



Mike Henry is an associate and Eno Akpoguma is a student-at-law at Burnet, Duckworth & Palmer LLP. Mr Henry can be contacted on +1 (403) 260 0269 or by email: mhenry@bdplaw.com. Ms Akpoguma can be contacted on +1 (403) 260 0219 or by email: eakpoguma@bdplaw.com.

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Alberta's new focus on critical minerals

BY MIKE HENRY AND ENO AKPOGUMA

On 11 March 2021, the Canadian government released an updated list of 'critical minerals', minerals considered critical for the sustainable economic success of Canada. The list is set out in the Canadian Minerals and Metals Plan (CMMP) and is comprised of 31 minerals that the government believes will be essential to the country's economic security and required for its transition to a low-carbon economy. The CMMP aims to position Canada as a global supplier of choice for critical minerals.

Global demand for critical minerals is soaring due to their extensive use in renewable energy generation, energy storage, energy transmission, and a wide range of high-tech applications. This demand arises from a broad base of industries including telecommunications, automotive (particularly electric vehicles), aerospace, military and transport technologies. However, the supply of critical minerals faces several challenges,

such as inaccurate resource estimates, inefficient extraction and processing technologies, and regulatory uncertainty associated with the mining, production and processing of critical minerals.

With the advent of new processing technologies and growing concerns about the security of global supplies, this is set to change. In January 2020, Canada and the US finalised a Joint Action Plan on critical minerals to ensure supply security for critical minerals and to promote supply chain development.

In addition to these Canadian government initiatives, there has been ongoing development of initiatives in Alberta to enhance the mining and development of critical minerals.

Alberta's approach

Due to its abundant resources and strong history of natural resource extraction, Alberta is uniquely poised to contribute to Canada's critical minerals mining future. Alberta's critical minerals potential has

long been overshadowed by its strength in oil and natural gas production. A new emphasis on the production of critical metals including lithium, uranium and vanadium – many of which are used to manufacture batteries, mobile telephones, energy storage cells and other modern products – holds the potential to help the province diversify away from its traditional oil & gas industry, while taking advantage of a strong background in responsible resource development.

On 17 June 2019, Alberta's minister of energy emphasised the significance of promoting investment in lithium production. The minister encouraged investment in the province's lithium industry, announcing the government's intention to make Alberta the most competitive jurisdiction for lithium production in North America. This complements the Canada-US Joint Action Plan on critical minerals, which focuses on securing and developing critical minerals supply chains. This collaboration presents a

major opportunity for Canada and Alberta. Lithium and other critical minerals will be produced much like the oil that came before them. Lithium rises from many of the same oil & gas reservoirs responsible for driving both Alberta's economy and the broader transportation fuel sector for decades. Alberta has extensive geological data and abundant infrastructure, including the roads, rails, well sites and power lines necessary to develop critical minerals. The government of Alberta is setting the path toward a new, innovative and diversified energy future. In its Recovery Plan, Alberta is devoted to establishing a new mineral strategy to capitalise on lithium and other critical minerals.

On 23 September 2020, the province established the Mineral Advisory Council to provide strategic advice, guidance and recommendations on a minerals strategy and action plan for Alberta. The Mineral Advisory Council recently completed stakeholder consultation and roundtable meetings aiming to contribute to the development of a provincial minerals strategy and action plan and explore regulatory options for Alberta's metallic and industrial minerals sector.

Despite the growing interest in critical mineral extraction, the sector faces some challenges. One key concern is that the imposition of tougher restrictions on foreign investment into critical minerals may prevent access to the capital necessary to achieve the government of Alberta's goals. Like most of the resource sector in Alberta, the critical minerals industry needs an open and free market to attract investment.

Another driver of growing concern over critical mineral supply is regulatory uncertainty. The policy environment is opaque, the knowledge base concerning critical minerals mining and processing

is poor. The government of Alberta needs to provide greater clarity on how lithium extractors and other critical minerals participants fit within its regulatory regimes.

As part of its 2021 budget, the government of Alberta shared details about its strategies for the energy sector. The new strategies aim to support competitiveness in the province's energy industry, maximise value from hydrocarbons and capitalise on emerging opportunities. Importantly, the budget includes \$28m for geothermal resource development and the mineral strategy, including mapping of targeted public geoscience information in Alberta.

Although the province has reserves of more than 40 known metallic and industrial minerals, only a few are currently being produced. Potential exists for new discoveries and the production of new critical minerals. The government of Alberta has attempted to remedy this deficiency and broaden the province's economic base by developing a modern minerals strategy. The minerals strategy aims to position Alberta to capitalise on its resource potential, and encourage investment and innovation.

In Alberta, specialised technologies known as direct lithium extraction (DLE) are being developed to unlock lithium-brine resources found in the province. E3 Metals Corp, an emerging lithium developer and leading DLE technology innovator, recently announced the receipt of a \$1.8m grant from Alberta Innovates that will assist in funding its pilot plant.

Another Alberta company working in the lithium space is Summit Nanotech. The Calgary-based company was founded in 2018 and is currently testing its own environmentally friendly extraction process that uses nanotechnology to extract lithium from brine water.

The government of Alberta is also creating tenure and royalty regulations that encourage mining development by providing extensive support services such as geological mapping and geophysical research and by producing geoscience data, maps, reports and assessments through the Canada-Alberta Partnership on Minerals.

Most importantly, Alberta has a highly trained workforce that could enable the province to deliver the significant volumes of lithium and other critical minerals necessary to create sustainable Canadian critical minerals supply chains. Each critical mineral ore or deposit is unique and requires different mining and processing technology. Alberta also has a skilled energy labour force already in place that is well positioned to support an emerging minerals mining sector by resolving these complex issues.

Conclusion

The province of Alberta has the potential to contribute meaningfully to the global supply of critical minerals. Development of a critical minerals industry will directly contribute to the Alberta government's focus on getting Albertans back to work, relaunching Alberta's economy, and securing long-term prosperity. Making the most of Alberta's mineral potential will help diversify the economy, create jobs and contribute to the province's economic recovery. Alberta has a prime opportunity to be at the forefront of global mineral exploration and development because of its wealth of natural resources and experience as a global leader in responsible development. ■

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