



GLOBAL BUSINESS REPORTS

ONTARIO MINING AND TORONTO'S GLOBAL REACH 2025



Pre-Release Edition



Photo courtesy of IAMGOLD

Regulations, Risks and Recruitment

Ontario's legislative shift and the talent quest

2024 has been a transitional year for Ontario's mining sector, marked by further regulatory developments and record commodity prices. However, the industry continues to grapple with the complexities of securing financing, particularly for juniors, amid a volatile global economic landscape and the US elections. Additionally, Ontario's miners and explorers face the ongoing challenges of navigating stringent environmental regulations, addressing labor shortages, and enhancing their ESG performance to meet the increasing demands for sustainable and responsible mining practices.

The regulations of the 2023 Building More Mines Act came into effect on April 1st 2024, amending the existing Mining Act and consolidating the Ministry's powers over exploration and mine closures. The Ministry is not done yet, however, with further improvements in the pipeline to streamline and simplify the permitting process in Ontario. In his interview with GBR, Ontario's Minister of Mines George Pirie shared details: "We continue to make improvements and enhancements to the regulatory framework, with further amendments set to be released in November 2024. These new changes will be incorporated into the Red Tape Reduction Bill,

aiming to streamline the mine approval and permitting process. Our largest policy initiative currently is the 'One Project, One Process' initiative, which aims to break down the confusion and delays Indigenous communities and mining companies encounter."

Further efforts to streamline the permitting process in Ontario will come as a relief to many, given that building a mine in the province can take up to 20 years in some cases. "A common theme we hear from mining clients is that regulations are complex and duplicative. Acquiring permits, even for the simplest of projects, takes years, and removing some layers of regulations whilst maintaining commitments to environmental concerns will help many young mines flourish. The Building More Mines Act was a great first step in streamlining the process, but more must be done," said Bliss Baker, vice chair, Sussex Strategy Group.

The effects of a sluggish permitting process reverberate throughout the mining sector, impacting not just the explorers and developers. "The shift from exploration towards permitting and development can make raising capital more challenging due to extended timelines and costs. Further, the increased risk associated with permitting has mitigated M&A activity, as larger

companies are reluctant to acquire juniors without secured permits," said Gavin McCuat, senior MD, head of mining & metals at investment bank Raymond James.

Kati McCartney, president of FROSKR, a Sudbury-based environmental consulting firm, gave her thoughts on how permitting could be improved: "A major issue is the review time on the government side, leading to response times that can extend up to 12 months. While some steps are lengthy due to environmental monitoring requirements throughout, say, a full year to account for seasonality, adopting an iterative approach with early discussions about project plans can reduce delays."

Ontario has been balancing the urgent need to speed up mine development, while also maintaining its relatively robust environmental regulations. The Ontario government has updated the Mine Rehabilitation Code, requiring that post-mining land conditions be comparable to or better than their pre-mining state, with a particular emphasis on water management. As a result, Ontario's environmental and engineering firms have reported an uptick in demand for water management-related services. "The mining industry is evolving, and we are observing changing trends where mining companies are making a conscious effort to be better environmental stewards. There is an increasing focus on sustainability, water collection and treatment practices, as well as general environmental responsibility," said Derek Koziol, associate, senior civil engineer, practice lead, mining infrastructure at J.L. Richards & Associates (JLR).

Following an MoU in 2023 signed by Premier Doug Ford and Nevada Governor Joe Lombardo to strengthen the economic relationship between their respective jurisdictions, MineConnect, now the largest Canadian mining supply and services association in Canada, has also continued its efforts to connect its members to Nevada's vast mining market. Marla Tremblay, MineConnect's executive director, outlined how the partnerships between her organization and the Nevada Governor's Office of Economic Development (GOED) and the Northeastern Nevada Regional Development Authority (NNRDA) have evolved: "This partnership has been mutually beneficial, allowing

George Pirie



Minister of Mines,
Government of
Ontario

What have been some highlights during 2024?

The regulations of the Building More Mines Act came into force on April 1st, 2024, and we continue to make improvements and enhancements to the regulatory framework, with further amendments set to be released in November 2024. These new changes will be incorporated into the Red Tape Reduction Bill, aiming to streamline the mine approval and permitting process. Our largest policy initiative currently is the 'One Project, One Process' initiative, which aims to break down the confusion and delays Indigenous communities and mining companies encounter.

Ontario welcomed two new producing mines in the summer of 2024 as IAMGOLD's Côte Gold and Equinox Gold's Greenstone Gold mines started production. The province has also seen great exploration success, with Ontario being ranked the number one jurisdiction in 2023 for junior exploration spending in Canada. We continue to discover new rare earth metals across the province, including cesium north of Timmins, which is vital for national security and the movement to clean energy. There is currently no global production, and all the stockpiles are in China, meaning if we can harness this resource, it will not only boost the economy in Ontario but be of strategic importance to the West. At PDAC 2024, we had some insightful conversations with the Canadian Minister of Energy and Natural Resources concerning building our mines faster for the benefit of national security. This is associated with the ongoing global geopolitical tensions and aligns with our goals at the Ministry.

Could you comment on the ongoing issues juniors have with financing?

The Premier of Ontario and the Minister of Finance are aware of this issue, and we have an active file to address financing concerns in the junior sector. WA1 Resources, a junior company that recently discovered low-grade niobium in Australia, managed to increase its stock price by 150% in the last year, helped by the regulators there. Juniors must gain financial backing to explore, build infrastructure, and create jobs, and this can only be done through the markets. We are watching the example of Australia and its successful junior sector closely.

What is next for Ontario's Ministry of Mines in 2025?

Our primary focus will be introducing the 'One Project, One Process' initiative. The current price of gold is a direct reflection of geopolitical tensions, with China being the largest producer and consumer in the world. This ties into the sense of urgency we have for critical and rare earth minerals. Whilst the Canadian federal government has restricted investment from China into mining, the market has opened up for Australia and the US, who are financing and aiding with projects across Ontario. We are in exciting times for mining despite the situation in the wider world, and we are well-positioned in Ontario to weather the storms that may be on the horizon. ■

Ontario's Mineral Advantage

C\$15.7 B

in mineral production in 2023

C\$952 M

Spent in 2023 on ~400 mineral exploration projects

50%+

of Ontario's universities and colleges

offer world-class mining, earth and environmental sciences, and engineering programs

36%

of all global mining equity capital

raised in the past 5 years came from the TSX and TSX-V

31,000

Direct mining jobs

+ **47,000**

Indirect jobs created

380,000+

Active mining claims

in good standing (as of December 31, 2023)

~40%

of the world's public mining companies

were listed on the TSX and TSX-V in 2023

our members to expand their services into a thriving US mining market, filling various gaps within the Nevada mining industry supply chain. In December 2023, NNRDA launched its 'Silver Link' program designed to identify and recruit specific mining supply and service providers to enhance northeastern Nevada's supply chain. As part of this initiative, the 'Master Links' element facilitates partnerships with trade organizations to streamline recruitment efforts, and once designated as a Master Link, companies can enjoy various benefits, including insider access to request for proposals (RFPs). MineConnect was the first organization to join the program as a Master Link, and our members will have the first right of refusal to bid on RFPs for 30 days."

NORCAT, a leading non-profit mining training, technology and innovation centre headquartered in Sudbury, has also made inroads in the US state, thanks in part to the foundations laid by MineConnect and the government of Ontario. "Our partnership with Great Basin College originated from

introductions made by MineConnect a few years ago and has grown strong since. Expanding into the US market, particularly in Nevada, aligns with our mission, given the geographical and cultural similarities. There is a significant demand for training in the US mining sector, and we are working closely with Great Basin College to establish our leadership in that region," said Don Duval, CEO, NORCAT.

Talent

Initiatives are underway to broaden the industry's horizons and look beyond the typical mining profiles, but more efforts are needed if the industry is to fix the talent shortage. "Talent retention is a significant challenge for the industry. There is also a need for greater diversity in our field; bringing in women and immigrants can significantly support the growth being experienced throughout the broader industry," shared Saverio Parrotta, president and CEO, J.L. Richards & Associates.

The lack of gender diversity is prevalent in many STEM-related fields, but it is par-

ticularly prevalent in mining. Companies will have to tackle the issue soon, otherwise shareholders may take a more forceful approach. "The main proxy advisory firms, ISS and Glass Lewis, are advising companies that if they do not achieve diversity in certain areas, they are going to ask their shareholders to withhold votes or vote against the governance head. Pressures are being applied on mining companies by different forces, but gender diversity is still an issue with underrepresentation at the board and senior levels, but much of it has to do with not enough diversity entering the sector," said Frank Galati, managing partner at the Bedford Group TRANSEARCH, an executive search and professional services firm catering to the mining sector.

The issue will have to be addressed from the bottom up and not the top down. It will be hard to diversify boards and C-level roles in the future without seeing more diversity at entry-level positions and among graduates. "This is not an easy task as in a recent executive search Bedford did for a Canadian client, out of the pool of 200 candidates, 93% were male and 7% female," shared Mauricio Montano, client partner & Latin American mining practice leader, the Bedford Group TRANSEARCH.

Although the skilled labor shortage is particularly acute in North America, with many academic institutions reporting declining enrollment in mining-related and earth science courses, a globalized and English-speaking jurisdiction like Ontario has relatively lower barriers for entry for aspiring mining professionals. "Mining is a global industry, and finding talent that has great education, experience and exceptional skills outside of Canada is not as difficult as sometimes assumed. There are certain countries we could look to, such as Italy and Spain, that are not facing the same issues with low enrollment in mining-related courses, have smaller mining industries than Canada's, and therefore a surplus of young mining talent," said Claudia Mueller, program director, academic, global metals and minerals management, Schulich School of Business, York University.

Barriers to entry can be lowered by providing more flexibility through a wider range of studying options. This would cater

The Shift Towards a Brighter Future

Executive Insights

"I encourage mining companies to stay committed to their targets, even though M&A activity can complicate these goals. It is vital to maintain a well-funded decarbonization budget and ensure that climate considerations are embedded across the entire business."



Emily Thorn Corthay,
Founder and CEO,
Thorn Associates

"Safety, environmental care, and respect for the original stewards of our land are now ingrained in operations, making Indigenous relations a continuous part of mining companies' work rather than an annual exercise."



Kati McCartney,
President,
FROSKR

"Younger generations often perceive mining as dirty and harmful to the environment, so educating young people about the necessity of responsible mining for a greener future is critical."



Frank Galati,
Managing Partner,
The Bedford Group
TRANSEARCH

"As an industry, if we want to move to improve things such as ESG and decarbonization, an important first step is collaboration and trust."



Pierre Julien,
Executive Vice
President, DRA Global

to the aspiring mining sector participants who have the will but lack the time or budget to realize their ambitions. Stephen Gravel, manager of Cambrian College's Centre for Smart Mining, explained how this strategy helped them buck the broader trend in declining enrollment across the region: "This surge is promising, given that when we launched the training two years ago, the sector was not fully ready for it. Additionally, our mining engineering program has shifted from a three-year to a two-year format, which has boosted enrollment. This shorter program is more appealing to those who cannot commit to a four-year degree."

The problem runs deeper, however. Boosting enrollment at the college and university level will necessitate a greater exposure to mining and mineral exploration from a young age. "One of the challenges we have in Ontario is that geology is not taught in high school as a subject area, so many students are not exposed to the field prior to university," said Peter Hollings, director – CESME, Lakehead University.

Sudbury-based contractor Technica Mining has risen to the challenge, hosting the two week 'Electrifying the Future Summer Camp' for children between the ages of 9 and 14. "While we can

see clear benefits of immersing students in the industry, we need to do more to reach them before they enter post-secondary. As an industry, we must find ways to create memorable and exciting experiences for children to foster early interest, as these initial impressions are crucial for attracting the skilled talent that we will need in the future," said Technica Mining's CEO Mario Grossi. ■

THIS IS MINE LIFE

Mine life is about boldly driving our modern world forward, by delivering the metals and minerals that make everything possible.

Discover our initiatives to inspire the next generation of mining talent. Explore resources to promote industry careers and help bridge the skills gap.

Award-winning Podcast

Inspiring Mining Career Stories

Educator Resources

Career Resources

Current Job Listings (Entry Level) & Upcoming Events

Learn more about This Is Mine Life

Environmental stewardship. Reimagined.

Take the leap! Reach out today and let our team of environmental consultants support you in understanding your environmental impacts.

FROSKR

froskrcorp.com



Photo courtesy of IAMGOLD

Golden Opportunities in the Heartland Province

Production, development and exploration

2024 continues to be a fantastic year for Ontario's gold producers, with gold at all-time highs and major expansion projects underway. With C\$6.5 billion worth of gold production in 2023, Ontario maintained its position as the leading gold-producing Canadian province, responsible for 43% of Canada's total

gold production – up from 41% the year prior. "Ontario welcomed two new producing mines in the summer of 2024 as IAMGOLD's Côte Gold and Equinox Gold's Greenstone Gold mines started production. The province has also seen great exploration success, with Ontario being ranked the number one jurisdiction in

2023 for junior exploration spending in Canada," shared George Pirie, Ontario's Minister of Mines.

Gold production

As the new Côte Gold and Greenstone Gold mines ramp up, 2024 is likely to be another great year for Ontario's gold production. Côte Gold has the potential to become the largest gold mine in Canada, and with most of the main technical challenges solved, IAMGOLD's focus is now on optimizing operations. "I am happy to report that we reached commercial

"With the most technical challenges behind us, our priority is to ensure smooth operational availability and maintain momentum as we refine our processes."

**Renaud Adams,
President and CEO,
IAMGOLD**



Inspired people creating a premier global gold company



Delivering long-term stakeholder value through low-cost production in a safe, environmentally and socially responsible way



evolutionmining.com

"Our focus must remain on cost control and optimization, as we cannot influence gold prices but can manage our operational costs effectively."

**Andre Leite,
Vice President –
Ontario Operations,
Agnico Eagle**



"With each acquisition, we invested in exploration to increase reserves and resources, as well as capital investments to reduce production costs."

**John McCluskey,
President and
CEO, Alamos Gold**



production on August 1. Since then, we have identified key areas for improvement, particularly in secondary crushing and screening processes. After completing a multi-day shutdown in September to address these challenges, which was successful, we are now focused on achieving 90% of the nameplate capacity by the end of 2024," shared Renaud Adams, President and CEO, IAMGOLD.

While Ontario's producers reap the rewards of a US\$2,800 /oz gold price, they are focusing their attention on managing costs across their operations. With the price of materials, labor and equipment rising sharply since the Covid pandemic, majors are placing increasing emphasis on capital discipline, prioritizing operational efficiency at their existing projects rather than embarking on new greenfield projects. For Agnico Eagle, Ontario's largest gold mining company by market cap, taking advantage of the economies of scale and expanding the mill-constrained Macassa mine is the strategy taken to reach its 2025 target of 300,000 oz/y at the site. Rather than building a whole new plant from scratch at great cost, Agnico Eagle invested in improving milling rates at its existing mill to overcome the bottleneck. "Our focus must remain on cost control and optimization, as we cannot influence gold prices but can manage our operational costs effectively," shared Andre Leite, vice president – Ontario operations, Agnico Eagle.

Agnico Eagle also has high ambitions for its other producing asset in Ontario – Detour Lake. Despite already being the



Building for the future.

Strengthening our competitive position to deliver more value to all of our stakeholders for decades to come.



We make mining work.

AEM (NYSE and TSX)

agnicoeagle.com

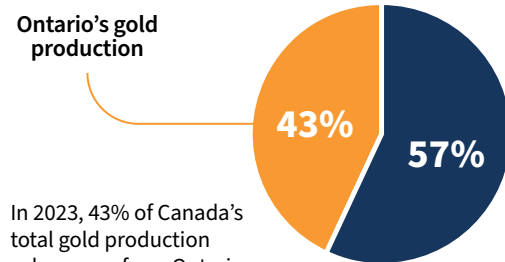
Gold Production in Ontario



2.8 million troy ounces
of gold produced in Ontario in 2023, valued at C\$6.5 billion

*One icon represents 1 million troy ounces of gold produced.

Gold production in Canada (by value)



In 2023, 43% of Canada's total gold production value came from Ontario.

Source: Natural Resources Canada and the Ministry of Mines

largest gold mine in Canada with 677,466 oz of gold produced in 2023, Agnico Eagle still sees opportunity for expansion and has the ambitious goal of boosting gold production to 1 million oz/y.

Like Agnico Eagle, Alamos Gold has also enjoyed a very successful period seeing its valuation increase by 50% over the past year. A major contributor to this growth was the acquisi-

tion of Argonaut Gold and its Magino mine in Ontario, which neighbors Alamos Gold's Island Gold mine. John McCluskey, Alamos Gold's president and CEO, shared the strategy behind the acquisition: "Historically, we have only made acquisitions when gold prices were low. However, the Argonaut acquisition was an exception, with its share price declining even as gold prices rose. This decline presented a rare opportunity, as Argo-



RESPONSIBLE — ACCOUNTABLE — RESULTS

BETTER BY DESIGN

- Mine Development & Construction • Shaft Sinking • Raise Boring • Contract Mining
- Material Handling Solutions • Crushing & Conveying Systems • Mobile Stacking Systems
- Feasibility & Design Engineering • Project & Construction Management



Cementation Americas

cementation.com

"It has been a tricky start for us at Red Lake despite our faith in the operation, and this belief in what we are doing has paid off, as we are seeing quarter-on-quarter improvements."



Lawrie Conway,
Managing Director and CEO,
Evolution Mining

"In my hometown we went from Falconbridge to Xstrata to Glencore, but core exploration and mining capabilities remain strong as they are rooted in the know-how and experience built up over a long history of mining in this country."



Denis Frawley,
Partner,
Momentum Law LLP

naut had over 4 million oz of reserves and about C\$1 billion of capital invested in Magino. We acquired Argonaut for an enterprise value of US\$727 million and identified US\$515 million in total synergies."

The addition of Magino contributed to Alamos Gold raising its 2024 production guidance by 20% and the company has not wasted any time integrating Magino into its existing Island Gold operations. In acquiring and expanding the Magino mill, Alamos has been able to boost efficiency at both sites by handling ore from both the Magino and Island Gold mines. "The integration has been less challenging than expected. This is likely because our operations are located side by side in a remote area, with a shared local workforce. Many of the employees at Magino and Island Gold are neighbors, and in some cases, family. It has been a smooth process overall, and the community aspect has made integration easier," continued McCluskey.

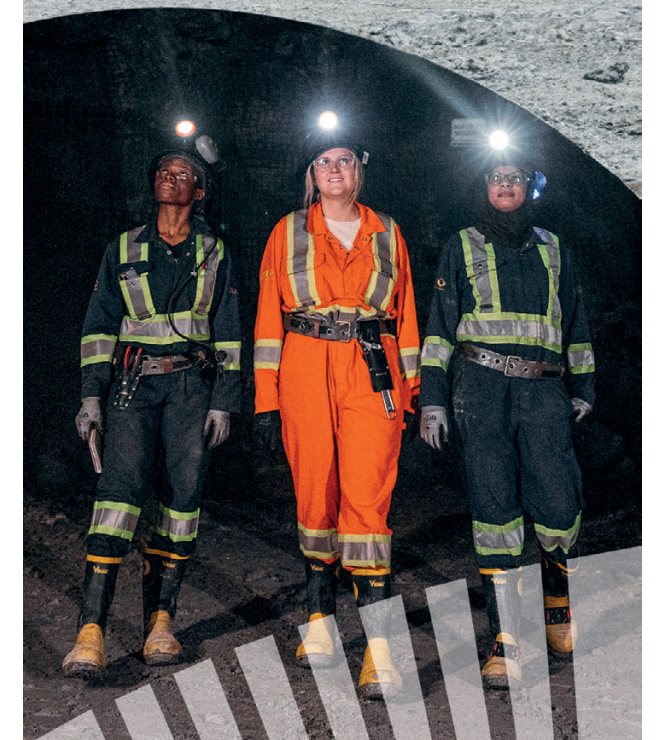
In the furthest northwestern reaches of Ontario, Australian major Evolution Mining has also been focused on efficiency and cost reduction at its Red Lake complex. Since acquiring it from Newmont in 2020, Evolution Mining has faced growing pains and struggled to get the mine to produce reliably due to seismic-related issues, among others. However, the first half of

IAMGOLD[®]
CORPORATION
TSX : IMG | NYSE : IAG

**Excellence
Innovation
Responsibility**

Building a leading modern gold producer with an empowered workforce to be a model for mining for our stakeholders

www.iamgold.com



"While much of the initial government funding has gone toward midstream and EV manufacturing, we are seeing a shift in focus to mining production, especially in northwestern Ontario."



Cameron Henry,
Managing Director,
Green Technology Metals

2024 saw massive operational changes at the mine that the company hopes will set it on the right path to reach its targets. "The first step will be to reach 150,000 oz/y, with this year's guidance placed at 125,000 oz/y to 145,000 oz/y. Once we achieve consistency and reliability in the operation, we will then consider options to increase production and lower overall unit operating costs," said Lawrie Conway, managing director and CEO, Evolution Mining.

Development

With two major projects recently completed - Côté Gold and Greenstone Gold - the race is on to see which project will become Ontario's next producing mine. Magna Mining recently acquired a portfolio of past producing mines and assets from KGHM International, including the producing McCreedy West copper mine. "These assets have been on our radar for a long time, and our team has extensive experience with them. The acquisition com-

plements our Crean Hill and Shakespeare projects, and we hope to close the deal by the end of 2024," shared Jason Jessup, Magna Mining's CEO.

To fund the development of its massively expanded asset portfolio, Magna recently closed a C\$22 million private placement, positioning the company well to develop its other projects in the Sudbury basin: "This financing will help us close the acquisition, and we expect to generate cash flow from McCreedy West. Our focus will be on reinvesting in McCreedy to increase production. While we may consider royalties or streams to fund Levack or Crean Hill, we are not looking at off-take agreements or bringing in partners at this time," continued Jessup.

Further west, on the shores of Lake Superior, Generation Mining continues to advance its Marathon palladium-copper project. In 2024 the company managed to secure the final federal permits required to move forward with construction and is awaiting the final three provincial permits. "The Marathon project is currently one of the only advanced, permitted, critical mineral development projects in North America. It is on the cusp of being the only copper-PGM mine that can commence construction in the next 12 months," shared Jamie Levy, president and CEO, Generation Mining.

Another vying contender for Ontario's next critical mineral mine is Green Technology Metals (GT1) with its flagship Seymour lithium project, aiming for a FID in 2025. The company has plans to add value to the project by constructing a lithium conversion facility in Thunder Bay, aligning with Ontario's critical minerals strategy of building up a made-in-Ontario supply chain for EVs and battery manufacturing. "We recently secured nearly C\$6 million in conditional funding from Ontario's Critical Minerals Infrastructure Fund (CMIF) to upgrade infrastructure for the Seymour project. We have been in close contact with agencies like Natural Resources Canada and the Strategic Innovation Fund, which are eager to support upstream development. "While much of the initial funding has gone toward midstream and EV manufacturing, we are seeing a shift in focus to mining production, especially in northwestern Ontario," said GT1's managing director Cameron Henry.



25
YEARS
1999-2024
SEABRIDGE GOLD

Celebrating 25 years of mineral exploration excellence!

To learn more, please visit:
www.seabridgegold.com or email: info@seabridgegold.com

SEABRIDGE GOLD'S KSM MEGAPROJECT:

Environmental approvals and permits valid for the life of the project thanks to our Indigenous partners' support.

"RELENTLESS PURSUIT TO END OCCUPATIONAL HEALTH ILLNESS AND IMPROVE WORKER SAFETY."



Everyone Safe – Guaranteed.
Every shift, every day, every miner – home safe.

The **Vigilante AQS™** accurately measures airflow, worker heat stress, gas concentrations, and air particulate matter – reducing downtime and enabling miners to return to the face sooner and safer.

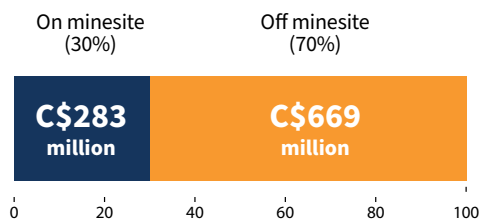


maestrodigitalmine.com

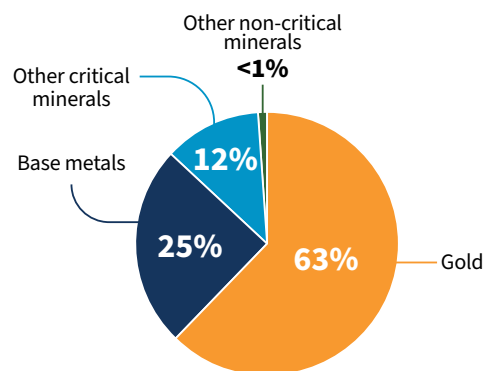
Exploration Spending in Ontario

Ontario is well-positioned to be a global supplier of critical minerals with its vast supply of minerals, processing capabilities and world class mining support and services sector.

Exploration spending in 2023



Exploration spending by mineral, including critical minerals



Source: Natural Resources Canada and the Ontario Ministry of Mines

Thunder Bay will serve as an ideal location for future projects like GT1's lithium conversion plant, as it is home to Canada's furthest inland port. The Port of Thunder Bay's CEO Chris Heikkinen shared how the port is preparing itself for an anticipated uptake in demand from the many development projects in the region: "We received C\$6.7 million in federal funding aimed at enhanc-

ing asset offerings and services. We are expanding our lay-down area, investing in several additional acres of exterior storage and staging areas for cargo. This is an area of high interest to the mining industry as it provides flexibility for companies importing equipment and infrastructure, allowing them to be held in the Port of Thunder Bay until they are needed at the mine site."

"As permitting is a time-consuming process, suppliers often have to wait years before they can start executing their services on a project, which is quite frustrating."



Marla Tremblay,
Executive Director,
MineConnect

Exploration

In 2023, Ontario spent C\$952 million on mineral exploration, slightly less than the C\$990 million spent in 2022. "The province has seen great exploration success, with Ontario being ranked the number one jurisdiction in 2023 for junior exploration spending in Canada. We continue to discover new rare earth metals across the province, including cesium north of Timmins, which is vital for national security and the movement to clean energy," noted Minister Pirie.

Gold was responsible for 63% of the province's total exploration spending in 2023, with companies such as First Class Metals (FCM) carrying the momentum into 2024 and reporting a fruitful field season: "FCM has also extended North Hemlo to the north by 34.5km² by executing a purchase agreement with OnGold Invest Corp., and lake sediment sampling conducted last winter indicated significant gold anomalies on this part of the property. Our focus to date has been on the Dead Otter trend, which produced the highest grab sample ever on the property, and the 'north limb' at just under 20 g/t," shared FCM's CEO Marc Sale.

Just a few kilometers away, Clean Air Metals is advancing its flagship Thunder Bay North (TBN) PGE and copper project, completing a successful 1,700 m drilling program over the summer. Mike Garbutt, Clean Air Metals' president and CEO, outlined the company's next steps: "Our strategy is to continue down the development path and to derisk the project over the next year by moving to advanced exploration using our available cash with a goal to be in the position to execute a bulk sample in 2026. We will be restarting some studies and will hopefully put out a PEA in 2025."

In Ontario's remote north, the 'Ring of Fire' has long been touted as the next major mining destination, but bringing a project to construction has remained elusive for a number of reasons, ranging from Indigenous and environmental concerns to a lack of road infrastructure. Nevertheless, the region continues to attract explorers from across the world, with Australian major Wyloo making progress on a feasibility study for its Eagle's Nest nickel project. "This study will be crucial in determining whether we move forward into detailed engineering and subsequent phases. Our primary focus will be on engaging with First Nations, ensuring they are kept informed and involved throughout the feasibility process and beyond," said Kristan Straub, CEO Canada, Wyloo. ■

TORONTO STOCK EXCHANGE AND TSX VENTURE EXCHANGE

GLOBAL LEADERS IN MINING

#1 in Listed Mining Companies Globally

#1 in Mining Capital Raised Globally

To learn more about listing on our markets, contact mining@tmx.com.

mining.tsx.com

Data as at December 31, 2022. Mining capital raised from 2018-2022. Source: TSX/TSXV Market Intelligence Group and S&P Global Market Intelligence.

© 2024 TSX Inc. All rights reserved. The information in this ad is provided for informational purposes only. Neither TMX Group Limited or any of its affiliated companies guarantees the completeness of the information contained in this ad and we are not responsible for any errors or omissions in or your use of, or reliance on, the information. The Future is Yours to See., TMX, the TMX design, TMX Group, Toronto Stock Exchange, TSX, TSX Venture Exchange, TSXV and Voir le futur. Réaliser l'avenir. are trademarks of TSX Inc.

HAVER & BOECKER

NIAGARA

CHECK YOUR PULSE.

IMAGINE KNOWING EXACTLY WHAT YOUR EQUIPMENT NEEDS BEFORE IT NEEDS IT.

- ✓ **Vibration Analysis**
- ✓ **Condition Monitoring**
- ✓ **Impact Testing**

Avoid unnecessary slowdowns and unexpected repairs with Haver & Boecker Niagara's Pulse Diagnostics suite. Our complete set of monitoring tools provides you with the proactive edge your mining operation needs.

THE POWER TO PREDICT, THE STRENGTH TO PERFORM.

HAVERNIAGARA.COM/DIAGNOSTICS

LEARN MORE

SEE US AT MINEXCHANGE BOOTH 2141



Mining Finance and Investment

Ontario's ore-some investment opportunities

Some of the financing woes Ontario's juniors felt in 2023 have continued into 2024, with many of them reporting that the equity markets are not favorable despite record metal and mineral prices. There are a myriad of reasons for this, with a federal government clampdown on Chinese foreign investment, uncertainty from US presidential elections and a sheepish retail investor base being just some of the factors behind Ontario juniors' financing woes.

The issue is particularly pronounced with critical minerals-focused companies, many of which have not enjoyed the favorable prices currently experienced by precious metals companies. In a recent survey by the Canadian Climate Institute, 87% of respondents agreed that the current level of investments is "insufficient" to grow Canada's critical minerals value chain. Despite government efforts to spur investments through grants and subsidies, the lack of private capital entering Canada's mining sector is making it difficult to close the financing gap. "Unfortunately, over the last few years we have not seen as much capital flow into institutional investor funds in Canada focused on metals and mining as we used to, so Canada's relevance as a source of institutional investor dollars in this space has been negatively impacted," said Ilan Bahar, managing director and co-head, global metals & mining, BMO Capital Markets.

There are signs of improvement, however, with the mining and exploration companies listed on the TSX and TSXV collectively raising C\$6.8 billion in equity capital in H1 2024, a 62% gain compared to the same period in 2023, with First Quantum closing a C\$1 billion equity bought deal, the largest in Canada's history. "The pandemic, geopolitical tensions, and a high inflationary environment had a great impact on the global mining sector and the financing market has not yet returned to the levels we saw in 2021, but the upward trend we have experienced in 2024 thus far has been encouraging, and the interest rate cuts by Canada, Europe and now the US, as well as increasing commodity prices, have given the mining sector reasons to again be optimistic," said Dean McPherson, head, business development – global mining, Toronto Stock Exchange and TSX Venture Exchange.

Investment Canada Act

A recent overhaul to the Investment Canada Act (ICA) has been a hot topic of conversation on Bay Street. The changes represent the most significant update to the national security provisions of the ICA since they were first adopted in 2009, and all point towards increased scrutiny of foreign investment in Canadian critical minerals projects – particularly from China. The changes have

"Given the strong commodity price backdrop and healthy valuations, we expect continued consolidation as larger companies seek to secure assets before the opportunity set dwindles even further."

Ilan Bahar, Managing Director and Co-Head, Global Metals & Mining, BMO Capital Markets



"The government must not make arbitrary decisions about who can and cannot invest in mining operations, as we run the risk that it will get turned around on us."

Paul Brink, President and CEO, Franco-Nevada Corporation



seen new surtaxes and tariffs on Chinese imports and it is likely that more cases of Chinese investments into Canadian mining companies will become unfeasible or outright refused, as evidenced by Solaris Resources recently scrapping its plan to sell a minority stake to Zinjin Mining Group. "Companies that were previously relying on foreign investments to raise capital now face challenges. The problem is further compounded when a significant portion of production and processing, especially for critical minerals, is happening in countries like China, and therefore some of the natural investors are foreign investors seeking feedstock," said Denis Frawley, partner, Momentum Law LLP.

The controversial changes have been met by resistance from small-cap Canadian explorers to the CEO of the TMX group. The matter is further complicated by the fact that many mining companies are headquartered in Canada and listed on Canadian exchanges, but have projects abroad. "All Canadians would agree with the intent to protect our national interest in the critical minerals supply chain. The execution however has only served to create confusion with its lack of clarity and consistency, with many of the cases involving projects which are located outside of Canada. We have already seen companies taking steps to protect themselves from the Canadian government by redomiciling, while keeping their TSX/V listing," continued McPherson.

Beyond the immediate financing challenges caused by Canada's hawkish stance towards China, the ICA changes also risk hampering Canadian prospectors' and miners' chances at developing

projects abroad in the long term. "Canada is a global mining leader and is setting a benchmark for how other countries conduct themselves in the mining space. Therefore, the government must not make arbitrary decisions about who can and cannot invest in mining operations, as we run the risk that it will get turned around on us. Many of Canada's leading mining companies rely on foreign countries being receptive to them operating in their

jurisdictions. Canada should set a positive tone in terms of international mining investment," said Paul Brink, president and CEO, Franco-Nevada Corporation.

Although the Canadian government is turning its back on China, it has looked to build stronger relationships with other nations to fill the gap. For Green Technology Metals (GT1), an Australian company looking to become Ontario's first lithium producer, this has opened new avenues

for partnerships and financing: “Canada’s restrictive stance on Chinese financing has made things easier for us. Canada has been actively strengthening relationships with South Korea and Japan, particularly in critical minerals and infrastructure development. During my recent trip to Korea, I met with the Canadian Trade Commissioner, who is helping facilitate partnerships between Korean investors and Canadian projects,” shared GT1’s managing director Cameron Henry.



Peter Nicholson,
Founder and President,
WEALTH Group (WCPD)

Capital gains and AMT

Canada’s 2024 Budget announced increases to the capital gains inclusion rate. This, alongside changes to the Alternative Minimum Tax (AMT), were a major blow to Canadian exploration capital. In 2023, 83% of all exploration capital raised on Canadian exchanges was financed through flow-through shares (FTS), with 89% of that being charity flow-throughs. The changes were expected to effectively eliminate about a third of all FTS investment, coming as a major blow to Canada’s explorers, which have relied on the FTS model since its inception in the 1970s.

In anticipation of the changes in April 2024, investors and donors rushed to take advantage of the existing regime before changes were enacted, leading to some deal-makers such as WEALTH Group (WCPD) reporting record deal-flows. “WCPD was

extremely busy after the budget announcement as the government gave 60 days for people to sell assets, buy more tax reduction strategies, buy more charity flow, etc. so that they could collect more tax, and it worked for them as they collected approximately C\$4 billion more in income tax than they would have in just two months. By 25 June 2024, when the capital gains went up, we had reached the equivalent of December 31, 2023, which was phenomenal,” said Peter Nicholson, WCPD’s president and founder.

The changes were opposed by swift lobbying from industry associations, donors, issuers

and the financial firms that facilitate FTS deals to amend the AMT and restore the strength of the FTS model. The calls were heard by the government, and the requested changes have been put forth in a draft legislation that is hoped to be enacted by the end of 2024. “I do not believe that the government understood the impact these changes would have on exploration risk capital, and as critical mineral exploration is a huge priority for the government, they have since advanced measures to reverse some of the changes that were compromising exploration capital,” said David LeClaire, Oberon Capital’s president and founder.

With Canada expecting federal elections in 2025, there is still uncertainty on how a new government would approach capital gains and the AMT, but FTS stakeholders have considered this in their lobbying efforts: “As part of lobbying activities, we are speaking to members on all sides of government in an effort to inform individuals on the connection between tax policy and mineral policy. Regardless of who wins power in the next election, we are hopeful that a new administration will be ready to hit the ground running, understanding the issues and concerns of the mineral exploration industry,” said Kendra Johnston, managing director, PearTree Securities.

It is hoped that the attention around the capital gains changes will elevate the importance of the FTS model to Canadian voters. At a time when juniors need all the financing they can get, the uniquely Canadian FTS model is more important than ever to Ontario’s exploration success. “With charity flow-through today being a dominant part of the financing landscape for Ontario mineral explorers, the model has become more understood, and the industry realizes the significant upside of minimizing dilution by raising funds through charity FTS,” said Lisa Davis, CEO, PearTree Securities.

Alternative financing

Ontario’s mining sector continues to struggle to attract new profiles of institutional investors with a sufficient appetite for riskier early-stage exploration plays. “Pension funds are not investing in exploration, so resource funds continue to be the primary capital source, despite weak inflows. There has not been a noticeable trend of new investor types, and sovereign wealth funds show only sporadic interest. Private equity is more active now compared to 15-20 years ago, but its impact on the sector remains limited,” said Craig Stanley, director - precious metals, Raymond James.

The inability of Canada to attract more generalist investors to its mining sector has a knock-on effect on resource funds, which typically have technical backgrounds and are more inclined to look at higher-risk exploration opportunities. “Liquidity, which is typically driven by generalist retail investors, can suffer when market attention is attracted to other sectors, for example technology,” said Stefan Ioannou, base metals analyst, institutional equity research, Cormark Securities.

Given the difficulty faced by issuers raising funds traditionally through equity, the attractiveness of alternative financing methods are becoming increasingly hard to ignore. While most alternative forms of financing continue to have a limited impact on the overall financing landscape, the fallout of the commodity downturn in 2014/2015 forced many issuers towards streams and royalties, leading to the model’s remarkable growth over the past 10 years – particularly in gold and silver. However, this mode of financing is unlikely to help early-stage explorers who are feeling the financing pinch the most, as streaming and royalty companies typically prefer producing mines or advanced near-production projects. “Making a material investment into a junior trying to put a new mine into production is probably too high risk for a royalty company such as Metalla. The market has had trouble fully being able to value the optionality piece of this business,” said Brett Heath, CEO, Metalla Royalty & Streaming.

Nonetheless, Ontario’s juniors are continuing to find creative ways of financing their projects, particularly those in the critical minerals space. With EV and battery manufacturers scrambling to secure locally-sourced materials, we can expect to see them show increased interest in Ontario’s upstream in the years to come, providing a new financial lifeline for many project developers. “OEMs continue to expand into the mining space to gain access to commodities. We have seen toehold investments to full-blown JV partnerships this past year. It has been a learning curve for both OEMs and mining companies as they try to collaborate effectively to bring products to the market,” said Alexander Pizale, partner, Casels Brock & Blackwell LLP. ■



PRAGMATIC LEGAL SOLUTIONS
FOR YOUR CRITICAL NEEDS

DES SOLUTIONS JURIDIQUES
PRATIQUES POUR VOS BESOINS CRITIQUES

We draw on our extensive experience in the mineral resource sector to advise on corporate and securities matters, financings, strategic transactions, business agreements and disputes.

Count on us for legal advice that reflects our commitment to pragmatic solutions.

Nos conseils sur le droit corporatif et des valeurs mobilières, sur les financements, sur les transactions stratégiques, sur les accords d’affaire et dans les différends s’appuient sur notre expérience considérable en ressources minières.

Comptez sur nous pour des conseils juridiques axés dans le pratique.



TORONTO, ONTARIO, CANADA
Tel: +1.416.594.0791 | www.momentumlaw.ca
Denis Frawley (dfrawley@momentumlaw.ca)
James Brink (jbrink@momentumlaw.ca)
Daniel Ilas (dilas@momentumlaw.ca)
Peter Manderville (pmanderville@momentumlaw.ca)
Formerly Ormston List Frawley LLP

BEDFORD
TRANSEARCH
YOUR WORLD PARTNER IN EXECUTIVE SEARCH

45 years of executive recruitment and compensation consulting for the mining sector.

Frank Galati, Managing Partner
The Bedford Group TRANSEARCH
Phone: 1+416-970-7600
Email: fgalati@bedfordgroup.com

Website: www.bedfordgroup.com
To find out more about our Mining & Metals Compensation Reports, click here.



Photo courtesy of Torex Gold

Toronto's Global Reach

Ontario's miners go global

The closure of Canadian major First Quantum Minerals' Cobre Panama open-pit mine in November 2023 shook the global mining sector. Cobre Panama was responsible for 1.5% of the world's copper supply and contributed around 5% of Panama's GDP. Since coming into operation in 2019, the mine has been marred by protests and legal issues, that cascaded into a

Supreme Court decision to halt operations at the mine. In the fallout, Toronto-based streaming and royalty company Franco-Nevada suffered a 30% dip in its share price as it held significant long-term streams in the mine.

The incident has undoubtedly made many of Ontario's mining companies reconsider their approach to jurisdictional

risk. "The main takeaway from the Cobre Panama incident is that we need to keep our portfolio diversified and not put too many eggs in any one basket. We are also focusing our attention on jurisdictions with a strong domestic mining industry rather than countries where the domestic mining industry is still being developed, and therefore, many issues still need to be ironed out," said Paul Brink, Franco-Nevada's president and CEO.

The uncertainty around the Panama Cobre debacle was compounded by a Panamanian presidential election in May 2024. 2024 has been dubbed the "the biggest election year in human history" by the UN, with half of the world's population having the chance to go to the polls, having serious repercussions for the Canadian mining sector's approach to jurisdictional risk when developing projects abroad. New governments can also mean new opportunities, however, as seems to be the case in Argentina with the Milei government's efforts to deregulate its mining sector and attract foreign investment to turn Argentina into a major copper player, like its neighbor Chile. "Argentina has had a difficult history in terms of foreign investment, but the current course the government is on is extremely positive. There is terrific geology in Argentina, much of which is undeveloped, and having the RIGI investment regime in place will help unlock investment in the mining sector," continued Brink.

This comes as good news to many of Ontario's players, such as TSX-listed Lith-

"In the hard rock space, we want to grow our portfolio in what we call the ABCs of hard rock - Australia, Brazil, and Canada – and in the lithium brine space, we will be looking for opportunities in Argentina."

**Ernie Ortiz,
President and CEO,
Lithium Royalty Corp.**



ium Royalty Corp (LRC), which has royalties on Zijin Mining's Tres Quebradas and Ganfeng's Mariana mines in Argentina that are expected to soon generate new revenue streams for the firm. "In the hard rock space, we want to grow our portfolio in what we call the ABCs of hard rock - Australia, Brazil, and Canada – and in the lithium brine space, we will be looking for opportunities in Argentina. Argentina's mining industry is becoming increasingly at-

tractive with pro-business and pro-market reforms, which makes it an even more compelling region for LRC," said LRC's president and CEO Ernie Ortiz.

Mexico is another Latin American nation that has seen a change in leadership in the past year with President Claudia Sheinbaum taking over from Andrés Obrador. This change has many Canadian miners holding their breath, as the jurisdiction was clouded in uncertainty for years with a defacto ban on permitting for open-pit mines. Fresh off the acquisition of Sabre Gold Mines, Toronto-headquartered Minera Alamos is looking to permit its Cerro de Orro mine in Zacatecas State so as to commence production in 2026. "The same party and coalition is in power, just with a different head, and investors have not received all the comfort and clarity they are seeking. In taking over leadership, President Sheinbaum wants to protect her predecessor's legacy whilst still charting her own path," said Minera Alamos' president Doug Ramshaw.

Underground projects, such as Alamos Gold's Puerto Del Aire (PDA) project, adjacent to its producing Mulatos mine in Sonora State, are more likely to pass the permitting process. Alamos Gold seems confident in the project, having recently announced positive drilling results that could potentially triple the mine life of the Mulatos district. "At our PDA project in Mexico, reserves

Torex Gold
RESOURCES INC.
torexgold.com

Transforming finite mineral resources into lasting prosperity by positively impacting all the lives we touch.

TSX | TXG

Dean McPherson

**Head, Business Development –
Global Mining,
Toronto Stock Exchange (TSX)
and TSX Venture Exchange (TSXV)**



"By the end of August 2024, we already had 30 new listings, a significant increase from the 20 we saw throughout 2023."

How have the TSX and TSXV performed over the past year?

2022 was an extremely difficult year in terms of financing activity and new listings, but the equity capital markets started to improve by the end of 2023, and 2024 kicked off on an upward trend with First Quantum closing a C\$1 billion equity bought deal, the largest in Canada's history. This was followed by continued improvement in the mining financing space, particularly amongst the larger issuers, and, as the year progressed, we started to see the increased activity spread to the junior, early-stage mining companies. By the end of August 2024, we already had 30 new listings, a significant increase from the 20 we saw throughout 2023, and an incredible achievement considering our nearest competitor has only seen 15 new listings so far in 2024.

What is the TMX Group's stance on the Canadian government's decisions to restrict certain foreign investments into its domestic mining sector?

The government's restrictions on investments by foreign SOEs are a major concern, especially because of the opaque and unilateral manner in which the federal government has been operating in this regard. Both TMX Group's CEO and Toronto Stock Exchange's CEO have publicly voiced concerns on how this approach may negatively impact Canada's economy as well as the health and strength of our capital markets. All Canadians would agree with the intent to protect our national interest in the critical minerals supply chain. The execution, however, has only served to create confusion with its lack of clarity and consistency, with many of the cases involving projects that are located outside of Canada. We have already seen companies taking steps to protect themselves from the Canadian government by redomiciling, while keeping their TSX/V listing. We continue our lobbying efforts with the government in trying to protect our leadership position in the mining sector and for the betterment of Canadian capital markets. ■

"Sentiment since President Sheinbaum has taken office has begun to improve and we expect to see movement on permits in the first half of 2025 that should further bolster sentiment toward Mexico."

Doug Ramshaw,
President,
Minera Alamos



have expanded to over 1 million oz, and we are advancing with permitting to enable construction in 2025," said Alamos Gold's president and CEO John McCluskey.

Unlike Argentina and Mexico, Cuba's one-party communist system and strained US relations make it a far less common jurisdiction to find Canadian mining operations. Nonetheless, the near-century-old Canadian mining company Sherritt International has operated the Moa mine and nickel upgrade facility in the island nation, where it has been involved in a JV for 30 years. While the longstanding US embargo on Cuba has certainly made operating in the country more challenging, elections in the US and the West's efforts to mitigate China's dominance in critical mineral supply chains could potentially provide an avenue for Cuba to play a larger role in North American nickel and cobalt markets, given its strategic geographic location. "This shift away from Chinese and Russian supply chains creates an opportunity for Cuba to become a key supplier for North America, much like Indonesia's relationship with China. Sherritt is one of the few players with technical expertise to develop refining capabilities outside of China, making our Cuban mine

a key asset in the energy transition and supply chain diversification in North America," said Leon Binedell, president and CEO, Sherritt International.

Canadian exploration

Closer to home, Ontario's explorers continue to make discoveries from the rugged coastal mountains of BC to the harsh arctic tundra of Nunavut. One such example is Aston Bay Holdings, which has been advancing its flagship Storm Copper project in a JV with Australia-based American West Metals. The two companies are devising ways to navigate the challenging and remote geography and hope to release a PFS in early 2025 to then commence the permitting process. "Although we have thousands of tons of copper at the surface, it holds no value unless we can efficiently bring it to market. Our partner, American West Metals, understands this and planning is underway to use innovative methods to economically extract, process and ship the high-grade ore, moving away from traditional methods that may not work well in the Arctic environment," shared Thomas Ullrich, CEO, Aston Bay Holdings.

As climate change continues to thaw Arctic ice creating new shipping lanes, analysts predict that the region will play an increasingly important role in global geopolitics, which could lead to increased infrastructural investments and governmental support for projects in Canada's far north. "The US government has expressed interest in our strategic location near the Northwest Passage. This area is crucial for North American sovereignty and a source of critical metals, leading to grants from US entities for companies developing critical mineral mines in the region," continued Ullrich.

In BC, Seabridge Gold's gargantuan Kerr-Sulphurets-Mitchell (KSM) gold and copper project obtained its "Substantially Started" designation, meaning its permits are no longer at risk of expiring in 2026. This de-risking gives Seabridge Gold a clearer path to completing a JV with a major mining company that can help bring the financial and technical muscle to develop

"Cuba's geographic location and resource base position it to play a larger role in the global nickel and cobalt market, especially as the West shifts away from reliance on Chinese EVs and metals."

Leon Binedell,
President and CEO,
Sherritt International



"Toronto is a true global center of excellence for the mining industry, especially from a financial standpoint."

Rudi Fronk,
Chairman and CEO,
Seabridge Gold



the world's largest undeveloped gold and copper project (by resources). Rudi Fronk, Seabridge Gold's chairman and CEO, shared some of the challenges of undertaking the project: "Permitting a massive project like KSM costs more and takes longer than exploring to find it. The major companies are scouring the globe for potential new projects, especially in critical metals like copper, and before they spend the effort to evaluate the technical merits of a project, they want to know if it has a reasonable path to permits."

With close to a billion dollars invested in KSM since acquiring it in 2001, Seabridge Gold is being very selective with who it part-

ners with to complete the project. "Our JV partner must have a track record of building and operating mines of a similar scale to KSM. In addition, our partners will need to have a strong enough balance sheet to raise the capital externally or sufficient cash flow from operations to internally fund the development of KSM. From a social perspective, we are looking for a proven track record in dealing with ESG matters," continued Fronk.

Despite the global uncertainty brought about by a record number of elections and ongoing conflicts, Toronto's reach continues to extend across the globe, from the Arctic to the Patagonian Andes. ■



Building world-class mines since 1962.

- Mine Development
- Shaft Sinking
- Mass Excavation
- Production Mining
- Raiseboring
- Mechanized Raise Mining
- Underground Construction
- Mechanical Excavation
- Production Drilling
- Engineering & Technical Services
- Specialty Services





2025 14 January Knowledge Exchange
15-16 January Conference Exhibition & Networking
King Abdulaziz International Conference Center, Riyadh, Saudi Arabia

REGISTER NOW



THE WORLD'S LEADING GATHERING ON MINERALS

14,000+
PARTICIPANTS

1,000+
CEOS

250+
SPEAKERS

170+
COUNTRIES

150+
EXHIBITORS

70+
MINISTERS

Top Speakers

Tom Palmer
President and Chief Executive Officer,
Newmont

Dominic Barton
Chairman,
Rio Tinto

Jinghe Chen
Executive Chairman,
Zijin Mining Group

Duncan Wanblad
Chief Executive,
Anglo American

Máximo Pacheco
Chairman,
Codelco

Jonathan Price
President and Chief Executive Officer,
Teck

Steels Li
Vice Chairman & CO,
CMOC

Mark Bristow
President and Chief Executive Officer,
Barrick

Join Global Mining, Mineral, and Investment Business Leaders!

Discover emerging opportunities within the global mineral value chain and forge powerful partnerships with investors driving the expansion of mineral operations. Be part of a network that accelerates growth and shapes the future of the mineral and mining industry.

Futuremineralsforum.com

#FMF #FMF25 #FutureMineralsForum



Digging Together

Contracting and collaboration

Ontario's mine owners are facing a dilemma: rely on experienced contractors to build and operate their mines and pay a premium, or develop their own in-house talent pool to rely on. The reliance on contractors and service providers is complicated by the sector's cyclical nature and the fact that projects like Agnico Eagle's Detour Lake can reach gargantuan sizes, requiring thousands of skilled laborers from an already stretched talent pool. "I have observed a significant shortage of expertise in the industry, which is not a revelation but rather a recognized issue over the past several years. Clients are increasingly asking contractors like Redpath Mining to take a more involved role in their projects instead of merely handing off a scope of work," said Paul Healy, president Americas, Redpath Mining.

Ontario's rich ecosystem of mining contractors and engineers has a long history of delivering the most technically challenging projects. Contractors and consultancies are now being challenged with minimizing costs for clients while having to adhere to new safety regulations, such as the seismic risk management

"Canadian clients, particularly larger ones, demand high levels of sophistication from contractors and understand that new technology may require upfront investment but yields long-term payoffs."

Eric Smith,
Managing Director,
Cementation
Americas



regulations introduced in 2023 by Ontario's Ministry of Labour, Immigration, Training and Skills Development. "While cost is an important factor, I would say it is the speed of turnaround to assist with projects that is very important. With the Ministry of Mines cracking down on different things in the health and safety space, more paperwork and inspections are needed that require help from engineers and thus a quick turnaround is important," shared Patrick Pilon, general manager of Black Rock Engineering.

As the cost of mining continues to rise, with elevated labor costs being a main driver, mine owners must think carefully about how they approach contracting, particularly given recent global events such as the war in Ukraine and the Covid pandemic, which de-stabilized supply chains and derailed project plans. "When risks do materialize, we maintain open communication with our clients to determine the best approach for addressing them. Although this approach may involve difficult conversations early on, it ultimately proves more effective than scrambling to resolve issues mid-project," said Eric Smith, managing director, Cementation Americas.

Ontario's slow permitting process and the uncertain macro-economic environment mean a project's scope and feasibility can change significantly even after a contractor is engaged on a project. Managing risk appropriately from the get-go is paramount, especially when the pressure on mine owners to reduce costs is mounting, making the unrealistically low bids from contractors all the more attractive. With large mining projects requiring dozens of contractors and sub-contractors, ensuring all stakeholders are on the same page from the outset is crucial. "We need to work together as creating sustainability and predictability in a pipeline of projects, especially in an environment where the industry is faced with talent shortages, is extremely important. There has to be an open dialog between mining companies, design engineers, and contractors to build trusting relationships," said Julie Zulich, president and CEO, TESC Contracting Company.

Furthermore, the nature of mining means there are always uncontrollable unknowns such as unexpected geology, freak workplace accidents or rapid fluctuations in material and equipment availability that can derail a project at any given moment. When things go wrong – disputes can arise. Mine owners and contractors can often end up facing off in court, particularly in the case

of EPC fixed-price contracts, leading to further delays and steep legal fees for both parties. "As an industry we need to develop contracting models that drive collaboration and align the interests of the mining company and the contractors. Currently, a primary risk mitigation tactic has been to try and transfer the risk from mine owners to contractors through legal contracts. At the end of the day, the owner owns the risk and paper-based risk mitigation has not led to better outcomes," said Pierre Julien, executive vice president at DRA Global.

DRA Global participated in the Canadian Institute of Mining, Metallurgy and Petroleum's 'Capital Projects Symposium' in Toronto, which brought together technical professionals, the legal sector, financiers and contractors to collaborate and develop solutions to this problem. Collaborative initiatives like these will be crucial for Ontario's sector to overcome issues with project execution, talent acquisition and perhaps most importantly, the public perception of mining. "I think we are missing an opportunity due to a lack of collaboration. When you look at other industries facing similar challenges there is a spirit of community and collaboration, something which the mining industry could engage in more often. Certain companies have institutional rivalries where they are unwilling to share information, and this impacts the sector's relationship with the public as well as its overall progress," said James Siddorn, president (Canada) and executive chair (North America), SRK Consulting.

Reluctance to collaborate sometimes stems from stringent rules around confidentiality or to prevent giving competitors a leg up. However, when companies across the mining value chain come together, they can have an outsized impact on their industry's public perception, as seen recently with the World Gold Council's documentary 'GOLD: A Journey with Idris Elba' which garnered millions of views on Youtube.

Ontario's mining is perhaps missing an opportunity to highlight its role in the energy transition via critical minerals such as lithium and copper. In 2023, Canada's energy sector accounted for 10.3% of the nation's GDP – double that of the mining sector – making it an obvious choice for public outreach initiatives. "Achieving

150+ local experts

delivering trusted mining solutions in Ontario



Engineering
and environment



Technica Mining

FULLY INTEGRATED

RAISE BORING

SOLUTIONS



We're ready for your next project.

Visit www.technicamining.com
to discover more and explore our complete
range of turn-key mining solutions.

"I believe the key to success is ensuring a truly collaborative approach involving contractors early in the project planning stages. Working together from the beginning improves accuracy in project expectations and minimizes unexpected issues down the road."

Mario Grossi,
CEO, Technica Mining



"Clients are increasingly asking contractors like Redpath Mining to take a more involved role in their projects instead of merely handing off a scope of work."

Paul Healy,
President Americas,
Redpath Mining



net-zero targets relies on the mineral sector, which is crucial for sourcing minerals for renewable technologies. Yet the mining industry faces challenges in securing public approval and stakeholder acceptance. This highlights the need for better education and collaboration among industries to inform the public about the relationship between mining and sustainability, ultimately aligning goals with actionable pathways," said Marissa Reckmann, CEO, AGAT Laboratories.

Collaboration can extend beyond industry and into academia, allowing aspiring mining professionals to get hands-on experience. For example, Lakehead University was able to give its stu-

dents a taste of the region's geology with field trips to Generation Mining's Marathon project and has been conducting industry-focused research supported through the Natural Sciences and Engineering Research Council's (NSERC's) Alliance grants, which match industry contributions two-for-one. "Stable relationships with industry partners are critical, and we are encouraged to see industry mindsets shifting and companies wanting to foster longer-term partnerships to maintain a steady supply of the next generation of geology talent," said Peter Hollings, director – CESME, Lakehead University.

In addition to contributing to boosting talent development and research, industry-academia partnerships offer an opportunity to give back to their surrounding communities, as recently seen with Vale's C\$750,000 donation to Cambrian College in Sudbury. "The Vale Electric Vehicle lab, in the Glencore Centre for Innovation, highlights the collaboration between major mining companies and our institution. Ongoing projects include converting a diesel-powered vehicle to fully electric, offering students hands-on experience," shared Mike Commito, director of research & innovation at Cambrian College.

Daniel Pop, chair of Outliers Mining Solutions, a consultancy specializing in using data to boost mine productivity, explained that the problem of insufficient knowledge sharing can even impact an organization internally: "A common challenge we see across the industry is capturing and transferring knowledge from one generation of leaders and mining professionals to the next. The systems we promote help facilitate this knowledge transfer, as much of the essential expertise may already exist within organizations but is not effectively utilized."

This is particularly pertinent in Ontario today, given the 'grey tsunami' afflicting the sector. "There is a growing number of new supervisors, first-time superintendents, and first-time managers in the industry, especially as many experienced senior professionals are starting to retire," said Adam Hewitt, co-founder and CGO, Outliers Mining Solutions.

Competition breeds innovation and pushes companies to improve or get left behind. However, challenges like the talent shortage impact the entire regional sector, while others like climate change and sustainability are a global problem. Some battles may be too great for one individual, organization, or even sector to fight alone. ■

Clean50
Experience in 20 countries
\$100M+ Implemented Energy Savings
>500,000 tCO₂e GHG Savings

Thorn Associates
Climate and Energy Transition Consulting for Mining

- Net Zero/Decarbonization Climate Change Strategies
- Energy /Carbon Audits
- Scope 1, 2 and 3 GHG Inventories & Verification
- Climate Risk Assessments
- CDP, IFRS/TCFD etc. reporting

Artemis PROJECT
INTERNATIONAL AWARD WINNER
2020
thorn.ca

Woman-Owned Canadian Small Business

In the photo: Minetruck MT42 Battery with zero emission by Epiroc



Photo courtesy of Miller Technology

Smart Mining, Intelligent Extraction

From ore to algorithms, mining's technology transition

The world of technology is advancing exponentially, with Ontario leading the way in mining innovation. The industry is on the verge of major change, with AI and drone technologies set to revolutionize the sector. This movement towards digitization has been noticed across the value chain, with EY releasing their 'Top 10 risks and opportunities for mining and metals companies in 2025' report, featuring 'Innovation' at number 10.

Increased interest in innovation has led to a reflective rise in government support for Ontario's companies, leading the way towards a new horizon in mining. "This shift is accompanied by increased provincial, federal, and venture capital investment in mining tech across Canada, highlighting significant growth opportunities. As these technologies are integrated into operations, they not only create new jobs but also prepare the next generation of workers in the industry," said Don Duval, CEO of Norcat.

Destiny Copper aims to bring a low-energy, low-cost copper extraction technology to the market. "We are receiving tremendous backing and support from the federal and provincial governments. We were recently awarded C\$909,000 in grant funding from NGen Canada supported by the Canadian Space Agency," said CEO and founder Greg Hanna.

Ontario's Minister of Mines also awarded Destiny Copper a C\$250,000 grant as part of their Critical Minerals Innovation Fund (CMIF).

This support extends to companies across the province, including Wabi Iron & Steel Corp (Wabi) based in New Liskeard. Darryl Gutscher, president, explained: "Government support for Wabi has been spectacular. Provincial and federal governments have recognized the benefit of having a foundry located where we are, leading to them being very supportive and interested in what we do. The Federal Economic Development Agency for Northern Ontario (FedNor) is actively and organically promoting Wabi."

The uptake of technology in mining is gaining traction. "The mining industry has been great at adopting new technology and trialing systems and equipment to discover whether we can carry out day-to-day operations in a greener and more efficient manner," noted Hugh McDermid, VP product and business development at Miller Technology.

Raffi Jabrayan, VP business development and commercial sales at Exyn Technologies, agreed with McDermid: "I have seen significant evolution in the mining industry over the past five years. While many companies were initially slow to adopt new technologies, those that prioritize safety and value their workforce are now more open to change."

This readiness to adopt new technologies has not been a universal experience. "Mining companies are often conservative, and many are hesitant to adopt new technology without a proven track record. No one wants to be first, but everybody is happy to be second," according to Aaron Lambert, CEO and founder of RIINO Inc.

Novamera's CEO and co-founder, Dustin Angelo, shared Lambert's experiences: "As a start-up, building credibility and attracting the first customers is typically the biggest challenge. In the past year, we have turned a corner, adding early adopter customers and executing projects. It is because we have case studies, completed projects, and recently began using surgical mining planning software in our sales process."

Reasons for this hesitancy vary from company to company. "I think it is a combination of the current challenges in the market with funding, and a perception that the technology is not quite where it needs to be," said Jennifer Berger, VP North America of Normet Canada. She continued: "In early-stage projects looking ahead at future development operations, the reluctance is mostly around capital."

B&D MANUFACTURING
safe efficient solutions

We design, manufacture and distribute innovative Mining & Construction equipment maintenance products.

www.bdmfg.com

AI and Innovation

Executive Insights

"Considering the nervousness amongst the industry to be early adopters, demonstrating success certainly helps to ease concerns."



Jennifer Berger, Vice President – North America, Normet Canada

"The current status quo is focusing on how we mechanize mines to maintain or increase productivity while getting people out of the mines into safer working environments."



Jacob Lachapelle, CEO-in-Training, Maestro Digital Mine

"The mining industry does not suffer from a lack of technological innovation; rather, it struggles with effective adoption. Operators need confidence that a prospective technology works in a real mining setting."



Don Duval, CEO, NORCAT

"The effectiveness of technology depends heavily on the quality of the available data. Without accurate data, even advanced tools like machine learning offer limited value."



Navin Gangadin, Executive VP, Central Canada Operations, BBA Consultants

Historical companies, modern opportunities

Mining in Ontario dates back centuries to the First Nations, who originally occupied the land, and the subsequent generations of settlers in the province, with the Marmora Iron Works being established in 1820. Many equipment providers have stood the test of time and continue thriving to this day. These companies strive to innovate and evolve, keeping pace with the modern standards that companies need to run successful projects.

For example, the TAKRAF Group has roots stretching back to 1725. Today, the company manufactures semi-mobile crushing plants and large-capacity conveyors. To keep up with the natural fluctuations of mining, the company is altering the way it operates. "A project-based business model can create periods of intense activity followed by quieter times, making it hard to maintain steady revenue and keep a consistent team. To counter this, we have focused on building a more stable revenue stream by expanding our service offerings and aftermarket support," said Aidan Mitchell, president of TAKRAF Group Canada.

Epiroc, an OEM founded in Sweden in 1873, has recently conducted a string of acquisitions in Canada, including Meglab, RCT, Fordia, and 3D-P. According to Andre Bertrand, acting general manager of Epiroc Canada: "This strategic shift aims to position Epiroc as a leader in digital technology and electrification within the mining industry, creating new global divisions designed for market integration in Canada. We are developing automated bit changers utilizing the longer-lasting Powerbit X diamond bit, which will facilitate uninterrupted autonomous long-hole drilling. This innovation in automation allows personnel to operate remotely from an office."

Another company adapting to the modern modes of mining is Haver & Boecker Niagara, which has had a presence in Ontario since 1930. "We are particularly focused on developing predictive and preventative maintenance technologies for vibrating screens and related equipment," said Karen Thompson, president.

Pilot & Co. was formed by a partnership of Pilot Diamond Tools, Premier Mining Products, and Drillware Tools. "Our flagship brand, Pilot Diamond Tools, boasts a legacy of 55 years of bringing

optimal performance and productivity to the market," said Hélène Coulombe, VP sales and marketing. "We are also developing innovative in-the-hole solutions. For instance, we recently developed a multi-use plug that you can install through the diamond bit, eliminating unnecessary drill rod removal as was traditionally done," explained Pilot & Co.'s president Renzo Silveri.

Sudbury OEM B&D Manufacturing fabricates mining equipment maintenance products for both open-pit and underground mines. The company began in 1980 and is constantly focused on R&D to keep pace with modern standards and procedures. "We have seen growth across our product line, from our original portable line-boring machine, which has been in production for 45 years, to our EJ200 Evolution Jack and our Multi-Handler. Sales are increasing year-on-year due to growing safety concerns in mining. There is a movement away from a single-cylinder jack toward our remote-control option because of safety and efficiency," said general manager Tom Di Francesco.

Quantec Geoscience began life in Timmins in 1986 and, in 2000, had a technical breakthrough pioneering the transition from analog to digital recording systems. Oliver Kuhn, president and CEO, noted: "Generally speaking, the big scientific breakthroughs have been achieved, and so a lot of our R&D focuses on incremental improvements, which add up over the years to significant advances."

Ionic Technology Group recently celebrated its 25th Anniversary and demonstrates the adaptations Ontario companies are making to meet market demand. Christina Visser, CEO, has no-

ticed three recent trends in demand for their services. "First is the rise in demand for improved safety systems, especially our safety-rated truck loading systems. Second, there has been an increase in uranium drumming due to the rising interest in the metal. Lastly, there is significant interest in our new tools designed to enhance safety by removing people from dangerous workspaces."

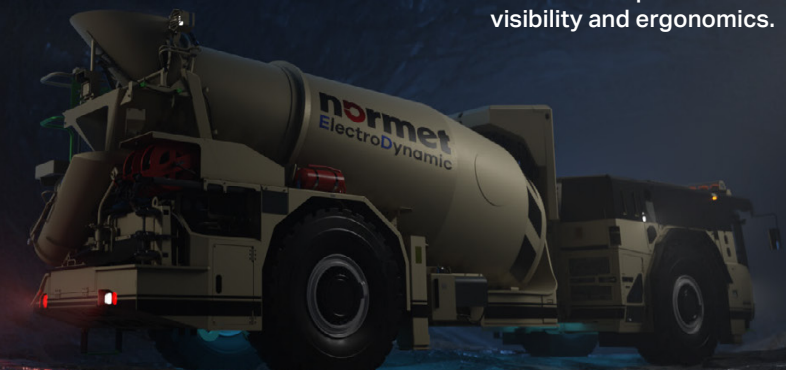
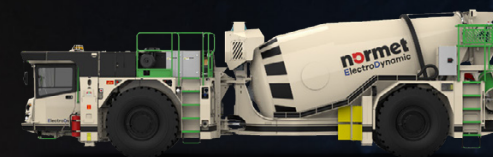
These innovators demonstrate how Ontario's mining industry is constantly competing to be at the cutting edge of mining technology. By combining a wealth of knowledge and tradition with innovative R&D and new technologies, equipment providers are converting their established bases in the province into future success.

Ontario's mining goes drone-first

The Ontario Ministry of Mines 'Recommendations for Exploration 2023-2024' dedicated a chapter to the advantages of drone use, specifically in the Timmins district. The report cited a 2019 study by Dai et al. that found a magnetic survey drone can cover 150 - 200 survey-line kilometers per day. Traditional airborne surveying methods such as airplanes and helicopters have been used since the 1930s, but with improvements in battery efficiency, range and size, it may be that the time has come for drones to replace their forefathers. The Global Data Mine Site Survey 2022 found that 65% of projects use drones in some capacity, with 83% of mines using drones for surveying and mapping.

Cameron Chell, CEO and co-founder of Draganfly, explained: "LiDAR is increasingly used to measure overburden, while multi-

Utimec XL 1100 Agitator ED
- maximized 10.5 m³ concrete carrying capacity with compact outer dimensions.



- + Increased productivity and higher efficiency.
- + Reduced fuel, operation, and maintenance costs.
- + Decreased CO₂ emissions and fewer diesel particles.
- + Zero-emission concrete mixing and unloading.
- + FOPS/ROPS approved cabin with superior visibility and ergonomics.

normet
ElectroDynamic®
normet.com

spectral cameras provide valuable data. When combined with magnetometer readings, these sensors offer comprehensive insights, giving companies a more complete understanding of their operations.”

Expert Geophysics highlighted the importance of Ontario to the company in the development of the technologies used for their geophysical surveys. Andrei Bagrianski, president and founder, stated: “Our Ontario headquarters is vital to our operations, housing our 30-member engineering and R&D team. While our MobileMTd technology is currently operational in Australia, and our office there is expanding, Ontario remains central to our company’s growth.”

Glen Lynch, CEO of Volatus Aerospace, outlined how drones benefit mining companies looking to meet their ESG goals. “Beyond environmental benefits, drones contribute to the social aspect of ESG by reducing the risk to human workers... Dangerous tasks can be completed remotely, improving safety and work-life balance.”

Using data to discover

A recent article by McKinsey & Company titled ‘Beyond the hype: New opportunities for gen AI in energy and materials’ posited that mining is uniquely well-positioned to benefit from generative AI. They suggested that the minerals industry relies heavily on data for its processes and that years of data that have been stored could be harnessed with a clear vision toward the future. However, companies must proceed with caution as risks with machine learning and AI could prove fatal. Accuracy, security, and privacy should all be kept in mind when implementing such technologies, according to McKinsey & Company’s findings.

“AI will have a transformative impact on the industry, particularly in data interpretation. When vast datasets—such as magnetometer, multispectral, and hyperspectral data—are combined and analyzed, the potential insights AI can uncover are beyond our current understanding,” said Cameron Chell. “Hyperspectral data is not commonly used in the industry currently. However, this could change with the introduction of AI, driving new applications, and changing how this technology is utilized,” he continued.

One application of AI in the mining industry is its ability to collate and evaluate data from multiple sources. Ash Agarwal, CEO of SymX.AI, noted: “OEM manufacturers often lock away the data from their machines to monetize it. This leads mining companies to juggle several disparate systems that do not communicate, making it difficult to consolidate data.”

In response to this, SymX.AI is in the process of unveiling its AI-powered “X” portfolio of products to streamline data collection and interpretation in mining.

Maestro Digital Mine engineers detection devices and last-mile digital networks for the underground mining sector and has seen AI be applied successfully on several projects. Jacob Lachapelle, CEO-in-training, said: “AI presents great opportunities, especially in the analytics space, as when you train a model, it can provide significant value. The challenge is obtaining wide sets of data since the process control network (PCN) is isolated from the business network for security reasons.”

No magic switch

Despite the obvious benefits that innovations hold for mining in Ontario, industry leaders are keen to point out that merely implementing technology will not change the fortunes of a company overnight. Daniel Pop, chair of Outliers Mining Solutions, said: “We often find that many companies lack the internal expertise, or in some cases, the expertise from vendors, to realize the true return on investment from these technologies.”

Kevin Dagenais, CEO of Cascadia Scientific, which focuses on data analytics and machine learning solutions for the mining industry, said: “The biggest challenge is that our solutions are not quick fixes; they require effort and commitment. We collect data, identify opportunities, and collaborate with customers to implement changes. Success hinges on the customer’s willingness to act on our recommendations, as there are no ‘magic beans’ to solve their problems.”

There is still much to be done until AI and machine learning become part of everyday operations in mining. “AI can also potentially be leveraged to solve mine planning problems, for instance, by having the AI look at topography and auto-determining all the haul network options instantaneously. A key challenge is that AI requires substantial datasets for training. However, not all of our clients are willing to share their data. We are still figuring out how to overcome data security issues when leveraging AI,” said Russell Vance, regional manager for North America at Deswik.

Vance’s views demonstrate that despite the clear advantages of adopting AI and the like, there is still progress to be made before companies across the value chain are ready to put their trust in new technologies. ■

GLOBAL BUSINESS REPORTS

Ontario Mining and Toronto's Global Reach 2025

Pre-Release Edition

Special thanks to our partners



Senior Project Director: Margarita Todorova

Business Reporters: Micah Lanez and Joshua Russell

Executive Editor: Mungo Smith

Graphic Design & Artworks: Kaori Asato and Özgür Ergüney

Operations Director: Miguel Pérez-Solero

General Manager: Alfonso Tejerina

Cover photo: IAMGOLD

This publication is a pre-release edition of GBR’s upcoming Ontario Mining and Toronto’s Global Reach report, to be released in Q1 2025. If you wish to be interviewed for the report, please contact Margarita Todorova (mtodorova@gbreports.com).



www.gbreports.com