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Dear Readers,

Is Québec about to realize its extraordinary mining potential? The province's ambitions remain strong despite significant challenges like the unprecedented wildfires in the North, a macroeconomic slowdown, and geopolitical instability. The coming years will be those of execution as Québec targets the pole position in the critical minerals race. Beyond its gold output, lithium, graphite and rare earths will eventually have to enter commercial production for Québec to match its circularity ambitions, from production to recycling.

Before becoming a critical minerals leader, the challenges observed in the past months have reminded the industry and investors that Québec's story has (so far) been written in golden letters. The king of commodities will continue to carry the province's technological, economic, and social development, as majors surf a high gold price and developers seek to restart past giants.

Looking at the next years, the province will face several challenges that go beyond short-term market downturns in future-facing minerals. First, Québec can no longer take its green, cheap and reliable hydroelectricity for granted. Electricity shortages will make powering the mines of the present and the future increasingly difficult. Stakeholders will also have to find the right balance between generating value and managing communities, as both the Northern and Southern parts of the provinces want more (but differently) from what the mining industry is currently offering them.

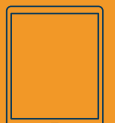
This said, Québec holds a trump card: From leveraging AI to advance exploration, to constructing the Galaxy lithium project or operating automated drills at the Goldex gold mine, Québec is home to an unparalleled network of service providers that contribute to the province's reputation of being one of the best places in the world to build a mine. More than a "resource province", Québec's vision is to become a uniquely integrated player in North America. In the coming months, one can envision lithium from the Whabouchi mine being transported via the Billy Diamond road to Matagami, where a hand-haul zone is currently being built, allowing truck traffic to transport the spodumene concentrate to Bécancour for lithium processing and upgrading in Trois-Rivières, in the "Battery Valley". The vision is set, now Québec's mining stakeholders must demonstrate operational excellence to execute the battery strategy and take advantage of this generational opportunity to lead global decarbonization efforts.

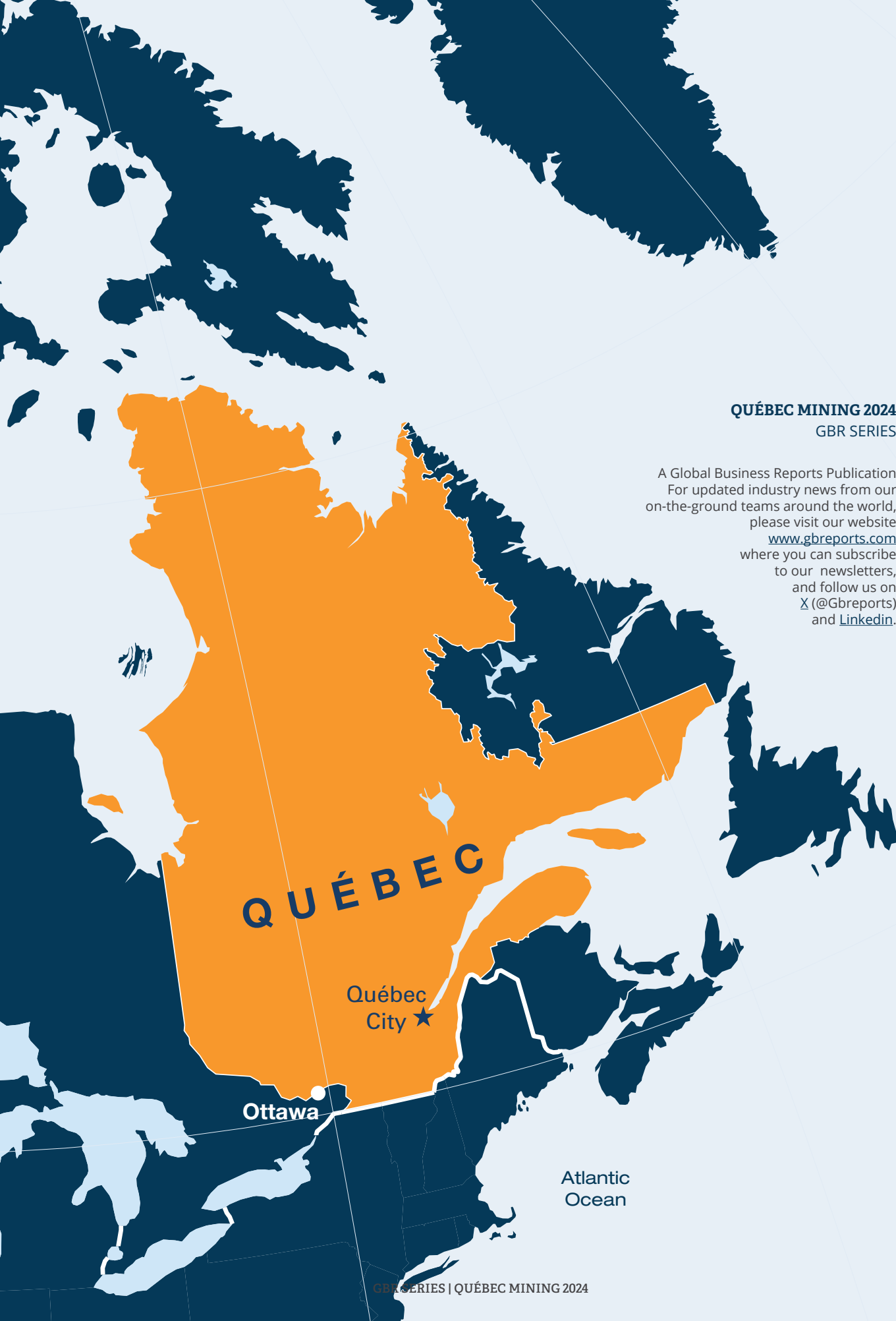
GBR's research team traveled throughout *La Belle Province* to meet with the industry leaders whose responsibility it is to execute that vision. We want to thank these institutional representatives, executives, and miners for their insights, along with the Ministry of Natural Resources and Forests, our association partners at QMA, AEMQ, and "THE Event". We truly hope you enjoy the read.



Alfonso Tejerina
Director and General Manager
Global Business Reports

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Introduction

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Looking ahead to 2025-2026, we anticipate a surge in new operations, with projects like Nemaska and Nouveau Monde Graphite nearing completion of construction on their processing plants and mines.

”

Josée Méthot
President and CEO
QUÉBEC MINING ASSOCIATION (QMA)

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Image by Firefighter Montréal at Adobe Stock

The Québec Mining Scene

Operational excellence, or failed battery strategy

Will Québec manage to unleash its unparalleled mining potential? The unprecedented wildfires suffered in the north of the province, the macroeconomic slowdown and the geopolitical turmoil observed in the 12 months since H2 2023 have tempered La Belle Province's ambitions, without deterring them. Québec even climbed the ranks of the Fraser Institute, sitting at a comfortable fifth spot in 2023, further placing the province as a leader in global sustainable mining. The coming years will be those of execution as Québec targets the pole position in the critical minerals race. Beyond its gold output, lithium, graphite, and rare earths will have to (eventually) enter commercial production for Québec to match its circularity ambitions, from production to recycling. But both for the planet and investors, time might be running out. In the year of the Olympic Games, Québec's mining industry would be well advised to switch from marathon to sprint pace in the global race to market for critical minerals.

Geopolitics at the wheel

Disruptions and market changes brought by the war in Ukraine, the Israel-Gaza conflict, and the ever-looming threat of escalation between China and Taiwan, will likely dominate the remainder of 2024. Looking south to its US neighbor, the significant uncertainty surrounding the upcoming US elections means Canadian companies must act swiftly to secure financing and partnerships before any market volatility arises.

With this in mind, Québec enters the global arena with the firm intention of consolidating its position as a strategic partner for the West. With China holding over 80% of the production and processing of critical and strategic minerals (CSMs, such as nickel, copper, cobalt or lithium), the world is once again eyeing La Belle Province's resources. For Jean-François Béland, VP of strategic sectors at Investissement Québec, a government corporation that injects millions in support funding for mining projects in the province, it is firstly Québec's political environment that is reassuring for allies: "There is no political risk in Québec: The government parties are not anti-mining. It is centered, consensual, and appealing, especially in the current geopolitical context."

In an era when the discipline of geopolitics is (once again) taking center stage, NATO allies are piling up outside of Québec's door for their CSM needs. Global tensions are a good reminder of the importance of speaking a common language with long-term allies. In April, former French Prime Minister Gabriel Attal visited Montréal on his first trip outside of Europe to emphasize the close historical and cultural ties between the Hexagon and La Belle Province. Beyond discussions about the French language, Prime Ministers Attal and Legault pushed forward on a free trade deal about critical minerals.

Down the line, the mining landscape in Québec will likely continue to be reshaped by geopolitical drivers well into 2025 and 2026. With West-

ern players trying to secure IRA-compliant feed, two trends are strengthening in the province. First, the push for more CSM projects to come online: Nemaska and Nouveau Monde Graphite (NMG) are nearing completion of construction on their processing plants and mines. Québec Mining Association figures show that only 0.7 mines start production per year in the province (most of them gold), too low of a figure to meet the West's ambitious green energy transition targets. Second, the sustained investment by OEMs and foreign conglomerates in the transformation of critical minerals in Québec. Fasken recently accompanied Panasonic in its offtake Agreement for the acquisition of 18,000 t/y of active anode material from NMG's planned Phase 2 integrated ore-to-battery production. Touching on this new type of deal for the province, Fasken partner Frank Mariage stated: "OEMs are actively taking early stakes in developers to make sure they have a first crack at the material, and those off-takes are a new type of financing in Québec. Getting access to feed is so critical, particularly given the geopolitical context."

Addressing the Dragon in the room

The more years pass, the more it appears that removing the West's dependence on Chinese materials is utopic, at best. Beijing for now sits on a near monopoly of the raw materials the West craves: In 2022, China produced over 70% of the world's graphite and 68% of rare earths. Beyond production, Beijing's grasp is even

more significant on the processing of materials needed for EVs, electric motors or green technologies: It processes around 67% of the world's lithium supply, 73% of cobalt, 70% of graphite, and 95% of manganese.

In response to this dominance, the US and Canadian governments have played the national security card to block Chinese investments in critical minerals. In 2024, the US imposed tariffs on US\$18 billion worth of Chinese imports and Canada added stringent measures regarding foreign capital entering the mining industry. To curb Chinese economic influence, the Canadian government enacted the ICA in late 2023. This legislation allows the government to review and reject foreign investments that are not considered beneficial to the Canadian economy and society, while encouraging "positive foreign investment." The national security aspect of the ICA is reportedly being used to block Chinese investments in Canada's mining sector.

What the West truly lacks is the development of a critical minerals supply chain outside of China. While the West was entering a process of deindustrialization, Beijing was pouring billions of dollars into refineries, processing plants, and conversion facilities domestically and throughout Africa notably. Driven by the need for increased supply chain resilience and flexibility, North America and Europe have in recent years started a reindustrialization process, with firms like Capgemini projecting investments towards domestic manufacturing to reach US\$3.4 trillion over the next three years. "The Canadian and Québec governments went into the critical mineral game full throttle and are significantly supporting the development of a critical mineral and battery value chain in North America as the continent aims to become self-sufficient concerning any critical commodity. The dream is local production for the local market," explained Réjean Girard, president and CEO of IOS Services Géoscientifiques, who emphasized that the world would require approximately 35 Nemaska lithium-sized mines to be developed to green energy goals.

While the province is not yet a significant producer of lithium or copper, efforts made by governments since 2020 have positioned it as a processing force. Li-FT Power is currently conducting surface exploration for lithium-bearing spodumene crystals in James Bay. In the words of CEO and director Francis McDonald: "Québec's strategic role in the lithium supply chain, particularly for North American battery plants, could be pivotal, especially with potential geopolitical shifts driving a need for more localized supply chains."

Critical minerals circularity

In 2024, the government updated the list of CSMs from 22 to 28, adding high-purity iron, high-purity silica, aluminum, manganese, apatite, phosphate, and germanium to the list. For Josée Méthot, president of the Québec Mining Association, the drive is clear: "Currently, there are 36 mining projects under the government's radar, based on data from February 2024. Whenever a mining project

reaches the preliminary economic study stage, it gets on the map. Of these 36 projects, more than half are focused on critical minerals," she explained.

In 2024 more than ever, Québec positioned itself to the world as a province fit to become a leader in the production, transformation, and recycling of CSM. Within the Québec Plan for the Development of Critical and Strategic Minerals 2020-2025 (QPDCSM), the official policy states: "The circular economy is at the heart of the Plan." Québec thus came up with the "Circular Economy Support Program for Critical and Strategic Minerals," and notably funded the Lithion project aimed at developing a recycling technology for lithium-ion batteries. Maité Blanchette Vézina, Québec's Minister of Natural Resources and Forests, said: "In addition to being a resource province, we want to make sure that mineral processing and recycling take place in Québec. There's a very clear interest in Bécancour for the battery value chain, and we want to work on

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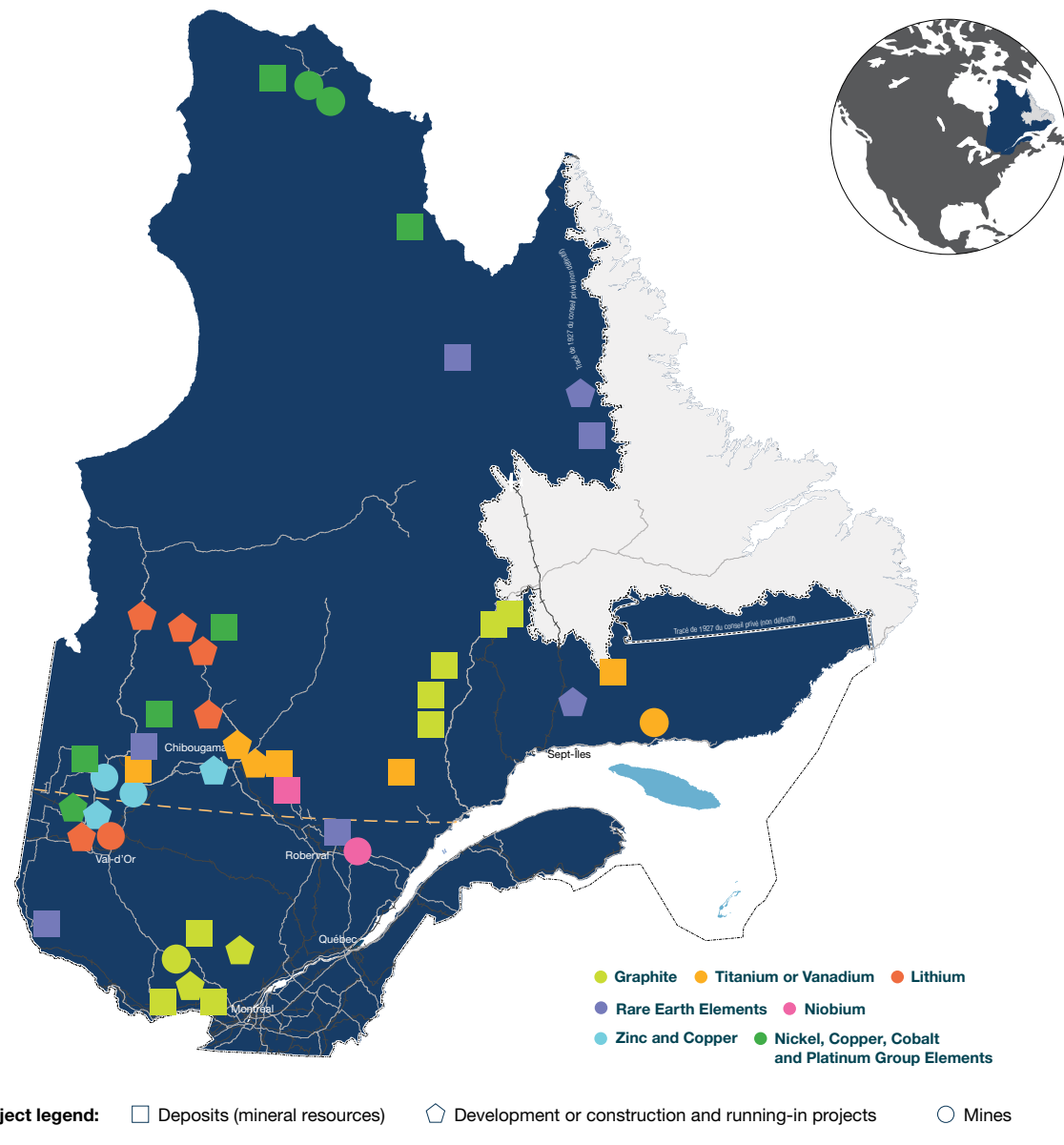
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Critical and Strategic Minerals Projects in Québec



Source: Government of Québec, 2022

other minerals such as high-purity iron that strongly contribute to steel manufacturing decarbonization.”

The presence of major global companies highlights Québec's significant role in the green energy transition. International players like GM, Panasonic Ford, Posco, EcoPro, Arcadium, and Northvolt are investing in Québec. For Sarah Maryssael, chief strategy officer and general manager of Canada at Australian giant Arcadium Lithium, which will be looking to produce lithium at the Galaxy project in the coming years: “Québec has put in the effort to attract downstream investment and make the province a place where companies want to set up battery and cathode factories, and in building this supply chain ecosystem will allow critical minerals producers to be part of an integrated battery supply chain.”

More than a “resource province”, Québec's vision is to become a uniquely integrated player in North America.

As exemplified by the Bécancour industrial park, Québec is once again a leader amongst its Canadian peers in this approach: Among the three largest mining jurisdictions—British Columbia, Ontario, and Québec— competing for critical mineral investment, only Québec has explicitly included circularity, recycling, and reuse in its official Critical Minerals Policy. So, what does an integrated critical mineral province look like in the future? One can envision lithium from the Whabouchi mine being transported via the Billy Diamond road to Matagami, where a hand-haul zone is currently being built, allowing truck traffic to transport the spodumene concentrate to Bécancour for lithium processing and upgrading in Trois-Rivières, in the “Battery Valley”. The vision is set, now Québec's mining stakeholders must demonstrate operational excellence to execute the battery strategy and take advantage of this generational opportunity to lead global decarbonization efforts. ■



“ On top of the most diverse resource base in Canada, Québec offers visionary and coherent government policies, while partnering in investments to create a favorable business environment for mining. ”

Maité Blanchette Vézina

Minister of Natural Resources and Forests
GOVERNMENT OF QUÉBEC

What have been the Ministry's major initiatives as pertains to the mining industry?

Last year, we were close to completing a consultation process for the harmonious development of mining activity. Based on the conclusion of this public consultation, we worked on the modernization of the Mining Act aimed to make sure Québec remains a leader in the development of strategic and critical minerals and continues to offer a competitive business environment. The idea is to develop transparency and early communication with local communities to achieve better social acceptability from the outset. We tabled this bill at the end of May, and the work will continue next autumn.

We have also updated the action plan for the development of critical and strategic minerals 2020-2025. We wanted to improve our actions to foster innovation, improve the environmental regulatory framework, and increase the circularity of Québec's battery supply chain. [CG(M1) We updated the list of critical and strategic minerals from 22 to 28, thus adding high-purity iron, high-purity silica, aluminum, manganese, apatite, phosphate, and germanium. The aim is to leverage the development of these minerals with an attractive business environment for research, exploration, and exploitation.

What are the objectives of the new proposed Mining Law?

As far as amendments to the Mining Act are concerned, one of the major proposed measures would ensure that mining companies go through the BAPE process (public hearings), which is a positive step for the industry, as it

will create greater social acceptability. There will also be the withdrawal of mining exploration from certain areas, although municipalities will have the final say on this. We have come up with balanced positions, especially ahead of exploration. It's early on that we need to improve relations with communities.

What is the Ministry's vision for an integrated battery value chain in Québec?

Efforts have been made to attract investment to the battery supply chain sector from mining to midstream and downstream processes and recycling. We have sought out partners to develop this sector, which is set to grow exponentially over the coming months. In addition to being a resource province, we want to make sure that mineral processing and recycling take place in Québec. There's a very clear interest in Bécancour for the battery value chain, and we want to work on other minerals such as high-purity iron that strongly contribute to steel manufacturing decarbonization. We are recognized worldwide as an ideal partner with strong ESG criteria.

Can you outline the Ministry's innovation and research efforts?

We now have a research network specific to critical and strategic minerals, managed by CRITM, which brings together 300 members of the mining ecosystem. This project is supported with C\$11 million for collaborative research projects. We also funded research projects to develop knowledge for mining residues valorization and battery recycling, which are part of a vision of sustainable natural resources development. We are also working

with COREM, the Center for Innovation in Mineral Processing in Québec. At the end of 2025, we would have invested around C\$50 million in developing research and supporting innovation.

What factors make Québec unique for exploration, and how does the government support juniors?

Québec is a politically stable partner. We are going to amend the Mining Act without distorting its legal content. Our electricity is green, and we are investing to develop innovation. We have launched a new investment fund, NQ, to develop mining activity in the North. We have put in place an advantageous tax system to help mining exploration activities, particularly for critical minerals exploration.

So, on top of the most diverse resource base in Canada, Québec offers visionary and coherent government policies, while partnering in investments to create a favorable business environment for mining.

Do you have a conclusion for GBR's audience?

I aim to showcase Québec minerals, make people proud of our resources and practices, and ensure that our minerals are at the heart of the decarbonization of economies. On a global scale, Québec's place as a partner of choice for diversifying sources of strategic minerals will only grow.

As an example, as we intend to collaborate with foreign partners, we have signed a declaration of intent with France to establish a collaboration framework regarding particular knowledge development and investments in the critical and strategic mineral sector. ■



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We have significant lithium and graphite reserves, alongside emerging projects in rare earths and nickel.

”

Josée Méthot

President and CEO
QUÉBEC MINING ASSOCIATION (AMQ/QMA)

Can you summarize the latest developments and challenges for the Québec Mining Association (QMA) and the mining industry in Québec in 2023?

2023 was pivotal, with two major challenges significantly impacting our industry. First, the forest fires up north were unprecedented. We worked closely with the government to mitigate the impact on mining operations. Some mining sites had to be evacuated and maintain essential functions with minimal crews. Secondly, there was a heightened enthusiasm for critical minerals, spurred by the Québec government's active promotion of this sector. However, this enthusiasm also brought the issue of social acceptability to the fore which, in turn, was the subject of two major consultation processes led by the government, one on the harmonious development of mining activities and the other on policy directions for land use planning.

The government published Bill 63, An Act to amend the Mining Act and other provisions, on May 28th. We have not finished our detailed analysis of all the proposed modifications. This will be our work this summer.

Hydroelectricity is another major issue—will we have the necessary electricity to transition, expand and develop new mines?

With the expected changes in the Mining Act, do you anticipate Québec remaining a safe place for foreign investors?

According to the Fraser Institute's annual survey published in May, Québec ranks fifth in the world for attracting investors, highlighting strong investment interest here.

Do you anticipate more support at the governmental level for critical minerals projects?

Yes. Currently, there are 36 mining projects under the government's radar, based on data from February 2024. Whenever a mining project reaches the preliminary economic study stage, it gets on the map. Of these 36 projects, more than half are focused on critical minerals. So, mining development in this area is indeed advancing.

How significant is the challenge of securing hydroelectricity for the mining industry in Québec?

It has become more pronounced, especially during the winter. The government, along with Hydro-Québec, is

now selecting which projects receive electricity. Historically, Québec has had ample hydroelectricity, but the current energy transition, including the rise of electric vehicles, has saturated the system. In regions like Abitibi and the northern areas where mining is prevalent, the power lines are at capacity. This means that if companies want to expand or transition to low-fossil-fuel operations, they may face uncertainty in securing the needed hydroelectricity. There are plans to build new dams and optimize existing electricity production facilities to increase efficiency. However, not all projects will receive the power they need, leading to a competitive environment for hydroelectricity. Mining companies will need to include these considerations in their PEA and PFS.

Can you discuss Québec's role in North America's decarbonization efforts and the vision for a circular economy to process resources locally?

We have significant lithium and graphite reserves, alongside emerging projects in rare earths and nickel. The potential reopening of the Gapsé copper mine by Osisko Metals indicates a growing capacity to produce more copper locally. This positions Québec uniquely to contribute to greenhouse gas reduction efforts both within and outside the province, thanks to our ability to supply high-grade materials. Furthermore, global companies increasingly prioritize sourcing materials from regions with robust ESG standards. Québec's stringent environmental regulations, once viewed as challenging, now enhance our attractiveness to such companies.

What will be the catalysts ahead for the industry?

Looking ahead to 2025-2026, we anticipate a surge in new operations, with projects like Nemaska and Nouveau Monde Graphite nearing completion of construction on their processing plants and mines. While progress is evident, only a few mines have started operations in the past two years. But factors such as environmental authorization processes may influence timelines. Despite active exploration, the average of 0.7 mines starting per year underscores the distinction between claims and operational mines. Moving forward, a key priority for the Québec Mining Association is navigating modifications to the Mining Act, ensuring we represent and support the industry's interests effectively. ■



Olivier Grondin

Chairman
QUÉBEC MINERAL
EXPLORATION ASSOCIATION
(AEMQ/QMEA)

“

Exploration has become more complicated in Québec, but it is the same all over the world. We need to adapt to regulations and be in-synch with society and our social responsibility.

”

How is the current environment for juniors?

The market is still tough for juniors. Financings are down, but investment in exploration and meters drilled remains good. However, the general sentiment at the beginning of 2024 is on the downside of things. Our members are prioritizing their core assets.

Overall, it is extremely difficult to raise money for juniors right now, which is ironic as gold, copper and base metals prices are all currently high. Most of the mineral investment for both mine development and exploration is still very much focused on precious metals in Québec. That disconnect is partly related to the investor base, which has changed over the years. There are fewer exploration-specific funds, so the industry is targeting the generic investor, which is less cognizant of how exploration works and how patient one needs to be. That investor base is less patient, but it is the one holding the capital, so companies will have to shift their approach to address them.

Is it becoming more complicated to do exploration work in Québec?

On 6 May, the Ministère des Ressources Naturelles et des Forêts (MRNF) introduced a new permit for certain types of mining exploration activities, called the authorization on impact-causing work. We felt this measure was quite rushed, and the period to get it across was too short. We are monitoring what is going on in the field, and what we are hearing is that most authorizations have been delivered on time, so the next challenge will be for companies to apply and not get left behind. In reality, it is a new permit for certain activities like drilling and trenching. Before, only a permit from the Forest Department was required, so this adds another layer of authorization. This is more red tape for exploration and mining activities and causes delays. The next step will be asking the government to synchronize that authorization with the Forest permit to streamline the process.

Exploration has become more complicated in Québec, but it is the same all over the world. We need to adapt to regulations and be in-synch with society and our social responsibility. We also need the general population to understand mining better. New

regulations are a challenge to accessing territory, which is paramount. As of 2022, 94% of all exploration and mineral development expenditures were in Abitibi, Cote Nord, or Nord du Québec. The same applies for meters drilled: In 2022, less than 4% of the 2 million meters drilled was outside of these three regions.

Are you seeing enough greenfield exploration?

In 2022, over 80% of exploration was done by juniors in Québec. Exploration will remain junior-driven, although majors are picking up more of that exploration split. However, majors are doing most exploration around their sites, in brownfield areas. So the danger is the lack of investment in greenfield exploration.

Brownfield and greenfield exploration are well and alive in James Bay. Some explorers looking for base and precious metals realized they had the potential for lithium-bearing pegmatites and changed their strategic focus, leading to more discoveries. This boom in lithium exploration is great for James Bay, as the region had been mostly explored for gold ever since the Eleonore discovery and development. We have not found another Eleonore yet, and the next step is building a project in James Bay to prove the area can be a reliable supplier of lithium for the electrification of the world.

What is the potential for new gold discoveries in Québec?

There is still a lot of potential in the Porcupine Dexter Fault and the Cadillac break. If I take the example of the Malartic camp, the redevelopment is proving that old camps still hold a lot of potential. There is still lots to be found. The best place to explore is in the shadow of a headframe!

What will 2024 look like for explorers in Québec?

The government said it had plans to amend the Mining Act, which will affect how our industry can operate in the field. We see some risk associated with a shift between the provincial government and some municipalities. The electric transition is still ongoing. The gold price is at a record high, and the fundamentals are still here for battery metals. ■



Challenges in Making the Green Dream a Reality

Unlocking the North, and Québec's hydropower

The province's push to become a leader in decarbonization in North America has seen a wave of foreign investment and firms flock to its northern limits, but while the challenge of global warming is well known south of the 49th parallel, another one looms along the 55th northern parallel: That of social erosion. And while mining is critical to meet societal shifts pushed by demographic and economic factors, the industry also has the potential to transform communities of the Nord-du-Québec, a region twice the size of France, and whose Nunavik and Eeyou Istchee James Bay subregions host the highest volume of critical and strategic minerals in Québec.

When a mine equaled a town

A century ago, when mining firms discovered a commercially viable deposit in Québec, they would build a town around it. Mining would spur the influx of the socio-economic development with people from and other industries drawn in, like Schefferville, Gagnonville, and to an extent Val d'Or. When there was a mine, there was a town. Today, pushed by both shareholder value and employee preferences, the business model has shifted from building a town to building camps around mining sites. The Fly-In-Fly-Out model allows workers from Montréal and Sherbrooke to spend a couple of weeks at a northern mine before returning home to spend their pay. Particularly given the growing importance of ESG and Canada's long-term social contract, in a region where 60% of inhabitants are Crees and Inuits, reaching a balance between business models will be key for a fair economic development of the North. Patrick Beauchesne, CEO of Société du Plan Nord,

a body in charge of implementing the government's Nordic development plan, explained: "(Communities) see workers flying overhead and leaving without contributing to local socio-economic development. With skilled workers coming from the south, these models contribute to the erosion of the social fabric in the north."

Unlocking land access to the territory will most likely be the way forward to develop mining activity in the north and subsequently offer opportunities to local populations. In Fermont, with ArcelorMittal, the Société du Plan Nord helped set up a project to offer 40 homes, encouraging the local workforce to settle in the community. To go further, the Société developed a C\$2.6 billion investment plan for the Northern territory. The lion's share will be dedicated to infrastructure; developing projects like Winsome's Adina are isolated in the North, and many sites are only served by one road, which would quickly become congested in the case of wildfires causing the need for immediate evacuation. Beauchesne added: "If you add up all the roads in the Northern Territory, there are 3,300 linear kilometers in an area twice the size of France. In Nunavik, there are only two modes of access: by air, or by sea during a window of 4-5 months a year. Access to the territory represents a major challenge for the mining industry."

Beyond local populations, developing the north will also be fundamental for the success of Canada's green energy transition ambitions. In Québec, the government began by attracting the likes of GM and Panasonic to Bécancour, and position the province as a battery hub. Now, it needs to secure the upstream, feed. To advance those projects, the government in 2023 launched NQ Investissement Minier, an investment fund aimed at financing promising projects in Nord-du-Québec. Its general manager, Sylvain Lépine, said: "The more advanced projects, the more infrastructure we can build, as we will have a global reach."

Hydroelectricity: Demand exceeds supply

What was once plenty is now in shortage. Québec's hydropower resources are depleting, in a turn of events that many executives have called the biggest challenge to the mining industry in the province in the coming months. Over 40% of Canada's water resources are in Québec and the province benefits greatly from hydropower. For access to that power mining firms are competing intensively. And from industry

associations to financiers and miners alike, the evidence is clear: There will not be enough for everyone.

In the North, the James Bay project is Québec's largest generation complex, with an installed capacity of 16,527 megawatts (MW) of power, approximately 40% of the province's peak load. A wave of projects entering the developing phases in the James Bay has saturated a system that once had plenty in storage. Since January, Osisko Mining's Windfall project has been powered by hydroelectricity, through a 95-km, 69 kV power line built, owned, and operated by Waswanipi Cree First Nation. Similarly in the Abitibi, producers and providers like Hydro Québec have reported that power lines are at capacity. Louis-Nicolas Boulanger, partner at McCarthy Tétrault, who has notably been helping clients with accessing Québec's hydro advantage, added: "The biggest challenge is currently the electricity supply. Ensuring sufficient electricity for critical minerals projects is crucial, as these projects rely on clean energy for their green energy transition goals."

So, what exactly would a shortage of hydropower mean for Québec's mining industry? Firstly, it could significantly change the equation of juniors and developers calculating their power costs into their PEA or PFS. In September 2023, Allkem's updated feasibility study at James Bay Lithium confirmed an economically robust operation thanks to renewable hydropower notably. Secondly, it could harm the efforts of majors that are looking to transition to low fossil fuel operations. What is certain is that competing for power will become the norm going forward. Josée Méthot, president and CEO of the Québec Mining Association, explained that access to hydro-



Vincent Gagnon
President
CHRONO AVIATION

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Aviation has always been important for mining and will remain important for the industry moving forward as many people working on remote mine sites do not live there and require air transport to get to and from the site.

”

electricity was the most commonly cited concern among the association's members: "There are plans to build new dams and optimize existing electricity production facilities to increase efficiency. However, not all projects will receive the power they need, leading to a competitive environment for hydroelectricity." ■



Patrick Beauchesne

CEO
SOCIÉTÉ DU PLAN NORD

What is your role within the Québec mining ecosystem?

Our 2023-2028 investment plan is C\$2.6 billion for the Northern territory. The lion's share will be dedicated to infrastructure. Our role in the mining world is to "surround" projects: Is there a road? Is there electricity? Can we finance renewable energy projects? Is there high-speed internet for mining 4.0? For example, Winsome Resources' assets are relatively isolated in the North, and access roads to the projects are incomplete. So, we're helping at the planning level to make studies to determine which infrastructure will be optimal.

We also look at the mining companies' business plans. At present, many projects are based on the "fly-in fly-out" model, which has impacts on communities located near the project. Providing affordable housing will be crucial to the region's development. In 2024, the aim is to strengthen communities through economic development.

How important will the mining industry be to revitalize communities in the North?

It is time to turn the corner. In the '30s, mining companies would discover a deposit and build a town around it, like Schefferville, Gagnonville. Where there was a mine, there was a town. Today, with the transformation of the business model, the idea is to have a mining camp close to the deposit and to transport the workforce.

This shift is now taking place, thanks to the new ESG standards. Mining companies are now focusing more and more on the social acceptability of their projects. In Fermont, with ArcelorMittal, we helped set up a project to offer 40 homes, encouraging the local workforce to settle in the community. Exploiting the economic breadbasket of the North should maximize the benefits for the people and the community of the North. The first challenge will be to further develop the entire supply chain. We have a long history of mining deposits, but we practically don't process them in the province. We need to be able to add value locally. ■

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Financial and Regulatory Environment

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The government is extremely engaged with the mining industry. Québec is also home to a number of investment funds, directly and indirectly backed by the Québec government, with the mandate to advance the mining industry in the province and create jobs.

”

Peter van Alphen
CEO
NUVAU MINERALS

GBR Series • QUÉBEC MINING 2024

Image by demerzel21 at Adobe Stock

The Québec Investment Scene

Little investment, big ambitions

The reality check is harsh for Canada. World Bank Data shows that per capita growth GDP and productivity figures have barely risen in the past decade. For context, Canada's per-person GDP, a typical measure of living standards, was C\$58,111 in the fourth quarter of 2023. This figure is slightly lower than the C\$58,162 recorded at the end of 2014 when adjusted for inflation. Canadians' living standards have not improved, and experts have pointed toward a particular culprit: A decline in business investment.

This decline is evident in Canada's resources sector. The second-largest country in the world now ranks 8th in global mineral output. Natural Resources Canada, which maintains an inventory of projects under construction or planned within a decade, revealed alarming figures. Despite the increasing demand for minerals to supply raw materials for electricity, renewables, and electric vehicles, the number of mining projects decreased from 150 in 2014, worth C\$166 billion, to 129 projects in 2023, valued at C\$93.6 billion (equivalent to C\$75.2 billion in 2014 dollars), marking a 55% drop in value. Québec is no stranger to this trend. Several interviewees noted that lithium, cobalt, and copper projects were dropped as they could not get the necessary funding to advance to the later stages of development in the past two years. And on the floors of mining conferences from Toronto to London, executives share a shocking realization that investors are not interested in their stocks as much as they used to be.

After his election in 2015, Prime Minister Trudeau wanted the world to know the country for its resourcefulness rather than its resources. Québec, with its abundant gold production and critical minerals potential, now teeters on the precipice of missed opportunity. Thankfully, the province can rely on its executives' open-mindedness to attract new capital, and its unique financial ecosystem.

Addressing a new investor base

Buoyed by a historic bull market for precious metals, and a strong bottom-line trend for critical minerals, executives must reinvent the way they address investors.

The difficulty in junior financing despite the high prices of gold, copper, and base metals, is at least partly due to a change in the investor base of exploration companies.

Going forward, educating a new generic investor base will be key for juniors to get cash from the remaining sources that have not dried. For instance in Québec, much like any other North American mining jurisdiction, it will take over ten years on average to bring a mine to production. The waiting game is much different to other industries, and for Olivier Grondin, who leads the AEMQ's efforts in supporting juniors in the province, educating investors will be the industry's lifeline: "There are fewer exploration-specific funds, so the industry is targeting the generic investor, which is less cognizant of how exploration works and how patient one needs to be. That investor base is less patient, but it is the one holding the capital, so companies will have to shift their approach to address them."

Attend enough PDACs, and you will soon realize that the median age for retail investors sniffing at explorers' booths or core shacks is well above 60. Indeed, the shift in investor demographics plays a key role when addressing the slowdown in mining investments. Traditional commodity funds, often managed by baby boomers, are dwindling, while younger generations gravitate towards crypto and other assets. However, faced with the extreme volatility that comes with the latter industries, mining executives have noted a shift in the newer generations' behavior. As put by former Hecla CEO Phil Baker: "Interestingly, millennials and Gen Z are showing interest in buying precious metals, evident in places like Costco. Unlike crypto, which faces volatility and accessibility issues, gold and silver offer tangible store-of-value appeal."

Beyond shifting demographics, miners have also felt lonely during this rough patch due to the lack of external support. Unlike other mining powerhouses that hold similarities with Canada, the country does not have a large fund whose sole purpose is helping companies get the necessary funding. Having completed nine acquisitions in two years, Champion Electric Metals strategically shifted towards its Québec assets as it was able to raise capital through flow-through and super-flow-through in the province. Despite the unique environment for juniors offered by Québec, Jonathan Buick, president and CEO deplored the lack of support at the national scale: "We do not have a big mining house like we used to, we do not

have a dedicated multi-metal fund. We are missing a "big brother".

For investors and miners alike, the coming months might resemble a waiting game that shows no chance of a win-win scenario. Since May, the VanEck Gold Miners ETF, which comprises the world's largest gold mining firms, has decreased by 17.5%. During this timeframe, shares of Agnico Eagle have fallen by 7.4%, while Barrick Gold and Newmont have seen their shares drop by 23% and 30%, respectively. Paul Carmel, CEO of SIBEX, explained the disconnect between a high gold price and struggling share prices: "Despite soaring commodity prices, rising operational costs, including overruns and permitting delays, have squeezed profit margins for gold producers, prompting investors to await tangible signs of sustained profitability before fully committing to gold stocks."

On the plus side, current market conditions and societal trends will offer opportunities for the mining industry to shine again in the coming months. It might finally be time for a new wave of large-scale and sustained discoveries in Québec. Exploration will likely remain junior-driven, as over 80% of exploration work was done by juniors in Québec in 2022 (according to AEMQ figures), and investors have a key role to play in bolstering greenfield exploration, which is alive and well in James Bay notably. Generalist investors have shunned mining for years, yet the depths of their pockets are key for more discoveries. The rally in precious and base metals saw gold reach US\$2,334/oz and LME copper US\$9,706/t, which is making investors rethink mining as a source of returns. For Mathieu Savard, president of Osisko Mining, who was acquired by Gold Fields in the summer, that pool of investment is desperately needed to fuel further discoveries: "We need more generalists and retail investors to support discoveries. Without capital to support finding these new mines, it will only equate to a higher commodity and precious metals environment."

The Québec touch

Québec's unique ecosystem is again proving it can make a difference amidst a rather dire investment outlook countrywide. The funding framework includes Investissement Québec, which occasionally collaborates with the province's C\$402 billion (US\$300 billion) pension fund, the Caisse de dépôt et placement du Québec (CDQP). Mining investments are managed by Ressources Québec, a division of Investissement Québec, which administers funds from the C\$1 billion Natural Resources and Energy Fund and an additional C\$600 million allocated to Ressources Québec. Since 2022, Investissement Québec injected C\$12.5 million into Nouveau Monde Graphite to unlock the province's graphite potential; CDQP and FTQ invested over C\$50 million in the Bloom Lake iron mine, while SIBEX invested close to a C\$ 1 million in three gold, lithium and nickel early-stage projects in James Bay and the Abitibi. These are just recent examples highlighting the participation of financial tools that are unique to the province, and that are key to Québec's investment attractiveness. As put by Pascal Hamelin, CEO of developer Abcourt Mines, who is closing in on restarting the Sleeping Giant mine: "When capital markets are difficult, the institutional investors you

find uniquely in Québec can be helpful, whereas other jurisdictions in Canada do not have this financial support the province offers."

For juniors navigating the storm, the support of funds in financing, both debt and equity, to de-risk mining projects is a relief. Advancing several projects in gold and lithium, Harfang Exploration offers a glimpse into how those provincial long-term focused shareholders assist juniors. Québec funds and the CDQP together hold over 28% of the firm. President and CEO Rick Breger said: "The general market is not awesome for juniors, but Québec is one of the better jurisdictions to be given these funds and their level of support. The support for juniors in the province is unparalleled, and the whole ecosystem is very supportive."

Rather than aligning with the global trend of slowdown, Québec ramped up its efforts to support companies exploring for the minerals our society is avid for. The latest newcomer to an already packed provincial financial support scene is NQ Investissement Minier. The fund was announced by Minister of Natural Resources Maité Blanchette Vézina at the XPLOR conference in November 2023 and will have C\$17 million in cash to deploy from the Société de développement de la Baie-James and the Administration Régionale Baie-James to assist projects in Northern Québec. The fund aligns with the province's philosophy, as only mining companies respecting the principles of sustainable development in the Nord-du-Québec administra-

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NEXT HIGH-GRADE
GOLD DEPOSIT
IN QUEBEC

CSE: AUOZ | OTCQB: EMAUF | FRA: 9NH

COMPANY HIGHLIGHTS:

Tier 1 Jurisdiction: Flagship Duquesne West Gold Project located in the heart of the Abitibi Greenstone belt of Rouyn-Noranda, Quebec

Historical Inferred Mineral Resource Estimate: 727,000 ounces (oz) of gold at a grade of 5.42 g/t and an average thickness of 5.71 meters in 4.171 million tonnes*

Open Pit Mine Potential: New conceptual open pit model conceives multimillion oz gold potential on top of the existing high-grade underground resource

Strategic Investor, Rob McEwen: Recent C\$1M investment, now owning 8%

*Power-Fardy and Breede, 2011.



John Florek, President and CEO, JohnF@emperormetals.com
Alex Horsley, VP Corporate Development, alexh@emperormetals.com



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I applaud the Ministry for putting out a strategic vision for mine development in Québec as this provides a pragmatic roadmap for the industry to get behind.

”

Jason Attew

President and CEO
OSISKO GOLD ROYALTIES

What have been the latest developments for Osisko Gold Royalties (Osisko)?

Osisko Gold Royalties (Osisko) is celebrating its 10th anniversary. Since its inception in 2014, Osisko has taken the company from one producing royalty to 20 producing royalties and streams and over 185 assets in various stages of development and exploration. In 2024, Osisko will see another two new assets evolve into cash flow contributors. Our portfolio offers investors exposure to high-quality assets, with the majority of our net asset value being associated with producing mines and development projects located in tier-one mining jurisdictions.

My priority is to be disciplined with our capital deployment into high-quality assets in low-risk jurisdictions with management teams that have the best technical acumen. Osisko has a peer-leading geopolitical risk profile, and we have 30% organic growth in our assets that are already bought and paid for over the next five years, meaning that there will be no contingent capital or cash calls for Osisko. We will ensure that any future new transactions we underwrite exceed our cost of capital.

Can you elaborate on Osisko's asset portfolio?

Osisko's asset portfolio is anchored by the 3% to 5% royalty on the Malartic Complex in Québec, which represents approximately 30% of our net asset value. At Malartic, the operator, Agnico Eagle is currently transitioning from a low-grade bulk tonnage open pit operation to a higher-grade underground mine in an effort to bring the asset to production upwards of 1 million oz/y, assuming it can maximize the future latent processing capacity. In Québec, which we consider to be a leading jurisdiction, if not the best jurisdiction globally, we have additional exposure through our royalties on the producing Lamaque and Éléonore mines, as well as gold equivalent ounce growth through the Windfall, Corvette, Horne 5, and Marban development assets.

After Canadian Malartic, Osisko's next most important asset is the Mantos Blancos copper-silver mine located in Chile and operated by Capstone Copper, whereby we stream off 100% of the payable silver produced. Next, we have a silver and copper stream on the recently acquired CSA mine in New South Wales, Australia. We additionally have a 2.2 – 3.5% royalty on the Éléonore gold mine in Québec operated by Newmont. Typically, Newmont is currently in the process of selling Éléonore, and we are

looking for ways to support the new owners in the form of financing and using our relationships with Québec-based institutions, such as Investissement Québec and the CDPQ to hopefully provide a “Made in Québec” solution as this mine transitions into a new ownership structure.

In terms of commodities, is Osisko looking to delve more into the critical mineral space?

Québec will be at the epicenter of the critical minerals revolution and the green energy transition, and Osisko will do everything possible to financially assist high-quality critical mineral projects, but only if the project has precious metals associated with it.

What is Osisko's ESG strategy?

First, we have maintained our commitment to diversity with women continuing to make up over 30% of our board and 46% of our staff, and minorities representing approximately 25% of our staff. On the environmental side, we have conducted climate change scenarios to gauge the exposure of key assets to climate-related risks and opportunities, which helped inform our inaugural 2024-2027 Climate Change Strategy.

ESG is critical when adding assets to our portfolio, and we conduct vigorous due diligence prior to investing in any project.

What is the attractiveness of the royalty model in today's financial environment?

Royalties and streams have now become commonplace alongside debt and equity when mining companies run a financing process due to the competitive cost of capital these models can provide, especially considering that there has been a significant retrenchment in providers of conventional bank project financing over the past 10 to 15 years, along with volatile sectoral equity markets.

What are the opportunities and challenges for the gold industry in Québec?

Québec is one of the best mining jurisdictions globally for mining companies to get projects into production profitably, and in terms of regulatory processes, project approval processes, and access to supportive capital. I applaud the Ministry for putting out a strategic vision for mine development in Québec as this provides a pragmatic roadmap for the industry to get behind. ■



Jean-François Béland

VP Strategic Sectors
INVESTISSEMENT QUÉBEC

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Operational excellence is fundamental: We cannot fail to implement the battery strategy.

”

What are the latest highlights from Investissement Québec?

On a macroeconomic level, we can clearly see a slowdown in North America. But, we are willing to continue investing in mining projects, infrastructure, and capacity, even though commodity prices have fallen recently. Investors are maintaining their positions, and there have been no cancellations of exploration or mine construction phases.

Our first role is industrial policy: to help the Québec government implement its mining policy through a coherent industrial approach, linked to the various players in the ecosystem. The second role is to use financing - both debt and equity - to de-risk mining projects. This is the beauty of Ressources Québec: the coherence between public policy, industrial policy, and financing.

How are allied states responding to the current geopolitical environment?

Geopolitics are crucial. We are in an era in which geopolitics are being rediscovered: Tensions in Ukraine, the Middle East, and Taiwan remind us of the importance of having allies and secure supply chains. In this sense, critical and strategic minerals are “hot”, even if gold projects continue to make headway. Our Nato allies are coming to us for their CSM needs, and Québec has a crucial role to play on the global scene.

There's no political risk in Québec: the government parties are not anti-mining. It is centered, consensual, and appealing, especially in the current geopolitical context. For example, in November 2023, France and Québec signed an agreement on strategic minerals. China holds almost 80% of these CSM segments, so we're trying to break out of this circle of dependence.

What is the strategy to integrate the value chain in Québec?

The will is clear and precise: The industrial policy is to process locally and seek added value in Québec. This even makes sense ecologically: exporting tons of spodumene or lithium hydrox-

ide to be processed in China makes less sense than producing cathodes with Northvolt, for example. We are looking for maximum integration in Québec.

How does the industry perceive the increase in ASX-listed companies in Québec?

Australian companies are very well regarded in Québec. It is also a mining country, with a mining culture similar to ours. There is this cultural and administrative convergence. The social contract is similar, as is the importance of ESG standards and good relations with the First Nations. We cannot do everything on our own. We must work with our international partners: We did not know how to refine lithium before these partnerships. By working together, we can increase our chances in the global market.

What are the current challenges and opportunities for the mining industry in Québec?

We are a particularly favorable jurisdiction for mineral exploration, ranked 5th in the world by the Fraser Institute. We have private and public mining expertise, geological expertise, and a state that has the knowledge to make the framework advantageous. People know the industry here, particularly in Abitibi and the North Shore. Most people work - or know someone who works - in the mining industry.

The basis is the Québec social contract. If tomorrow we find a major deposit close to a municipality that refuses exploration, there won't be a mine. ESG criteria have been embedded in all Québec projects for decades. The image of the mine is also beginning to change.

What are the current priorities for Investissement Québec?

We must execute. Operational excellence is fundamental: We cannot fail to implement the battery strategy. We must provide the best regulatory and political framework so that the various companies can unleash Québec's mining potential. ■

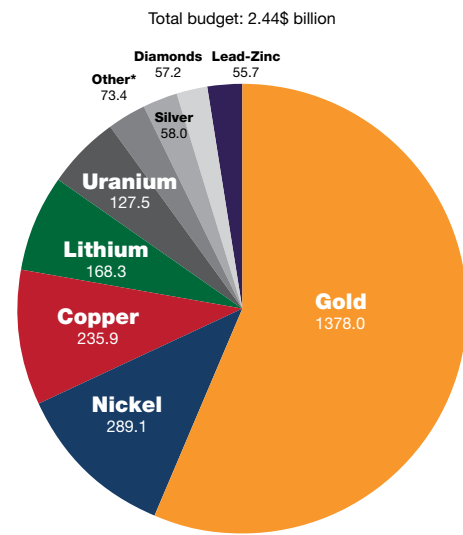
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tive region will have access to financing. On the timing of the creation of the fund and its vision, general manager Sylvain Lépine explained: “The need for a new institution became apparent following the big claim rush in Northern Québec in recent years. The SDBJ realized they did not have enough capital to push projects from exploration to production, so they decided to create a new fund. The lithium and nickel rush, along with major firms coming in historical camps like Chibougamau and Matagami, meant it was the perfect timing to create this fund.”

In a country in dire need of investment, Québec's unique financial ecosystem offers hope for its mining industry. By educating new investors and leveraging unique provincial funds, Québec can overcome current challenges, ensuring sustainable growth and capitalizing on rising demand for critical minerals and precious metals.

With a focus on innovation, responsible resource management, and environmental stewardship, Québec's mining sector can position itself as a global leader while meeting the growing demand for clean energy technologies and raw materials. ■

2023 Global Exploration Budget by Target (US\$M)



Source: S&P Global Market Intelligence, 2023



Paul Carmel

CEO
SIDEX

Will we see more majors acquiring projects to drive exploration and replenish reserves, particularly in Québec?

The current landscape presents hurdles for major miners. Escalating costs, coupled with difficulties in replenishing reserves, deter significant investment. Many major miners struggle to replace reserves at a pace necessary for sustainable growth.

While there is talk of majors acquiring projects and companies, the reality is more nuanced. There are success stories, however, such as Alamos which has successfully navigated this terrain, leveraging strategic acquisitions to bolster their growth prospects. Alamos's approach demonstrates that smart M&A decisions can yield significant benefits, especially for companies not constrained by their size.

Are you pursuing a specific commodity strategy?

Our investments are not tied to specific commodities. We are bottom-up investors, open to companies in Québec seeking capital, regardless of the commodity (except iron ore). We have been most active in gold, copper, lithium, and nickel.

Beyond commodities, what criteria influence your decisions when funding firms?

We have long emphasized social acceptability in financed companies, even before ESG gained prominence. Now, in addition to commodity agnosticism, we prioritize investments in Québec-based projects with strong management teams. As a mining engineer with experienced geologists on board, we assess geological viability rigorously. We are not swayed by market momentum; instead, we focus on technical soundness and competent management. Moreover, we prefer companies that manage their share counts prudently.

How has the exploration scene in Québec evolved over the past year?

There has been a slight uptick in activity. Juniors remain cautious with their investments, but there are numerous active programs, particularly in lithium. Gold is thriving, driving exploration, while copper continues to perform well. However, nickel is facing difficulties, with many projects struggling to secure financing. Looking ahead, I anticipate continued success for gold and copper, while nickel and lithium may encounter pricing challenges. Having said that, investor interest in lithium should remain strong. ■



Sylvain Lépine

General Manager
NQ INVESTISSEMENT
MINIER

“ We would like to become a quality stamp of investment in the North: If NQIM is there, it is a good project. ”

Can you introduce our audience to NQ INVESTISSEMENT MINIER (NQIM)?

NQIM is a new institutional fund created in 2023. In Québec, the last fund was created over 20 years ago, and was SIDEX. Our two sponsors are regional organizations in Northern Québec: La Société de Développement de la Baie James (SDBJ), and l'Administration Régionale Baie-James (ARBJ). They decided to create a fund to develop the mining industry in the north of the province. Currently, we have about CA\$17 million to invest. We would like to become a quality stamp of investment in the North: If NQIM is there, it is a good project. We do a lot of due diligence before investing, not only on promoters but also regarding their relationships with communities and how the latter perceive the project.

We are here to invest in exploration projects. One of our sponsors has all the mayors of communities in their organization, so I will present the fund to those elected officials and the First Nations in the next month.

What were the catalysts that prompted the creation of NQIM?

The SDBJ previously operated a fund, but the need for a new institution became apparent following the big claim rush in Northern Québec in recent years. The SDBJ realized they did not have enough capital to push projects from exploration to production, so they decided to create a new fund. The lithium and nickel rush, along with major firms coming in historical camps like Chibougamau and Matagami meant it was the perfect timing to create this fund. The Ministry of Natural Resources also made the plan to develop the Critical and Strategic Minerals (CSM) supply chain, so all stars aligned. Regarding the market, a lot of firms are having a hard time finding cash, so this fund arrives at the right time to support the ecosystem.

How does NQIM determine whether or not to fund a project?

The first criterion is that the firm needs to operate an asset in Northern Québec. Then, they need to have a strong balance sheet. They need to have an experienced management team and be well supported by contractors. ESG is key, as we will do due diligence on the promoter's track record, along with the Board of Directors. We then look at the diversity of the Board. We will make sure they understand Québec's policies when exploring in the North and if they have their permits to drill and do the work, and if they have consulted First Nations ahead of their exploration work. For Québec firms, this approach is normal. But we have seen a lot of renewed activity from foreign firms, particularly from Australia, in the past two years, so we want to make sure they understand our practices well.

In a highly cyclical space, what will be NQIM's diversification strategy?

It is clear that we need a diversified portfolio. We are there to develop Northern Québec, so we are commodity agnostic. First, we need to make sure we are diversified geographically. I also want us to be diversified on company sizes: Not just early stage exploration, but also large market cap companies. Importantly, we can support from early stage exploration until construction. I want to find another sponsor for the fund to grow and for us to be able to invest higher amounts in those mining companies.

How do you assess Québec's role in the success of the green transition?

The government began by securing the third transformation in Bécancour. After that, the next step will be to secure the upstream, the feed. The bottleneck right now is that we do not have enough advanced projects in Northern Québec. The government will therefore support, with Investissement Québec (IQ), NQIM or other funds, to push projects to become more advanced. The more advanced projects, the more infrastructure we can build, as we will have a global reach. There will be a phase of consolidation: Right now, after a claim rush, James Bay for instance looks like a puzzle.

What will be NQIM's key priorities moving forward?

The key priority will be to get the fund up and running. ■



An Uneven M&A Picture



David Southam, CEO, **CYGNUS METALS**

“In terms of consolidation of exploration ground and corporate activity, we have witnessed a similar trend in Western Australia's mature lithium market. However, in James Bay the exploration pipeline is primarily held by juniors, with limited involvement from majors. Consolidation may occur eventually, but it is still early in the lithium life cycle for James Bay.”



Francis McDonald, CEO and Director, **LI-FT POWER**

“Consolidation is not as simple as it sounds, as factors like relative valuations and market dynamics come into play. While consolidation presents opportunities, it also poses challenges, particularly regarding valuation negotiations.”



Jonathan Buick, President and CEO, **CHAMPION ELECTRIC METALS**

“M&A will happen, and some juniors might divest their projects into other groups. Winsome Resources bought the Renard mine, which will expedite their projects by a couple of years at least, while Patriot is moving at full speed with Corvette....people are paying attention, but not making moves already.”



Ernest Mast, CEO, **DORÉ COPPER**

“I believe the current high-price environment for copper and gold will significantly support the formation of joint ventures and consolidation within the industry. This is an opportune moment to advance projects. If a project is not gaining traction, now is the time to consider M&A to achieve economies of scale and better project momentum.”



Normand Champigny, CEO, **QUÉBEC PRECIOUS METALS**

“Challenges persist due to the disconnect between valuations and commodity prices. I anticipate increased consolidation efforts within the industry aimed at bolstering financial strength, particularly in regions like James Bay.”



The Mining Regulatory Environment

Québec, still a regulatory Eldorado?

The 28 critical and strategic minerals that make up Québec's subsoil have attracted mining firms from all over the world in the past couple of years. The province saw a notable uptick in claim staking and exploration activity in the south, rich in graphite notably. South of the 49th parallel, however, mining is not as well understood as in the North, and projects have faced resistance from municipalities and communities. Initial enthusiasm has been met with issues of social acceptability. In late 2023, such concerns were the subject of two major consultation processes led by the government of Québec, namely the consultation on the harmonious development of mining activities in the province and the consultation on the Government policy directions for land use planning. Discussions led to regulatory action, with the Government amending the Mining Act.

Addressing the post-claims rush anxiety

Can Québec have its cake and eat it too? The question makes sense as the Government and the industry's aggressive push to develop the province's critical minerals production has in the south been met with hostility. Between Montréal and Québec, residents of the town of Saint-Elie-de-Caxton lined the street with banners stating "Saint-Elie, incompatible with mining activities", after they saw a helicopter dragging an electromagnetic probe over their subsoil. Mapping the land and doing sampling is one thing, building a mine is another (in North America, an average of 15 years will pass between the two), but try to explain that to someone worried about drill rigs being placed in their cottage.

In May, the National Assembly of Québec announced Bill 63, thus signaling the province's commitment to modernizing mining legislation in line with long-term environmental and sustainable goals. The idea is to develop transparency and early communication with local communities to achieve better social acceptability from the outset. In the words of Maïté Blanchette Vézina, minister of natural resources and forests of the Government of Québec: “As far as amendments to the Mining Act are concerned, one of the major proposed measures would ensure that mining companies go through the BAPE process (public hearings), which is a positive step for the industry, as it will create greater social acceptability.” Over the past year, the Québec regulatory scene has evolved by providing a more controlled framework for ex-

ploration activity. For instance, another key component of the amendments to the Mining Act (which will be further worked upon in August 2024) will allow municipalities to have the final say on withdrawing mining exploration activities from certain areas. Andrew Disipio, head of mining at Bennett Jones, explained how recent legislative reforms reinforce rather than harm Québec's investment attractiveness: “Québec is strategically positioned to help deliver sustainable energy goals thanks to its favorable regulatory environment. Moreover, its attractive tax incentives and focus on critical minerals to supply its EV battery hub make it appealing to investors.

In the meantime, the government added a permitting requirement for “impact-causing exploration work in Québec” in early May. While the timing of this requirement raised questions (with explorers enquiring if the “right time” is ahead of the summer drilling season), it appears coherent with the province-wide efforts to improve the regulatory process for Indigenous and community consultation. Simply put, it creates a framework for social acceptability related to exploration.

Unparalleled regulatory ecosystem for critical and strategic minerals

Québec is renowned for providing tax incentives beyond those available in the rest of Canada, such as a refundable tax credit on a portion of exploration expenditures. Additionally, both the Canadian and US governments have emphasized the importance of securing domestic and allied critical minerals, further enhancing Québec's significant mineral exploration potential.

Tax incentives further evolved in recent months after proposals to streamline lithium exploration in the province included a targeted change for explorers in “hard rock” lithium, much more common than brines in Québec. These proposals involve revising the definition of “mineral resources” to consistently include traditional hard-rock lithium in the list specified in section 248 of the Income Tax Act (the “Act”). Such regulatory amendments are timely as several juniors that were traditionally exploring for gold in the province – such as Harfang Exploration, Québec Precious Metals, or VIOR – shifted their focus to the lithium present on their properties in 2023.

The Federal Government's 30% tax credit and Québec incentives that are accessible to investors who incur mining exploration expenses for critical metals will remain a game changer for the province's investment attractiveness. As put by Josianne Beaudry, partner at Lavery: "All these mineral tax credits are helping finance exploration activities. Exploration firms need funds to develop their projects, so these incentives are keeping investors interested in the industry. It has been more challenging post-COVID to raise funds, so those tax credits are key to helping firms attract the necessary funding to carry on their exploration work."

The draft legislation proposal for an investment tax credit (ITC) in clean technology manufacturing, announced in the 2023 federal budget, is significant. This ITC, up to 30%, encourages investment in zero-emission manufacturing and the extraction and processing of six key critical minerals. For instance, the ITC offered a 30% credit on 80% of Nouveau Monde Graphite's *CapEx*, totaling about C\$300 million. A significant help in NMG's plans to become North America's largest integrated natural graphite producer.

Beyond tax incentives, Québec also makes the point of allowing explorers to explore. Indeed, getting the necessary permits for exploration work in two months or less is quite the ask these days in North America. But if there is one place where it will happen (relatively) smoothly, particularly in the critical and strategic minerals space, it is Québec. Jonathan Buick, president and CEO of Champion Electric Metals, who is currently advancing its lithium

property in James Bay, got a permit in record time ahead of the drilling season. He shared: "Québec's ambition is to create an electric corridor and feed products into the US market. As explorers, we are benefitting from that desire. To the credit of Québec, their push for critical minerals means that they are pushing permits faster. We got a drilling permit for the past season and the upcoming drilling season in less than 30 days."

Potential hurdle: Dissonance at the federal level

Two years after the 30% Critical Mineral Exploration Tax Credit (CMETC) received Royal Assent, new alternative minimum tax (AMT) rules could seriously harm exploration in Canada. Should Ottawa go through with the latter, exploration finance will decline by at least a third from about C\$1 billion to around C\$700 million, according to PearTree. The Critical Mineral Exploration Tax Credit (CMETC) exemplifies the effectiveness of tax incentives. In its first year, the CMETC facilitated the raising of over C\$350 million in additional investment for 38 critical mineral projects.

Beyond AMT, the federal government also made effective in June a hike on capital tax gains. More than a "tax on the rich", it resembles another barrier to the country's economic growth by taking the form of a tax hike on investing. Indeed, exploring for mineral resources is venture capital at its riskiest, and when considering that Canada's juniors had only raised C\$240 million in March, an almost 80% decrease YoY, the country desperately needs measures to help capital flow. Frank Mariage, partner at Fasken, raised the question: "How can the Federal Government say that they want to help build critical mineral projects and at the same time hike the capital gains tax? The Québec government followed the Federal government and also hiked the capital gains tax. This gives the impression that there is no coordinated effort to build that value chain."

Overall, Québec remains one of the best places to be in the mining space globally, ranking 5th on the Fraser Institute's annual survey. Dozens of foreign firms highlighted to us that Québec's regulatory environment was a big reason behind their decision to put their capital at risk in the province. However, some federal government decisions that were seconded by provincial authorities left a bitter aftertaste for miners. For an industry that is highly dependent on risk capital, regulators and legislators will have to strike a balance in order not to hurt access to capital and the willingness to take risks.

Moving forward, Québec must maintain a competitive and transparent regulatory framework to preserve its attractiveness. Striking the right balance between environmental oversight and streamlined project approvals will be key. Strengthening the regulatory process by reducing administrative bottlenecks and providing clearer guidelines will help ensure efficiency without compromising environmental standards. Furthermore, improving coordination between federal and provincial regulations will create a more consistent and predictable legal landscape for investors. Ultimately, a stable, well-defined regulatory framework that fosters both economic growth and environmental protection will be crucial for maintaining Québec's position as a top-tier global mining destination. ■



RB



JB

René Branchaud and Josianne Beaudry

Partners
LAVERY

Can you highlight some recent mining deals in which Lavery was involved?

RB: Lavery was involved in one of the largest deals of the year in 2023: The transaction between Osisko Mining and Gold Fields for the Windfall project. We also acted as counsel in the acquisition by Abcourt of Pershimex Resources. We have helped Australian companies establish a presence in Québec and acquire mining claims for the exploration of lithium. We did option agreements between Midland Exploration and Barrick for the exploration of gold, and with BHP for the exploration of nickel. The big guys are back in Québec for exploration and have signed agreements to spend tens of millions of dollars on exploration projects.

JB: We see more and more work coming from royalties companies and have been involved in deals where we must review portfolios of royalties or help companies review or sell the latter. We are acting on behalf of different mining companies that are interested in being more present in Québec. They are purchasing portfolios from institutional investors or developers like SOQUEM.

How will recent mineral tax credits and regulations impact exploration work?

JB: All these mineral tax credits are helping to finance exploration activities, so those tax credits are key to helping firms attract the necessary funding to carry on their exploration work.

On the other hand, the new regulation on impact-causing-work came into force at the beginning of May. If companies did not have their authorization in May, they had to stop their exploration activities if their work qualified as "impact-causing work". It takes 35-50 days to get such an authorization, so this is not incentivizing exploration work in Québec.

Which commodities represent the strongest opportunities according to Lavery?

RB: In the gold segment, the record prices seen in the past months will likely be sustained. Abcourt will reopen the Sleeping Giant mine, Osisko continues the development of the Windfall project with Gold Fields, and Midland and Barrick are spending millions near Rouyn-Noranda to find gold, so we believe it should be a good year for those involved in this sector. The price of lithium is lower, but there seems to be a consolidation wave going on. Midland signed

a significant agreement with BHP for nickel-copper-cobalt in Nunavik, and they will spend millions there to continue exploration work.

How do you anticipate the M&A scene to shape up in the coming months?

RB: We are starting to see consolidation in the lithium sector, we have conversations with several players looking to acquire properties or companies. Several M&A deals are in discussion in the gold space, particularly for firms looking to also do the treatment of minerals.

JB: We are seeing an increase in partnerships among different companies. Winsome announced that they intended to purchase the Stornoway installation, where they could develop their own project and treat the minerals of other companies in the area. Those alliances will help develop the industry in Québec.

What are the challenges and opportunities ahead for the mining industry?

JB: The 2023 Fraser Institute report was just published, and Québec is back in force, ranking 5th. What will be challenging will be the availability of the workforce, the social and environmental acceptability of projects, and the financing environment.

RB: The share price of certain exploration companies also presents a challenge. It is difficult to finance them, because of the dilution suffered. Several stocks are trending below CA\$0.10, so companies may have to consolidate to help with financing.

How are Australian firms received by the local investment community?

RB: Australians are welcome in Québec. We need additional investment and capabilities in the province.

What are Lavery's key priorities to keep growing in the mining space?

JB: We have close relationships with institutional investors who are involved in the mining industry in Québec, such as Investissement Québec, SOQUEM, and the CDQP. We are closely involved in the different consulting committees of the exchange and the regulators in Québec, as well as the AEMQ, so we believe that through this involvement we can better assist our clients with their legal requirements. ■



— lavery.ca

A promise to leverage our talent for the benefit of the mining industry

ADDED VALUE,

Signed,
Lavery



Maxime Guilbault

Québec Mining and Metals
Leader
PWC CANADA

Can you introduce PwC Canada's presence within the Québec mining industry?

PwC Canada has a strong presence in Québec across the mining sector, offering audit, taxation, valuation, and consulting services amongst others. We serve clients of all sizes, in grass-roots exploration, development, construction, and operations, to closure.

Have Québec-based projects reaching the feasibility stage affected your mining-related work recently?

Many projects are at an advanced stage, where companies are now focusing on adding value or advancing through the permitting process. There is still significant exploration potential, especially in critical minerals. We assist clients in navigating these critical stages and addressing challenges.

Despite market downturns, are there still rapid movements in the lithium space?

The lithium market remains dynamic, influenced by factors like EV adoption and supply dynamics. We have observed continued activity in the lithium space.

What are the main challenges facing your mining clients today?

Infrastructure limitations, access to capital for exploration and development of projects, maintaining good community relations, meeting ESG criteria/expectations of stakeholders, cybersecurity risks, and managing market volatility.

Have you seen a change in the importance of community relations and diversity to attract investment?

Absolutely. Community relations and diversity have become increasingly important for attracting investment in the mining industry.

What is Québec's competitive advantage in attracting mining investment?

In addition to having mineral potential, Québec provides a stable environment with infrastructures that are expected to be expanded in the next few years. The industry receives considerable government support and institutional investors such as Investissement Québec, CDPQ, Fonds de Solidarité FTQ, take a collaborative approach. ■

Can you discuss recent updates from Bennett Jones's Montréal office?

Last month, Bennett Jones celebrated its first anniversary in Montréal, where we have grown our office to over 20 lawyers and other legal professionals.

What legal areas have seen increased activity recently, particularly in Québec?

As a full-service law firm, we are involved in all types of mining transactions, including being directly involved in flagship development and transformation projects that are impactful to Québec's mining sector. For instance, Bennett Jones facilitated project finance for the Windfall Mining project, a world-class gold deposit located in the Eeyou-Itschee James Bay territory of Québec, Canada, through a joint venture with Gold Fields. Joint ventures for mining projects have been trending recently due to traditional debt financing being more expensive and the softness in the equity markets for certain junior mining companies. In addition, we successfully negotiated a power allocation agreement for the Windfall Mining project with Hydro-Québec, a wholly-owned Crown corporation of the Québec Government,

to meet the forecasted power demand and allocation for the project. We also support key strategic players in flagship transformation projects in Québec, including, for example, the electric vehicles (EV)-grade copper foil manufacturing plant of Volta Energy Solutions Canada in Granby, Québec.

Could you elaborate on Québec's regulatory regime and its attractiveness for mining companies?

Québec is among Canada's most favorable mining jurisdictions, with a friendly regulatory framework and leading tax incentive regime for investors.

What is your take on the potential consolidation among junior mining companies?

Consolidation among junior mining companies is a natural response to challenging capital markets. In 2024, through April, we have seen increased consolidation among junior mining companies, including our involvement in Argonaut Gold's sale to Alamos Gold, Karora Resources' sale to Westgold Resources, and Aventus Mining's sale to Silvercorp Metals. If trends continue, consolidation will be inevitable in the mining sector. ■



Frank Mariage

Partner
FASKEN

How has business been for Fasken in the past year?

Fasken has been the fastest-growing law firm in Canada since the pandemic. One of our best calling cards remains mining. We also want to ensure that we can accompany our clients with mine development, not just M&A transactions. We continue to assist several lithium developers and producers with the development of their mines in the province and we recently accompanied an OEM – Panasonic – in their investment in Nouveau Monde Graphite.

How has the industry adapted to the growing presence of ASX-listed firms in Québec?

There are positive aspects of having ASX-listed firms in Canada. Australians are helping Québec capitalize on its lithium potential. This could be the beginning of something very important and Australians are intelligent enough to surround themselves with locals who know how to operate in Québec.

Is Québec still a regulatory Eldorado for foreign investment?

The regulatory process is a challenge in every single mature mining jurisdiction. We need to get our act together to reduce delays from a permitting perspective. It cannot take 15 years to permit a mine. Eventually, we will have to make some tough decisions if we want the energy transition to happen.

The Federal Government says that it wants to help build critical mineral projects, and at the same time hikes the capital gains tax. For an industry that is highly dependent on risk capital, this will hurt both the access to capital and the willingness to take risks.

Will the high gold price incentivize more deal-making?

Eventually, but we are not seeing enough of it right now.

What are the priorities ahead for Fasken?

We want to further develop our already seasoned legal expertise on the environmental and community engagement side. ■

Can you provide the latest updates from McCarthy Tétrault in 2023?

In 2023, McCarthy Tétrault LLP has continued to be very active in the mining segment. A few notable international transactions include assisting Rio Tinto with acquiring Turquoise Hill Resources in relation to the Oyu Tolgoi copper mine in Mongolia, and acting for Vale to establish a partnership for their base metals business with Manara Minerals. In Québec, we worked on selling Glencore's copper mine in Murdochville to Osisko Metals. Additionally, we have been heavily involved with projects contributing to the provincial battery supply chain, and worked with clients like Sayona Mining, which operates the only producing lithium mine in North America.

How do you see Québec's role in the North American electrification and green transition?

Québec is crucial in developing a protected homegrown supply chain, particularly for batteries. International players like GM, Ford, Posco, EcoPro, Livent, and Northvolt are investing in Québec. The province's clean electricity, quality resources, and skilled workforce make it a key stakeholder in the

North American and European supply chains. The presence of major global companies highlights Québec's significant role in the green transition.

How do you assess the latest governmental initiatives in incentivizing mining in Québec?

Government initiatives are vital for maintaining momentum in the mining sector. The draft legislation proposal for an investment tax credit (ITC) in clean technology manufacturing, announced in the 2023 federal budget, is significant. This ITC, up to 30%, encourages investment in zero-emission manufacturing and the extraction and processing of six key critical minerals. In Québec, updates to the Mining Act and environmental assessment regime are expected to improve social acceptability and accelerate the energy transition while ensuring environmental protection.

What are the challenges and opportunities for mining firms in Québec?

The biggest challenge is currently the electricity supply. Québec's clean and affordable electricity has attracted many industrial projects, but demand now exceeds supply. ■



Andrew Disipio

Head of Mining
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Louis-Nicolas Boulanger

Partner
MCCARTHY TÉTRAULT

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Gold

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With all the hype around critical minerals, people should not forget that gold always remains relatively stable and is a solid value, that the mining industry is trained by gold miners, and that technologies are tested in gold mines.

”

Sylvain Lehoux
VP Canada
ELDORADO GOLD

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Image courtesy of IAMGOLD



Gold Production

It starts with gold, it ends with gold

Québec's history was written in letters of gold. In the 1530s, French explorer Jacques Cartier thought he had stumbled upon gold on the slopes of Cap Diamant. Those stones turned out to be quartz and pyrite, but already 500 years ago, gold can be traced to the foundations of what was going to become Québec. Fast forward to 1906, and the first gold deposit was found in Rouyn-Noranda, near Lac Fortune. Today, market downturns seen in critical minerals have further reinforced that the base of Québec's mining industry is a gold mine. As analysts and green energy transition enthusiasts all shifted their focus away from the king of commodities, gold prices rose while others tumbled. For the foreseeable future, Québec's lifeline will be gold, and the province saw many important developments in that sense in the past months.

Perhaps more than ever, gold is the province's most sought-after commodity. Of the 16 active metallic miner-

als mines in the province, eight produce gold (four produce iron, two nickel, with another niobium mine and a titan one). Québec again retained the lion's share of Canada's gold production with neighbor Ontario in 2023: Ontario and Québec account for close to 75% of the gold produced in Canada, the world's fourth largest producer of the precious metal. Mines in Québec produced an estimated 1.8 million oz (an increase from last year's 1.7 million oz), behind Ontario with 2.5 million oz. The latest S&P report on Canadian mining also highlighted that Québec holds 24 million oz Au in reserves, and 54 million oz Au in measured and indicated resources. And the future is looking gold for the province's titans, who despite escalating costs and challenges in replenishing reserves, are currently surfing on a high gold price. As of September 2024, gold is stable at over US\$2,500, surpassing a previous all-time high of US\$2,450 in May.

This ongoing surge has sparked renewed interest in Québec's gold, with the province attracting substantial investments for future mining projects and technology integration to sustain long-term production growth.

Operational updates

The first move that will undoubtedly keep the Québec gold production scene on its toes was when Newmont's, the world's top producer, announced plans to divest some of its Canadian assets, notably the James Bay-based Eleonore mine. To cut debt after the acquisition of Newcrest in November 2023, the Denver-based giant expressed its strategy to focus on 10 tier-1 assets in its "go-forward" portfolio, leaving the future of one of Québec's most prolific mines in doubt. In February, Newmont's CEO Tom Palmer said that the firm had already received interest from potential buyers.

Corporate restructuring has been a common theme to drive shareholder value in recent years, and in that sense, 2023 was a milestone year for Agnico Eagle. The major completed the US\$3 billion acquisition of Yamana Gold and now operates eight mines within a 200-km radius in the Abitibi Greenstone Belt between Québec and Ontario, and most importantly now owns 100% of the Canadian Malartic Complex, the Odyssey mine, as well as the

Wasamac project. The firm saw an increase in gold production in 2023, north of a million oz, and extracted the first ounces from the Odyssey underground mine by ramp.

West of Agnico's LaRonde complex, IAMGOLD has seen stunning results at its Westwood mine. Having been struck by an earthquake in 2020, and after having been restarted in 2021, Westwood was partly responsible for the Canadian miner's robust results across all operations in early 2024. The mine is on track to produce over 100,000 oz/Au in 2024. CEO Renaud Adams commented: "We have proven the effectiveness of the new mining method to control seismicity, and in 2024 we plan to continue to ramp up the underground mine to its full capacity towards further profitability. By 2025/2026, our goal is to see the underground operation return to full high-grade production while still having excess capacity at the mill, which allows for further opportunities as we continue to mine in the district."

Near Val d'Or, another mine hit a landmark in 2024. Eldorado's Lamaque Complex achieved in March five years of commercial production, having notably exceeded PFS expectations by 32%. The outlook for 2024 suggests the complex could produce up to 190,000 oz/Au, making it a leading operation in Québec. In 2023, production at Hecla Mining's Casa Berardi was severely disturbed by the wildfires. Having now cleared the situation, the mine is on guidance to produce between 75,000 to 82,000 oz/y.

Capitalizing on strong prices, but discipline needed

Current gold prices are extremely attractive to the investment community. Indeed, gold's surge was much more than a US dollar story. The precious metal saw historic breakouts from the Japanese yen, to the Indian rupee, to the Canadian dollar. Central banks are buying historic amounts of gold, underscoring the universal appeal of the commodity as a store of value at a time when wars keep making headlines. IAMGOLD's CEO Renaud Adams said: "We are currently in an environment where gold producers in Canada have the rare opportunity to combine a very high gold price with a currency that plays in your favor."

The high price of gold means that Québec's majors are fattening their margins, and allowing themselves to spend on new technologies. In the past couple of years, such investment towards automation, innovation, and ESG has undoubtedly become part of the ethos of the province's giants. The environment is ideal for reaping future rewards, and offers promises for the whole of the industry, particularly when remembering that most technologies are first tested in gold mines. At Lamaque (one of the five lowest-emitting gold mines in the world) Eldorado Gold installed ventilation-on-demand technology that monitors air quality and adjusts ventilation throughout the mine to be more energy efficient, and commissioned two 50-t capacity underground electric trucks, the first application of this technology in Québec. Sylvain Lehoux, VP of exploration in Canada, explained: "It is a good time for gold mining companies to do trials and work with technology suppliers to build the next generation of machines that will power the future of our industry."



Dan Wilton
President and CEO
FIRST MINING GOLD

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We put out a PEA on Duparquet in September 2023, which outlined the potential for this project to be one of the largest gold producers in Québec, producing over 200,000 ounces a year over an 11-year mine life.

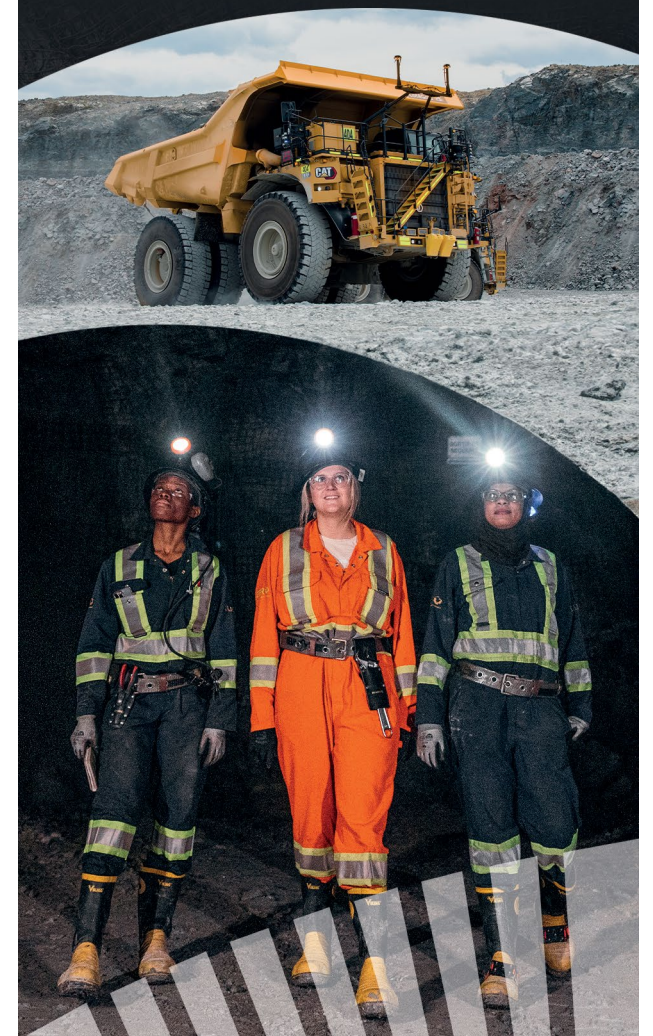
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Majors must however not fall into the trap of growing ounces at all costs and mining lower-grade stockpiles. The temptation certainly exists, but taking a bird's eye view, the reality is that all-in-sustaining costs (AISC) have been constantly rising in North America since 2021. Both the World Gold Council and S&P reported that the AISC of the world's top 10 miners rose in Q3 2023, Agnico Eagle notably included there. Among the culprits are a fall in the average grade (down to 1.1 g/t), and energy, including indirect impacts on reagents and other consumables. Transitioning from an extractive model to another also adds to the bill, with Hecla Mining notably estimating AISC to range from US\$1,750 to US\$1,975 per ounce due to the phase of transition the firm is undergoing at Casa Berardi.

Replenishing reserves

While juniors are responsible for most greenfield exploration spending, majors have led the way in brownfield investment, and nothing suggests a change to this paradigm in the months ahead. After all, is the best way to find a new mine not to explore next to an existing one? In that sense, given that majors' reserves have been drying out for years, keeping an aggressive exploration strategy is key for sustainable growth going forward. Pursuing its Québec-focused strategy of "feeding the mill" (as coined by its VP of exploration Daniel Paré), Agnico continued with aggressive brownfield exploration in the Odyssey area, with recent results including 3 g/t over 32 m and 4.5 g/t over 33 m, located 400 m and 1,000 m away from the current mineral reserve.

Surrounding the Lamaque deposit are several targets that the Eldorado exploration team keeps working on. The firm acquired QMX to increase its footprint in the Abitibi Greenstone Belt and to add a pipeline of additional exploration opportunities proximal to Lamaque.

For gold producers in Québec, continued investment in exploration is not just about finding more gold. It is about ensuring long-term viability, economic efficiency, and sustainable growth. This investment underpins their ability to maintain production levels, manage costs, and contribute positively to the economy and community while staying competitive in the global market. In the Québec gold production scene, 2023 was a year of consolidation, expansion, and technological advancement.

The future metals frenzy has quieted down (for now) and put Québec's gold into the spotlight again. Perhaps the correction seen in battery minerals was the reminder the industry needed that its people, its technologies, and advanced ESG practices are all historically birthed in gold mines. And despite diminishing reserves and high costs, the current pricing and geopolitical environments suggest that all lights will stay green for Québec's gold producers in the coming months. Indeed, with the potential of a regional scale conflict looming in the Middle East, concerns over inflation and currency volatility, gold (which hit several all-time highs in 2024) is once again being viewed as a safe-haven asset, driving investor interest and pushing prices higher. This combination of factors is likely to keep demand for gold robust, benefiting Québec's mining sector even further. ■



“ Agnico Eagle now operates eight gold mines within a 200 km radius. ”

Daniel Paré

VP Québec
AGNICO EAGLE

What were the main highlights from Agnico Eagle in Québec last year?

2023 was a big year for Agnico Eagle, particularly with the acquisition of Yamana Gold's Canadian assets. This consolidated our position along the Abitibi Gold Belt, from Québec to Ontario. Agnico Eagle now operates eight gold mines within a 200 km radius. What interested us in this transaction was the acquisition of the second half of the Canadian Malartic complex, with the Odyssey mine as well as the Wasamac project. Québec's gold production peaked north of 1 million oz/y in 2023, representing more than 30% of Agnico Eagle's total production. Our strategic consolidation should lead to synergies in workforce, skills, and technical expertise, as well as infrastructure and milling capacity, giving us the potential to develop the region even more.

What are the reasons behind the record gold production at Canadian Malartic in 2023?

Canadian Malartic complex production was approximately 680,000 oz last year on a 100% basis. We completed the mining of the first pit at Canadian Malartic in May 2023, and transitioned to the Barnat pit that feeds our mill. We also extracted the first ounces from the Odyssey underground mine by ramp in 2023. With the first pit being completed at Malartic, we will be transitioning to in-pit deposition in July 2024.

Can you outline Agnico Eagle's expansion plans and exploration strategy in Québec?

Québec remains a priority exploration target for us. Our 2024 exploration budget will be similar to that of 2023, between US\$45 and US\$60 million. We are investing on a brownfield basis in our three mining complexes and regional targets. At present, our priority is to develop the resources in the Odyssey area. At Goldex and LaRonde we are investing in exploration to improve our production profile and extend our mine life. Wasamac also has an exploration strategy to develop its mineral resources.

Different scenarios to maximize the use of our regional infrastructure for ore processing are still in evaluation. We want to continue our fill-the-mill strategy. A good example of this is the Akasaba West project. The project was built in 2023 and achieved commercial production in Q1 2024. The ore from Akasaba feeds the Goldex and LaRonde milling facilities, leveraging our regional infrastructures.

What are some of Agnico Eagle's latest impactful ESG initiatives?

In 2022, Agnico Eagle published its first climate action report. We have a target of a 30% reduction in Scope 1 and 2 carbon emissions by 2030, and we want to achieve carbon neutrality by 2050. In Québec we have hydroelectricity, so the projects we bring on stream will be low GHG emitters.

I am proud of our agreement with the Abitibiwinni First Nations for the LaRonde complex in 2023. We have another collaboration agreement at Canadian Malartic with other First Nations in Abitibi-Témiscamingue, demonstrating our commitment to be a partner in the development of local communities.

At the CIM conference in Vancouver in May, the LaRonde complex won the 2024 Towards Sustainable Mining® Environmental Excellence Award from the Mining Association of Canada for its transition to filtered tailings management. We also made innovations in our environmental practices, and this summer, for example, we will start the deposition of tailings in the Canadian Malartic pit.

What is the potential for further discoveries in the Abitibi Greenstone Belt?

We discovered East Gouldie in 2018, an Odyssey underground mineralized zone which is probably one of the most promising new deposits in the belt. There have been 190 million oz of gold extracted over the last 100 years in the Abitibi gold belt, and there is still a lot of potential for discovery. We are still only one drill hole away from the next big discovery!

What will be the main drivers of value creation for Agnico Eagle in the coming months?

The excitement around Odyssey, drilling, and discoveries are our priorities. We have updated the PEA in 2023, and have added 1.6 million oz/Au to the mining plan, which we will continue to improve. We will continue to refine studies of the Wasamac project and seek how we can leverage our regional infrastructures. Other projects like Upper Beaver in Ontario, a copper-gold deposit, also show interesting potential and studies are still progressing. In conclusion, we have the infrastructure in Québec to carry out the next projects, notably through our feed-the-mill strategy. ■

Unlocking Regional Potential

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We make mining work.



Renaud Adams

President and CEO
IAMGOLD

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In the current environment, gold producers in Canada have the rare opportunity to combine a very high gold price with a currency that plays in your favor.

”

Can you present IAMGOLD's assets in Québec, particularly Westwood achieving its highest quarter of production since mining restarted in 2021?

Westwood is part of IAMGOLD's aspiration to be a leading Canadian-focused gold producer with a modern multi-asset portfolio. Recently, all eyes were on our Côté Gold asset in Ontario, which has progressed extremely well and is positioned to be the third largest mine in Canada, but not to underestimate the work the company has done in Québec at our producing Westwood asset and our Nelligan exploration project. We have consolidated the Nelligan project, and we intend to continue growing this deposit as we see it as an opportunity to build a second good pipeline.

Westwood is an extremely successful turnaround story where we restarted mining in 2021 with a different technical approach than what was taken in the past. We still have seismicity in the mine, but our revised methods of control and dispersion of energy have allowed us to continue and successfully mine underground. Although we are still in the process of bringing back all the high-grade zones from the past, we have already successfully brought back eight mining zones and turned Westwood into a positive cash flow producer as of Q4 2023. We have now proven the effectiveness of the new mining method to control seismicity, and in 2024 we plan to continue to ramp up the underground mine to its full capacity towards further profitability. By 2025/2026, our goal is to see the underground operation return to full high-grade production while still having excess capacity at the mill, which allows for further opportunities as we continue to mine in the district.

What is Westwood's guidance for 2024, and are you leveraging any new technologies to achieve operational improvements?

The full-year guidance at Westwood is between 100,000 and 120,000 oz Au, and Q1 performance has positioned us well to achieve this target. In the medium to long term, we see the Westwood underground capable of being a 120,000 to 140,000-oz/y mine, and eventually, we are going to replace the ounces from the open sat-

ellite mine with more ounces from the underground mine.

We benefit from access to less expensive and clean hydropower in Québec, allowing for a great opportunity to introduce electric equipment in our underground mine to decrease our carbon footprint. A reality with Westwood is that it comes with an environmental liability from past operations, and as we turn the mine into a positive cash flow, our vision is to return a portion of that cash into a progressive environmental reclamation program. IAMGOLD also has the strategy to move towards 100% recycled water use at Westwood.

What are the catalysts ahead at Nelligan?

We believe it has the potential to be in the range of 10 million ounces. The first step was to consolidate the Nelligan deposit with the acquisitions of Vanstar Resources, and with the benefit of flow-through programs in Québec, we plan to aggressively drill in the Chibougamau camp in 2024 and 2025 to drive further resource growth in what is Canada's best mining regions.

How will gold producers navigate opportunities and challenges in 2024?

We are currently in an environment where gold producers in Canada have the rare opportunity to combine a very high gold price with a currency that plays in your favor. If you seize this opportunity one can deliver strong margins to investors, but one must be careful not to fall into the trap of growing ounces at all costs by mining lower grade gold material and thereby reducing these margins. The higher gold price allows for mining lower-grade stockpiles, and IAMGOLD is extremely well positioned to take advantage of the current opportunity and deliver a higher margin, but gold explorers should be careful that their studies are not based only on these high prices and margins, and must evaluate if a project will still be economic at a lower gold price.

What are the key priorities for IAMGOLD in 2024 and beyond?

IAMGOLD will continue to unlock maximum value at Côté Gold, and I believe we will be poised with incredible organic growth over the next few years. ■



“

Eldorado Gold's Val-d'Or exploration team remains focused on growing our pipeline of high-quality exploration projects in the region surrounding our Lamaque operation.

”

Sylvain Lehoux

VP Canada
ELDORADO GOLD

What have been the main highlights for Eldorado Gold in 2023, and what is your outlook for 2024?

Across our four operations in Canada, Greece, and Turkey, Eldorado Gold produced 485,139 oz Au at an all-in-sustaining cost (AISC) of US\$1,220/oz. 2023 was an important year as we delivered 7% production growth, a 6% lower cash cost per ounce, and a 4% lower AISC per ounce compared to 2022, and we achieved this in a challenging inflationary environment. In March 2024, we celebrated five years of commercial production at our Lamaque Complex in Québec where we have produced approximately 848,000 oz, exceeding the pre-feasibility expectation by 32%. In 2024, our focus will remain on the resource conversion of the Ormaque deposit, the completion of a bulk sample that started in April, and the completion of a pre-feasibility study with the expectation of declaring an inaugural reserve at the end of the year.

Gold production for Q1 2024 was 117,111 oz. Production increased 5% from Q1 2023, reflecting higher gold production at most sites, notably an increase in production of 12% at Lamaque and 14% at Olympias. We expect to see an increase in production in Q2 and a strong second half of the year, remaining on track with our guidance of between 500,000 and 550,000 oz Au in 2024.

What is Eldorado Gold's exploration strategy at the Ormaque deposit?

Eldorado Gold's Val-d'Or exploration team remains focused on growing our pipeline of high-quality exploration projects in the region surrounding our Lamaque operation. In 2021, we acquired QMX which increased our footprint in the Abitibi Greenstone Belt and added a pipeline of additional exploration opportunities proximal to Lamaque. We continue to drill the Bourlamaque site as well as the Ormaque deposit at the Lamaque Complex as it seems that there is great potential. Ormaque can now be considered as a zone as we are doing a bulk sample split in two – approximately 25,000 tons this year, and another 25,000 tons in 2025.

Can you comment on Eldorado's ESG initiatives?

Our sustainability framework outlines four pillars - safe, inclusive, and innovative operations; responsibly pro-

duced products; engaged and prosperous communities; and healthy environments now and for the future.

We continue to advance our target to mitigate our greenhouse gas emissions. Eldorado Gold is pleased to be the only non-oil sands mining company named as one of the 30 companies in the Globe & Mail's "Road to Net Zero", recognizing our progress against corporate climate targets. Lamaque was ranked in the top five lowest-emitting gold mines in the world. Our efforts include installing ventilation-on-demand technology that monitors air quality and adjusts ventilation throughout the mine as needed to be more energy efficient; the implementation of an energy and environmental balance plan aimed at making our exploration activities carbon neutral by 2026; and commissioning two 50-tonne capacity underground electric trucks, the first application of this technology in Québec.

What are the main challenges and opportunities ahead for gold producers in Québec?

It is a good time for gold mining companies to do trials and work with technology suppliers to build the next generation of machines that will power the future of our industry. Québec is a friendly mining jurisdiction that still holds significant potential as several areas have never been drilled. More juniors are entering the scene, and if the gold price continues to increase, gold exploration will continue to gain momentum. With all the hype around critical minerals, people should not forget that gold always remains relatively stable and is a solid value, that the mining industry is trained by gold miners, and that technologies are tested in gold mines.

What are Eldorado Gold's key priorities to continue creating value?

Eldorado Gold is currently focused on completing our Ormaque bulk sample safely and announcing an inaugural reserve. We also have a focus on developing our Skouries project in Greece. Across our portfolio, we have continued to raise our expectations year after year, and we hope to continue along this successful path with all our projects. 2024 is expected to be a big year for Lamaque in terms of ounces produced, announcing the inaugural reserve at Ormaque, and continuing a robust exploration program. ■



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We will strategize on maximizing asset utilization to leverage these high prices, whether through increasing throughput or optimizing ore grades.

”

Phil Baker

CEO*
HECLA MINING

Can you provide an overview of Casa Berardi's operational updates and guidance for 2024?

Casa Berardi has been a valuable asset for us since 2013, providing both stability and diversification. Over the years, we have undergone significant transitions, evolving from an underground to an open pit and underground mine, and now solely to an open pit operation. Despite these changes, Casa Berardi remains a key contributor to our cash flow, especially as a gold-producing asset amidst our primarily silver-focused portfolio. As for our guidance for 2024, we anticipate producing between 75,000 to 82,000 oz Au. This projection reflects our ongoing transition to a complete surface operation. Additionally, our all-in-sustaining costs are estimated to range from US\$1,750 to US\$1,975/oz due to the phase of transition we are undergoing. We are also investing in the expansion of our current tailings facilities, with capital expenditure expected to decrease next year and onwards.

Have you continued investing in automated equipment and new technologies at Casa Berardi?

Yes, we have automation primarily in our underground operations. However, as we transition to surface operations, we will no longer utilize automation. Our small open-pit operations will produce around 4,000 t/d, resulting in a lower carbon footprint compared to larger operations. Despite this, our footprint will increase due to the nature of our ore bodies.

What is your perspective on consolidation in the precious metal space in Canada and what criteria do you consider for target acquisitions at Hecla Mining?

I anticipate more consolidation in the market, typically occurring at perceived low and high price points. For Hecla, our acquisition strategy focuses on two key factors: the desired commodity, primarily silver, and strategic geography. We are open to silver opportunities globally, with a particular interest in regions like Québec.

Geology serves as the cornerstone of our operations. It is what motivates us and guides our every endeavor. With our current projects situated in prime locations globally, we are positioned at the forefront of exploration and asset development. Geology fundamentally shapes our approach, driving our decision-making process. However, alongside geological factors, numerous other considerations factor into M&A transactions.

What makes Québec unique as a producer of precious metals?

Québec possesses a supportive society for mining, where people understand its importance and receive education in relevant fields. However, like elsewhere, Québec faces challenges with its permitting regime, which tends to be slow. While permitting delays are not unique to Québec, they pose significant hurdles to mining operations and need improvement across the board to facilitate smoother processes.

What is your take on the disconnect between the high price of gold and the low valuation of certain gold companies?

The shift in investor demographics plays a role. Traditional commodity funds, often managed by baby boomers, are dwindling, while younger generations gravitate towards crypto and other assets. Interestingly, millennials and Gen Z are showing interest in buying precious metals, evident in places like Costco. Unlike crypto, which faces volatility and accessibility issues, gold and silver offer tangible store-of-value appeal. Looking ahead, the stable increase in metal prices, coupled with potential market events, suggests higher prices ahead. Silver, especially, benefits from increased demand due to the transition to solar energy, representing a significant portion of total silver demand.

What are Hecla's key priorities moving forward?

In 2024, our focus will be on capitalizing on the record-high gold prices. We will strategize on maximizing asset utilization to leverage these prices, whether through increasing throughput or optimizing ore grades. Additionally, we anticipate increased M&A activity in this market environment. Moreover, inflationary pressures, especially in workforce recruitment across various skill sets, will remain a significant concern, driven by demographic shifts and labor shortages.

Our focus at Casa Berardi is transitioning to surface-only operations, streamlining our workforce due to the lower-grade nature compared to underground mining. We face challenges with permit gaps affecting production, but we are managing it by shifting our focus to waste movement. Despite these hurdles, we are optimistic about our long mine life and the potential of our unexplored land package, setting the stage for future priorities. ■

* Until May 2024



Gold Development and Exploration

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Even in the context of the critical minerals frenzy, gold remained the most sought-after commodity in Québec in 2022, according to the Government's latest figures published in November 2023. Sustaining a year-long trend, investments in the precious metal represented 64.1% of exploration and deposit appraisal work expenditures in 2022, for a total of US\$585 million.

Reviving dormant deposits

Looking ahead, several projects have the potential to increase the province's output of gold. Having produced over 200 million oz/Au since 1901, the Abitibi Greenstone Belt remains a hub of mining activity, with a handful of new projects eyeing production before the end of the decade. With a track record of 124 operational mines, the geological marvel formed over 2.6 billion years ago still holds approximately 100 million oz to be tapped. Some juniors are therefore seeking to awaken existing assets, while other explorers drilling near past-producing camps are relying on the old saying that the place to dig up the best results is in the shadow of a headframe. Couple that geological potential with existing infrastructure and world-class talent, and one quickly concludes that 1 g/t Au in Québec goes further than anywhere else.

Québec's history of gold mining, coupled with gold prices stable at above US\$2,300/oz for the better part of 2024, offers a breeding ground to restart past-producing mines. Having completed a PEA in 2023, Abcourt Mines is looking to awaken the Sleeping Giant gold mine in the Abitibi. The

firm restarted the process plant in 2016, and will now be looking to enter commercial production by the end of 2025. In Rouyn Noranda, Falco Resources is focused on the world-class Horne 5 deposit, a vertical extension of the former Horne mine, operated between 1926 and 1976. The asset holds 6.1 million oz AuEq in reserves and 9.3 million oz AuEq in resources, and would produce over 220,000 oz/y.

Importantly, Falco Resources can leverage the century-long culture of mining at Rouyn-Noranda. As put by president, CEO, and director Luc Lessard: "Rouyn-Noranda is probably the best place in the world to build a mine, with access to skilled mining labor and an incredible network of contractors and suppliers."

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Awakening the Giant

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Abcourt is rapidly advancing its 100% owned, and fully permitted, Sleeping Giant Gold Project in Abitibi, Québec.

www.abcourt.com
Contact: Pascal Hamelin
President & CEO
phamelin@abcourt.com



Luc Lessard

President and CEO
FALCO RESOURCES

What factors make the Horne 5 project unique?

The Horne 5 project is well located in Rouyn-Noranda, in the Abitibi Region. The Horne 5 deposit is a vertical extension of the former Horne mine, operated by Noranda from 1926 to 1976. The geology corresponds to a massive polymetallic sulfide deposit: 2,000 meters high, 1,000 meters long, and 100 meters thick on average. This is a world-class deposit with 6.1 million oz AuEq in reserves and 9.3 million



Developing a major polymetallic gold project located in Rouyn-Noranda, Québec

- Falco's Horne 5 Project with 6.1 million ounces AuEq in Reserves
- Leveraging existing infrastructure and in-house project development expertise, including the development and construction of Canadian Malartic
- Feasibility study (2021) with robust project economics
- High-potential exploration properties around the project (over 67,000 ha)



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oz AuEq in resources all categories, with a high potential of increasing the life of mine at depth.

The Horne 5 project's base metal content derives significant value that will enable Falco to bring all-in-sustaining costs (AISC) down to less than US\$600/oz Au, compared with current producers who average US\$1,200/oz Au. The Horne 5 project ranks in the first quartile of global low-cost operations AISC.

In terms of annual production, Falco is looking at 220,000 or 334,000 oz/y AuEq. Overall, 75% of revenues will come from precious metals (gold/silver), and 25% from base metals (copper/zinc).

As the deposit is massive, it is a real opportunity for a project to use a bigger size mining equipment fleet, including daily operations from surface. We will be using artificial intelligence for data collection to optimize our operations, and parameters in real time. Horne 5 will be a modern and highly automated operation.

What are the catalysts ahead at Horne 5?

Presently, the Horne 5 project is in the permitting and financing phase. In January 2024, Falco obtained the operating license and indemnity agreement (OLIA) from Glencore. This agreement governs the relationships with Glencore for the development and operating of the project. In March, we received from the Government the Environmental Impact Assessment (EIA) admissibility giving us the possibility to initiate the public hearing process (BAPE) in the second half of 2024. Falco is engaged with the local community to deliver the most responsible project based on the ESG criteria. In addition, Falco will focus on project financing, and evaluating opportunities, which includes working with potential strategic partners for the development phase.

Can you outline Falco's exploration strategy?

The Horne 5 project is located in the Noranda mining camp, with 50 gold and base metal mines currently or historically active. Falco owns over 67,000 hectares of prospective exploration properties in less than 20 kms from the Horne 5 project, presenting good potential to extend the life of the mine going forward.

Can you touch upon Falco's partners?

Falco has a silver stream agreement with Osisko Gold Royalties up to C\$180 million. Osisko Development is a major shareholder at 16.7%, Québec Institutions are shareholders at 8%, and Glencore is a long-standing partner with life of mine copper and zinc concentrate off-take agreements.

How does Horne 5 fit into the Government's approach to Critical and Strategic Minerals?

In addition to precious metals, the Horne 5 project will produce minerals that are critical and strategic to the development of the Québec economy: The copper concentrate generated by our processing facilities will be transported to the nearby Glencore Horne smelter.

What makes Rouyn-Noranda an ideal place to run a mining operation?

Rouyn-Noranda is probably the best place in the world to build a mine, with access to skilled mining labor and an incredible network of contractors and suppliers. We want to repeat the Canadian Malartic execution plan with the Horne 5 project. ■



Pascal Hamelin

President and CEO
ABCOURT MINES

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Our goal for the next few months is to begin small-scale production while we continue to drill and advance the engineering towards a pre-feasibility study.

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What have been the main developments at Abcourt Mines' Sleeping Giant project over the past year?

Abcourt Mines completed a PEA on the Sleeping Giant project in June 2023 and proceeded with refurbishing the mill and processing material from our satellite Pershing-Manitou deposit. As of May 2024, we have been undertaking the reconciliation of the Pershing-Manitou bulk sample, but have already begun processing material from the Sleeping Giant mine itself in late April.

Abcourt Mines closed its non-brokered private placements and raised US\$4.4 million. How will you use the capital raised?

The institutional capital market is still difficult, but Abcourt Mines is fortunate to have strong support from our tight shareholder base, which provides financing when required. The funds raised are being used for diamond drilling and advancing the milling of the gold inventory building up in the mill. Our goal for the next few months is to begin small-scale production while we continue to drill and advance the engineering towards a pre-feasibility study.

Overall, capital is still not flowing into the mining industry as easily as it used to in the past, but with advancements being made and majors making profits, investors will eventually come back to the gold and overall mining industry, and we just have to continue to be diligent and efficient with our capital allocation until that time comes.

What is the strategy behind the company acquiring claims contiguous to the Abcourt-Barvue property?

The Abcourt-Barvue deposit is currently the only zinc deposit in Québec, and with zinc being a critical mineral, we saw it as a great opportunity to acquire claims on the Northwest trend of the deposit. Although our focus is on Sleeping Giant, we are keeping that zinc deposit in mind, as we know there is and will continue to be a zinc market. The Abcourt-Barvue resource is significant with 3% zinc as well as lead and silver, but as the market is currently not giving any value to this deposit our eventual goal will be to update this critical mineral resource to a new market price.

How are the current high gold prices impacting Abcourt Mines' capital allocation strategy?

Abcourt Mines' focus is now on drilling and advancing the Sleeping Giant project towards production as we need to become cashflow sufficient and independent from the capital market. Investors that are at the forefront and are participating in the private placement will be the ones winning as they are acquiring an asset at a US\$25 million market cap, but once we start producing - and our goal is to advance the project to produce 100,000 oz/y - the market cap will significantly increase to the tremendous benefit of our shareholders.

What are the challenges and opportunities ahead for the mining industry in Québec?

When capital markets are difficult, the institutional investors you find uniquely in Québec can be helpful, whereas other jurisdictions in Canada do not have this financial support the province offers. More importantly, Québec has an experienced talent pool and great suppliers that can support every phase of a project's growth, from exploration and development to operations. The geological endowment of the province also offers significant opportunity, with the Canadian shield - of which we have only scratched the surface - being great for exploration and potential huge discoveries.

What are Abcourt Mines' key priorities for 2024 and beyond?

Our main priority will be drilling Sleeping Giant, advancing the engineering, and beginning a small scale production towards commercial production within the next 18 months. ■



Elenor Siebring

JV Manager
GOLD FIELDS

What are the main updates from the Windfall project JV in recent months?

Our Windfall project, a 50:50 JV with Osisko Mining, is a unique opportunity to develop a world-class orebody in a Tier 1 mining jurisdiction. The project's environmental impact assessment (EIA) study was submitted to the regulator in March 2023.

The EIA project review process by COMEX continues, and Windfall is expecting to receive the first round of questions soon. With a positive recommendation, Windfall will then proceed to the authorizations required to begin construction and operations.

Since January 2024, the Windfall project site has been powered by hydroelectricity. The move away from diesel power generation for the camp and underground mine will reduce both power costs and greenhouse gas emissions.

Can you discuss Gold Fields' long-term approach to investing in Québec?

The EIA estimates that Windfall will create 17,120 full-time equivalent jobs by 2036. As part of the Osisko partnership, Gold Fields has also acquired a 50% interest in Osisko's highly prospective Urban Barry and Quévillon district exploration tenements, which total approximately 2,400 km². These will be co-explored and co-developed with Osisko, with Gold Fields funding the first C\$75 million in regional exploration.

How does Québec compare as a top-tier mining jurisdiction with South Africa for instance?

Québec and South Africa have a lot in common. Gold mining is an important part of the history and the future of both. South Africa has a long and extensive history of underground gold mining and we have been part of that history for over 120 years. We feel we can bring this experience to bear at Windfall.

What will be the main priorities for Gold Fields in Québec in 2024?

Supporting the Windfall JV through the EIA project review is our main priority. The Windfall management team will also continue the preparatory work to ensure that the project is ready to start construction should the EIA be approved. ■



Mathieu Savard

President
OSISKO MINING

What are the updates in the past 12 months?

In 2023, we filed the Feasibility Study, and the EIA, secured Osisko's financing of the mine build through the 50/50 deal with Gold Fields, secured a 27.4 MW energy block, and completed a power transmission agreement with the Waswanipi First Nation. For Windfall, we expect production by the second half of 2026.

Can you elaborate on the expertise Gold Fields brings to Osisko Mining?

As gold miners, they bring expertise in processing and mining which complements our strengths.

Do you have figures for gold guidance and production estimates?

The current guidance remains at 306,000 gold oz/y, but we wouldn't be surprised to see a higher production.

How do you plan to capitalize on the high gold prices?

With an estimated AISC of US\$760/oz and a current gold spot price of around US\$2,300/oz the margins could be excellent.

How do you anticipate the funding environment for gold projects to shape up?

We need more generalists and retail investors to support discoveries.

What is the potential for discoveries in Québec?

Tremendous, especially in less explored volcanic belts or in belts that have been neglected. Most exploration has focused on the southern Abitibi Greenstone Belt. Jurisdiction is crucial, and Québec is favorable for exploration.

What are your priorities for generating value in the coming months?

Our focus is on finalizing the EIA process, obtaining permits, and moving toward production by 2026. We are also actively exploring the Urban Barry area. ■

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The existing infrastructure in the Abitibi makes the often perilous leap from a developer to a producer less threatening for mining CEOs. There are 14 mills within 200 km of First Mining's Duparquet project in the Abitibi, ideal for a developer eyeing production. The firm put out a PEA for the project in September 2023, which showcased that the Duparquet could produce over 200,000 oz/y over an 11-year mine life. Vancouver-based Dan Wilton, president and CEO of First Mining, said: "The project being in the middle of the Abitibi with significant infrastructure, service providers, and human resources – the quality of work we get from contractors and people in the Abitibi region is phenomenal."

Emperor Metals is another firm focusing on reviving an idle project. Having acquired Duquesne West, a project with a historical resource of 727,00 oz/Au, in 2022, the company then proceeded to the first AI-based 3D and geological models of the property before drilling 8,579 m to grow the resource. Emperor is working towards an updated NI 43-101 MRE by Q1 2025. John Florek, president and CEO of the firm, said: "The project can benefit from great infrastructure such as a highway that leads to Rouyn-Noranda International Airport, access to local power supply, and year-round maintained road access. One g/t in this jurisdiction is equal to 3 g/t in the North as we do not have to build camps, a mill, or even a tailings dam as we can use the already built infrastructure surrounding our project."

Collaboration and consolidation to navigate tough market conditions

Partnerships, JVs, and M&As have been common strategic moves in the current inflationary environment. In Canada particularly, large mining firms found that acquiring new properties or partnering with explorers was more cost-effective than developing new infrastructure repeatedly. The 50/50 JV between heavyweight Gold Fields and Osisko Mining will likely result in the first gold poured in 2026 at the Windfall project. The South African firm – which in August announced it will acquire Osisko Mining – brought valuable processing expertise to Québec, which, coupled with Osisko Mining's local strengths, make for a winning collaboration. Current guidance is at 306,000 oz/y as per the PFS.


In 2024, Québec was part of a larger trend of Canadian gold acquisitions. Shifting priorities on the majors' and juniors' side means that the gold development and exploration scene will likely have a new face next year. Fury Gold Mines acquired Newmont's Eleonore South project for US\$3 million, O3 Mining sold its Louvem property to Eldorado Gold, providing the junior with additional cash to advance other exploration targets in Val d'Or (in April, O3 reported bonanza grade of 119.1 g/t gold over 2.5 m from its Marban Alliance project), Maple consolidating its JV with Agnico Eagle at Douay and Joutel.

The Chibougamau camp could also become another highly value-generative area of Québec in the coming months. Having been consolidated recently by players like Northern Superior Resources and IAMGOLD, the camp is gearing up towards an unprecedented wave of exploration. IAMGOLD consolidated its Nelligan project by acquiring Vanstar and plans to aggressively drill the Chibougamau camp to unlock Nelligan's potential 10 million oz. Follow-

ing a 2023 MRE, Northern Superior launched a nine-month exploration program at its Philiber property. According to president and CEO Simon Marcotte: "The Chibougamau gold camp will soon join the ranks of the most active and favorite destinations for gold activities globally."

For earlier-stage juniors, collaboration for improved discovery success rates will likely be the way forward. The inability of gold juniors to raise funds forced executives to rethink their approach to collaboration and come up with innovative partnerships. Although still competing for capital, juniors are now pooling and sharing resources, splitting costs, and most importantly, better understanding each other's geology. Indeed, the latter does not change on the other side of the claim. A perfect case in point is the commissioning of a joint study between Québec Precious Metals (QPM) and Harfang Exploration which showcased significant potential for high-grade gold and lithium at their Serpent-Radisson and Sakami properties. As put by Normand Champigny, QPM's CEO: "Collaborating with Harfang Exploration has been instrumental in our exploration efforts. Moreover, by sharing resources like camps and helicopters, we significantly reduce our discovery costs."

Despite difficult capital markets, current gold prices remain attractive for the investment community, which should spark renewed exploration activity in the coming years. With the gold price forecast to keep increasing, gold exploration in Québec will continue to gain momentum. ■



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Consolidating the Chibougamau Gold Camp in Quebec and Capitalizing on District Scale Exploration in Ontario

By consolidating the most relevant gold deposits in the Chibougamau Gold Camp under one roof, Northern Superior is increasing the viability of the resources. The deposits are located within a small radius, which will eventually allow them to be combined into a single operational design, feeding a single mill.

We look at the camp as one project.

info@nsuperior.com
www.nsuperior.com





Simon Marcotte

President and CEO
NORTHERN SUPERIOR
RESOURCES

“ I believe the Chibougamau Gold Camp will soon join the ranks of the most active and favorite destinations for gold activities globally. ”

What have been the main developments for Northern Superior Resources over the past year?

Northern Superior Resources (Northern Superior) recently completed a \$8 million private placement with Cormark Securities, of which insiders participated for \$1 million; insider ownership now stands at approximately 25%. The funding will support exploration activities in Québec and will be sufficient to drill approximately 20,000 m in the Chibougamau Gold Camp. Our strategy has been to consolidate the Chibougamau Gold Camp. Not long ago, six companies were holding the relevant assets; today there is only Northern Superior and IAMGOLD. Both companies will be aggressively drilling in 2024, looking to expand the current resource far beyond the 10 million oz the Camp currently carries. I believe the Chibougamau Gold Camp will soon join the ranks of the most active and favorite destinations for gold activities globally.

The stars are aligning, and Northern Superior will now be aggressively advancing work in the Chibougamau at the same time as IAMGOLD is also turning its attention to the camp. We took the opportunity to consolidate the Chibougamau Gold Camp during the dark days of the cycle and it is now about to pay off!

What is your outlook for the fundamentals of gold moving forward?

The game has not started yet. Gold prices have been increasing but in reality, they shouldn't have. Gold is highly – and inversely – correlated to the real rates, which are interest rate minus inflation. It is a negative correlation so either you need the interest rate to decrease, or you need inflation to increase and the interest rate to remain unchanged. Both these scenarios will result in real rates coming down which then makes the price of gold go up. This has yet to happen, but still, the gold price increased. A reason for the increased gold price is that central banks worldwide are selling currencies and buying gold and this trend is sure to continue. We are also seeing Asian retail buyers in the gold market as these buyers want to protect themselves from the real estate market. But also, the Yen is collapsing so they are taking ac-

tion. These two factors are resulting in increased gold prices, but the gold-related equities have yet to perform. Gold equities will perform when the real rates start to decrease. At that point, we will see the price of gold accelerate, and, more importantly, the gold equities will start playing catch up to that valuation. Gold stocks have never been this cheap, yet we are on the eve of what we believe will be the biggest bull cycle of all time.

Can you detail the decision-making process before spinning out your Ontario assets?

Northern Superior has spun out its Ontario assets to have a dedicated company (ONGold Exploration Ltd.) with its capital and a dedicated management team to advance these assets. In particular, ONGold now has the highly prospective district-scale and quasi-famous TPK project. We remain the largest shareholder of ONGold with 72% of the shares. Not only will the shareholders of Northern Superior reap significant benefits from the exploration success in Ontario, but it also emphasizes the considerable undervaluation of our rapidly progressing Québec assets. ONGold will be focused on advancing the TPK project, with particular attention to social acceptability and First Nations engagement, which is critical throughout Northern Ontario where the communities have not benefitted as much from mining activities as those in Québec.

What are the catalysts ahead for Northern Superior in the next 12 months to 24 months?

After closing the financing, we are finalizing our drilling plans, and over the next eight to nine months, we aim to drill approximately 20,000 meters. Following this, we will work on a resource update on the Philibert deposit. Northern Superior is currently trading just north of US\$20/oz in the ground, but we are confident that as we deploy our funding to find more ounces, significantly cheaper than that. As the Chibougamau gold camp becomes more and more viable, the value of those ounces can increase much further. It is not uncommon to see M&A activities in Val D'Or at the US\$100/oz level. ■



John Florek

President and CEO
EMPEROR METALS

“ AI has allowed us to accelerate the model-building process significantly and apply it successfully. ”

Can you introduce Emperor Metals and its Duquesne West project?

We are advancing Canada's next high-grade gold deposit in Southern Abitibi. Duquesne West has a historical resource of 727,000 oz of gold at an average grade of 5.42 g/t and an average thickness of 5.71 m. The project had been idle for 12 years when we acquired it in 2022. In 2023, we did an AI review of the database to create the first 3D and geological models, which demonstrated its exploration potential, and we then built a new open pit conceptual model and successfully drilled 8,579 m to grow the resource footprint. We also sent 2,500 m of historical core for assays in 2023, adding incremental ounces. With the inaugural 2023 drilling program, Emperor was the first company to sample the entire core and identified that the host rock containing the high-grade gold lenses also held low-grade bulk tonnage gold. We will be conducting a fully funded 8,000 m drilling program in 2024. We plan on assaying an additional 8,000 m of historic core within the open pit model as we are working towards an updated NI 43-101 Mineral Resource Estimate by Q1 2025.

I am a geologist, most recently Chief Superintendent of Geology at Detour Lake Gold (subsequently acquired by Kirkland Lake Gold then Agnico Eagle). Detour Mine was a struggling asset when I arrived in 2016. My team and I built a new geological model for the deposit and enhanced it with AI which resulted in a 20% increase in gold going through the mill—when you produce 700,000 oz/y of gold, that equated to US\$150 million/y of extra revenue for the mine's life (now +US\$300 million with the increase in the gold price). AI allowed us to analyze and create models which could not be done before, and I wanted to leverage the advantages of this technology for exploration, which is what we did at Duquesne West.

How important is Artificial Intelligence (AI) in Emperor's story?

The birth of Emperor is in AI as this technology allowed us to build models for our flagship Duquesne West project in a month which would conventionally take years. AI increases productivity—it is like having 20 geologists on your team but without the salary expenses. You have to have

trained geological personnel to get the appropriate models, but you can create models of many different scenarios overnight. AI has allowed us to accelerate the model-building process significantly and apply it successfully.

Within one year, Emperor built the first ever 3D model, the first ever geological model, and now the first-ever conceptual model with AI. These models highlight the potential of the Duquesne West Gold project. Being in a tier one mining district, the project can benefit from great infrastructure such as a highway that leads to Rouyn-Noranda International Airport, access to the local power supply, and year-round maintained road access. One g/t in this jurisdiction is equal to 3 g/t in the North as we do not have to build camps, a mill, or even a tailings dam as we can use the already built infrastructure. Emperor does not have the CapEx costs that can become substantial when you build a mine, allowing for a high rate of return, a quick pay-back period, and a healthy NPV.

How do you plan to unlock value at the Duquesne West project?

The Duquesne West deposit was discovered in 1940. Emperor has leveraged historical information and conducted an inaugural drilling program in 2023 that focused on moving the resource towards development. We realized that there is also significant open pit potential and, as of 2024, we are funded for another 8,000 m drilling program and 8,000 m of historical assaying, focusing primarily on reducing the stripping ratio and continuing to build the resource externally and internally to known resources. We expect to produce a new NI 43-101 Mineral Resource Estimate by Q1 2025, and will then move the project towards a PEA or more advanced study. Emperor is currently at a C\$16 million market cap, and looking at projects similar to Duquesne West, we see huge potential for significant market cap growth.

What makes Emperor Metals a good investment opportunity?

We have a proven management team, we are exploring a prime mining jurisdiction, surrounded by 50 active mines, and our project presents the opportunity to build gold resources in multiple production scenarios. ■



Battery and Base Metals

“

Québec stands ready to meet the increasing demand for essential minerals, including titanium dioxide and vanadium. These are fundamental components in renewable energy systems, electric vehicles and advanced technologies, thereby supporting the objectives of the green transition.

”

Tim Fernback
CEO
TEMAS RESOURCES

GBR Series • QUÉBEC MINING 2024

Image courtesy of Commerce Resources



Battery and Base Metals Production

The clock is ticking

A year after the lithium frenzy experienced in La Belle Province, the hangover is nothing short of brutal. In June 2024, lithium prices dropped below US\$13,000/t, the lowest in over three years according to S&P Global Commodity. Experts also predict nickel prices will continue dropping in 2024, and the phrase “Will nickel ever recover?” is now a popular

search on Google. In the critical minerals space, copper is the true silver lining in Québec, with bulls jumping deeper into the red metal amid supply challenges. And while explorers in the province also took a hit, they will be hoping that the underlying trend of the green energy transition will reinject a breath of confidence for investors.

Québec’s soil is rich in critical minerals needed for the green energy transition. Graphite, lithium, copper, niobium, and iron contribute to the province’s appeal in the global effort to decarbonize the economy. Yet, that effort has faced several setbacks in the past 12 months. While Québec will undoubtedly have a role to play in providing the minerals necessary for EVs, solar panels, and batteries, speed of execution in the race to market may hamper the province’s ambitious strategy. Delays in permitting, environmental assessments, and infrastructure development have further complicated efforts to meet the growing demand for these essential resources. To overcome these challenges, enhanced collaboration between government, industry stakeholders, and local communities will be crucial in streamlining processes and ensuring sustainable growth

Reading the battery meter

In March 2023, the relaunch of lithium concentrate production at the Lithium North America (LAN) complex in La Corne, Abitibi-Témiscamingue, was supposed to mark the start of the Québec lithium chain revival. But the past 12 months forced actors to adapt to new conditions, as the maturing lithium market brought about a demand slowdown and a slump in prices, notably due to a slowdown in EV sales. While the latter are still projected to rise by 33% in 2024 according to Wood, this is nowhere near the annual growth rate of 71% seen between 2021-2023.

The lithium market shake-up notably affected Sayona. After turbulent years (falling prices, restructuring, acquisitions), Québec’s lithium industry was off to a new start in 2023, marked by the March relaunch of lithium concentrate production at North American Lithium (NAL) complex in La Corne, Abitibi-Témiscamingue. An ongoing operational ramp-up at NAL resulted in record spodumene concentrate production of 29,610 t for the firm in June 2023. But the selling of shares by Piedmont Lithium in February coupled with market disruption sent the share price plummeting. Indeed, the persistent drop in prices led to an operational review of the NAL operation in January that saw the Québec CEO leave his position and 14 other management staff made redundant, as the majority of shareholders decided to say “sayonara”. In April, Sayona sold its stake in copper-gold developer Troilus Gold to focus on its lithium assets.

One of the world’s largest miners, Glencore, also faced challenges in the past year. In February, the firm reported year-end declines in copper, nickel, and cobalt production. But in a troublesome year for nickel, the Swiss giant saw the completion of the largest investment of the past decade in Québec when it inaugurated the Anuri mine. The Anuri (meaning “wind” in Inuktitut) mine is a component of Glencore’s Sivumut, or “moving forward,” project in Nunavik, further showcasing its commitment to Québec as the firm divested other operations worldwide, notably in New Caledonia. With Québec ranking second in Canada’s nickel production chart, Anuri and Raglan will be essential operations for the country’s output in the metal mostly used for stainless steel, as output has constantly been down from the 200,000 t/y high in 2016 to just above 150,000 t/y in 2022, according to Ottawa numbers.

The only significant producer of natural graphite in North America, Northern Graphite, received in June a C\$400,000 grant from the Québec government that will pay 50% of the expenses for geo-metallurgical and geo-environmental drilling to be carried out in 2024 at the Lac des Îles operation. The Lac-des-Îles mine in Québec is the only mine in Canada to have produced graphite by 2022. However, many other companies are working to advance graphite projects. Canada produced 13,000 t of natural graphite in 2022, an increase of 9,743 t over 2021. Beijing-related threats, that will be analyzed below, have sparked an urge among policy-makers and producers alike to ramp up graphite production, with the metal accounting for close to 50% of materials needed in batteries by weight.

Finally, Québec is gearing up to revolutionize the green steel industry. In 2023, Rio Tinto and H2 Green Steel, entered into a multi-year agreement for the supply of high-grade direct reduction iron ore pellets from Rio Tinto’s Iron Ore Company of Canada (IOC) operations. In Fermont, Champion Iron will produce one of the purest iron concentrates in the world at Bloom Lake. The firm announced a 40% resource increase at the asset, in the same year when Québec’s government added high-purity iron to its critical minerals list. Looking forward, this recognition will help support Québec’s position as a leader in the green steel supply chain, as high-purity iron plays a significant role in reducing GHG emissions in the steel industry. ■



James Cross
CEO
E-POWER RESOURCES

“

The rapid expansion of battery manufacturing facilities across North America and Europe underscores the urgent need for a local, sustainable graphite source. Currently, most of the graphite supply originates from China, posing supply chain risks.

”

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The rationale behind the Livent-Allkem merger remains robust.

”

Sarah Maryssael

Chief Strategy Officer and General Manager Canada
ARCADIUM LITHIUM

Can you give an overview of Arcadium Lithium and the company's presence in Canada?

Arcadium Lithium was created in January 2024, a merger between Livent and Allkem. The companies were very different, but both had rich histories in lithium. The strategic rationale was significant. They have complementary asset bases, for instance Livent's Salar Del Hombre Muerto project and Allkem's Sal de Vida project in Argentina. These are adjacent to each other and will benefit from many synergies as we develop and grow the resources. In Québec, the Whabouchi mine, Galaxy mine, and the downstream development in Bécancour provide ample opportunities. Since the announcement of the merger in May 2023, the lithium market has changed and prices have fallen, but the rationale behind the merger remains robust, and in the current challenging market conditions, we are more resilient as an integrated company.

What are the catalysts ahead for the Galaxy project, and how will this operation feed into the North American lithium market?

Arcadium has positioned itself as a fully integrated chemicals company with the idea of not only producing upstream raw materials but of owning and controlling the resources and technology in the downstream processing of battery-grade chemicals. Our ultimate goal with the Galaxy project is not to produce spodumene, but to produce lithium hydroxide which can contribute to the development of a North American battery supply chain. Significant governmental support and supply chain investments in battery power give us confidence

in the future demand for lithium hydroxide in North America. Arcadium is, potentially, planning to build a downstream facility either in Bécancour (Québec), elsewhere in Canada, or even in the US, depending on where the end customers are and the financial incentives from provincial, state, and federal governments. Investing in the current low-price environment is challenging, and so partnerships, whether with customers, industry, or government, are important.

With significant attention on, and support for, building battery cells and cathode capacity, the downstream processing of critical minerals has been somewhat neglected. The risk is we will have battery and cathode plants, but they will be starved of raw materials and forced to rely on Chinese suppliers. Bringing mines and converter facilities online takes significantly longer than building battery factories. Increased focus and support should now be upstream so that we have materials to feed the supply chain downstream.

What is Québec's potential to be a leading integrated lithium player, and for industry to make the circular economy a reality?

Québec is well positioned to be a leading lithium producer, and the region has avoided becoming a bulk commodity producer supplying China. Québec has attracted downstream investment and made the province a place where companies want to set up battery and cathode factories. In building this supply chain ecosystem, it allows critical minerals producers to be part of an integrated battery supply chain. Québec is geographically well positioned to supply the US and European markets.

Its green energy grid is also a major drawing card for end customers and investors. The challenge is how much of that green power is available to allow new and existing projects to carry on growing.

How are conversations with OEMs looking to secure future supply unfolding?

Arcadium has exclusive marketing rights on Nemaska Lithium's products and secured a long-term agreement with Ford in May 2023 for approximately half of the refinery's available contracted capacity. It is now looking to secure a second customer for the remainder. Despite current prices, discussions with OEMs are encouraging, and our products are attracting significant interest as they are, unusually, IRA-compliant material and sustainably produced. Even though lithium prices and valuations of companies are low, engagements from OEMs remain high, and there is a strong business case for continuing to build more lithium hydroxide capacity in North America, which the Galaxy mine will feed into.

What are Arcadium's key priorities for 2024 and beyond?

Arcadium will continue to look for commitments and certainty from downstream customers which will give us the confidence to continue investing, and we will continue to forge strategic partnerships with customers and governments to support the development of the Galaxy project. Arcadium is also taking a long term view of where the lithium battery industry is heading. And we want to make sure that we have the proper technology to respond to our customers' needs. ■

“

Corvette will play a key part in developing supply chains in North America and Europe.

”

Ken Brinsden

CEO
PATRIOT BATTERY METALS



What have been the key developments for Patriot Battery Metals over the past year?

Patriot has been hugely active in the past 12 months, and we have continued our engagement with the downstream industry to demonstrate the scale and quality of the Corvette discovery. In the last decade the focus was on accommodating growth in China, but this is the decade where North America and Europe will hit their stride as lithium raw material demand and EV adoption grow in those jurisdictions, and also as energy storage becomes a bigger part of the economy. Patriot wants to ensure that we are at the front of the queue for developing these new supply chains at the scale at which they are expected to emerge. The Corvette discovery will be significant to help underwrite the raw material supply.

We announced a large maiden resource in August 2023, but have continued with significant drill programs which we expect to translate into both growth in the resource and an upgrade to the resource category. That should allow us to underwrite a first reserve at Corvette and the feasibility that is associated with the development of the CV5 prospect. We submitted CV5's first round of environmental approval documents in November 2024, and have identified what is required for the ESIA, which we expect to submit in September 2025. The ESIA combined with the feasibility study will ultimately lead to project approval and the start of construction, anticipated for the second half of 2027, with commissioning, hopefully, by the end of 2028.

Considering that James Bay has similar geological properties to the Western Pilbara region in Australia, what makes this region attractive for lithium exploration?

Certain pieces of geology in Western Australia led to the emergence of several serious-scale lithium mines, including Pilgangoora, Greenbushes, and Wodgina, which were inspired by the growth in lithium raw materials demand from China. Looking at Québec and the James Bay region, similar characteristics emerge. As with the big Australian mines, the geology at Corvette is exceptional, being very open, allowing the formation of large pegmatites. And it is also fertile in the sense that it is dominated by spodumene and large crystal structures, with these characteristics being important for a successful hard rock lithium mine.

What role will Corvette play in the development of a North American lithium supply chain?

China clearly dominates the industry, being in an extremely competitive position with respect to the cost of batteries and EVs. This creates a challenge for the West as our lithium supply chain and EV industry are well behind. The development of a North American supply chain is critically important, and we need to start building downstream facilities locally to support raw material demand for the manufacturing of batteries and EVs.

What are the main challenges and opportunities for lithium companies going forward?

The first challenge is getting a mine approved, and that can be extremely

difficult. But Québec is one of the best jurisdictions globally to develop a mine. As long as you are a good corporate citizen and are truly engaging with the Cree Nations, it is a partnership that will help you grow your project.

Financing is not as big a challenge as it has been historically when the lithium industry was relatively new and financing mechanisms were not as sophisticated as they are today. Large-scale developments, especially when combining a mine with a chemical facility, require significant capital, but with industry and government being aligned in creating a domestic supply chain for battery raw materials supply, we are seeing lithium and critical mineral companies receiving support and obtaining financing for the development of projects.

What are your key priorities for 2024 and beyond, and why is Patriot a great story for investors?

Patriot continues to push the development of the base case at CV5 to demonstrate that there will be a mine that will be producing at scale. We will also continue our exploration activities to grow our already large resource and demonstrate the potential along the Corvette trend. Corvette will play a key part in developing supply chains in North America and Europe. Continuing exploration and demonstrating the potential size of the mine contributes to essential economies of scale and our ability to create repeatable, high-quality concentrate production year-on-year and decade-on-decade, an important inspiration for the chemical investment that is required downstream. ■

Battery and Base Metals Development and Exploration

Regaining confidence

The supercharged demand has cooled. While the buzz around battery metals and the energy transition remains, that sector saw more price crunches than positive news in 2023. Two years after the International Energy Agency cautioned that increasing demand for lithium, nickel, and cobalt could "jeopardize a decades-long trend of declining costs for clean energy," their prices have dropped by 82%, 64%, and 65%, respectively. The drop in meters drilled and exploration activity worldwide did not spare lithium juniors in Québec's James Bay, and the province's developers and explorers will hope for more incentives, such as those seen in the graphite space, to navigate the tumultuous markets ahead.

How could market setbacks affect Québec's chances in the worldwide EV race? For one, the market downturn in "white oil" is forcing developers to reconsider production timelines to make sure of their operations' profitability once up and running. Companies will likely seek to preserve cash, as these cannot stop production without risking their cash flow, prompting them to consider options like high-grading or cutting expenses.

Securing lithium feed

James Bay's potential to become a global white lithium hub able to rival the likes of South America's lithium triangle will require producers to come online sooner rather than later. Nemaska Lithium's mine, one of the largest high-purity deposits in North America, is scheduled for commissioning in 2025. Born in January 2024 out of the merger of Allkem and Livent, Arcadium Lithium (which owns 50% of Nemaska) will leverage its spodumene expertise gained at Mt. Cattlin to put online the Galaxy project located within 100 km of the Nemaska spodumene operation at Whabouchi. Later down the line, another ASX-listed firm, Patriot Battery Metals, will be looking to commission its Corvette project before 2028.

While the "Vallée de la Transition Énergétique" is well underway in the South, with factories and plants cropping up in Shawinigan, Trois-Rivières, and Bécancour, investing in the future feed from Northern Québec is what is mostly needed for those plants not to be starved (or having to rely on Chinese products). Beyond support for building battery

cells and cathode capacity, Arcadium's chief strategy officer and general manager of Canada, Sarah Maryssael, explained that the upstream will require significantly more attention for Québec to execute its ambitions: "Bringing mines and converter facilities online takes significantly longer than building battery factories, and increased focus and support should now be given to the upstream part of the supply chain so that we have materials to feed to the downstream part of the supply chain."

Thankfully, Québec institutions have stepped up to counter the effects of the market downturn, further reminding the industry of what makes La Belle Province's ecosystem unique: both Arcadium and Nemaska received governmental support, with the latter seeing a C\$250 million investment from Investissement Québec in its share capital.

Dotted around these upcoming producers, a plethora of juniors are in the discovery race to become the next Corvette or Adina in spodumene-rich Québec. These players are inspired by a similar geological profile as seen in Western Pilbara, which became the most prolific jurisdiction for lithium mining. Pilgangoora, Greenbushes, and Wodgina are hosted within big pegmatite swarms in a Greenstone belt, and looking at the James Bay region, in certain circumstances, similar characteristics emerge. Projects like Corvette, for instance, are dominated by spodumene and large crystal structures, important characteristics for a successful hard rock lithium mine. Having delivered a maiden inferred Mineral Resource Estimate (MRE) of 10 million t of lithium at 1.4% oxide, Cygnus is another ASX-listed newcomer in James Bay. Its CEO, David Southam, explained the unique opportunity that Québec represents: "There are geological similarities with Western Australia where spodumene was discovered in the same rocks 60 years before spodumene was discovered in James Bay."

Having launched one of the largest lithium-focused exploration initiatives in the world, Brunswick Exploration made a substantial discovery at Mirage. The junior notably extended the length of the spodumene-bearing pegmatite boulder field and announced a drill campaign in the latter parts of 2024, with confidence in the project's potential for a hard-rock lithium deposit. Brunswick CEO Killian Charles

commented: "This is a generational opportunity to redefine Québec's position in the world. It is possible to envision opening a textbook and seeing that lithium comes from Québec."

Defense gets involved in graphite

Uniquely, the US and Canada have teamed up to address the 'dragon in the room'. In May 2024, Lomiko Metals secured a US\$8.35 million grant from the United States Department of Defense (DoD) through a Technology Investment Agreement, along with C\$4.9 million in funding from Natural Resources Canada, to advance studies at the La Loutre natural flake graphite project in Québec. This is indicative of North America's efforts to reduce reliance on Chinese graphite after Beijing imposed graphite restrictions in December, along with pushing to develop a strong critical mineral supply chain. With 3 million t of graphite in the measured and indicated category, La Loutre is the seventh-largest deposit in the world. Lomiko's COO Gordana Slepcev shared: "I believe we will continue to see government funding being awarded to critical mineral mining and downstream projects in North America."

Down the line, global conglomerates are piling up to secure a portion of Québec's future graphite feed. In 2024, Nouveau Monde Graphite (NMG) announced key offtake agreements with Panasonic and GM, covering 85% of production, allowing the company to finalize engineering plans for the refining plant. Québec's importance in graphite production will only strengthen, according to NMG's CEO Eric Desaulniers: "The current focus on onshoring and the increasing demand for graphite in North America enhance Québec's standing in the graphite market."

Discoveries to meet historical copper demand

The absence of significant copper discoveries in North America in the past decade ought to be worrisome for the success of the green energy transition. The red metal surged to new highs in 2024, trading at over US\$5/lb in May, bolstered by renewable energy, electrification, and AI dynamics. In Québec, the most advanced copper developers remain intent on breathing new life into existing camps, while discoveries in recent months also put the spotlight on juniors.

Doré Copper has been revitalizing the Chibougamau camp, a historic mine that had been operated for over 50 years until 2008. In 2022, the firm completed a PEA that outlined a production of over 50 million lb/y of copper equivalent over 10.5 years, with an all-in-sustaining cost of US\$2.24/lb and an initial capital cost of C\$180 million. Doré CEO Ernst Mast commented: "Having another copper producer is crucial. Currently, Québec has a copper smelter, but very little of its feed originates from within Québec."

In 2024, Osisko Metals will aim to complete a drill program that will give the firm the resource base needed to complete the PEA by Q1 2025 at Gaspé Copper, the biggest copper resource in the province. Beyond the underlying trend of the green energy transition, restarting Gaspé would also give a significant boost to the local economy. Osisko Metals president and CEO Robert Wares shared: "In the case of Gaspé Copper, if we produce 3.2 billion lb of

copper at C\$5, it is C\$15 billion worth of wealth created into the economy."

In the absence of production, a price between US\$4 and US\$5/lb of copper will at least incentivize exploration. The province is currently surfing on a new wave of discoveries; Renforth sampled 2.76% copper on the surface at the Beau-pre copper discovery in 2023; SOQUEM discovered Richelieu, a new magmatic nickel-copper system on its Cardinal property, and Abitibi Metals discovered a new target at the B26 deposit, eyeing a PEA in 2025. According to the latter's CEO, Jon Deluce, the geological potential of the trend suggests Québec will see more such discoveries in the future: "7 km northwest lies the historical Selbaie mine, which produced over 53 million t of polymetallic ore. This site serves as a testament to the vast potential of polymetallic deposits in the area, forming part of a trend that includes B26, Selbaie mine, Beschefer gold project, and recent discoveries by SOQUEM."

Now is the time for Québec institutions, financial players, and miners to scatter investments across the critical mineral mining lifecycle. Major conglomerates remain bullish on Québec's future critical mineral output: Ford signed an 11-year deal with Nemaska Lithium to secure IRA-compliant supply, while Panasonic and GM put pen to paper on NMG's graphite. In the coming months, Québec will race against time and markets to further position itself as a critical minerals leader in the decade when North America and Europe hit their straps, with critical mineral demand and EV adoption growing in those jurisdictions. ■

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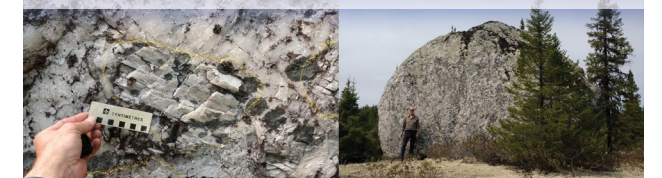
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Eric Desaulniers

CEO
NOUVEAU MONDE GRAPHITE

Could you provide an overview of Nouveau Monde Graphite (NMG) and its recent developments?

NMG is focused on developing two main assets: The Matawinie mine and the Battery Material plant in Bécancour. Construction has begun on the Matawinie mine, with significant progress made in clearing, road access, and environmental infrastructure. Once project financing is secured for both projects, construction will commence. Recently, we announced key offtake agreements with Panasonic and GM, covering 85% of our production, which has allowed us to finalize engineering plans for the refining plant. Additionally, due to high demand for our phase two production, we acquired the Mason Graphite asset, positioning us to expand into phase three via the Uatnan Mining Project, which will be five times larger than phase two.

How did the partnerships with Panasonic and GM come about, and what synergies will they unlock for NMG?

The equity investment from these customers has been a key factor in completing our project financing structure. Lenders who are providing close to a billion dollars needed assurance that our customers would be committed partners, and they required a substantial equity commitment. Now, with equity commitments from Panasonic and GM, along with their long-term commitments to the project specifications, lenders are more comfortable moving forward.

“ Québec holds great potential to rival China in graphite production. ”

Panasonic has committed for seven years post-startup operation, and GM for six years. This not only facilitated the lending process but also convinced various supportive governments that we are deeply integrated into the market. This makes us a crucial player for the biggest companies in North America.

How have conversations around the graphite supply in North America evolved in the past 12 months?

Last year, 1.4 million EVs were sold in the US, requiring approximately 140,000 t of graphite. Currently, all this graphite is sourced from China. While having deposits is beneficial, the real challenge lies in producing the right product in the right quantities and at competitive costs to rival Chinese suppliers. Vertical integration is crucial, demonstrating control over the entire supply chain.

Are there new incentives from the Canadian government and Québec province to support vertical integration and local processing?

Since day one Investissement Québec has been very helpful for us. Now, we see the Canadian government stepping up with strong programs. The investment tax credit announced last year, recently defined, offers a 30% credit on 80% of our *CapEx*, totaling about C\$300 million. Additionally, the Canada Growth Fund, managed by PSP in Montréal with C\$15 billion to deploy, bridges gaps in funding instruments to accelerate the transition.

How important is graphite in the shift to green energy?

Unlike other commodities, no public companies offer clear financial insights, making pricing and market dynamics more opaque. While we anticipate more pricing points emerging in North America and Europe, current market dynamics are heavily influenced by Chinese production. Pricing has declined in recent years, impacting profitability for Chinese companies and necessitating price increases to justify new projects. For instance, the benchmark index for high-energy-density material has fallen by more than 20% in the last 12 to 18 months, highlighting the challenging market conditions. However, given the essential nature of graphite in battery production, price sensitivity is lower for manufacturers who have heavily invested in battery plants and cathode production, underscoring its importance in the green energy transition. With graphite being a critical component in electric vehicle batteries, manufacturers must engage earlier in mining projects' qualification and design phases to safeguard their future supply.

How do you see Québec's role in the graphite conversation?

Québec holds great potential to rival China in graphite production. Our geological resources are robust, potentially surpassing those of China, whose deposits are dwindling in quality and quantity. We boast the necessary infrastructure for energy-intensive processes like thermal purification, with access to abundant hydroelectric power. This positions us to be cost-competitive. Moreover, the current focus on onshoring and the increasing demand for graphite in North America enhance Québec's standing in the graphite market.

What are your priorities in the next six months?

Our primary focus is securing another customer to fully subscribe to our project and commencing marketing efforts for phase three, which involves planning the transformation of concentrate in other jurisdictions with new customers. Once phase two is fully sold out, our attention will shift to completing project financing and advancing construction. ■



Killian Charles

CEO
BRUNSWICK EXPLORATION

“ This is a generational opportunity to redefine industry and Québec's position in the world. ”

How have the past 12 months been for Brunswick Exploration?

Over the past year, we have launched one of the largest lithium-focused exploration initiatives in the world. For a junior company to explore as much as we have is very rare. It takes guts, vision, and confidence. This was very exciting for us. Although the forest fires complicated things a bit in mid-2023, we still made discoveries, grew our portfolio, and proved our strategy was sound and successful. Our focus was systematic lithium exploration in Canada. We aimed for new discoveries and succeeded, especially with the Mirage discovery in Québec's James Bay. I believe this area will fulfill North America's lithium needs, making it the prime location for exploration.

While we are focused on Mirage, we have built an expertise and knowledge base inside Brunswick Exploration that is second to none, and I want to leverage this to make more discoveries across the country. I want Brunswick to be at the forefront of the new discoveries in this relatively new industry.

Are you having conversations with the downstream market in Europe and North America, given your exploration in Greenland and Labrador?

European OEMs are interested, but it is still early days. I want to ensure we come to the table with something more revealing. By the end of the summer, we will know more and can engage more formally.

Overall, the plan in the coming months will be more drilling and prospecting. We are here to work, and that is what we will do. We will drill Mirage and work our portfolio to make more discoveries. I believe there are more discoveries to be made, and I want Brunswick to be involved in making them.

Have you seen a shift in government partners and their strategy on critical minerals?

There is a realization that more exploration will be needed to develop the North American lithium supply chain. Everyone understands the challenges, but coming up with and executing solutions will be the complicated parts. There will always be opposition, so it will take political will and a thick skin to navigate through it. However, this is a generational opportunity to redefine industry and Québec's position in the world.

Can Québec become a major hub for lithium discoveries in James Bay?

For me, it is not just a triangle anymore; it is an axis. You can draw a straight line from James Bay down to Southern Québec and into the US, forming the entire supply chain. This includes raw production in Northern Québec, refining and battery manufacturing in Southern Québec, and final usage in Ontario and the US. This is a generational opportunity to build a complete supply chain in Québec, and it will be exciting to see what is going to happen in the next years.

What are the hurdles to achieving a circular economy with feed in James Bay and processing in Bécancour?

The main hurdle is political support. With strong political backing, capital follows, and everything falls into place. It starts from the top with a clear political strategy. If people understand that doing X leads to Y and Y leads to Z, they will move forward. This requires clear regulations, workable action plans, and a realistic timeline. If we think too long-term, it becomes difficult to establish short-term objectives and the long-term goal becomes irrelevant. But with a clear road map and strong leadership, all the steps fall into place naturally. Investors will see the strategy, support it, and invest accordingly. Overnight, you can build a circular economy, capture a large portion of the value chain, and contribute to decarbonization, which is the goal.

What excites you about lithium space in 2024 and beyond?

There has always been a difference between market interest and corporate interest. In lithium and mining, you cannot think about the next 12 months; you must think about the next 12 years. Québec presents a unique opportunity to build an industry that cannot be replicated anywhere else. The market will have its ups and downs, but when you focus on real assets, real people, and real jurisdictions, the reality becomes clear. I am confident that we are in the right place, doing the right thing, and we will continue to do so at Brunswick Exploration. Hopefully, the rest of the industry in Québec will follow suit. ■



Robert Wares

CEO
OSISKO METALS

What have been the main developments for Osisko Metals over the past 12 months?

In partnership with Appian Capital Advisory, Osisko Metals is developing the Pine Point lead-zinc project in Canada's Northwest Territories, and we are fully financed and have free carry-to production decisions on a four-year timeline. The project is advancing well, and we recently announced a new resource estimate which will allow us to move to trade-off studies for the feasibility that have already begun.

Gaspé Copper is also advancing quickly, and we have recently announced an updated MRE at Copper Mountain, which comprises an open-pit Indicated Resource of 495 million t grading 0.37% CuEq, representing a 30% increase in copper-equivalent metal content over the previously reported copper-only Inferred Resource of 2022. We have completed the first stage of metallurgical work and are extremely happy not only with the copper recoveries and the quality of the copper concentrate, but are also now confident that we can produce a valuable molybdenum byproduct, with the price of molybdenum by weight now being worth approximately six times that of copper. The recovery rate for the molybdenum was approximately 65%, which is good because if we had not been able to separate the molybdenum from the copper, our copper concentrate would have had high molybdenum and would have therefore carried a penalty.

What is the timeline for these projects?

Osisko Metals is advancing both projects in parallel, but in terms of investment, Pine Point benefitted from Appian's C\$75 million investment to advance it to a final investment decision (FID). Gaspé Copper is approximately a year behind the Pine Point timeline; in 2024 we will complete a drill program that will give us the resource base we need to complete the PEA by Q1 2025, and then we will be in a position with Measured, and Indicated resources to move directly into feasibility. ■



Ernest Mast

CEO
DORÉ COPPER

Can you introduce Doré Copper and the firm's portfolio?

We have a project at a historic mining camp in Chibougamau, Québec. We have been revitalizing the camp with significant exploration success. In 2022, we completed a PEA. We have made progress on a feasibility study, started the permitting process, updated metallurgical test work, and explored additional deposits in the region.

Are you planning to expand your drilling and exploration efforts this year?

We will test several targets. One of them is the Cedar Bay Southwest Zone. Another target is around Corner Bay, where we will explore the northern extension. Additionally, we have the Joe Mann area. Moreover, we have the Gwillim gold mine, a joint venture with Alamos Gold.

How crucial is it for the North American supply chain to have another copper producer?

Currently, Québec has a copper smelter, but very little of its feed originates in Québec. Then there is a copper refinery in Québec that refines the smelter's product into pure copper. Adjacent to the refinery are wire and tube-making facilities, making our project a seamless fit into the copper supply chain in Québec and North America at large.

Could you provide insights on the current state of the copper supply chain in North America?

Our project benefits from a clear process due to agreements with the government and minimal overlap with indigenous groups. The funding environment in Québec benefits from entities like Investment Québec and Fonds de solidarité FTQ. And Québec's strategic commitment to sustainable mining practices underpins the global transition to electrification.

How do you foresee the M&A landscape evolving?

The current high-price environment for copper and gold will support JVs and consolidation. With Québec's vast landmass, and with companies often sharing geological deposits, the environment is ripe for M&A activity. ■



David Southam

CEO
CYGNUS METALS

Can you introduce Cygnus Metals and provide an overview of the company's portfolio?

Cygnus Metals is an ASX-listed company with the sole focus being on lithium exploration in James Bay, Québec, which provides a unique lithium opportunity due to geological similarities with Western Australia where spodumene was discovered in the same rocks 60 years before spodumene was discovered in James Bay. We focus on three projects in James Bay, chosen based on criteria such as proximity to infrastructure, location on Greenstone belts, proximity to major discoveries, and positive relationships with First Nations communities. Our first project, Pontax, is an earn-in joint venture with ASX-listed company Stria, located near Québec's largest lithium deposit, named James Bay, and owned by Arcadium. Our strategy involves acquiring additional access and mineral rights to land to expand our geological footprint and explore district-scale opportunities. Recently, Pontax delivered an impressive maiden inferred MRE of 10 million t at 1.4% oxide with a mere 11,000 m of diamond drilling.

At the Auclair project we identified 25 km² of ground with historical potential, and through partnerships and agreements, we have expanded our land holdings to more than 400 km². Recent prospecting and drilling efforts at Auclair have yielded highly promising results, including the discovery of spodumene-bearing outcrops with crystals up to 1.5 m. We have successfully drilled into this mineralization, with a notable intersection of 44 m at 1.15% Li₂O.

Why did Cygnus Metals choose Québec for its exploration activities?

Québec's proximity to downstream industries and strong government backing make it an ideal exploration destination. We believe that Québec will ultimately discover so much lithium, it will eventually surpass Western Australia over the long term. We want to be part of that journey, and when you look at the history of the people involved at Cygnus, we have all built billion-dollar resource companies from small beginnings, such as Cygnus. ■

Can you introduce Li-FT Power and the company's portfolio?

Li-FT Power focuses on developing and exploring hard rock lithium deposits in Canada. Currently, we have three projects in our portfolio. Our focus is the Yellowknife project, located just outside Yellowknife in the Northwest Territories. This project comprises 13 spodumene pegmatites that are visible from space. We have conducted extensive drilling, approximately 50,000 m, and we are set to release an initial resource estimate, along with metallurgical findings. Additionally, we have a significant land package in Québec, covering about 2,300 km² in the James Bay region, where we are conducting surface exploration for lithium-bearing spodumene crystals. Our third project, also in the Northwest Territories, sits on the border with Yukon and is a known Spodumene Pegmatite District from the 1970s. We plan to commence drilling there next summer to assess its potential size.

What is your take on the potential for more large-scale lithium discoveries in James Bay?

I believe the potential for more discoveries in James Bay is excellent.

Is consolidation in the lithium space inevitable in James Bay in the coming months?

With contiguous claim packages and multiple players, there is a compelling case for consolidation. However, it is not as simple as it sounds, as factors like relative valuations and market dynamics come into play.

What advantages does Québec offer for lithium exploration compared to other mining jurisdictions?

Québec is the best jurisdiction I have worked in. From a regulatory standpoint, it is much simpler compared to other regions. You do not need a drilling permit; a tree-cutting permit suffices, obtainable in just two weeks. Additionally, Québec's refundable tax credit incentivizes exploration. In terms of infrastructure, Québec is well-equipped, with decent roads like the Billy Diamond Highway and Trans-Taiga Highway, essential for lithium exploration and development, especially in northern latitudes. Overall, Québec's regulatory simplicity, tax incentives, organized governance, and infrastructure make it hard to beat as a mining jurisdiction. ■



Tim Fernback

CEO
TEMAS RESOURCES

Can you introduce Temas Resources and the company's portfolio?

Temas Resources is a publicly traded company headquartered in Vancouver, focusing on the exploration and development of mineral deposits, particularly titanium dioxide, iron ore, and vanadium. Our key operations are the La Blache and Lac Brule projects, both located in Québec. La Blache, situated approximately 130 km northwest of Baie-Comeau, is our most advanced project. We have recently completed a PEA for La Blache, which yielded impressive results including a 208.5 million t inferred resource, a post-tax NPV8 of C\$6.6 billion and IRR of 60.8%. Lac Brule, located about 150 km west of La Blache, is also undergoing development and early results have indicated a higher TiO₂ grade when compared to La Blache. We have planned additional drilling to advance Lac Brule to the same level as La Blache.

Could you provide more details about the La Blache project's PEA, geology, and economics?

For the La Blache project, we plan to move into a pre-feasibility and bankable feasibility stage, which will include necessary environmental work and additional drilling. We aim to complete this over the next 18 months. At that point, we will likely partner with industry leaders like Rio Tinto or others active in TiO₂ to look to move the project into production.

The La Blache Project encompasses a significant mineral deposit, spanning 171 mineral claims over about 9,400 hectares, primarily featuring iron ore, titanium dioxide, and vanadium mineralization, with the main deposit identified as the Farrell-Taylor deposit.

Could you elaborate on Temas Resources' ORF technologies?

Unlike traditional extraction methods, which often involve high temperatures and harsh chemicals, ORF technologies operate at ambient temperatures, minimizing energy consumption and environmental impact. This innovative approach not only enhances operational efficiency but also reduces operating costs and mitigates environmental risks. Furthermore, ORF technologies are scalable and adaptable, making them suitable for application in various mining projects beyond our own. ■

Can you outline the reasoning behind Champion Electric Metals' strategic shift towards its Québec-based assets?

In around two years, we completed nine acquisitions in Québec. We now have a very large block in the James Bay region, with several kilometers along the Trans-Taiga Road, which is an important access point and helps in terms of access to infrastructure. Our direct neighbors southwest are Patriot Battery Metals and their Corvette discovery. In our western flank is Winsome Resources, which holds Cancet and Adina. We are in an exceptional location, we share the same Greenstone belt where all the pegmatite discoveries have occurred.

In recent months, we kept active in the field, and despite losing 11 weeks of exploration last year due to the wildfires, we continued with our airborne programs, along with sampling and mapping on the ground. In Q1 2024, we ended another gravity survey, and in March we did a maiden drill program. We published the results in early May, and these show that our structure holds lithium-bearing pegmatites.

Idaho is still a crucial part of our company, but the current investment environment is less honed toward our cobalt assets. We maintain and carry those, but we announced the sale of one of our gold properties. Our priority and our spend of *CapEx* are in Québec. We can raise money there at a premium with flow-through and super flow-through credits available, along with a profitable currency exchange.

What are the catalysts ahead for the Québec project?

We have lots of grassroots geology to carry out ahead of us, and we will look to make new geological discoveries.

As a team, we have been involved in picking up projects from grassroots discovery to production decisions. We have the former founder and CEO of Lithium One Metals, and two directors at Lithium Americas, with over US\$6 billion in value created for shareholders through lithium transactions. ■

Jonathan Buick

President and CEO
CHAMPION ELECTRIC
METALS



Gordana Slepcev

COO
LOMIKO METALS

What have been the main developments for Lomiko Metals (Lomiko) over the past 12 months?

Lomiko has continued 'rock-to-battery' metallurgical and electrochemical testing with Polaris and the National Research Council of Canada (NRC) as part of our PFS. Lomiko has now successfully demonstrated the full value chain from ore to battery anode material on samples from the La Loutre project. We also completed a PFS level flotation flowsheet optimization program where material from the EV Zone was subjected to a locked-cycle flotation test.

What factors prompted the US and Canadian governments to award Lomiko two grants?

La Loutre is the seventh largest graphite deposit in the world, close to infrastructure, downstream manufacturers, and the US I-75 battery highway. We have an excellent management team, a strong commitment to ESG and developing the project sustainably.

Can you elaborate on the timeline for the La Loutre project?

We plan to start permitting the geotechnical works and the PFS should be completed by the second half of 2025. We will start bigger bulk tests under the CRITM grant, and conduct pilot processing under the CMRDD grant. ■



Jon Deluce

CEO
ABITIBI METALS

What are the catalysts for unlocking value in the B26 deposit?

In the first quarter, we undertook an extensive drilling campaign, covering 13,500 m at B26 and an additional 2,400 m at Beschefer, which lies just seven km away. This rapid pace has positioned us as one of the most active exploration juniors in Québec. Looking forward, our financing secures us for substantial drilling operations spanning 2024 and 2025. We are targeting the delivering of a PEA by the end of 2025. Our Q1 drill program has yielded promising results, setting the stage for further expansion and validation of our thesis.

How do you assess the exploration scene and access to capital for Québec explorers?

Despite the overall tough financing market, we have managed to raise significant capital. This success can be attributed to both the quality of our deposit and the confidence investors have in Québec's jurisdiction, especially those experienced in lithium space who are now eager to diversify into copper. With a catalyst-rich 2024 and 2025 ahead, investors can expect significant news flow and progress as we continue to showcase the growth potential of our flagship project, B26. ■



Rick Breger

President and CEO
HARFANG EXPLORATION

Will the Harfang story continue to be written across several commodities?

We are still completing our technical review at Serpent-Radisson, but we have a lot of Québec critical minerals flow-through money to spend this year, so our focus this field season will be on critical minerals in Québec. Overall, we have targets beyond gold and lithium, including nickel, copper, chromium, and PGEs. James Bay is especially interesting with its polymetallic properties, while our Ontario properties are more traditional gold assets.

How do you anticipate the supply-demand fundamentals for lithium to shape up?

The thesis for lithium demand is strong. The green transition is still happening, and lithium is a key part of it.

What are your priorities for the coming months, and why should investors consider Harfang?

My priority is to gain focus and determine a flagship asset. Harfang offers a lot of optionality with assets in Ontario and Québec, including gold, lithium, and other battery metals. With fresh eyes on the portfolio, we are setting ourselves up for real success in the future. ■



Rare Earth Elements

Québec's role in loosening China's grip

Like with many other conversations on critical minerals, the one on rare earths ought to address the Dragon in the room. China currently extracts over 60% of rare earth elements globally and processes 90% of the global supply. REEs, long a focus of geopolitical concern, have gained even more attention due to China's dominant role in their mining and processing and its history of leveraging this control through trade restrictions.

Indeed, while Beijing has long been playing chess with commodities markets, Ottawa and Washington have in recent years been louder in terms of developing their own critical supply chain. In June 2024, Canada blocked a sale of stockpiled REEs mined in its far north to a firm in China. In the coming years, Québec has the poten-

tial – and the economic resources – to be at the forefront of North America's push to loosen China's grip. In the context of the green energy transition, the question is not if – but rather when – will Québec be able to develop a cost-effective alternative to China's supply.

Hopes in projects eyeing commercial production of REEs

Québec's mineral endowment in terms of rare earths is well established. The northern part of Canada's largest province is home to several deposits, such as Ashram, Strange Lake, and Crater Lake, that have received global traction and investment in recent years. Importantly, while Canada has some of the world's largest known reserves and

resources of rare earths, estimated at 15.2 million t of oxide, Québec is home to the highly valued elements of terbium and dysprosium. And despite a hefty rare earths price correction in 2023 (following China ramping up supply) that saw REEs hitting their lowest point since 2020, several projects in Québec have the potential to put the province on the map of commercial producers before 2030.

In the critical minerals space, experts are betting that the underlying bottom line of the green energy transition is stronger than market headwinds. In that sense, companies have advanced projects to the latter stages of mining development. Commerce Resources made the strategic call to update the PEA at its Ashram deposit to present the total blue sky

of the project (one of the largest in scale in North America). The firm will eye production at their facility, before shipping the product to processors such as Solvay potentially in 2028. President and CEO Christopher Grove of Commerce Resources detailed: "An updated PEA will allow us to be re-rated by both the market and the industry in terms of putting a value on the Ashram project and give us a wider range of commercial opportunities in terms of potentially securing an industry partner who recognizes the strong fundamentals of the deposit."

South of Ashram and consisting of a full suite of light and heavy rare earths (neodymium, praseodymium, dysprosium, and terbium) the Strange Lake project is now fully funded to bankable feasibility study. In 2023, Torngat Metals conducted an extensive confirmation drilling program of 33 diamond drill holes in the B Zone of the Strange Lake Peralkaline Complex. The firm eyes PFS and BFS completion by 2025, and the firm is currently piloting its process at scale to ensure it will work as designed when going into operation.

Pioneering a Canadian rare earths industry

When looking at the technological and military uses of REEs, China's supply grip is increasingly alarming, particularly in the context of a green energy transition. Beyond production, Beijing also boasts something close to a monopoly in the downstream space. As detailed by Christopher Grove: "China imposed an export duty on REE in 2005, and while it took the WTO seven years to declare that export duty illegal, manufacturers and processors had set up facilities in China to access the cheaper-priced domestic feedstock. These companies included Solvay, the world's largest REE processor, and Hitachi, the owner of the dominant recipe for magnet manufacturing. Over the past 19 years, China has managed to increase its dominance in the REE sector as well as downstream in the manufacturing of magnets."

Geology is not the problem in richly-endowed Québec. The challenge is that, compared with China, players

are often not playing with the same rules. The focus on environmental regulations, community relations, and social efforts that are dear to the province's operators add financial weight to projects, which makes competition with China difficult, particularly in the current price environment for REEs. But Christine Burow, Torngat's chief marketing officer, is seeing efforts at the governmental level: "As things stand, China controls the supply market and its low rare earth pricing challenges the economic case for new projects. In Canada and the US, we are seeing governments and industry working together to become less reliant on China while making a major contribution to the global transition to electrification."

In the race to get projects online in a timely fashion, Québec stands as one of the only North American provinces (besides California, home of the Mountain Pass mine operated by MP Materials) able to offer an alternative to Chinese supply. Both Burow and Grove highlighted the growing

support at the federal and provincial level, with Commerce Resources notably applying to receive funding from Ottawa's C\$1.5 billion Critical Minerals Infrastructure Fund. The volume of production from projects nearing construction has the potential to put Québec in a new dimension and to position the province as a major supply security player for the entire North American and global supply chain.

Going forward, market fundamentals suggest a positive outlook for Québec's rare earths developers. The democratization of electric vehicles is forecast to lead to a fivefold increase in REE demand by 2030, and even higher for heavy rare earths (dysprosium and terbium) essential for high-efficiency, low-carbon technologies. As the West shifts from near-total dependence on Chinese imports to supply diversification, Québec can pull its weight by leveraging its high standards and offering traceable and sustainably produced minerals. ■



“ The positive outlook confirms our investment thesis for the Strange Lake project’s development as a reliable source of heavy and light rare earths and a critical driver for the electrification value chain in North America. ”

Christine Burow

Chief Marketing Officer
TORNGAT METALS

What have been the main developments for Torngat Metals over the past year?

Cerberus Capital Management’s US\$50 million investment at the end of 2022 enabled Torngat Metals to advance all major elements of the Strange Lake project, and we are on course to complete pre-feasibility and bankable feasibility studies in 2025. We have progressed with pilot testing and optimizing our flow sheet, engineering, confirmation drilling, environmental fieldwork, engagement with communities and Indigenous partners, site selection, and road development options.

The rare earths market forecast remains strong due to significant supply shortages for permanent magnet production. Demand is even higher for heavy rare earths (dysprosium and terbium) essential for high-efficiency, low-carbon technologies. This positive outlook confirms our investment thesis for the Strange Lake project’s development as a reliable source of heavy and light rare earths and a critical driver for the electrification value chain in North America.

What are the priorities for the Strange Lake project in 2024?

We are piloting our process at scale to ensure it will work as designed when we go into operation. In parallel, we continue to develop our geological model, conduct variability testing and confirmation drilling, advance the environmental impact assessment process, and engage with the multiple communities affected by our project. We need to advance several work streams simultaneously to complete the pre-feasibility and bankable feasibility studies by the end of 2025. As a result, we are growing our internal team and our network of world-class suppliers, advisors and partners.

How important are early-stage community engagement approaches?

Our goal is to communicate our project’s economic value and positive impacts while proactively addressing concerns and enhancing benefits for everyone involved. We have taken an early-stage partnership approach with communities, as opposed to informing and moving on, which has been the case with many projects in Canada, where communities only find out at the end of the process what is going to happen in their backyard.

Our Strange Lake project involves multiple communities with shared interests, including environmental protection, and we are investing significant time and resources in building strong partnerships with them.

Can you comment on the development of North America’s rare earths supply chain and Québec’s role ahead?

A key economic focus across all jurisdictions in North America is to build a rare earth mineral supply chain. Over the past few years, we have seen a rollout of critical mineral strategies in Québec, across Canada, and in the US. The US is investing in downstream industries with several magnet manufacturing facilities in development. We are also seeing interest in Canada in the downstream processing of rare earth oxides. As things stand, China controls the supply market and its low rare earth pricing challenges the economic case for new projects. In Canada and the US, we are seeing governments and industry working together to become less reliant on China while making a major contribution to the global transition to electrification.

Québec has a tremendous mineral endowment; there is significant institutional and governmental support for responsible critical mineral projects development here. When the Strange Lake project begins production, the volumes will be globally significant and will have a material impact on the supply gap. This will position Québec at the forefront of establishing a rare earths industry in Canada. Québec will thus be a major supply security player for the entire North American and global supply chain.

What are Torngat Metals’ key priorities to capitalize on the great momentum the company has at its Strange Lake project?

We will continue to develop our team and resources internally and with our partners to successfully carry out our Strange Lake project. We have an enviable track record of hitting all our milestones on time and on budget, and we are very proud of our progress to date. As the project and team expand, we will coordinate our efforts to maintain our delivery standards while staying true to our vision of becoming the most reliable and innovative supplier of responsibly produced rare earths. ■



“ The strategy is to produce a commercially marketable product on site which can then be shipped to REE processors globally. ”

Christopher Grove

President and CEO
COMMERCE RESOURCES

What have been the main developments for Commerce Resources over the past year?

Commerce Resources recently announced significant advancements and simplifications in the mineral processing and hydrometallurgical flowsheets for the Ashram deposit. The Ashram deposit has the most attractive of the standard fundamentals that typically allow a rare earth element (REE) project to go into commercial production with positive economics, and considering that we have the best versions of both mineralogy and geology, we can produce an extremely high percentage floatation product with greater than 30% TREO. Due to the high grade of the flotation concentrates, we can then reduce the number of steps in the hydrometallurgy to produce a finished end product that is above 98% TREO with extremely high recoveries. We expect that simplifying the process design flowsheet will lower our operating cost, and the actual economics of this will be detailed in our updated preliminary economic assessment which we hope to release by Q4 2024.

Can you elaborate on the timeline for the Ashram project?

Rather than focusing on one business plan which will be detailed in a PFS, Commerce Resources decided to update our PEA as it gives a wider scope to present the total blue sky for the project. The strategy is to produce a commercially marketable product on site which can then be shipped to REE processors globally, however, we are also looking at downstream processing to produce separated oxides, specifically, neodymium praseodymium oxide, which is the ideal feedstock for a metallization facility that would deliver their end products to a magnet manufacturer. The percentage of products we will produce as mixed rare earth carbonates or downstream oxides will be determined in a PFS after the scenarios are detailed in our updated PEA. An updated PEA will allow us to be re-rated by both the market and the industry in terms of putting a value on the Ashram project and give us a wider range of commercial opportunities in terms of potentially securing an industry partner who recognizes the strong fundamentals of the deposit and who will then ideally deploy capital into Commerce Resources in a non-dilutive project level investment which could allow us to complete a PFS and a BFS. If we are suc-

cessful in releasing our PEA by Q4 2024, it may be possible to complete a PFS by the end of Q2 2025 and a BFS and environmental and social assessment certificate by mid-2026, whereafter we will be in a position to apply for a mining permit to be in full commercial production by 2028.

How has the North American rare earth supply chain progressed over the past 12 months?

The fact is that Canada has the most demanding mining legislation in the world, making it exponentially more challenging to raise the needed capital to satisfy the demands of the mining legislation. To address this challenge, Commerce Resources has appointed two Australian directors and plans to secure a listing on the ASX, hopefully trading there by September 2024. To illustrate this difference, peer group companies of Commerce Resources are trading on the ASX at market caps of 10 to 50 times our market cap on the TSX Venture Exchange.

What will be the importance of Québec in developing the North American rare earths supply chain?

Québec has a huge opportunity to significantly contribute to the development of the North American rare earth supply chain due to the Ashram project being second to none in terms of its fundamentals that typically allow economic production of REEs.

In November 2023, the federal government launched a CA\$1.5 billion budget for the Critical Minerals Infrastructure Fund. Commerce Resources applied to that fund in February 2024 and were required to include letters of support from other companies active in the same parts of Nunavik as us. We were fortunate to receive approximately a half dozen letters of support from our peers in the area.

Why is Commerce Resources a great story moving forward?

Due to forces beyond our control, Commerce Resources is currently at a market cap that is an attractive entry point for any investor as we continue to advance our Ashram project in one of the world’s best mining jurisdictions, Québec, with additional blue sky potential of our high-grade niobium claims proximal to the Ashram deposit. ■



PITVIPER
SERIES



Infrastructure, Equipment and Innovation

“

Québec companies are increasingly embracing electrification, not only for efficiency and productivity, but also due to factors like low electricity costs and investor preferences for sustainable projects.

”

Jean-François Couillard
President
ADRIA POWER SYSTEMS

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Image courtesy of Epiroc



A Decarbonization Leader

Considerations when electrifying mines

Québec is known as a global decarbonization leader. In the past months, the province saw further pioneering moves in the worldwide push to electrify the mining industry. Leveraging a home advantage of having an almost 99% renewable grid based on hydropower, Québec players have tested, failed, and implemented new technologies to reduce carbon emissions at several mining sites.

Necessary CapEx requirements

Reducing the capital intensity of the mine is an agenda no mining firm can divert from. From an investor standpoint,

an Accenture survey indicates that 59% of investors want mining companies to aggressively pursue decarbonization, while 63% are willing to divest from companies that fail to meet decarbonization targets. Adria Power Systems introduced in 2024 a mine-duty charging infrastructure tailored for battery-operated mining machinery. President of Adria, Jean-Francois Couillard, said: "Québec companies are increasingly embracing electrification not only for efficiency and productivity but also due to factors like low electricity costs and investor preferences for sustainable projects. We are witnessing a shift away from fossil fuels."

In the months ahead, Nouveau Monde Graphite will use Caterpillar's first battery-electric 793 large mining truck at its Matawine mine, while Eldorado Gold will operate Québec's first-ever fully-electric truck at its Lamaque mine. Efficiency was a big component behind the major's almost C\$5 million investment for one truck: its speed is 30% higher because the engine is more powerful and the loading capacity is 50 t instead of 45 t with diesel equipment. Swedish giant Epiroc also made strides in the province in 2024, with the first fully autonomous Epiroc Minetruck in the world now running in a Québec mine, Charlie Ekberg. Epiroc Canada's general manager, said: "Québec is active at the moment with automation and electrification. Several mines are currently operating our BEV equipment and new mines have begun planning for future BEV equipment additions to their fleet."

An agile blend of global heavyweights and local talent means Québec has the potential to be a world leader in mining electrification, automation, digitalization, and connectivity. Epiroc partnered with Val d'Or-bord Meglab to open North America's first Regional Electrification Center in May 2024. Meglab (now part of Epiroc Electrification Solutions) general manager Kim Valade saw a steep increase in technologically advanced demands from its customers (notably automation pushes at Agnico Eagle's Odyssey mine), and explained: "In the future, it will become increasingly challenging to undertake a project without automation and electrification. The industry is ready to learn and adapt, and there are several reasons for this growing interest, including cost savings, efficiency, and, most importantly, reducing our environmental footprint."

From extraction, smelting, leaching, and transportation processes, Québec's mining industry is active in finding ways to decarbonize. "Converting these processes to electricity or

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KV



ED

Kim Valade and Eric Dessureault

KV: General Manager
ED: VP Operations
MEGLAB

How did the integration with Epiroc unfold for Meglab?

KV: Meglab is now part of Epiroc Electrification Solutions (EES). Our primary objective is to support our customers in accelerating their transition to electric solutions. This integration acknowledges our expertise in Québec and demonstrates our commitment to customers in the region who are adopting electric technologies. We are dedicated to maintaining this regional focus and leveraging our local market expertise. To this end, we established the first Regional Electrification Center, which we launched in early May during Mining Week.

ED: A prime example of our successful integration is the EMS (Energy Management Systems) project, designed to provide Epiroc customers with a seamless solution for managing power in mines. Our strategy involves utilizing the customer's existing PLC and HMI systems while enhancing them with innovative new features. We also join forces with Epiroc at Agnico Eagle's Odyssey mine, providing local support for automation.

How will the industry get to the zero-emission mine?

KV: Electrification plays a pivotal role in achieving a zero-emission mine, and to accomplish this, we must consider mining equipment, infrastructure, energy sources, as well as complementary strategies such as Automation, Digitalization, Connectivity, and more. It is a combination of expertise that, together, can realize this vision. The integration of Meglab and Epiroc is specifically aimed at realizing this vision, where our shared goal is to offer a comprehensive solution towards a sustainable future.

How do you help customers implement electrical solutions?

KV: Our proactive and collaborative mindset leads us to engage with diverse partners from the early stage of a project. For example, we work with engineering firms on several feasibility studies to bring new solutions to optimize all the processes from day one. For a complete electrical mine, this is where we combine digitalization and automation to pave the way for a fully electric mine. In other cases, such as an operational mine, we will need to assess the current systems and energy consumption to explore possibilities.

ED: We have Power Scan products for customers willing to know if their electrical infrastructure could support

the switch to an electrical fleet, and how to help them support the transition. With our colleagues at Epiroc, we can also convert diesel machines with Epiroc solutions to bring BEVs on-site.

Why did Epiroc choose Québec as the home of its first electrification center in North America?

KV: Choosing Meglab as the first regional electrification center is not only a significant recognition of the expertise found here but also a clear commitment to the local mining industry. At Meglab, our history is marked by our proximity and partnership approach with local mines. This regional positioning is a continuation of what is important to us. The expertise developed here is recognized globally, in addition to Québec's and Canada's leadership in the mining industry. This will allow us to be part of a specialized team within a global network while offering personalized service tailored to local needs. It means that we will learn and share knowledge through a network of experts, but above all, continue to make a difference here in the region.

In this macro-environment, are majors willing to put the CapEx into electrification?

KV: In the future, it will become increasingly challenging to undertake a project without automation and electrification. The industry is ready to learn and adapt, and there are several reasons for this growing interest, including cost savings, efficiency, technological advancements, and, most importantly, reducing our environmental footprint. The main challenge lies in energy management and availability. Whether in Québec, where we have hydroelectricity, or elsewhere in the world where energy sources are more constrained, the key is to reduce consumption. The more we adopt new technologies, the more accessible it becomes to make this transition swiftly. It takes time, but we are making progress towards that goal.

What will be the priorities to capitalize on the relationship with Epiroc?

KV: People are key. We are in fast-learning mode, and the next step is to connect all the dots.

ED: One priority will be finding the right people and training them to be able to support the always-growing Epiroc electrical fleet. ■

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hydrogen can significantly lower their carbon footprint,” explained Pietro Di Zanno, country director of Hy2gen Canada Inc., which is building a project in Baie-Comeau aimed at decarbonizing the province.

While powering hydrogen fuel cell vehicles and equipment is not yet democratized globally, miners might seriously consider this alternative in the future as part of reducing their environmental impact.

Making green energy work in the harsh North

In 2023, Québec experienced a series of extreme weather events, including devastating forest fires, destructive ice storms, massive flooding, and even tornadoes. Experts warn that these incidents are likely to become more frequent in the future. Implementing green energy equipment at mining sites in Northern Québec faces several challenges due to extreme weather conditions, and as Québec’s mining industry will increasingly have to look northwards to dig and produce critical minerals, adapting electric equipment to temperatures averaging -20 to -30 degrees Celsius will undoubtedly be a key industry focus in the coming months.

One of the primary issues is battery performance. Cold temperatures significantly reduce the efficiency and lifespan of batteries used in electric vehicles and other green equipment. Lithium-ion batteries lose capacity and take longer to charge in freezing conditions. Additionally, extreme cold can

cause mechanical parts to become brittle and more prone to failure. Hydraulic systems, seals, and lubricants may not perform optimally, leading to increased maintenance and downtime. This reliability issue is compounded by the remote location of mining sites, where the harsh environment and limited accessibility make maintenance more challenging and costly.

Another significant challenge is the establishment of energy infrastructure. Green equipment, especially electric vehicles, requires robust charging infrastructure. Setting up and maintaining such infrastructure in remote, cold regions is logistically challenging and expensive. Heavy snowfall, ice, and limited daylight hours during winter months further impede operations and the mobility of green equipment. Olivier Jacques, director of Groupe Gilbert’s mining division, said: “The extremely cold conditions in our workplaces mean that the battery performance for electric equipment remains a challenge. While some mines are exploring electric projects, it is not currently a widespread requirement for us to convert our fleet to green energy. This is something that is surely bound to change, and that we are anticipating in the upcoming years.”

Looking ahead, Québec miners will want to strengthen their position as early adopters of electric technologies. With recent large investments and the setting up of an electrification center, one can expect more new technologies coming out of Québec, a province where innovation is part of the ethos. ■



Giuseppe Campanelli

President of North and Central America
METSO

What have been Metso’s recent milestones?

Innovation in sustainability and further developing our Planet Positive portfolio has been our main focus i.e. technologies that help our customers decarbonize and consume less energy. We also continue to have a strong focus on digitalization.

Could you expand on Metso’s Planet Positive portfolio?

Metso has developed technologies that streamline the lithium extraction process, reducing the number of steps, and minimizing environmental concerns due to the inert nature of the residual by-products. By having a process that targets the lithium element – and nothing else – one considerably reduces environmental impacts.

Another Planet Positive example is Metso’s mill lining recycling capabilities. Without this recycling process, the mill liners would just go to landfill. We are also developing solutions for increasing energy efficiency as well as water-efficient technologies.

What is Metso’s take on the potentially revolutionary role of AI for the industry?

We see AI as an enhancement of what we are doing already. Our customers need to understand how we use this technology to optimize our equipment and maximize their production.

How important is Québec going to be in the decarbonization push in North America?

The projects in Québec are feeding the entire infrastructure not only in Canada but also in the USA.

What will be the key factors driving growth for Metso in North America in the months to come?

We will continue to support our operating customers who are running mines and are looking to optimize their equipment. Meanwhile, we will also continue to support projects that are at different stages like copper brownfields or greenfield battery minerals projects. There are also a significant number of gold projects about to start in Western Canada. ■



Charlie Ekberg

General Manager
EPIROC CANADA

Can you share key highlights from Epiroc Canada’s 2023 performance?

One of our major accomplishments was the successful deployment of the fully autonomous Pit Viper rigs. On the acquisitions front, notable additions include MineRP, as well as the Australian company RCT. And we are progressing towards a complete underground EV fleet by 2025.

Can you present Epiroc Canada’s activities in Québec?

Epiroc in Québec employs over 350 people including Meglab Powered by Epiroc and Fordia Powered by Epiroc and, if we include our partner ACE Services Mécaniques, we add another 400 Service technicians. Our main mining projects, among a wide range of existing projects, have us working with Agnico Eagle, Eldorado, Wesdome, and Osisko.

Are you seeing a push from Québec major producers towards electrification, automation and digitalization of equipment?

Definitely. Québec is particularly active with automation and electrification. For example, the first fully autonomous Epiroc Minetruck in the

world is now running in one of the mines.

Have you observed a slowdown in the adoption of BEVs in mining, considering the current financial climate?

The initial curiosity and concerns about charging, battery life, and operational aspects are diminishing and mines are strategically introducing battery equipment into their fleets. The shift shows no signs of slowing down.

Can you elaborate on your efforts to build a fully electric vehicle fleet by 2030?

We have made significant strides in electrification. In addition to developing batteries with our suppliers, our R&D efforts encompass the entire machine, ensuring continuous advancement.

Can you share Epiroc’s plans for 2024 and the firm’s growth strategy in the mining segment in Québec?

Our key areas of emphasis will be on the battery electric and digital fronts. The integration of recently acquired companies will also play a pivotal role in expanding our portfolio. ■



Pietro Di Zanno

Country Director – Canada
HY2GEN CANADA INC.

Can you introduce Hy2gen and the firm’s presence in Canada?

We develop projects around green hydrogen, sustainable aviation fuel, ammonia, and methanol. We came to Québec in 2018 because of the abundance of cheap electricity we require in hydrogen production.

How does your partnership with EPC fit into your growth strategy in the mining space?

EPC sells explosives globally and sees a growing market in Québec. We developed a business plan to graft our Courant project—a large green ammonia project—to their need for green ammonium nitrate.

Can you detail your Courant project in Baie-Comeau in Québec and its significance to the ecosystem?

We will produce green hydrogen and extract nitrogen from the air using the allocated green hydropower. Both will be used to make ammonia, which will be stored and piped to our partners within the Baie-Comeau industrial park.

How have concerns over hydroelectricity shortages impacted your strategy?

We were chosen as one of the few projects to receive a power allocation, which allows us to move forward with our project without delays.

What role do you see Québec playing in decarbonizing North America?

Québec is already a leader in decarbonization. Its further incremental progress now focuses on value chains, particularly in mobility and mining. Québec’s supportive government makes it a lighthouse for green initiatives.

What are your key priorities and strategies to become the largest provider of green hydrogen-based carriers in Canada?

Our immediate priorities are increasing our engineering capacities in Québec. We aim to start the front-end engineering design (FEED) by November this year. Within the next 18 months, we plan to secure permits and finalize the project design. Commissioning we’re aiming for by Q4 2029. ■



Jean-François Couillard

President
ADRIA POWER SYSTEMS

What updates can you share about your company since our last conversation?

Business has been very good for us. We are witnessing significant growth within our company. The mining industry is incredibly active, with new projects emerging and a growing demand for critical metals, rare earth minerals, and gold, which is currently at its peak value. This surge in demand is pushing us in multiple directions simultaneously. Additionally, we are observing a notable increase in interest in electrification within the mining sector. We have introduced a mine-duty charging infrastructure tailored for battery-operated mining machinery. Over the past year, we have successfully deployed these systems across various locations spanning from Canada to Mexico to Australia.

Is your strategy influenced by commodity prices, particularly with gold at a high?

The surge in demand over the last 12 months has driven us to establish many new distributors and agents across the globe. We have expanded our reach to countries like the US, Mexico, Peru, Australia, and Mongolia, and we are ex-

ploring opportunities in other areas like South Africa.

What are the challenges and opportunities for Adria regarding charging infrastructure?

While Québec's hydropower presents advantages, we recognize the necessity for load stabilization as mining operations transition to electric power. We are also observing mining operations considering the integration of renewable energy sources to counterbalance potential demand surges. Consequently, managing and harmonizing these diverse power sources emerges as a crucial challenge and opportunity for our company.

Is Québec's business sector moving towards electrification effectively?

Québec companies are increasingly embracing electrification not only for efficiency and productivity but also due to factors like low electricity costs and investor preferences for sustainable projects. We are witnessing a shift away from fossil fuels, driven not only by cost but also by social and environmental factors, which indicates a broader acceptance and commitment to sustainability. ■

What are the latest highlights and updates from Corem?

In 2023, Corem experienced significant developments and expansions in various facets of its operations. Two recent additions to our membership include Bahrain Steel, a prominent Bahrain-based producer, and FLSmidth, a reputable equipment provider for mineral processing. These additions contribute to enriching our pre-competitive programs and collaborative research initiatives. Additionally, critical minerals now constitute approximately 30-35% of our overall activities. Corem also signed a strategic partnership with CTRI (Centre technologique des Résidus Industriels) for a program focused specifically on battery minerals, with a primary emphasis on lithium and nickel. The overarching goal of the program is to foster a collaborative approach among industry partners, leveraging collective expertise to address key challenges and drive innovation within the battery mineral sector.

How significant is earning the Glencore Technology Certification for IsaMill signature plot testing?

This certification enhances our abil-

ity to work with complex minerals, especially those requiring fine particle grinding. It expands our service offerings in mineral processing and enables us to conduct in-depth analyses, leading to optimized processes and improved efficiency.

What are the latest innovations in reducing greenhouse gas emissions in Québec?

As an example, collaborating with the Canada Mining Innovation Council (CMIC), Corem has been instrumental in the development and implementation of a cutting-edge grinding system designed to significantly reduce energy consumption. Furthermore, Corem's focus on green iron ore pelletizing and initiatives such as hydrogen utilization in the iron ore processing process demonstrates our commitment to advancing sustainable practices within the industry.

What are the key priorities for Corem?

We are strengthening partnerships with industry stakeholders, government agencies, and academic institutions to maximize collective impact and drive positive change. ■



Geophysics and Geoscience

More CapEx headed toward future-facing practices

The cyclical nature of metal prices means that geophysical and geoscientific firms must remain commodity-agnostic. In mid-2023, lithium exploration was topping all stakeholders' agendas, with the James Bay area seeing an unprecedented claims rush, and new technologies were sought to explore for spodumene. A year later, with lithium hitting its lowest point since 2020, service providers offering georelated work have shifted their focus (lithium pegmatite cannot be detected by geophysics solely for instance). One trend appears to be sustained, however: Miners' growing appetite to invest in technologies that could save them time and, therefore money.

Artificial intelligence promises...

New technologies such as AI have significantly reshaped Québec's exploration scene in recent years. Indeed, the province is home to Montréal's AI Institute, MILA, the world's largest academic Deep Learning (DL) research center. Earlier in the decade, MILA pioneered a movement with the Geological Survey of Canada (GSC) to enhance mineral exploration in the province. This collaboration allowed Québec miners to leverage deep learning methods to analyze seismic and borehole data, thereby improving the accuracy and efficiency of identifying mineral resources deep underground. In 2023, KPI Mining Solutions partnered with MILA to develop AI-based, stochastic optimization solutions for the mining industry, with a promise to provide a "significant increase in profitability."

Such promises would attract the attention of any mining company's CEO, and much of Québec is witnessing an increase in AI-driven exploration. Emperor Metals is advancing Canada's next high-grade gold deposit in the district of Southern Abitibi. Within a year, John Florek and his team built a first-ever conceptual model for the Duquesne West project, a project that had been sitting idle for 12 years. Florek explained how the tool – in the right hands – could revolutionize exploration: "AI increases productivity, makes an impact on the business, and advances decision-making – it is like having 20 geologists on your team but without the salary expenses. You have to have trained geological personnel to get the appropriate models, and you can create models of many different scenarios overnight, which was not possible in the past."

Given the high failure rate of new technologies, high metal prices are a good opportunity for majors to try out new tools. In 2023, Agnico Eagle reported using AI to optimize regional targeting and produce enhanced 3D geological models, while Glencore leveraged fuzzy logic (an AI technique) to stabilize SAG mill behavior at its Raglan nickel mine. Overall, the demand for advanced geophysical interpretation and integrated modeling services is particularly notable. Scott Napier, global director of consulting at Mira Geoscience, a firm delivering multi-disciplinary 3D and 4D modeling and data management solutions for mineral exploration, said: "Companies are increasingly willing to invest in technologies that enable them to unlock the full potential of their data, leveraging historical information and cutting-edge analytical tools to make the best geoscience-based business decisions."

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Scott Napier
Global Director of Consulting
MIRA GEOSCIENCE

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The demand for advanced geophysical interpretation and integrated modeling services is particularly notable at present. This involves integrating geological and geophysical data sets and leveraging modeling efforts to optimize outcomes.

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Nadine Veillette

President
ABITIBI GEOPHYSICS

How has business been in the past months for Abitibi Geophysics?

Business has been great. We are witnessing a shift in demand towards critical minerals, prompting us to offer new survey methods like magneto-tele surveys. Additionally, we are developing a new IP system through a grant from the MISA group, focusing on innovation in Québec. Despite challenges in securing finance for junior companies, we are thriving.

Overall, our approach remains commodity agnostic, focusing on providing tailored geophysical solutions to meet diverse client needs across different mineral sectors.

Can you give an example of the latest project you worked on in Québec?

We have been heavily involved in a gold exploration project with a major company in Québec, utilizing our OreVision IP system. Our OreVision system, known for its high resolution and depth of investigation, has proven effective in the Québec region for gold deposits. The current production and exploration scene suggests a positive outlook for geophysics and geoscience, especially with increasing

demand for critical minerals and infrastructure-related geophysics. Overall, it is an exciting time to be in this segment, with opportunities for growth and innovation.

Are you directing more capital investment toward innovation and artificial AI?

Right now, we are working on two big projects, one of which uses AI to help us discriminate between anomalies.

Why is Abitibi Geophysics the best partner for mining companies?

Abitibi Geophysics stands out due to our diverse range of methods tailored to specific conditions, ensuring quality data from planning to execution. We are aiming for significant growth, particularly in the international market. We have already established several partnerships abroad and intend to expand further. Additionally, we are looking to develop our capabilities in near-surface geophysics, a sector in high demand for infrastructure projects and mine planning. So, in our next conversation, I hope to see Abitibi Geophysics making strides in both domestic and international markets. ■



Santiago Mayor

President and CEO
GEOMATIC WORLD

Can you introduce Geomatic World and the firm's unique approach to leveraging AI in exploration?

Founded in Peru in 2006, Geomatic World assists exploration companies in Latin America and beyond, initially covering mining exploration, remote sensing, and GIS databases. Over time, we have become pioneers in Canada in the application of AI to mining exploration.

In Québec, challenges include dense vegetation, numerous lakes, natural barriers, and a short operational window of 4 to 5 months per year, making logistics complex. By introducing new scripts and algorithms for geophysics, satellite image interpretation, geochemistry, structural analysis, and lithology, we use AI to explore resources such as lithium in pegmatites above the dense forests of Abitibi. These processed data produce a Mineral Potential Map, identifying the most promising areas without requiring on-site presence, marking a significant advancement over traditional satellite image interpretation methods.

AI enhances the automation and efficiency of data analysis. It enables the combination of remote sensing data with geophysics, geochemistry, and

geology to better manage uncertainties and improves the identification of exploration targets through advanced analysis.

What are the current challenges and opportunities for exploration activities in Québec?

Technically, Québec is one of the most advanced provinces in the world, equipped with all the necessary tools for exploration. However, recent legislative changes, particularly regarding relationships with local communities, may slow down exploration in the province. Although Québec has immense potential, it is not unique globally, and there is a risk that some investments may shift to other jurisdictions.

What will be your growth priorities in the coming months?

Latin America will remain essential for our development. Many Québec-based companies are showing increasing interest in this region, making our presence in Québec particularly advantageous. Our expertise and experience are valuable assets for new clients looking to undertake exploration projects in Latin America. ■

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...human intelligence guarantees

While AI made its way out of the drawing board and into the Boardroom, replacing the human brain is not (yet?) on the cards. For instance, both the exploration team of major Agnico Eagle and the geologists of explorer Cygnus Metals will still depend on drill core samples of rock dating back billions of years to determine the potential of mineral deposits. With progress in core scanning technology and AI, instead of relying only on visual observations, which can vary between geologists, core scanning technology allows for better data interpretation. The data then produces resource models that are more complete and reliable, leading to better mine planning and exploration targeting. As put by Nadine Veillette, the president of Abitibi Geophysics, who gradually integrated AI into its toolbox: "Even though AI helps us a lot, I am not worried about it taking over from humans. Mining exploration is complex, and every situation is different. While AI helps us crunch through all the data, it is still up to us humans to make sense of it all."

Santiago Mayor, president and CEO of Geomatic World, a firm that has pioneered the application of AI to mining exploration, explained: "AI and machine learning now allow for the reduction of time factors and human errors, as algorithms can determine geological exploratory potential within minutes based on predefined parameters. However, the computer cannot make decisions on its own; human intervention, with expertise in exploration, remains essential."

Réjean Girard, CEO and general manager of IOS Services Géoscientifiques, who has been active in helping Australian newcomers starting up critical mineral projects in Québec, concurred: "We continue to rely more on natural intelligence than artificial ones."

On the academic side, Isabelle Demers, professor and director of the Research Institute of Mines and Environment at UQAT, noted that the institute is increasingly using AI to try and predict the future. "We are using numerical modeling to foresee how the climate will evolve and impact built structures, and we are thus using computerized tools to predict the future," she explained.

This integration of advanced technologies not only enhances predictive capabilities but also supports more sustainable mining practices. As the industry faces growing pressures to minimize environmental impacts, such innovations will be vital in ensuring that new projects align with both economic goals and environmental responsibilities.

Despite the temporary slowdown in exploration activity, more projects are being built in the province, which will contribute to driving demand for geophysical and geoscientific services. The increased focus on sustainability is also fostering collaboration between industry, academia, and government, encouraging the development of cleaner, more efficient mining techniques that meet ESG standards while maximizing resource recovery. ■



Réjean Girard

CEO and General Manager
IOS SERVICES
GÉOSCIENTIFIQUES

What have been the main developments for IOS Services Géoscientifiques over the past year?

A management buyout. But Québec has a regulation around professional ownership of businesses and our difficulty is that geologists are trained to look at rocks and not financial statements, and we now have to train them how to do business.

Can you highlight some projects where IOS is bringing value to clients?

The bulk of our expertise is with mining startups/juniors. We get involved to help them on a successful path, providing quick and efficient start-up. Recently we have also been working with several Australian newcomers. We advise them on the workings, rules, and regulations of the jurisdiction—and the importance of respecting the environment and local communities.

What have been some recent interesting innovations in the geoscience space?

Firstly, we continue to rely more on natural intelligence than the artificial kind. Lithium deposits in Québec are all associated with the Greenstone belt, which is a location where we find gold deposits. We did significant surveying in the past where we sampled glacial sediments and counted the gold grains to track where they were coming from and along with the gold grains, we counted columbite-tantalite which is a tantalum oxide that forms uniquely in lithium-bearing pegmatite.

How important will Québec be for the supply of critical minerals to the world?

If we want to electrify transportation on a world scale, we will need to quadruple lithium production in the next 15 years. The Canadian and Québec governments went into the critical mineral game full throttle and are significantly supporting the development of a critical mineral and battery value chain in North America. ■



Service Providers

“

Québec stands out as a leader in meeting the decarbonization requirements by 2050. Supported by substantial investments from key players like Rio Tinto, the industry is at the forefront of the clean mining movement, crucial for achieving ambitious climate change objectives.

”

Aziz Sene
Senior Vice President, Mining
EXP

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Image courtesy of Veolia Water Technologies



Engineering Carbon Neutrality

Québec's road to net zero

In Canada, decarbonization is the watchword for mining firms and governments. And in Québec, large miners keep receiving support to advance decarbonization goals. Rio Tinto obtained substantial financial support, amounting to nearly C\$700 million from Ottawa, intended for implementing cutting-edge low-carbon smelting technologies aimed at reducing emissions. Similarly, Québec Iron

Ore has secured over C\$300 million to advance decarbonization efforts within the steelmaking sector. Miners must therefore prioritize balancing increased production, pushed by green energy transition agendas, with overall carbon emissions reduction. This requires a thorough understanding of the emissions footprint throughout the mine's entire life cycle, with sustainability as a key factor in the

design, operation, and closure stages. Decarbonizing a mine site requires a tailored approach, as no single method fits all scenarios. In that sense, engineering firms play a crucial role in driving carbon neutrality in mining operations in Québec by developing and implementing innovative technologies and sustainable practices.

Québec engineers have noted a slowdown in projects in the province in recent months. Indeed, miners continue to struggle to get the necessary funding to build mines, with engineers noting that projects that did not get financing in past years would have been important for the battery industry today. Interviews with mining engineering companies in Québec unveiled confidence in the underlying trends supporting Québec's mining industry (namely the demand for gold and critical minerals), and an understanding that geopolitical and market turbulence have left their mark on purchase orders. Michal Gignac, VP of finance at G Mining Services, who is notably active at Arcadium's Galaxy project, noted: "Projects have slowed down in the past few months given the high interest rates making it more difficult to raise capital for large CapEx projects. This is counterintuitive given the trend of companies wanting to invest in new mines to help in the decarbonization effort, but the interest rates will first have to come down for all these projects to get more funding."

Looking beyond short-lasting market downturns, engineers and service providers' role in making mining operations in the province greener will

only strengthen. Incentives from the Québec government and financial ecosystem have helped to materialize the province's active push as a critical minerals leader into a considerable influx of projects transitioning from the exploration phase to feasibility studies between 2022 and 2023. For engineers, feasibility studies demand detailed technical evaluations to determine project viability, thorough environmental impact assessments to comply with regulations, and they are also responsible for designing and planning essential infrastructure such as roads, power supply, and water management systems, ensuring efficiency and sustainability. "The magnitude of this advancement in Québec surpasses what we have observed in other regions during the same period", shared David Anonychuk, global VP of metallurgy and consulting at SGS.

decarbonization strategies from the earlier stages of the mining life cycle. With investor pressures for GHG emission reductions rising, producers and developers have started integrating their roadmap to net zero, including their plans to rely on low- and zero-carbon energy sources from the early designing stages. And while opting for sustainable solutions does put more weight on the CapEx, this approach has been proven to make sense from an ROI, efficiency, and ESG perspective down the line. Riad Faour, CEO of engineering firm Progesys, who currently works on graphite, lithium, nickel, and copper projects in Québec (and at Oyu Tolgoi in Mongolia), explained the shift: "We are seeing that clients are exploring available technologies and possibilities to electrify their equipment already from the design phase, and they are also looking at sustainable energy sources, which can reduce their carbon footprint, from an early stage."

Net zero from the onset

The biggest shift engineers noticed in Québec in recent years has been mining firm's appetite to implement

Adopting sustainability-focused practices from the onset will also al-

low Québec's miners to navigate growingly stringent environmental regulations. To attract foreign investment, Québec is growing its brand under the banner of environmental stewardship, and several new regulations about exploration work or water management cropped up in the past 12 months. For Dominic Tremblay, VP and general manager Québec, mining and metallurgy at AtkinsRéalis: "The adoption of best practices and sustainable solutions that may be more costly – such as energy efficiency, water, and waste treatment, or process optimization-related –, should nonetheless be incorporated into projects from the start to ensure compliance with regulations that are becoming more stringent."

AtkinsRéalis was notably commissioned by Nouveau Monde Graphite to carry out detailed engineering at the Matawine mine, which is due to be one of the lowest GHG emissions mines in the province.

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Dominic Tremblay

VP and General Manager Québec, Mining and Metallurgy
ATKINSRÉALIS

What have been the main highlights and achievements of AtkinsRéalis' mining and metallurgy division in 2023?

2023 was a fantastic year marked by continued market growth and expansion of our client portfolio. AtkinsRéalis continues to foster strong partnerships with the major mining companies in Québec and is proud to have successfully delivered projects with these long-term clients for approximately 40 years. The Company continues to increase its capabilities in the pit-to-port services, which include project management and delivery, infrastructure engineering, process engineering and plant design, tailings and water management, environmental and remediation services, community engagement, earthworks, roads, rail, energy, technology, airports, and ports. We also assist clients in transitioning toward a greener future by incorporating decarbonization, digital transformation, and sustainability solutions.

Can you highlight a recent project in Québec where AtkinsRéalis added value to a client?

AtkinsRéalis worked on a mine-to-mill road traffic simulation on a project to identify how to optimize the transportation of over 3 million t/y of ore. Through numerical simulation and digital modeling we were able to pinpoint where to decrease the carbon footprint, maximize timing, and reduce bottlenecks. We also

“ There is a huge focus on decarbonization, and the majority of our mining clients are looking for solutions to reduce their energy consumption and incorporate clean energy sources into their operations. ”

conducted groundwater flow simulations on a project where we modeled the flow and potential in-pit tailings and waste rock deposition to validate the best place to start reducing the overall mine footprint and mitigate environmental risk. Finally, we undertook regrinding and gravimetry implementation in a mill to improve gold recovery, increase the efficiency of the overall process, and optimize the plant's carbon footprint.

Are you seeing any commodity-driven demand trends?

Demands are market-motivated, and with lithium and nickel currently experiencing a downcycle, there has been a shift in interest and investment. We expect AtkinsRéalis' growth in 2024/2025 to be driven mainly by gold, copper, aluminum, and the critical minerals market despite a decrease in certain commodities' value.

There is also a huge focus on decarbonization, and the majority of our mining clients are looking for solutions to reduce their energy consumption and incorporate clean energy sources into their operations. AtkinsRéalis is working closely with clients on implementing electrification strategies and reducing fossil fuel consumption as they transition towards cleaner energies.

What is the advantage of Québec in this push for decarbonization?

Over 40% of Canada's water resources are in Québec and therefore, the

province benefits greatly from hydropower. Although Québec has a clean energy grid, mining projects are still competing for power. There is a need for all stakeholders to come together to ensure that energy consumption is optimized and that other clean energy solutions, in addition to hydropower, are incorporated into mine designs from the early stages to increase the province's energy capacity.

Project design and engineering are still mainly cost-driven; however, considering the drive toward decarbonization and a greener future, the adoption of best practices and sustainable solutions that may be more costly – such as energy efficiency, water, and waste treatment, or process optimization-related – should nonetheless be incorporated into projects from the start to ensure compliance with regulations that are becoming more stringent, and to avoid large capital expenditures to bring an operation up to global standards. AtkinsRéalis has a world-class team of engineers that can assist our clients in bringing innovation into their operations and ensure their facilities meet global standards from the earliest stages of the project.

We are seeing actions taken not only in the energy efficiency space but also in the tailings and wastewater treatment areas, as well as in mine closure and remediation. Mine reclamation is no longer an issue that is pushed back to the later stages of a project, but is already considered from the earliest stages of mine design to ensure that everything that will be implemented during the project lifecycle will be sustainable in the long-term, that the closure period will be shorter, and that the funding for reclamation will be available when the time comes. Today, ESG is heavily embedded in every aspect of the mine design and engineering services AtkinsRéalis offers to ensure that we are building more sustainable mines for the future.

What are AtkinsRéalis' key priorities moving forward?

We position ourselves to be able to anticipate our client's needs in terms of innovation, digital transformation, sustainability, and governance. ■



“ Our primary focus is helping clients reach their sustainability targets. ”

Isabelle Leblanc

Vice-President, Mining and Metals Market
BBA

Can you share the main highlights from BBA's Mining and Metal division in 2023?

Opening our first US office in Salt Lake City was a big step. And we now have 18 offices in Canada, including new ones in Saguenay and Sept-Îles, in Québec. Our Canadian expansion has paid off, especially in British Columbia, where we now have 200 people. One of our biggest clients in 2023 was Vale in Central Canada, marking the first time a top client was based outside Eastern Canada.

Can you share an example of a recent Québec project?

We are particularly proud of the biofuel project for the ArcelorMittal Pellet plant. It aimed at partially switching from the fossil fuel to a carbon-neutral biofuel. We performed the feasibility study. It's the first anywhere to use pyrolytic oil continuously in its processes. It also constitutes the largest consumption of fuel made from forest biomass. The conversion will allow ArcelorMittal to cut its annual use of heavy fuel oil by 23%. This project won numerous environment awards, showcasing our commitment to sustainability and innovation in the mining sector.

How do mining clients leverage innovations like digital power systems and VR labs?

Decarbonization and digitalization intersect. For example, we optimize Rio Tinto's logistics by leveraging operational data. The mining value chain is complex, so we use data to get a holistic view and make simulations to optimize and reduce costs throughout the entire process.

We also have a digital power system lab that we use to test systems before commissioning, allowing us to complete field work faster, and reduce re-work and costs. It also allows mining companies to operate and monitor electrical networks remotely, reduce production stoppages and ensure a more resilient operation. Our digital power systems can also create a digital twin of an electrical network to optimize energy consumption. This ensures that all components, including renewables, work together seamlessly. It aids clients in real-time decision-making, reduces production risks, and optimizes the entire network.

How is Québec's push to become a battery leader impacting the work of engineers like BBA?

At BBA, historically, we have had a strong presence in gold and iron markets. However, we are now witnessing a remarkable increase in lithium projects. Québec's gov-

ernment is actively promoting the province as a leader in the battery industry, resulting in substantial funding and a surge in project commissioning. These projects are no longer just exploratory but transitioning to commissioning phases. Our remaining iron projects are more centered on sustaining production and decarbonizing operations. Across all commodities, there is a notable push towards decarbonization. Carbon footprint reduction has become the primary driver for our clients seeking our assistance.

How does BBA approach decarbonization in the mining industry, especially considering the challenges of historical operations?

Decarbonization presents challenges. While greenfield projects offer more room for innovation, BBA focuses primarily on brownfield projects. Decarbonizing existing operations requires a solid decarbonization planning exercise. We provide integrated tailored solutions. A notable project with Glencore in Raglan involved implementing a wind turbine, and we continue to support them in their decarbonization journey. Similarly, carbon capture initiatives are evaluated jointly with clients. Our involvement in numerous Canadian CCUS projects allows us to assess and develop the appropriate CCUS mining potential applications. Our Eco-mindfulness and sustainability constitute one of our five core values, permeating every stage of our projects. Our primary focus is helping clients reach their sustainability targets while ensuring projects uphold financial objectives.

What makes Québec's mining industry unique compared with the other jurisdictions in which BBA operates?

Québec's industry is dynamic. We have a wide range of commodities: gold, copper, zinc, and nickel; we have lithium, and we have huge iron ore deposits, from which we can produce the high-grade iron ore concentrate the world needs for the transition into green steelmaking. Steelmaking is one of the most carbon-intensive industries on the planet. Companies like Minerai de Fer Québec and Arcelor Mittal are actively positioning themselves as leaders of the transition.

We are also blessed with a lot of natural resources, including green hydropower. This makes Québec the best place to have a direct impact when we implement mine electrification projects. I hope we will see more of it over the next few years. ■



Michael Gignac

VP of Finance
G MINING SERVICES

“Most of our engineering projects are outside of Québec, and although there have been many feasibility studies completed over the past years, there are fewer construction projects.”

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What have been the main developments for G Mining Services over the past months?

2023 was another busy year for G Mining and we increased our headcount to approximately 260 people. We are on track to open our Brazilian office in Belo Horizonte on June 1, 2024, and are looking forward to further geographical expansion moving forward.

In what areas of the mining lifecycle are you seeing the most demand for G Mining's services?

G Mining is active on various projects, including Equinox Gold's Greenstone project, G Mining Ventures' Tocantinzinho (TZ) project, Arcadium Lithium's Galaxy project, and Lundin Gold's Fruta del Norte Phase 3 project. There, we provide geology and resources, metallurgy and processing basic engineering, detailed engineering, construction management, supply chain, and logistics services. Both the Greenstone and TZ projects are now in the commissioning phase. In 2023, Foran Mining chose us for the detailed engineering on their McIlvanna Bay copper project in Saskatchewan where we are also providing construction management services for the early works construction that has commenced. We have also worked on the feasibility study of Atico Mining's La Plata project in Ecuador, the PEA for First Mining Gold's Duparquet project in Québec, and started work on a PEA for Reunion Gold's Oko West project in Guyana, which G Mining Ventures is in the process of acquiring.

Most of our engineering projects that are pushing forward are outside of Québec, and although there have been many feasibility studies completed over the past years, there are fewer construction projects in the province. We hope to see the Galaxy project attain permitting and financing soon to move into construction.

Are you seeing customers putting more emphasis on energy savings and digitalization at the earliest stages of their projects?

With decarbonization being a focus, many companies are trying to implement electric vehicles (EV) into their operations, which is easier for an underground mine than an open pit as technologies for underground elec-

trical equipment are more advanced. We are increasingly seeing miners in Québec wanting to go green, and they are deploying capital investments into digitalization and electrification technologies to reach their decarbonization goals. It is a greater challenge for older mines to go green, but we are seeing significant efforts by the newer mines in terms of green initiatives. Engineering firms such as G Mining have a big role to play in the mining industry's efforts to decarbonize, and we need to be aware of the technologies available and if they will meet the needs of our clients while still making their projects economically viable. Most new technologies are electrically driven and there is thus the need for good electrical engineers. G Mining has experienced engineers who understand new technologies and can give our clients knowledgeable advice and recommendations.

How do you anticipate 2024 to be for engineering companies in Québec?

Projects have slowed down in the past few months given the high interest rates making it more difficult to raise capital for large *CapEx* projects. This is counterintuitive given the trend of companies wanting to invest in new mines to help in the decarbonization effort, but the interest rates will first have to come down for all these projects to get more funding, which will give a big boost to the mining industry.

In terms of commodities, G Mining is seeing the most activity in the gold, copper, and lithium areas. Gold will always do well, especially given the large increases in the money supply over the past two to three years. Copper also continues to do well given the ongoing decarbonization trend, and even though lithium prices have come down slightly, there will continue to be great demand for this metal globally.

What are G Mining's growth strategy and key priorities for the remainder of 2024 and beyond?

G Mining is focused on ensuring that we have regular work to keep our team busy and happy, and we want to maintain the highest level of quality in our service offering while still being competitive in the industry. We will ensure that the projects we are involved in get built safely on time and within budget. ■

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Engineers are also adapting to the Québec mining industry's evolving digital maturity. Besides electrification, the integration of clean energy sources, and process optimization, decarbonization could not be complete without digitalization. Again, Québec engineers are leaders in this space and have increasingly leveraged AI and machine learning to assist miners in their digital journeys. AtkinsRéalis' Decarbonomics tool leverages data visualization tools and machine learning to create cost and program delivery plans. Noting the intersection between decarbonization and digitalization, BBA has been optimizing Rio Tinto's logistics by leveraging operational data. Norda Stelo, which in recent months acquired CWA Engineers and InnovExplo to bolster its offering, also launched its Stelar platform. Leveraged as an asset health information center, Stelar is cropping up at mine sites in Québec, allowing operators to make decisions aligned with operational excellence and long-term sustainability goals. Norda Stelo also worked on a project to analyze how AI could predict failures and the lifecycle of a series of static assets, such as pipeline networks, conveyor lines, and buildings. Sophie Boisvert, VP resources and industries at Norda Stelo, explained: "Over the years, AI adoption has transitioned from a conceptual phase to a practical investment for companies. There is a growing recognition of its potential to address workforce shortages and improve operational efficiency."

Brownfield and greenfield approaches

There is no "one size fits all" when it comes to decarbonizing the mining industry. Québec's long history of unique and well-established infrastructure keeps offering opportunities for engineers to give old assets a fresh look, and add their green touch.

With greenfield operations, miners and engineers start with a clean slate, allowing for integrated planning from inception, optimizing energy-efficient designs, and adopting renewable technologies without retrofitting existing infrastructure. Conversely, brownfield sites have established operations, often relying on outdated technolo-

gies and infrastructures that require costly retrofitting for decarbonization. BBA has been actively working on decarbonizing ArcelorMittal's pellet plant in Port-Cartier. The project aimed at partially switching from the fossil fuel used at the pellet plant to a carbon-neutral biofuel, significantly reducing greenhouse gas emissions. Isabelle Leblanc, vice-president, mining and metals market at BBA, said: "Decarbonization presents challenges, especially in existing operations. While greenfield projects offer more room for innovation, decarbonizing existing operations requires careful consideration and a solid decarbonization planning exercise."

G-Mining's Michael Gignac, added: "We are increasingly seeing miners in Québec wanting to go green, and they are deploying capital investments into digitalization and electrification technologies to reach their decarbonization goals. It is a greater challenge for older mines to go green, but we are seeing significant efforts by the newer mines in terms of green initiatives."

Québec's mining sector is undergoing a transformative journey towards carbon neutrality, driven by rigorous engineering innovation and sustainable practices. Despite recent financial hurdles, the commitment to integrate decarbonization strategies from project inception underscores a resilient path forward. Engineers are pivotal in navigating regulatory complexities, leveraging digitalization, and optimizing energy efficiency to meet stringent environmental standards. The shift towards renewable energy sources and AI-driven solutions marks a strategic evolution towards sustainable mining practices. Québec's proactive stance not only aligns with global demands for greener technologies but also positions the province as a leader in environmental stewardship and responsible resource management for the future. As concluded by EXP's senior vice president, mining, Aziz Sene: "Supported by substantial investments from key players like Rio Tinto, Québec's mining industry is at the forefront of the clean mining movement, crucial for achieving ambitious climate change objectives." ■



NORDA STELO
COLLECTIVE INGENUITY

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Sophie Boisvert

VP Resources and Industry
NORDA STELO

Can you introduce Norda Stelo and how you service the mining industry in Québec?

Celebrating its 60th anniversary, Norda Stelo holds the distinction of being the first Canadian engineering consulting firm to achieve B-Corp certification and strongly emphasizes serving the mining sector. Our primary focus lies in brownfield projects, where we dedicate ourselves to ensuring asset integrity and optimizing operational efficiency. Most of our current work is focused on the operational stage. At the moment, we are not undertaking large projects independently. Because we have invested in the development of our niche expertise in certain areas, we are well-positioned to collaborate with other firms to handle significant portions of major projects.

Norda Stelo places significant emphasis on fostering enduring partnerships with industry leaders like Rio Tinto Group, with which we have worked closely, serving as one of their preferred suppliers for engineering services in North America for 25 years.

What will the acquisitions of CWA Engineers and InnovExplo bring to Norda Stelo?

Our strategic vision prioritizes projects that span from “site-to-port”, where we aim to provide end-to-end solutions that encompass the entire lifecycle of mining operations, from exploration to transportation and distribution. By strategically acquiring CWA, a renowned firm specializing in bulk material handling and capital project

“ Because we have invested in the development of our niche expertise in certain areas, we are well-positioned to collaborate with other firms to handle significant portions of major projects. ”

execution, we are poised to address the industry’s challenges comprehensively. This acquisition is pivotal in harnessing synergies that leverage Norda Stelo’s core strengths in ESG and asset management, harmonizing them with CWA’s well-established legacy of engineering solutions catering to diverse terminal configurations and throughputs.

Acquiring InnovExplo marks a significant step in Norda Stelo’s strategy to forge a new vanguard in the mining industry, delivering an integrated suite of services across the entire value chain of critical, strategic, and precious metals, as well as industrial minerals, essential to the energy transition.

Can you introduce the Stelar platform, and discuss the digital transformation of mining companies?

Our recently launched Stelar platform is becoming pivotal for mining companies, although the industry’s overall digital maturity may vary. The Stelar platform serves as an asset health information center. This platform aids decision-making by providing comprehensive insights into asset conditions, risks, and recommended maintenance, repairs, or refurbishing actions.

We are witnessing a gradual shift towards AI adoption, aiming to enhance efficiency and data utilization. Currently, our firm is leveraging AI in various capacities, particularly in data analysis and decision support. Over the years, AI adoption has transitioned from a conceptual phase to a practical investment for companies. There is

a growing recognition of its potential to address workforce shortages and improve operational efficiency. In the engineering consulting sector, AI’s role is shifting towards complementing human expertise rather than replacing it entirely. Sustainability and technological integration are central pillars of our strategic vision. We are actively developing solutions like the Carbon Footprint module for Stelar to aid in carbon footprint calculations and integrate environmental considerations into mining operations.

How is the shifting demand for commodities influencing your firm’s growth strategy?

We recognize the importance of asset integrity and sustainability in this dynamic landscape. For instance, while lithium exploration remains a focal point, we are also attuned to the broader implications for asset management and sustainability throughout the commodity lifecycle. Our strategic approach encompasses understanding the intricacies of critical assets, ensuring their ongoing health, and optimizing investments for sustainable operations.

How can more women access top jobs in the mining industry?

Over my career, I have seen progress in women accessing top mining jobs, although challenges remain. I have always focused on proving my technical prowess to gain respect. Initially, I faced biases, but over time, I embraced the label of being resilient. Today, I hope young women entering the field will not face the same obstacles. Mentoring and supporting each other is key, regardless of cultural background, as we strive for greater inclusivity and success.

What are the key priorities for Norda Stelo going forward?

We aim to strengthen our material handling, geology, and mining site development capabilities. Additionally, we are keen on partnering strategically to enhance our offerings. In the longer term, we aim to expand into specific areas like chemicals, manufacturing, and possibly battery-related projects. Our overarching goal is to align with our guiding principle, the North Star, signifying our commitment to growth and adaptation in a dynamic industry landscape. ■



Riad Faour

CEO
PROGESYS

“ We will continue to see the development of local or regional supply chains in the coming years. ”

What have been the main developments for Progesys over the past year?

2023 was a big year for Progesys with a lot happening across all regions in Canada, LATAM, MENA, and Asia. The company was involved in several important projects. As project management consultants delivering PMC contracts, we oversee capital projects development and execution. From initiation, management of feasibility studies, setting up execution and contractual strategies, to construction management and the transition to operations, we serve clients in many industries. Progesys expanded its operations in Asia in 2023, with new projects in Mongolia and Indonesia, inaugurating, in November, new offices in Jakarta.

Can you elaborate on the work Progesys has done with Oyu Tolgoi in Mongolia?

In 2018/2019, Progesys was working on both above-ground and underground facilities, but currently, the main focus is on the ramp-up and commissioning of the underground facilities, to deliver full production by 2025. Our two-year contract began in November 2023. Today, we are on schedule to complete the work on the pre-operational verifications, commissioning, and startup of the facilities for 2025.

What commodities are currently driving growth for Progesys in Québec?

In Québec, we continue to work on several important projects in the mining and metal processing industries with projects in graphite, lithium, nickel, and copper. Several projects in the province are expected to secure investments for further development, and we expect significant work to come our way when these projects have secured financing, probably by mid-2025.

We are seeing growth in different commodities, but the energy transition is pushing the trend towards critical minerals. The Québec government is significantly supporting the development of the battery industry, which is a huge driving force behind many of the province’s projects. Progesys has worked on several critical mineral projects with many industry leaders inside and outside Québec. The world and markets have changed significantly in recent years with shifting geopolitics. Some projects that did not get financing in past years, would’ve been important for the battery industry today, and would’ve been success stories if they had been approved. Geopolitical and economic changes and the trend towards onshoring and nearshoring

are driving the development of critical mineral projects in Canada and the USA.

But gold has recently attracted attention again. The construction of Marathon Gold’s Valentine project is quite advanced. Progesys was responsible for the project management and construction management there. In December 2023, the Marathon Gold project achieved one million work-hours without a lost time injury (LTI). The owner congratulated Progesys publicly. The site has more than 640 employees, and more than 85% are residents of Newfoundland and Labrador. At Progesys, safety is a priority, and we are proud of our impeccable safety track record.

What are the challenges and opportunities ahead in the industry push for nearshoring?

It is all about balancing risks. In most cases, risks are monetized, and today, the risk not to nearshore or onshore can be extremely costly. I believe we will continue to see the development of local or regional supply chains in the coming years, so that countries have more control and are less dependent on other regions where there might be risks of geopolitical instability.

Are clients interested in incorporating electrification into their projects as early as possible?

We are seeing clients already exploring available technologies for electrifying their equipment from the design phase, and they are also looking at sustainable energy sources, which can reduce their carbon footprint from an early stage. Sustainable solutions do put more weight on the CapEx but looking at the full life cycle of the project, many of the technological options make sense from an ROI, efficiency, and ESG perspective.

What are Progesys’ key priorities to continue growing in Québec and globally?

In Québec, Progesys’ focus is on PMC, not only for the mining industry but also for energy and infrastructure projects. Because of our unique expertise as a project management consultant, our experience in delivering PMC contracts, and our focus on capital projects, we understand the importance of the impact we can have on the success of battery industry-related projects.

We will also continue to focus on the delivery of projects we have in other provinces in Canada, Ontario, and Newfoundland and Labrador, and aim to continue to grow our business in regions like LATAM, Asia, and the Middle East and Africa. ■



Reclamation Challenges and Environmental Stewardship

Addressing the past, securing the future

The mining industry bears a profound legacy in Québec, one marked by both economic prosperity and significant environmental damage. Decades of extensive mining operations have positioned La Belle Province as a gold heavy-weight and a rising critical minerals hotbed, but have also accrued heavy environmental liabilities, estimated to amount to C\$1.2 billion according to the Société du Plan Nord. The mining sector in Québec is thus at a critical juncture, balancing the demands of resource extraction with the imperative to manage environmental repercussions responsibly. This requires adopting innovative reclamation techniques and enhancing regulatory oversight to mitigate long-term ecological damage while fostering sustainable growth. Additionally, greater transparency and collaboration with local communities will be crucial in ensuring that

mining activities align with both social and environmental expectations.

The low-hanging fruit having been mined for years, the trend of going underground to exploit lower-grade ore bodies has strengthened in recent years, bolstered by a market hungry for Québec's minerals. Couple this more expansive and demanding way of mining with several assets nearing the end of life in Québec and operators are now dealing with issues like collapsing walls and increased extraction costs due to deeper mining.

Based on the observation shared by miners, engineers, and policymakers, tailings management has emerged as a pivotal concern in Québec's mining landscape. Indeed, tailings infrastructure represents a substantial risk due to the sheer scale in the Abitibi or Northern regions notably, and the potential consequences for both workers and local communities if they fail. Catherine Lajoie Fillion, president of engineering firm Go-Mine and the Canadian Dam Association, touched upon the state of the tailings infrastructure in the province: "Québec faces unique challenges stemming from its legacy of older infrastructure. Many facilities lack comprehensive documentation of their construction and geological contexts, complicating efforts to assess the integrity of existing dams and structures. This dearth of historical data introduces uncertainties regarding safety and environmental sustainability, necessitating careful regulatory oversight and proactive remediation measures."

To tackle the challenges that aging infrastructure brings, Québec is therefore witnessing innovative ground improvement techniques at its legacy mining sites. Unstable soil can compromise the integrity of tailings dams and structures, and proper soil stabilization ensures that these facilities can withstand environmental stresses, reducing the risk of failures. Many facilities require substantial upgrades to meet modern safety and performance standards, driven in part by soil instability resulting from historical mining activities. The need for ground improvement solutions is increasingly urgent, and is exacerbated by environmental contamination from past mining operations. At the Kiena mine in Northern Québec, engineering group Menard employed deep soil mixing to stabilize tailings dams, ensuring stability in a seismically active area.



Catherine Lajoie Fillion
President
GO-MINE

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ESG has evolved from being a mere checkbox exercise to a fundamental aspect of operations for major mining players in Québec. Companies now prioritize tangible, on-the-ground impacts over superficial appearances. This shift is exemplified by the importance placed on TSM standards.

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In Meadowbank, Nunavut, the firm applied dynamic compaction to optimize the construction sequence of a diversion dam, using weights of up to 20 t dropped from heights of 20 m to achieve the desired soil compaction. Hubert Guimont, senior VP at Menard Canada, added: "Soil instability issues due to historical mining activities have led to increased demand for ground improvement solutions. Environmental contamination from legacy mining operations necessitates extensive environmental remediation efforts to ensure safety and compliance."

In light of climate change, what is certain is that environmental restrictions will only get stricter globally. Another topic under increasing scrutiny from all stakeholders is water, and data from the government shared in February added fuel to the fire. For the first time, the Québec government lifted the veil of secrecy over its biggest industrial water users in a data dump that gathered decade-long records. Topping the list were none other than miners Rio Tinto and ArcelorMittal, with RT's 2022 water use being enough to "fill 29,000 Olympic swimming pools". As southern towns in Québec struggled with water shortage, and with that part of the province being increasingly opposed to mining activity, effective water management, community engagement, and adherence to environmental practices will be pivotal for mining operations to gain social license.

Miners will therefore have to stay ahead of the regulatory curve, and in Québec, engineers and service providers have seen their customers proactively anticipate potential shifts. Veolia Water Technologies has been developing wastewater treatment strategies for its gold and critical minerals customers, and according to VP business development David Oliphant: "Québec miners have made significant strides in waste management and wastewater treatment, showcasing a proactive approach to environmental concerns. With the implementation of regulations like Directive 019 and focusing on OER, the industry is gearing up to meet stricter regulatory frameworks in the future."

The evolution of ESG standards reflects a broader commitment to addressing environmental and social impacts, marking a transformative shift in industry norms. Moving forward, Québec must leverage innovation and regulatory diligence to manage its mining legacy effectively, fostering a balanced approach that respects both economic imperatives and environmental stewardship. By doing so, Québec can chart a path towards a more sustainable and resilient future for its mining industry and its communities alike.

This involves integrating cutting-edge technologies that enhance resource efficiency and reduce waste while simultaneously engaging with local communities to ensure that their voices are heard in decision-making processes. Furthermore, developing partnerships between government, industry, and academic institutions can foster research and innovation focused on sustainable mining practices. Emphasizing transparency in operations and reporting will build trust among stakeholders, ultimately leading to stronger support for mining initiatives. As the global demand for responsibly sourced minerals continues to rise, Québec has the potential to emerge as a leader in sustainable mining practices on the world stage. ■

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Olivier Jacques

Director of Mining Division
GROUPE GILBERT

Can you introduce Groupe Gilbert and how the firm services the mining industry?

Groupe Gilbert has been a civil contractor and mining service provider for over 60 years. Our operations are primarily based in Québec, where we focus mainly on civil projects. However, our mining services are predominantly in Nunavut and extend into the western regions of Québec. As a service provider to mining companies, we offer a broad range of specially tailored solutions including workforce rental, equipment rental, drill and blast services, and aggregate crushing. Additionally, we provide various civil works on mining sites such as dike construction and channel excavation. Our current workforce comprises around 1,250 employees within the various divisions. Our work extends beyond Québec, including projects on Baffin Island and in the Kivalliq region of Nunavut.

Can you talk about the work Groupe Gilbert does with Agnico Eagle and Hecla Québec?

One of our key partners is Agnico Eagle, with whom we have a significant contractual relationship. At their operations, we mainly handle open pit operations as mining contractors. We specialize in surface operations and work closely with Agnico Eagle to provide services including drilling, blasting, earthworks, and providing skilled workers in various roles including equipment operators, mechanics,

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With numerous companies offering similar services, building strong relationships with local communities and other contractors has become crucial.

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and welders. Like Agnico Eagle, we are committed to employing Nunavummiut workers, maintaining a high percentage of the Inuit workforce.

Recently, we were awarded a contract with Hecla Québec mining company at Casa Berardi. We are in charge of drilling and blasting operations in their open pit mine. Several drills were mobilized on site last year to begin operations and the exploitation of the pit.

Do you have any fleet investment plans for the coming months?

In 2024, we are not expanding our AC and truck fleet as it is already robust, with PC 1250s widespread in our organization. Instead, we are focusing on investing in enhancements in other key areas of our fleet, particularly in the purchase of Sandvik and Epiroc drills, like the Di-650 and D65. Additionally, we are strengthening our fleet with investments in new primary crushers, secondary crushers, and screeners to meet increasing project demands. We are also renewing our fleet, including upgrading articulated trucks and essential equipment, crucial for maintaining operational excellence, especially in Nunavut, where transportation relies heavily on barges.

Regarding electrifying the fleet, the extreme cold conditions in our workplaces mean that the battery performance for electric equipment remains a challenge. While some mines are exploring electric projects, it is not currently a widespread requirement

for us to convert our fleet to green energy. This is something that is surely bound to change, and that we are anticipating in the upcoming years.

What are the main challenges and opportunities for engineers and service providers in Québec's mining industry in 2024?

The biggest challenge we face as service providers is finding a balance among competitors to specialize in our field. With numerous companies offering similar services, building strong relationships with local communities and other contractors has become crucial. Our focus remains on providing specialized services rather than engineering studies. This distinction presents both challenges and opportunities in Québec's mining sector.

In Québec, there is a lack of workforce pool overall. However, as a company, we offer competitive rates and favorable working conditions. This helps us attract specialized talent when needed. Some trades, like equipment mechanics and specialized drillers, can be particularly hard to find.

Is prioritizing collaboration with local communities and First Nations in Québec more crucial now given new environmental directives?

Throughout the mining industry, we are seeing a shift towards greater and more meaningful collaboration with Indigenous communities. Personally, having worked in Nunavut for a decade, I have seen the benefits of such partnerships firsthand. These collaborations with First Nations are increasingly integral to our operations. We are deeply integrated into the community through various subsidiaries within Groupe Gilbert. Our group has more than seven companies associated with Gilbert and tied to First Nations communities, tailored to the specific location of each mine.

What are your priorities for its growth in Québec this year?

Our focus is to expand our client base, supporting additional mining projects with our specialized services. We aim to build strong partnerships, participate in industry events, and connect with clients to enhance our presence and offerings in the market. ■



Aziz Sene

Senior Vice President, Mining
EXP

Can you introduce EXP and discuss how you support the mining industry in Québec?

We are a full-service, multidisciplinary firm delivering projects and solutions—engineering, design, and project management. Our services cover the full cycle of mining and mineral projects and our support for Québec's mining sector covers exploration to reclamation. We offer comprehensive services encompassing greenfield and brownfield exploration, leveraging our expertise in core drilling, geological analysis, and site assessment.

Which commodities do you anticipate will drive growth for EXP?

Gold and lithium are typical, but cobalt is also making a comeback due to the rise of green energy and EV batteries. The potential is huge. EXP plays a big role in processing and recycling cobalt, lithium and nickel. Regarding lithium, we have the technical expertise and a pit-to-port team ready to assist clients from mining to shipping and are pursuing work on upcoming lithium projects in Québec.

How is EXP helping decarbonize mines, and how is Québec a leader in the global drive toward net-zero?

Québec is better placed than anywhere in the world to meet decarbonization goals. At EXP, we are playing a big role in the current EV battery rush, and in that sense are key partners in helping mines with their decarbonization initiatives.

Québec's ongoing electrification efforts, including the shift to electric vehicles, demonstrate the province's proactive approach to environmentally friendly mining practices.

What are the key priorities for EXP to continue growing in the mining segment?

Our key priorities are hiring and attracting top talent. We provide great opportunities in a growing sector. EXP works closely with mining communities and local communities. We invest in people to better support the mining sector. ■

Can you give an overview of UQAT's Research Institute of Mines and Environment (RIME), and how you fit into Québec's mining ecosystem?

The Research Institute of Mines and Environment (RIME) is part of UQAT, and we offer training and research focused on the environmental aspects of mining. We follow the entire mining life cycle, from exploration to closure, and look at how to integrate improved practices into the mining industry to reduce environmental risks. Most of our focus is on improvements in waste rock and tailings management and disposal methods, as well as the reclamation of mine sites to reduce or mitigate environmental impacts. We have 19 professors in our department who cover the entire spectrum of disciplines related to the mining environment, including mine engineers, metallurgists, hydrogeologists, chemists, geologists, and biologists. Most of the research is done through student projects, and we have approximately 80 graduate students in our department, including Master's-, Doctoral-, and post-doctoral students, who come from across the globe.

Is there a case study that highlights the work you do in Abitibi-Témiscamingue?

An interesting program RIME worked on was tailings desulfurization where we remove sulfides from the tailings before it is placed in the tailings pond to reduce the risk of acid mine drainage.

How important is academia to address the talent shortage in the mining industry?

RIME offers training to students coming from all around the world, of which many then stay in Québec. We thus keep a relationship with them through further projects, this time not as professors and students, but as researchers and collaborators. Collaboration in research creates a sense of community, and the partnership ecosystem we have in Québec attracts people to the industry and keeps them engaged and interested in their jobs. ■



Isabelle Demers

Professor and Director of the
Research Institute of Mines and
Environment
UQAT



David Oliphant

VP Business Development
VEOLIA WATER TECHNOLOGIES

How has business been for Veolia Water Technologies in recent months?

We are seeing unprecedented levels of activity, particularly in mining. We focus on developing wastewater treatment strategies, with a significant emphasis on serving our gold mining clients in Québec.

What is currently the standout technology in water treatment for mining operations?

Our mature technologies remain pivotal in our clients' treatment schemes. For instance, our AnoxKaldnes® MBBR technology is essential for removing ammonia toxicity and other nitrifiers such as cyanide species. We are also progressing in areas like selenium removal and membrane applications, particularly in mine water treatment for sulfate removal. Our broad range of technologies enables us to select the most suitable technology/process train for a client's specific needs. A notable example is our integration of ultrafiltration membranes into our metals precipitation circuit, providing clients with a comprehensive "belts and suspenders" solution.

How advanced are Québec miners in terms of waste management and wastewater treatment?

Québec miners have made significant strides in waste management and wastewater treatment. With the implementation of regulations like Directive 019 and focusing on OER, the industry is gearing up to meet stricter regulatory frameworks in the future. ■



David Anonychuk

Global VP of Metallurgy and Consulting
SGS

Could you provide an overview of SGS's global mining footprint and the importance of Québec?

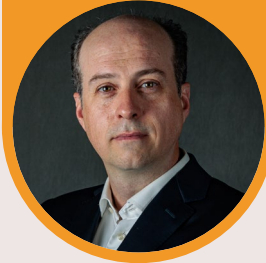
SGS operates across the entire mining value chain, from exploration to production and recycling. We also provide independent third-party audits, including capital assurance services.

Can you provide insights into how you forecast the upcoming months for SGS services, considering the fluctuating commodity markets?

There is currently a disconnect between commodity prices, with precious metals like gold remaining strong while others, like lithium and nickel are looking for direction in the short term. Nonetheless, the long-term prospects for the industry look strong and the fundamentals for battery and EV commodities remain robust.

What are the key priorities for SGS in expanding its presence in Québec's mining sector in the coming months?

Québec has established itself as a global leader in critical minerals and gold. A key priority for SGS is to accelerate the development of the supply chain in alignment with Québec's commitments. By strengthening the ecosystem and contributing to its growth, SGS aims to play a significant role in Québec's mining sector. ■



Hubert Guimont

Senior VP BD
MENARD CANADA

Can you introduce Menard Canada?

Leveraging state-of-the-art technologies, we address complex geotechnical challenges with expertise in soil stabilization and foundation reinforcement. Our head office is in Montréal, Québec. The services include ground improvement techniques such as vibro-compaction, stone columns, and dynamic compaction to enhance soil properties. We also design and offer environmental remediation through soil mixing and slurry walls. Additionally, Menard Canada provides seismic solutions to enhance ground stability in seismic regions.

What trends are Menard Canada observing in the mining sector?

Mining companies are investing in advanced ground improvement solutions and eco-friendly methods to enhance infrastructure resilience and minimize environmental impact. Additionally, digitalization is being adopted for site assessment, monitoring, and project management to improve efficiency and accuracy.

What strategies does Menard Canada have to grow in the mining sector?

Increasing brand awareness through targeted marketing campaigns, industry conferences, and strategic partnerships is crucial. Strengthening relationships with mining clients through proactive communication, value-added services, and customized solutions will help build long-term partnerships. Leveraging digital technologies for site assessment, monitoring, and project management to enhance efficiency and accuracy is another priority. ■



Drillers

Redefining a profession and a segment

The steep decline in exploration activity globally in 2023 affected many segments and sub-contractors, and drillers were not spared. Indeed, with several budget cuts (particularly in the critical minerals space in James Bay due to price drops) and drill programs coming to an end, S&P reports that Québec was the jurisdiction that saw the steepest decline in drilling activity globally in 2023. This market trend, along with the disruption caused by wildfires that prevented drillers from accessing exploration areas, meant that drilling activity slumped last year by over 23%, according to S&P. In an already competitive landscape, drillers are now turning to technology to build their competitive advantage, while making sure to stay commodity-agnostic.

Drill-rig electrician wanted

Autonomous rigs, GPS-equipped rigs, and remote capabilities are now industry standards. At majors' operations – like at LaRonde, Casa Berardi or Olmaque – remote control, tele-remote, and autonomous drills are now common compared with 15 years ago. A PwC report shows that the deployment of automated drills in open-pit mines has grown at a CAGR of 74% since 2008, boosted by safety (automated rigs lessen workers' exposure to risk) and productivity (operational consistency) reasons. Beyond those practical reasons, automation further stands as a way companies can reduce their reliance on a shrinking labor force. Finding talent is incredibly challenging currently, and for Diafor's president Mathieu Dionne: "There has been a trend toward greater automation in drilling technology, driven largely by larger companies facing manpower shortages."

In many ways, the adoption of technology means the driller now also ought to be a technician. Mario Rouillier, president of Groupe Rouillier, which has several subsidiaries in the diamond-drilling sector, said: "The advantage of the automated drill is that it no longer takes the driller 5 years to train, but months. In the future, we won't just be talking about drillers, but drill technicians."

In the race towards arming themselves with the latest technologies, Québec drillers have an advantage compared with their Canadian peers: An ecosystem dedicated to supporting companies in developing and commercially deploying mining technology.

Recently, Atelier Val d'Or (AVD) has been partnering with MISA through their Vortex Course, a program allowing drillers to work on innovation projects, and conduct testing, before being ready for commercialization. "As part of the Vortex Course, AVD has access to IT experts, and we can test and prove our innovations before they are launched in the market" explained Vincent Boileau, co-president and BD Manager of AVD, adding: "Our technology allows us to remotely connect with drill rigs to monitor performance and do troubleshooting, which means less downtime than when you have to send out a technician to do repairs, saving costs for our clients."

GR

GROUPE ROUILLIER

**STRENGTH,
PERFORMANCE & EXPERTISE
UNITED TO SERVE YOU**



A commodity-agnostic approach

The cyclical nature of metals markets is a formidable reminder of the old formula of not having all of one's eggs in the same basket. From the dozen heli-portable drill rigs that were flying over James Bay in June 2023, perhaps a handful will make the trip this year. But more will fly in the coming months, as the bottom line of the green energy transition should drive demand for Québec's critical minerals in the longer term. Today, societal, geopolitical, and price reasons mean copper and gold remain stalwart commodities for drillers. In the future, drillers have also noted that uranium exploration could ramp up in the context of the green energy transition.

Beyond the commodities above, Québec actors across the value chain will mostly hope for the return of a lithium frenzy. Holding some of the largest reserves in the world, and with many areas underexplored, the lithium in Québec's James Bay could well represent a gold mine for contractors. In 2024, RJLL merged with Forage Nordik to grow to a fleet of 45 surface drills. For president, David Bradley, the slowdown in lithium activity is only temporary, and partnering with the right exploration firm will be key: "Despite fluctuations in prices and occasional market volatility, lithium continues to be a valuable and sought-after resource. However, it is essential to differentiate between genuine mining companies focused on responsible extraction and those merely capitalizing on market trends for short-term gains."

Overall, while the past months have proven challenging for drilling contractors, Québec's unique ecosystem and market trends means that the segment is poised for growth in the future. As put by Yuri Alexandre, CEO of Dynamitage Castonguay, who managed to secure new contracts in recent months: "The emergence of new projects and the shortage of skilled labor create opportunities for us as contractors. We believe mining companies will increasingly rely on contractors like us for turnkey solutions to simplify operations and stay on budget." ■



Mario Rouillier

President
GROUPE ROUILLIER

Can you introduce Groupe Rouillier and the company's highlights in recent months?

The Rouillier Group is a group of several subsidiaries. Our various subsidiaries operate in diamond drilling as manufacturers of equipment and consumables for the mineral exploration and geotechnical sectors. We have MBI Global (encompassing Versadrill and G-Tech Drill), Forage Rouillier, as well as aboriginal companies affiliated with us. We have Youdin Rouillier Drilling in Cree territory, Avataa Rouillier Drilling in Nunavik, and we are building others in connection with First Peoples.

The biggest highlight has been the commercialization of our stand-alone drilling rig. We now have three stand-alone drills, built by MBI Global with the participation of Forage Rouillier. We have been very successful in marketing them. They reduce operating costs and are interesting in terms of health and safety. Autonomous drills aim more precisely, so operators need fewer drill holes. At the Goldex mine, with just one operator we were able to drill two drills. Instead of having four people at the same time, we only needed one, with fantastic results.

Will the future of drilling be autonomous?

During the spring we received visits from mining companies from Australia, Chile, and the USA, who are very interested in our autonomous drilling machines. We gave practical demonstrations. The companies are also very interested in connectivity, and the fact that we are linked from the surface with our drill rig, which is underground. We have signed research agreements to connect devices with our autonomous drills to get the best information so that geologists can identify the best targets. The majors are certainly interested. Next year, I'd like to see exploration companies looking at this technology.

How does the current environment for juniors impact your operations?

The industry is not riding the wave now. Financing is very difficult for juniors. Yet there is an urgent need for more exploration, particularly as global reserves continue to decline. Chile, a major copper producer, has explored extensively on the surface and is now obliged to go deeper. To meet this demand, we have created a drill capable of going to depths of over 3,000 meters. We already have one such rig on site, and a second is currently being shipped to a company that used to operate in lithium but has now turned to copper. The next few years will see a lot of exploration in copper; there is no choice.

Will the driller become more versatile going forward?

We are continuing to work on drill pipe handling. We are trying to improve this because we aim to touch nothing by 2030. In Chile, drillers don't touch anything, everything is automated. The drilling trade lacks specialized manpower. The advantage of the automated drill is that it no longer takes the driller five years to train, but months. In the future, we won't just be talking about drillers, but drill technicians. ■



“

I believe consolidation is inevitable in the drilling industry, particularly in Québec.

”

David Bradley

President
RJLL

Can you provide an update on RJLL's recent operations?

Over the past months, RJLL has maintained steady business operations. We remain optimistic due to the positive indicators in the market, particularly the favorable prices of copper and gold, which signal potential future growth.

How will the strategic merger with Forage Nordik impact RJLL?

The merger with Forage Nordik marks a significant milestone for RJLL, as it substantially enhances our capabilities and market positioning. By integrating Forage Nordik's assets and expertise into our operations, we now boast a fleet of 45 surface drills, greatly expanding our capacity to undertake larger projects and compete for major contracts. This strategic move not only strengthens our presence in Québec but also elevates RJLL to one of the top contenders in the regional drilling industry.

Could you share an example of a current project that showcases RJLL's strengths and capabilities?

Currently, we are managing several multi-drill contracts that involve complex drilling operations, requiring meticulous planning, efficient execution, and stringent adherence to safety and environmental protocols. With our expanded team and enhanced safety measures resulting from the merger, we are well-equipped to handle these challenges effectively.

Do you foresee more consolidation among drilling companies in Québec?

I believe consolidation is inevitable in the drilling industry, particularly in Québec. The current landscape, characterized by numerous contractors and intense price competition, poses challenges for companies to operate profitably while maintaining high standards of safety and quality. Consolidation presents an opportunity to streamline operations, achieve economies of scale, and enhance overall industry stability. By joining forces, companies can pool resources, leverage synergies, and better navigate market fluctuations.

Which commodities do you anticipate driving growth in the future?

While copper and gold remain stalwart commodities with enduring demand, I also see significant potential in lithium. The increasing emphasis on renewable energy

technologies, electric vehicles, and energy storage systems has fueled demand for lithium-ion batteries, driving growth in the lithium market. Despite fluctuations in prices and occasional market volatility, lithium continues to be a valuable and sought-after resource, particularly for its role in advancing sustainable energy solutions. However, it is essential to differentiate between genuine mining companies focused on responsible extraction and those merely capitalizing on market trends for short-term gains.

Will underground mining continue to be prominent in Québec?

Yes, I anticipate underground mining will remain a prominent method of resource extraction in Québec, albeit with a cautious and selective approach. While surface deposits have traditionally been more accessible and economical to mine, many of these reserves are nearing depletion or becoming increasingly challenging to exploit. As a result, mining companies are turning their attention to underground deposits, which offer untapped reserves and long-term viability.

With many remote operations, do you see growing demand for heli-portable drills?

Heli-portable drills are crucial for reaching remote areas like those in Québec where mining operations often face challenging terrain. These drills provide a cost-effective and efficient way to conduct exploration and drilling activities thanks to technological advancements and logistical improvements. As mining companies expand into new territories and seek untapped resources, the demand for heli-portable drills is projected to increase. RJLL acknowledges the significance of this equipment and is proactively enhancing our heli-portable fleet to meet rising demand and support our clients' changing requirements.

What sets apart a great drilling company from an average one?

A top-tier drilling company stands out from the rest due to its emphasis on efficiency, safety, environmental stewardship, and dedication to excellence. They excel in executing drilling projects swiftly and accurately, ensuring minimal downtime and optimal productivity. Safety remains paramount, with rigorous protocols, continuous training, and a pervasive safety culture. Environmental consciousness is prioritized, with efforts to minimize impact, adopt sustainable practices, and comply with regulations. ■



Mathieu Dionne

President
DIAFOR

How have the last months been for the industry?

Last year, disruptions caused by forest fires prevented us from accessing areas necessary for drilling and mineral exploration. This impacted our planned activities and disrupted the entire exploration value chain. As we get back on track, our clients are encountering new hurdles, such as new government authorizations required for impact works in Québec. Additionally, unusual weather patterns, including a thaw during February, further complicated operations.

How will the new Authorization for Impact-Causing Exploration Work, passed on May 6th, affect exploration efforts?

We have been proactive in educating our clients about this regulation. Despite many of our clients completing the necessary steps well in advance of the enforcement date, there are still delays due to various stakeholders. Municipalities and First Nations are inundated with consultation requests, causing resource constraints and delays.

Can you update us on Diafor's strategy for engaging with major mining companies in Québec?

Diafor has established a strong reputation for quality service and customer satisfaction, attracting attention from major mining companies. While we have succeeded in being considered potential suppliers for larger projects, there is a caveat. Despite having the capacity for current demand, these companies seek assurance of additional capacity, which we are actively addressing. We are working on expanding our fleet by 2 to 3 drills to meet potential future needs.

Do you think drills will become more automated going forward?

There has been a trend toward greater automation in drilling technology, driven largely by larger companies facing manpower shortages. While automation and AI hold promise in enhancing performance and safety, it is important to acknowledge the irreplaceable value of skilled drillers. These technological advancements should complement rather than replace human expertise. AI could potentially monitor and predict risks, contributing to improved safety protocols. However, it is crucial to proceed with caution and ensure that these innovations are implemented responsibly. ■

Can you introduce Atelier Val-d'Or (AVD) Drills and the company's presence in the Québec mining ecosystem?

Atelier Val-d'Or (AVD) was established in 1975 and specializes in designing and manufacturing hydraulic diamond drills for mineral exploration. We offer three models for deep and large hole drilling and we work closely with drilling and mining companies. Safety is critically important in the mining industry, and AVD is a world-renowned pioneer in rod handlers for diamond drilling and was the first Canadian drill rig manufacturer to patent a rod-handling solution. Today we are promoting our Bluetooth-controlled hands-free rod handling system which is simple to use and promotes safety.

Can you elaborate on AVD's culture of innovation?

Technology allows us to connect remotely with drill rigs to monitor performance and troubleshoot. We are continuously working to increase the efficiency of our products. AVD's mission is to make the driller's life better to enable them to spend more time drilling. We make our drill rigs ergonomic and comfortable for operators.

How is AVD supporting the growth in connected equipment in Québec?

AVD collaborates with Groupe MISA whose mission is to support companies in deploying a critical mass of connected equipment into the Québec mineral sector through their Vortex Course. The Vortex Course allows us to test and prove our innovations before they are launched.

What does demand for heliportable drill rigs currently look like?

Many critical minerals are in the James Bay area which is extremely remote with limited infrastructure. Heliportable drill rigs are in high demand in these remote areas.

What are AVD's key priorities for 2024 and beyond?

We will continue to focus on innovation. Our team of seasoned engineers, machinists, welders, assemblers, and state-of-the-art equipment allows us to address mining industry challenges and exceed the needs of our clients. ■



Vincent Boileau

Co-President and BD Manager
ATELIER VAL D'OR
(AVD) DRILLS



Aerial Logistics

Adapting to a changing environment

2023 was a milestone year for the aviation segment's role in Québec's mining industry. Beyond its salutary mission of assisting operators during the wildfires that impacted the province, numerous projects advancing from exploration to operational stages meant that aviators had their planes full. Heading into 2025, the segment shows no signs of slowdown.

From gold to lithium, the hasty development towards project construction has heightened the necessity for reliable transportation solutions, particularly for the movement of personnel, supplies, and equipment to remote sites. Given the region's vast and often inhospitable geography, the lack of road networks, and the permafrost that makes constructing traditional paved roads impractical, aviation provides critical logistical support that ensures the continuity and efficiency of mining activities, and in that sense, the Fly-In Fly-Out (FIFO) model continues to be a cornerstone of the mining sector in Québec. Looking ahead, new risks associated with climate change mean operators and aviators will have to adapt their modus operandi and their offerings.

Enhancing connectivity

With more projects reaching operational status in the North, James Bay, and Nunavut, the demand for efficient transportation networks keeps growing. Aviation services bridge the gap between these isolated locations and the central hubs, facilitating a seamless flow of resources. This connectivity is crucial not only for operational efficiency but also for ensuring the well-being of workers who depend on regular supplies of fresh food and other essentials. Growing mining activity meant expansion opportunities for Mirabel-based Nolinor, which opened a new sub-base in Edmonton and brought back a Boeing 737-200 to its fleet to meet demand. Its president Marco Prud'Homme commented: "There's been a noticeable shift as more projects move into the operational stage, necessitating the transportation of workers, food, and additional cargo."

An outlook on FIFO

Perhaps more than in any other North American jurisdiction, the Fly-In-Fly-Out model is a fundamental aspect of the mining industry in Québec. The system, which involves flying workers in for their shifts and flying them out during

their off-time, has proven particularly beneficial for maintaining a stable and skilled workforce, as it allows workers to reside in more developed areas while still being employed in remote mining sites. Admittedly, the model has its limits when it comes to local socio-economic development, with for instance communities in Nunavik seeing workers flying overhead to the Raglan Mine and back south.

But in 2023 and 2024, the reliance on the FIFO model has grown in tandem with the increase in operational mining projects. Indeed, projects like Nesmaska Lithium in James Bay, Ashram, or Strange Lake in Northern Québec eyeing commercial production in the coming years, suggest that FIFO activity with workers coming from Montréal, Sherbrooke, or Bécancourt will only increase. For miners, the ability to quickly and efficiently move large numbers of personnel is essential for meeting the demanding schedules of mining operations. Laval-based OCTANT Aviation's president, Nathalie Tousignant, explained: "The 'fly-in/fly-out' flights play a crucial role in the mining sector's operations and are expected to remain essential for the foreseeable future."

A changing climate

In January, four Rio Tinto workers and two airline crew members died in a plane crash near Forth Smith, in Canada's Northwestern territories. The passengers were headed to the Australian giant's Diavik diamond mine, and the incident further highlighted the importance of safety standards. Particularly in Québec, the harsh and unpredictable weather conditions necessitate reliable transport solutions. And with the impacts of climate change being felt across the world, providing robust services will be vital in the province.

Indeed, a 2023 study by the World Weather Attribution initiative stated that climate change made weather conditions that powered record-setting wildfires in Québec twice as likely. Similarly, aviation experts have reported that climate change has affected the accessibility of northern sites by creating more challenging weather conditions for flights. These challenges include more frequent and severe storms, unpredictable weather patterns, and the melting of permafrost, which can affect the stability of runways and other critical infrastructure. Aviation companies must continuously adapt to these changing conditions to ensure the safety and reliability of their services. ■



Marco Prud'Homme

President
NOLINOR AVIATION

Can you discuss some of the latest news at Nolinor, such as the opening of a sub-base in Edmonton?

Over the past 12 months, Nolinor Aviation has achieved significant milestones, reflecting our continued growth and commitment to meeting our clients' needs. One of our top priorities was the reintroduction of a Boeing 737-200 to our fleet. This project involved six months of dedicated work and an investment of over CAD3 million. The 737-200 is a key asset for us, particularly for the mining industry, where we've seen a substantial increase in flight demand. The 737-200's advantages include greater payload capacity, higher speed, and the ability to carry larger cargo loads thanks to its bigger cargo door. These features make it particularly suited for last-minute equipment deliveries to northern regions.

Our operations in Yellowknife, where we've been active for the past decade, primarily involve cargo flights for mining firms. Initially, our work supported the exploration phase of various projects. However, there has been a noticeable shift as more projects move into the operational stage, necessitating the transportation of workers, food, and additional cargo.

In response to this growing demand, we are establishing a new sub-base in Edmonton. Edmonton offers a significant maintenance facility, which aligns with our operational

“ Our investment in fleet expansion and new bases underscores our commitment to supporting the mining industry's evolving needs and maintaining our competitive edge in the market. ”

needs. The initial operations at the Edmonton base will feature one Boeing 737-200, chosen for its versatility and superior capabilities compared to the turboprop aircraft currently predominant in the area. As demand increases, we already plan to add a second 737-200 to our Edmonton operations if needed. Our investment in fleet expansion and new bases underscores our commitment to supporting the mining industry's evolving needs and maintaining our competitive edge in the market.

How do you assess the future of the 737-200?

The 737-200 holds a unique position as the only jet certified by Boeing to land on gravel runways, a critical capability for operations in the North where infrastructure is limited. The Northern regions lack road networks, and the permafrost makes constructing traditional paved roads impractical. Therefore, the most efficient and safest way to access mining projects is by air, using gravel runways. These runways are not only easier to construct but also blend back into the terrain more effectively once mining projects conclude.

We are actively engaged in discussions with Boeing, who have reaffirmed their commitment to our fleet. As the best replacement for a Boeing is another Boeing, they have been visiting our operations in Mirabel and Yellowknife, conducting research

and development to understand the specific challenges our aircraft face in the North. Boeing is working on an improved, versatile aircraft designed to use less fuel, particularly tailored for operations on unpaved runways.

How does Nolinor leverage AI?

AI is a game changer for the aviation industry. Last year, we partnered with the MILA – Québec AI Institute to enhance our Safety Management Systems. In Phase 1, the AI system summarized reports from crew members, significantly reducing administrative workload. Phase 2 will further improve the system by analyzing data to suggest safety improvements. The success of this initiative led us to create a separate sub-division, as several firms showed interest in our AI solutions.

How do you assess the challenges and opportunities for the aviation segment in the north of Québec?

Post-pandemic, the aviation industry faces unique challenges. There is a shortage of knowledgeable personnel who understand the region's specific regulations and safety requirements.

At Nolinor, we address this by maintaining a balanced workforce that combines the experience of long-term employees with the fresh perspectives of newer hires. This ensures we make sound decisions even in challenging conditions. We also tackle the pilot shortage with our "Create a Pilot" program, which fully funds pilot training to certification. Additionally, we offer the highest salaries in the industry, attracting top talent capable of handling the demanding conditions of flying in the North.

What is your key priority to keep growing in the mining segment?

Our key priority is constant improvement. For example, we are enhancing our training program by incorporating virtual training. Partnering with a European firm, we mapped the inside of a 737-200 cockpit here in Mirabel. This allows us to better prepare our pilots before sending them to the official simulator, improving the overall training quality. ■



Nathalie Tousignant

President
OCTANT AVIATION

“ We anticipate significant growth in the airport planning sector, driven by the need for infrastructure to meet the transportation demands of mining companies. ”

Can you share the latest updates and highlights from OCTANT Aviation?

OCTANT is a leading consulting firm specializing in the aviation sector and a key supplier to the mining industry. Our extensive expertise encompasses runway planning and construction, air transportation logistics, and aviation regulations. This enables us to mitigate financial risks for our clients while ensuring the highest safety standards in aviation operations. Safety is our top priority, which is why we have also developed Akila, an SMS software solution for airports, carriers, and operators.

In recent months, we have been actively involved in airport planning to adapt infrastructure for new operational needs, accommodate new aircraft types, and to address the impacts of climate change. Climate change has notably affected the accessibility of northern sites by creating more challenging weather conditions for flights. To counter these challenges, we ensure that navigation aids are optimized for maximum efficiency and safety.

Can you provide an example of a project where OCTANT is adding value to a mining customer?

Our comprehensive understanding of air logistics enables us to support mining companies right from the initial stages of mine construction planning. For one client, we conducted a thorough assessment of their airport infrastructure needs and fly-in/fly-out requirements well in advance of the project. As mine construction progressed, the entire air transportation logistics are in place with a flexible charter contract, upgraded airport infrastructure, and, most importantly, predictable air transportation costs.

With the recent improvements we have made at the airport, the client's charter flights will be optimized. They will operate with 13% more passengers, a feat made possible with our intervention. Over a lifespan of 20 to 30 years, these improvements represent several million dollars in savings for the mining company.

In which segments do you anticipate growth?

We anticipate significant growth in the airport planning sector, driven by the need for infrastructure to meet the transportation demands of mining companies. To accommodate heightened activity, airports must meet several criteria: they must be suitable for the aircraft using them, handle a continuous flow of traffic, and have qualified personnel to support this volume. A common denominator

is the operation of all these components with high safety standards, which is why we also offer airport personnel training. The advantage for the mining industry is access to a range of expertise and services under one roof, facilitating turnkey project completion.

What threat does the labor shortage present?

The labor shortage has never been as acute as it is now, affecting all industries, particularly the aviation sector. This shortage cannot be quickly resolved, as pilot training requires years of investment.

To attract workers, many mining companies are turning to more flexible rotations, requiring additional workers and an increased need for air transportation. The current context of labor scarcity and client demand forces us to be more creative in managing air transportation.

The 2023 experience serves as a striking example: the tragedy of forest fires demonstrated once again how agile our team can be. We activated our emergency plan and evacuated some 3,500 people from Cree communities within a few days. This was a significant challenge, considering that we could only use aircraft configured for 37 passengers in these communities.

As mining firms in the north continue to rely on "fly-in/fly-out", how important will the aviation segment be in Québec's mining industry?

Conventional aviation has proven its reliability for operating over long distances in the North, where conditions are often harsh. However, from a sustainable development perspective and with a target of reducing this ecological footprint, optimizing flights and routes is the first step to help achieve this goal.

What will be OCTANT's key priorities in the months to come?

Several of our mining clients are working on major expansion projects, which will significantly increase their air activity. Furthermore, the North is facing greater accessibility challenges due to adverse weather conditions attributed to climate change. The mining industry prioritizes efficiency and, above all, reliability in its air operations. The costs associated with delayed or incomplete flights, as well as overtime for employees, can be astronomical. To mitigate these risks, we are proactively collaborating with our clients to optimize their air operations and prevent potential service disruptions. ■



COMPANY	WEBSITE	COMPANY	WEBSITE
Abcourt Mines	https://abcourt.ca/en/	Hecla Mining	https://www.hecla.com/
Abitibi Geophysics	https://www.ageophysics.com/	HY2GEN	https://www.hy2gen.com/
Abitibi Metals	https://abitibimetals.com/	IAMGOLD	https://www.iamgold.com/English/home/default.aspx
Adria Power Systems	https://adria-corp.com/fr/	Investissement Québec	https://www.investquebec.com/quebec/fr
AEMQ/QMEA	https://aemq.org/	IOS Services Géoscientifiques	https://www.iosgeo.com/en/
AMQ/QMA	https://amq-inc.com/en/	Lavery	https://www.lavery.ca/
Agnico Eagle Mines Limited	https://www.agnicoeagle.com/Home/default.aspx	Li-FT Power	https://www.li-ft.com/
Arcadium Lithium	https://arcadiumlithium.com/	Lomiko Metals	https://lomiko.com/
Atelier Val d'Or (AVD) Drills	https://www.avddrills.com/en/	McCarthy Tétrault	https://www.mccarthy.ca/en
AtkinsRéalis	https://www.atkinsrealis.com/	Meglab	https://meglab.ca/en/
Azimut Exploration	https://azimut-exploration.com/	Menard Canada	https://menardcanada.ca/
BBA	https://www.bba.ca/us-en	Metso	https://www.metso.com/
Bennett Jones	https://www.bennettjones.com/	Minister of Natural Resources and Forests	https://mrrnf.gouv.qc.ca/
Brunswick Exploration	https://brwexplor.ca/	Mira Geoscience	https://www.mirageoscience.com/
Champion Electric Metals	https://www.champem.com/	Nolinor	https://nolinor.com/en/
Chrono Aviation	https://www.chronoaviation.com/	Norda Stelo	https://norda.com/en/
Commerce Resources	https://commerceresources.com/	Northern Superior Resources	https://nsuperior.com/
Corem	https://www.corem.qc.ca/en/	Nouveau Monde Graphite	https://nmg.com/
Cygnus Metals	https://www.cygnusmetals.com/	NQ Investissement Minier	https://nqinvestissement.com/
Diafor	https://diafor.ca/en/	Nuvau Minerals	https://nuvauminerals.com/
Doré Copper	https://www.dorecopper.com/en/	OCTANT Aviation	https://octantaviation.ca/
Dynamitage Castonguay	https://castonguay.ca/	Osisko Gold Royalties	https://osiskogr.com/en/
E-Power Resources	https://e-powerresources.com/	Osisko Metals	https://osiskometals.com/
Eldorado Gold	http://eldoradogold.com/	Osisko Mining	https://www.osiskomining.com/
Emperor Metals	https://www.emperormetals.com/	Patriot Battery Metals	https://patriotbattery.com/
Epiroc Canada	https://www.epiroc.com/en-ca	Progesys	https://progesys.com/
EXP	https://www.exp.com/	Puma Exploration	https://explorationpuma.com/en/
Falco Resources	https://www.falcores.com/en/	PwC Canada	https://www.pwc.com/ca/en/
Fasken	https://www.fasken.com/en	Québec Precious Metals	https://www.qpmcorp.ca/en/
First Mining Gold	https://firstmininggolds.com/	RJLL	https://rjll.ca/en/
Fury Gold Mines	https://furygoldmines.com/	SGS	https://www.sgs.com/en
G Mining Services	https://gmining.com/	SIDEX	https://www.sidex.ca/home/
Geomatic World	https://geomaticworld.ca/	Société du Plan Nord	https://www.quebec.ca/gouvernement/ministeres-et-organismes/societe-plan-nord
Go-Mine	https://www.gomine.ca/en	Temas Resources	https://temasresources.com/
Gold Fields	https://www.goldfields.com/	Torngat Metals	https://torngatmetals.com/
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Thank you!

We would like to thank all the executives and authorities that took the time to meet with us.

Also, special thanks to:

MINISTRY OF NATURAL RESOURCES AND FORESTS,
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<https://mrnf.gouv.qc.ca/>

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