

# ENVIRONMENT & ENERGY BULLETIN



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## CANADA AND B.C.'S MINERAL AND ECONOMIC POTENTIAL AND THE GLOBAL SHIFT TO DECARBONIZATION - AN OPPORTUNITY BEING MISSED?

### HIGHLIGHTS

- B.C. and Canada have a rare generational opportunity in mining, minerals, and the upstream market with an expected global market value of \$2.4 trillion in 2025.
- Today, Canada has about 200 mines, producing over 60 different minerals creating a total of 719,000 jobs (as of 2019), split almost evenly between direct and indirect jobs. Indigenous people are employed in about 16,500 of those direct jobs. Many of these raw materials are essential for a transition to a lower greenhouse gas future.
- Domestic mineral exports account for 19% of Canada's total merchandise exports, with much of that going through ports on the west coast in Vancouver and Prince Rupert. Needless to say, the mineral exploration and mining industry represents an important economic force in Canada and British Columbia.
- The positive attributes that could launch us into a leadership position include: pioneering collaborative work with Indigenous Nations (e.g., UNDRIP legislation) and communities and being out front on measures and practices related to environmental, social and governance issues; exchange rate; certain tax policies; strong research and academic expertise in mining and minerals; an integrated service and supply sector that supports the industry both in Canada and around the world; a strong regulatory and legal system; a rich mineral endowment and a highly developed industry.
- There are also sizeable challenges:
  - Canada and B.C. are small players in the overall global mining space. This does not need to be the case but seizing an opportunity, even a generational one, is, unfortunately, not always a Canadian attribute.
  - Lack of defined and substantive strategies for supporting and facilitating good projects to a production decision in a timely manner, or how to diversify our value-added economy to take advantage of these opportunities.
  - Despite innovation there is limited support for scale up and intellectual property rights protection. Innovation is coming from outside Canada.
  - We have all the raw materials, talent and experience and now need to find the will to be bold.

I think most of us have witnessed or know someone with untapped potential. People with more talent, resources, and ability than most, but who do not seem to fully recognize their advantage and tend to watch as opportunity passes them by - perhaps assuming another one will come along when they are ready for it.

The global mining and minerals market is expected to reach a value of \$2.4 trillion in 2025, with a compound annual growth rate (CAGR) of 7%.<sup>1</sup>

Further, as noted by the Editorial Board of Mineral Choices, "Population growth, urbanisation, and consumerism, coupled with the

*urgent need to decarbonize has triggered a dramatic surge in the demand for minerals.*"<sup>2</sup>

I would suggest that mining, minerals and the upstream market that comes from them is one of those rare generational opportunities that, as a country and a province, we should not be watching pass us by.

<sup>1</sup> The global mining market consisting of sales of minerals, metals, and other valuable materials such as sand and gravel, coal and stone extracted from the earth crust by entities (organizations, sole traders, and partnerships) that undertake the process of extraction. The mining market is segmented into mining services; general minerals; stones; copper, nickel, lead, and zinc; metal ore and coal, lignite, and anthracite. Source: Mining Global Market Report 2021: COVID-19 Impact and Recovery to 2030; Research and Markets, January 2021.

<sup>2</sup> <https://mineral-choices.com/about/>.

Canada has a long history of mineral discoveries and production. There are some 200 mines in the country today, producing over 60 different minerals and directly employing (as of 2019) 392,000 individuals and indirectly employing an additional 327,000, for a total of 719,000. Of this, an estimated 16,500 Indigenous people were employed directly in the mining and minerals industry in Canada in 2019.<sup>3</sup> Domestic mineral exports account for 19% of Canada's total merchandise exports, with much of that going through ports on the west coast in Vancouver and Prince Rupert.

As a nation, Canada is one of the most active globally in financing, prospecting, building and operating mining projects in some 100 different countries. Canada's ecosystem of geological talent, mining expertise, financial and legal strength, environmental stewardship knowledge, Indigenous participation and engagement experience, and respected academic institutions make the entire country a "Centre of Excellence" for many aspects of mining. This is not something we need to create, it is something we have today — and is, I argue, unparalleled in the world. From coast to coast to coast, Indigenous communities and industry are forging partnerships, agreements and businesses that point to a very bright future for those who figure this out and get it right.

In British Columbia, the mineral exploration and mining industry represents an important economic force in Metro Vancouver and is even more prominent in many



other regions of the province. It is especially visible in communities such as Kamloops and Kelowna, Terrace and Smithers, Prince George and Quesnel, Prince Rupert and Kitimat, Cranbrook and Sparwood, and Tumbler Ridge and Fort St. John, to name just a few. The key for the future of mining in B.C. is the Cordillera and the significant amount of mineral exploration taking place along it. A chain of mountains and mineral potential that extends the length of the western third of North and South America, including from southern B.C. north to the Yukon and the Beaufort Sea, the Cordillera provides extraordinary mine development opportunities for the province, Indigenous Nations, industry, current and future employees, and communities.

However, like our person who does not seem to fully acknowledge the value of the advantages they have or believes opportunities will just keep coming along, the question is whether Canada and its provinces, including British Columbia, are

seizing the opportunity presented by surging global demand for minerals and the concurrent world-wide trend to reduce green house gas emissions (GHGs).

The answer to this is, in short, yes and no.

Yes, we have an industry that is important and in 2019 generated about 3.5% of Canada's GDP.<sup>4</sup> The sector's direct and indirect employment levels are material nationally. Many Canadian companies are pioneering collaborative work with Indigenous Nations and communities and are leading in measures and practices relating to environmental, social and governance (ESG) issues. We have strong Canadian, and B.C. based mineral exploration and mining companies, and the Toronto Stock Exchange remains a leader in financing and venture capital for the industry globally. The Canadian dollar, when at a discount to the U.S. as it is now, is a distinct competitive advantage, and certain tax policies of the province and the federal

<sup>3</sup> Natural Resources Canada, <https://www.nrcan.gc.ca/our-natural-resources/minerals-mining/minerals-metals-facts/minerals-and-the-economy/20529>.

<sup>4</sup> Mining Association of Canada, Facts and Figures 2020. <https://mining.ca/wp-content/uploads/2021/02/FF-2020-EN-Web.pdf>.

government — such as the Mineral Exploration Tax Credit — are a benefit to many mining companies and investors. And, we have a strong research, academic, service and supply sector that supports the industry both in Canada and around the world.

The second yes relates to recent efforts to enshrine in legislation the rights of Indigenous peoples in Canada. British Columbia was the first province to formally adopt the principles of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) into law, and Canada is now looking at doing the same nationally. Although there are growing pains in figuring out how new policies are applied in government decision-making, the establishment of timelines and industry consultation and engagement requirements, the longer-term opportunity for reconciliation leading to greater certainty, overlapping consensus and mutually beneficial relationships far outweighs any negatives, in my view.

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**Canada's mix of rule of law, transparency and relative predictability can be a competitive advantage as compared to other countries, when governments set clear priorities and work to minimize, to the extent possible, inefficiencies and overlap.**

The third yes, but also a partial no, relates to Canada's adherence to the rule of law and regulatory system. It is well known that it can take a relatively long time to navigate the various levels of assessment and permitting required for new mining projects. I know this is an area of real concern for many in the industry, with regulation and bureaucracy often seen as an impediment to investment. There are legitimate complaints for sure, and a lot of work that needs to be done to improve regulatory processes, timelines, and the capacity of the civil service. New environmental assessment legislation and policies of both the province and Canada also present increased complexities and require significant investments in up-front consultation and engagement. Some view these issues as a disincentive to investment. I recognize that argument, as these are legitimate concerns. I am, however, more pragmatic on this subject, having led companies and permitted and developed projects in different parts of the world and have seen first-hand what can happen in regions of political instability, violence, corruption and/or constant legal challenges. Those issues are often much more complex and challenging than what any company might face in Canada. That does not make long permitting timelines, uncertainty around consultation obligations and interjurisdictional overlap acceptable. It means instead that Canada's mix of rule of law, transparency and relative predictability can be a competitive advantage as compared to other countries, when governments set

clear priorities and work to minimize, to the extent possible, inefficiencies and overlap. This takes work and commitment though and that is something that seems to ebb and flow with different governments without full recognition of the consequences of unpredictable delays to project economics and viability.

On the no side though, things are not quite so complimentary.

First off in terms of domestic mineral production, in a ranking of the top mineral producing countries globally by value of production, in 2018 Canada stood 9<sup>th</sup> behind Indonesia and slightly ahead of Iran.<sup>5</sup> Our domestic mineral production value in 2019 was \$48.2 billion, less than 3% of the global value of minerals produced.<sup>6</sup> In truth, we are a small player within the overall global mining space. And our 3% global share seems underwhelming given that Canada is the second largest country in the world with an exceptionally rich mineral endowment and a highly developed industry. Also, of the value of mineral assets held by Canadian companies, 68% are held not here, but overseas.<sup>7</sup>

Second, despite wide recognition of the importance of metals and minerals in a more electrified economy and related actions to reduce GHGs globally to combat climate change, neither the federal or provincial governments have defined substantive strategies around how to support and facilitate good projects to a production decision in a timely manner, or how to diversify

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<sup>5</sup> World Mining Data 2020, <https://www.world-mining-data.info/wmd/downloads/PDF/WMD2020.pdf>; Republic of Austria, Federal Ministry of Agriculture, Regions and Tourism and International Organizing Committee for the World Mining Congress.

<sup>6</sup> Natural Resources Canada, <https://www.nrcan.gc.ca/our-natural-resources/minerals-mining/minerals-metals-facts/minerals-and-the-economy/20529>.

<sup>7</sup> Natural Resources Canada, March 11, 2021. <https://www.canada.ca/en/natural-resources-canada/news/2021/03/canada-announces-critical-minerals-list.html>.

our value-added economy to take advantage of these opportunities. For example, on March 11th, 2021 a press release from Natural Resources Canada titled “Canada Announces Critical Minerals List” was issued in which “31 minerals considered critical for the sustainable economic success of Canada and our allies” were provided. Other than identifying them and referring to our expertise and potential, nothing came from something most in the industry have known for a very long time. In the recent Federal budget, there was specific mention of the strategic importance of rare earth elements (REEs). Again, noting what we already have. And the response to the opportunity of us being endowed with these elements was for Canada to establish a “Critical Minerals Centre of Excellence” to co-ordinate federal programs. This came with a commitment of \$36.8 million over three years for federal research and development, to which the Mining Association of Canada responded by saying that “*although modest, [the investment] is welcome.*”<sup>8</sup> With the Province of B.C., there was some support in the recent budget for skills training and a small amount of money for infrastructure in the northwest, but nothing on resources to facilitate new projects, steps to increase competitiveness or expand the value chain. Combined, all of this suggests that beyond these arguably modest efforts, there has been nothing substantive considered to more purposefully take advantage of what is happening globally in this rapidly expanding market. Instead, we seem to be following along an all

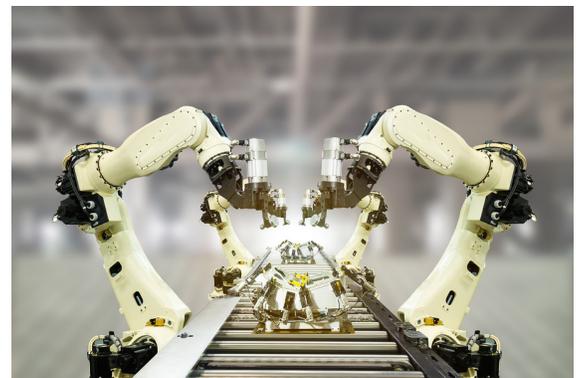
too familiar path of good intentions without much substance.

Consider the opportunities associated with electric cars and battery manufacturing, for example.

Despite what some may think, the automotive sector in Canada is shrinking. Yes, GM, Ford and Fiat Chrysler announced late last year that they will start manufacturing electrical vehicles in Canada, and the Federal government is contributing \$540 million to this effort. This seemed like great news to many. According to IBISworld, however, the market size of the Car & Automobile Manufacturing industry in Canada has declined by 12.9% per year on average between 2016 and 2021.<sup>9</sup> This compares to global industry growth in this sector that, before COVID-19 related contractions, was healthy and increasing.

While Canada’s manufacturing output is declining, global vehicle manufacturing is predicted to grow by double digits in the coming years.<sup>10</sup> The total global fleet of vehicles on the road is predicted to rise from 1.2 billion in 2020 to 1.4 billion in 2040. From the perspective of electric vehicles (EV), over that same period, the EV percentage of that is expected to grow from 8% today to 32%<sup>11</sup> which equates to a total of 448 million electric vehicles in the next 19 years. With that, the demand for batteries and the elements used in making them will increase exponentially.

China currently dominates the global battery market, with South Korea and Japan in second and third place, respectively. And, despite having an abundance of raw materials and engineering talent, Canada does not have a seat at the table. In highlighting this, I am not suggesting Canada should try to become a battery manufacturing mega centre. Those spots have already been taken by others. What I am saying is that we, as a province and country, should be critically examining every aspect of this value chain, acknowledging our geographic position, our mineral endowment, our political alliances and the knowledge, experience and innovation of our workforce and institutions to build capacity from where our strengths are.



Or consider that in areas of innovation that are or have the potential of making a significant impact on the economics of mining projects, such as autonomous operation of equipment, robotics, electrification of vehicle fleets and shovels, or hybrid airships that allow for the transportation of

<sup>8</sup> Mining Association of Canada, April 19, 2021. <https://mining.ca/press-releases/2021-budget-doubles-down-on-battery-electric-vehicle-supply-chain/>.

<sup>9</sup> IBISworld, <https://www.ibisworld.com/canada/market-size/car-automobile-manufacturing/>.

<sup>10</sup> The Economist Intelligence Unit, October 23, 2020. <https://www.eiu.com/n/the-global-automotive-sector-to-see-double-digit-growth-in-2021/>.

<sup>11</sup> Bloomberg New Energy Finance, Electric Vehicle Outlook 2020. <https://about.bnef.com/electric-vehicle-outlook/>.

people, equipment and minerals in remote regions that lack roads, Canadian companies are a part of the story, but are not leading. Here, the innovations are coming mostly from Swedish, American, Japanese, Russian and Chinese led companies.

What we generally see from governments in Canada is a set of modest policies and programs to support the further development of a sustainable minerals and metals industry. Most of them are rather general in nature, crossing multiple industries and with linkages to a low GHG future. This at a time when the rest of the world is rapidly building and taking advantage of a once-in-a-generation economic shift that will significantly determine which businesses and industries are successful in the coming decades. What is frustrating is that Canada has

much of the foundation needed to lead in this area, but we have yet to marshal our assets and advantages.

Potential, of course, does not create family-sustaining jobs that pay twice the national average, contribute taxes that allow us all to enjoy a high quality of life, modern infrastructure, health care and education we all want, or create opportunities to be real players in the global shift in energy use and transportation. Nor does it lead to the cutting-edge research and innovation we should be doing and producing given our experience and knowledge in this space. As a country, as governments, and as the professionals that make up the industry, we know how to discover, build, finance and operate mines that are economic, protect the environment and contribute to the well-being of communities. We

increasingly understand the need for reconciliation and can be proud that the Canadian mining sector boasts many examples of Indigenous Nations and companies working together and creating sustainable enterprises and value. And we have a knowledgeable and highly skilled workforce that can both extract the minerals from the ground and turn them into value-added products that the world needs.

There is an extraordinary opportunity here, one that we should be taking advantage of in a much more deliberate and visible way. Rather than talking about potential and what we already have, let's figure out how to translate our existing assets and expertise into future success in a world that is both hungry for minerals and committed to a low-carbon path.

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In a career spanning more than 25 years Michael has led the planning and development of mineral resource projects and companies in British Columbia, across Canada and internationally. He is a specialist in the environmental, regulatory, social and financial aspects of the mining and minerals sector and has held senior executive and board positions with several Canadian mining companies and with the Government of Canada over this career. Michael is currently the Co-Chair and Founding Partner of Falkirk Environmental, serves as Vice President, Sustainability and External Affairs with Talisker Resource Ltd. and is on the Board of Advisors of Resolve, a prominent U.S. based non-governmental organization focused on sustainability. He is also the recent former Chair of the Board of Ridley Terminals Inc., and was previously the Chair of the Board of Governors at the Foundation of the British Columbia Institute of Technology (BCIT) and President and CEO of the Mining Association of BC.

Michael is also the author of a soon to be released book on the *“future of the mining and minerals industry in the age of global electrification, environmental sustainability and Indigenous Rights.”*