a 99% zero-emission grid, with the majority of power produced through hydroelectricity. According to Hydro Québec's Strategic Plan 2022-2026, historically the energy produced exceeded its own domestic needs, which gave it considerable latitude to export electricity to northeastern North America – which it has done quite profitably to date. It is our understanding that Hydro Québec is now focusing more inwardly to "decarbonize its economy by launching a vast electrification initiative" – it expects electricity demand to rise and states it is prioritizing the uses that promise to create the greatest value for Québec. In other words, Québec is using its grid as a strategic tool to attract investment.

Québec is using its grid as a strategic tool to attract investment

It should be noted that the main electricity generator, and the only company that owns the electricity grid in the province, is Hydro Québec, which is 100% owned by the government. This arrangement enables the Québec government to more easily use the grid as a strategic tool, compared to other jurisdictions that are less coordinated. Hydro Québec recently appointed Michael Sabia as CEO. Sabia has an extensive background in both the public and private sectors, having served as Deputy Minister of Finance in the federal government and as CEO of a regulated enterprise (BCE Inc.). He also has experience in the public sector in Québec, as CEO of the Québec pension fund, Caisse de Dépôt et placement du Québec (CDPQ). He is the ideal executive to ensure the grid is used for a strategic purpose such as developing and growing the electric vehicle value chain in the province.

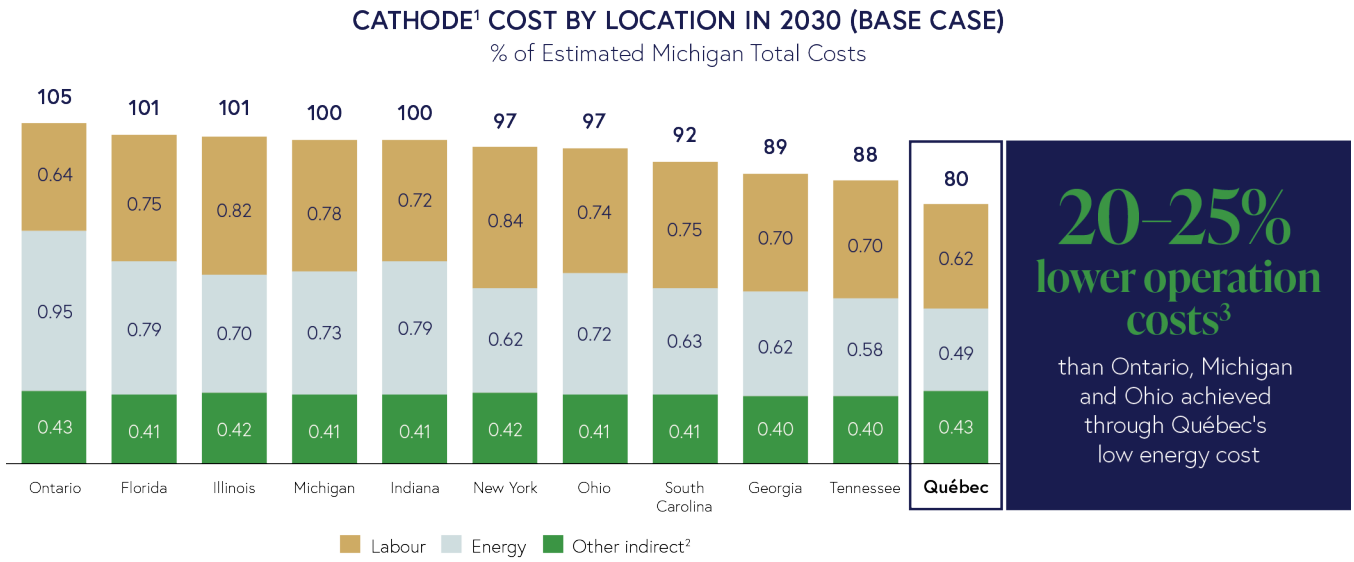


The cost of that electricity to users is very low – as of 2020, the cost to large power customers was C$52 per MWh (or US$39 per MWh).



Source: Investissement Québec and Visual Capitalist.

The energy cost is a fairly large portion (30-50%) of the cathode cost – and therefore Québec produces cathodes at some of the lowest operating costs:



20–25% lower operation costs[3] than Ontario, Michigan and Ohio achieved through Québec's low energy cost

[1] Assuming NMC 8.1.1. [2] Includes chemicals processing and waste disposal. [3] Except raw material costs.
Source: Market study for the Québec Government, 2020.

In addition, as owner of the electricity grid, Hydro Québec operates a Centre of Excellence in Transportation Electrification and Energy Storage, whose mandate is to establish a leadership position for Québec in battery technology. Its goal is to team up with major industry players from around the world, and provide R&D on advanced lithium-ion batteries and solid-state batteries. So far, the Centre has developed over 100 patent families and released over 250 scientific publications, including areas of research in the electric transportation sector.

COORDINATED GOVERNMENTS AND STAKEHOLDERS

Another key advantage of deploying capital in the mining sector in Québec is the government backing and coordination that are clearly present. The Québec government laid out its plan in the Québec Plan for the Development of Critical and Strategic Minerals 2020-2025, which describes the government's ambition to enhance knowledge of critical and strategic minerals through the creation of synergies in innovation and R&D in collaboration with the mining industry. In response, a dedicated Critical and Strategic Minerals research consortium (Réseau de Recherche Scientifique propre aux Minéraux Critiques et Stratégiques (MCS)) has been created, and efforts are currently being coordinated through CRITM (Metal Transformation Research and Innovation Consortium).

The Québec government laid out its plan in the Québec Plan for the Development of Critical and Strategic Minerals 2020–2025

In May 2023, the Québec and federal governments announced a joint venture called Ultium CAM (between GM and POSCO Future M Co.) to be located in Bécancour, Québec. Canada's federal government and the Québec government will each provide approximately C$150 million of financing for a battery materials facility. The facility will produce cathode active materials (CAM) for electric vehicle batteries, and could be up and running as early as 2025.

And in August 2023, EcoPro and SK On, both of South Korea, announced they have joined Ford to form a consortium that will invest C$1.2 billion toward building a battery materials plant in Bécancour. The plant is expected to produce 45,000 tonnes of CAM per year for Ford – a necessary input for batteries. Canada's federal government and the Québec government are expected to each offer C$322 million in conditional loans, with the expectation that the plant will be operational beginning in 2026.

Québec makes investments through Investissement Québec directly into emerging projects. Investissement Québec's mission is to play an active role in Québec's economic development. In the lithium mining sector, they have accomplished this through a 50% and 40% ownership in each of the Nemaska Lithium Project and Moblan Lithium Project, respectively – two key lithium extraction projects in Québec. By investing in critical mineral projects, Québec is attracting downstream operations with a goal of making Bécancour a complete battery hub. This commitment gives mine operators, which need to make irreversible commitments to non-moveable extraction projects, the confidence to commit capital to lithium deposits in the province.


MOBLAN LITHIUM PROJECT

About Winsome Resources

Winsome Resources (ASX: WR1) is based in Australia. It has a focus on Québec-based lithium exploration and development, where it has six project areas. Four of Winsome's projects – Cancet, Adina, Sirmac-Clappier and Tilly – are 100% owned by the Company. Recently the Company acquired a further 47 km^2 of claims at the Tilly Project, located near Adina, and an option over the 29 claims of the Jackpot Property, immediately north of Adina.

The most advanced of Winsome's projects – Cancet and Adina – provide shallow, high-grade lithium deposits and are strategically located close to established infrastructure and supply chains. With a focus on developing sustainable mining operations, proximity and access to Québec's world-class hydropower network provide Winsome with readily available renewable energy. Québec has the most economical and cleanest renewable energy supply globally with established surface roads and nearby infrastructure and is continuing to develop plans to further enhance transportation options.

Winsome is led by a highly qualified team with strong experience in lithium exploration and development. Building strong and transparent relationships with local and Indigenous communities has been recognized as a critical step in securing long-term success for all stakeholders.



The Québec government is tightly tied to private industry networks by virtue of its 100% ownership of Hydro Québec. Hydro Québec is one of the largest issuers of bonds in Canada, with a three-year average issuance program of C$4.5 billion annually. In addition, a number of Québec-based pension funds have a mandate to invest in Québec in order to create lasting value to benefit Québecers. As at December 31, 2022, the CDPQ pension fund had invested C$78.4 billion in Québec, of its total amount of C$402 billion, or almost 20%. Its goal is to grow that amount to C$100 billion by 2026. This mandate has simplified capital formation in Québec compared to many other jurisdictions. One of CDPQ's strategic verticals is green energy and sustainability – CDPQ contributes through a targeted strategy, and its investments in businesses, projects and technologies contribute to accelerating the process.

As at December 31, 2022, the CDPQ pension fund had invested C$78.4 billion in Québec

Lithium Royalty Corp. has been a strong supporter of Québec and has actively championed Québec assets for investment from global lithium companies. In the fall of 2021, Lithium Royalty Corp. invested capital alongside Investissement Québec in the Moblan Lithium Project, operated by Sayona Mining. Sayona has since conducted drill campaigns and has outlined a Measured and Indicated mineral resource of 49.9 million tonnes at 1.2% lithium oxide (Li_2O), more than quadruple the prior resource. Sayona and Lithium Royalty Corp. believe that the development of the Moblan project will provide meaningful jobs, investment and opportunities for Québec. We currently hold a 2.5% royalty over the Moblan Lithium Project.

INFLATION REDUCTION ACT IN THE U.S. IS AN ADDED BOON

In addition, Québec is geographically linked to the auto corridor in Southwestern Ontario and Michigan, which is advantageous in the context of the Inflation Reduction Act or IRA. Through this, Québec can inevitably become part of a regional supply chain.

THERE ARE RISKS

While we have explained why we find investing in Québec lithium attractive, we also wish to provide a balanced view and disclose some of the risks that should be considered and mitigated.

The province does not produce passenger vehicles – though it does produce electric buses (Lion Electric, Volvo's Novabus) and powered sports vehicles (BRP). It did have a prior history of vehicle manufacturing, but ceded that to other jurisdictions some time ago. The good news is that it left behind its rail and road infrastructure which is very connected to the 'auto alley', which is concentrated in Southwestern Ontario and Michigan.

Canada in general has been accused of having a complex, convoluted system for mining permits, with the timeline for obtaining a permit ranging from five to 25 years. The complication arises from how responsibility for mining in Canada is shared between the Canadian federal government and the provincial and territorial governments. This has to do with the way provinces in Canada have oversight of their resources and is further complicated by an obligation of governments to consult with First Nations. In March 2023, the federal Minister of Energy and Natural Resources, Jonathan Wilkinson, said Canada was working to ease the permitting process burden. In July 2023, Prime Minister Justin Trudeau's government said it hopes to unveil a plan by the end of this year to streamline permitting for mining projects.

The government is one thing – but the Constitution is quite another. The Canadian Constitution recognizes aboriginal and treaty rights and Canadian courts have imposed a general duty on the federal and provincial governments to consult with any aboriginal group whose aboriginal and treaty rights may be affected by a governmental decision, including the grant of permits or licences relating to mining activity. This duty has generally been delegated to mining project proponents, which means that a mining developer must consult with aboriginal groups in parallel with its lengthy application for mining permits.

The good news is that Québec has developed a constructive relationship with the Cree Nation government, where a number of lithium projects are located. Grand Chief Abel Bosum has been quoted as suggesting his region could "actually become the battery of the north." In the June 2021 Report of the Standing Committee on Natural Resources, which studied the development of critical minerals value chains in Canada, Grand Chief Bosum said "the full recognition of Indigenous rights is not a threat to development. Instead, it is the necessary condition for orderly and sustainable development to take place."

The 'Grande Alliance' is a joint exercise between the Cree Nation and Québec governments to work together on infrastructure in the Eeyou Istchee James Bay Region. This is important to ensure that such infrastructure does not lead to development in areas that are environmentally or culturally fragile or sensitive. The exchange of information also leads to prioritization of projects according to actual feasibility. The Grande Alliance was signed in 2020 and aims to implement some of the requirements of the treaty and to help strike a balance between developing and protecting traditional territory.

A relationship of trust and cooperation with Indigenous communities and governments is critical to mining in Canada.

CONCLUSION

More is in the works – according to Pierre Fitzgibbon, the provincial government is looking to develop a second industrial park like Bécancour, and even developing an EV battery cell manufacturing facility in Montréal. There is no doubt that investment is going toward the EV battery supply chain in Québec – from lithium mining to battery manufacturing – and we are pleased to be part of this process.

About Lithium Royalty Corp. (LRC)

LRC is a lithium-focused royalty company with a globally diversified portfolio of 32 revenue royalties on mineral properties around the world that supply or are expected to supply raw materials to support the electrification of transportation and the decarbonization of the global economy. Our portfolio is focused on high-grade and low-cost mineral projects that are primarily located in Australia, Canada, South America and the United States. LRC is a signatory to the Principles for Responsible Investment; the integration of ESG factors and sustainable mining are considerations in our investment analysis and royalty acquisitions.

We have eight royalties in Québec. A royalty is a commercial arrangement that provides payments to a royalty holder by an owner or operator of a property. Payments are typically calculated based on a percentage of revenues or projects generated from the minerals or other products extracted from the property.

LRC ROYALTY MAP
32 royalties globally, 8 in Québec



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