



# **Bathurst Resources Ltd and BT Mining Ltd submission to the Ministry of Business, Innovation and Employment on a Draft Critical Minerals List for New Zealand**

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To: [resourcesfeedback@mbie.govt.nz](mailto:resourcesfeedback@mbie.govt.nz)

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Submission on behalf of: Bathurst Resources Limited and BT Mining Limited

## **INTRODUCTION**

Bathurst Resources Limited is a New Zealand-registered resource company listed on the ASX. We are New Zealand's leading coal producer and largest specialist coal group, in association with our 65% owned JV company BT Mining Limited. All Bathurst's mining operations are in New Zealand with projects under development in Canada.

With mines in the Waikato, Southland and the West Coast, we are a nationwide operation which produces more than 2.2 million tonnes of coal each year, and employs more than 670 people and engages over 90 full-time contractors. We provide coal for local steelmaking, delivering energy for domestic dairy and food processing industries, and we export high-quality metallurgical coal to international steelmakers. By volume, 84% of our production is coal for steelmaking.

We welcome the opportunity to submit on the Wood Mackenzie (Woodmac) [New Zealand Draft Critical Minerals List](#) for the Ministry of Business, Innovation and Employment. We support the Straterra submission on the same matter, and our joint submission with two other coal mining companies (New Zealand Coal & Carbon Limited and Birchfield Coal Mines Limited).

## **KEY POINTS**

- The concept of a New Zealand critical minerals list is supported; it helps underscore the importance of minerals to our country, and worldwide.
- The criteria Woodmac used to develop the list need revisiting in consideration of the New Zealand context, as compared with the international context (more detail provided below).

- For example, the list should consider the supply chain security of our country's needs, and where this can be met with domestic production, to avoid relying on imports.
- New Zealand's geographical isolation adds to the costs and CO<sub>2</sub> emissions associated with importing coal, flowing through to domestic businesses and New Zealanders who buy their products.
- The above provides grounds for considering the addition of other minerals to the list.
- We propose the addition to the list of coal - as an essential and critical input into steel, as energy, and into advanced materials – and make the following supporting points:
  - The European Union has coking coal (used in steelmaking) on its 2020 list of critical raw materials.
  - Coal in New Zealand cannot be easily substituted for by other materials – it is essential for steelmaking at scale, and in the case of energy, biomass is an inadequate alternative, the electricity market is volatile, and the future of gas supply is uncertain.
  - Coal has potential uses as a feedstock into manufacturing advanced materials, such as carbon foam, and silicon nitride nano-fibres.
  - We export high-quality West Coast coal to international steelmakers and for other applications boosting New Zealand's foreign exchange earnings.
  - We supply coal to a domestic steel mill that produces up to two-thirds of New Zealand steel products. The metallurgical manufacturing processes of this domestic steel plant has been created for the specific use of Waikato coal properties. Coal is supplied at a lower cost and lower carbon footprint as compared with imported coal.
  - New Zealand coking coal presents fuel savings to steelmakers, thereby also reducing CO<sub>2</sub> emissions from steelmaking – this is a benefit to global climate Scope 4 emissions (an independently verified negative number), set in a context of growing demand from countries like India whose domestic alternative is poor-quality coal (leading to increased emissions).
  - A further consideration is the socio-economic contribution of our coal mining operations to ongoing regional employment in the Waikato, West Coast and Southland regions.
  - Locally mined coal provides essential backup to New Zealand's national grid electricity generation through the Huntly Power Station, and is the lowest-emissions alternative after gas (compared with imported coal, and biomass).

## **SUBMISSIONS**

### **Support for a critical minerals list**

Many jurisdictions have developed critical minerals lists, among them, the US, Canada, Australia, and the European Union. Whatever their purpose, critical minerals lists provide a salutary reminder of the importance of minerals to economies worldwide, and in New Zealand. We, therefore, support the concept of a critical minerals list for New Zealand.

### **Revisit the criteria for a critical minerals list**

That said, we consider that Woodmac's draft critical minerals list reflects international criteria rather than New Zealand criteria. Internationally, critical minerals lists have been developed, among reasons:

- To safeguard access to domestic resources of critical minerals, for domestic manufacturing,
- To secure imports of critical minerals for domestic manufacturing, and
- To safeguard responsibly mined, value-added minerals for the global supply chain.

New Zealand's context is markedly different:

- Our country produces a limited range of minerals and mineral products, noting some potential to bring new minerals into production, and to create advanced materials.
- Imported minerals are mainly in finished goods, over which we have little or no influence in terms of managing supply chain disruption risk.
- Our country's geographical isolation makes us vulnerable to supply chain disruptions, raising the importance of being able to produce minerals domestically where these have domestic uses, in particular, in essential industries such as steelmaking, dairy and other food processing, and back up national grid electricity generation.
- High-quality West Coast coal is exported to international steelmakers and for other applications, boosting New Zealand's foreign exchange earnings.

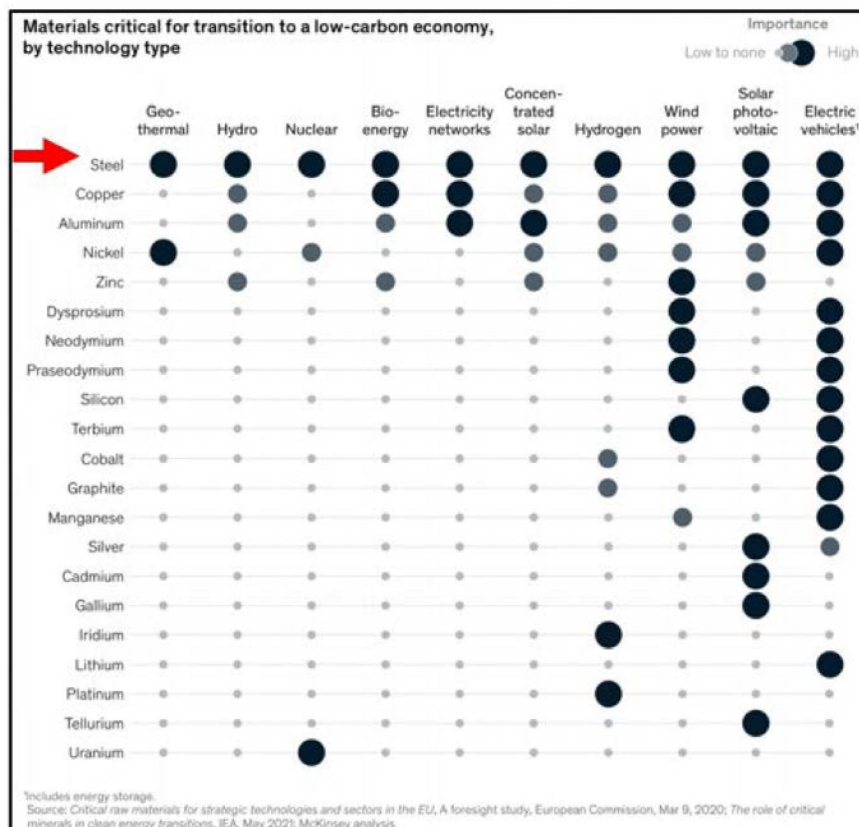
### **Grounds for adding coal to the critical minerals list**

By taking a broader view of the criteria for establishing a New Zealand critical minerals list, the Government will have grounds for the addition of coal to the list.

The European Union's [2020 list of critical raw materials](#) includes coking coal, which is used in steelmaking, and for which the EU is highly reliant on imports. Likewise, Japan is entirely reliant on imported coking coal for its steelmaking. New Zealand uses sub-bituminous coal with ironsands in steelmaking, and exports coking coal for overseas steelmaking.

Coal is an essential metallurgical input, or key ingredient into steelmaking. Even steelmaking that incorporates an electric arc furnace will still need coal as an input. While there are examples of steel manufacturing without coal, these are boutique demonstrations, and even if this technology turns out to be economic, it will still take decades to roll out around the world (International Energy Agency [sustainable development scenario](#)). A key reason is the long life of existing blast furnaces, which are significant capital investments; transition here would happen at the end of life of the plant. As well, there are a number of significant technical hurdles to be overcome to get this technology to be at a large enough scale to feed projected long-term growth in world steel demand. One projection by [The Net-Zero Industry Tracker](#) is a 30% increase in world steel demand by 2050.

Steel is one of the building blocks of modern life. Its uses are too numerous to name; to mention one, steel is used in the construction and manufacturing of all climate change transition technologies (refer to the chart presented below). On this topic, the International Energy Agency says in its [iron and steel technology roadmap](#), “Steel will also be an integral ingredient for the energy transition, with solar panels, wind turbines, dams and electric vehicles all depending on it to varying degrees.”



Source: Critical raw materials for strategic technologies in sectors in the EU, A foresight study, European Commission, Mar 9, 2020; The role of critical minerals in clean-energy transitions, IEA, May 2021; McKinsey analysis

## **Other reasons why coal is important**

Our export coking coal and other West Coast coking coals are sought after for their high quality, reducing fuel requirements in a blast furnace, thereby also reducing CO<sub>2</sub> emissions from steel manufacture. In terms of coal produced from our Stockton mine, this saving in emissions exceeds 300,000 tonnes of CO<sub>2</sub> per year (refer to audited [case study](#) in Bathurst Resources' annual report for FY 2022).

In exporting coal, we also contribute to foreign exchange earnings, and to New Zealand's much needed export-led economy.

Coal provides essential energy to dairy and other food processing industries in New Zealand, especially in the South Island where there is no gas. Given volatility in the electricity market, uncertainty over future gas supply, and multiple shortcomings with biomass, coal will retain its importance in New Zealand as a source of industrial heat, including in cement and lime manufacturing for some time to come.

Woody biomass is a fraught technology. Problems include inadequate supply, logistics including transport, storage and handling, and the capital costs of conversion of industrial boilers from coal to wood. Most serious of all is that biomass increases CO<sub>2</sub> emissions per unit of product versus coal due to decreased combustion efficiency, with international studies showing the difference can take decades to be offset by sequestration in growing trees. Refer to a presentation by Dr Rob Boyd to the AusIMM NZ Branch conference in August 2024, titled "Does converting boilers from coal to biomass reduce emissions?"

Coal use as an advanced material is expanding, and sets the scene for future use opportunities to be discovered e.g. high-performance building materials. There are already examples of coal as advanced materials under development and commercialisation. Trials are underway to develop carbon foam from West Coast coal in which Bathurst is involved. Carbon foam is an advanced material having many applications, e.g. structural moulds for making carbon fibre products and rocket nozzles, thermal insulation, fuel cell electrodes, catalyst supports, and filters.

A further example is Nuenz' silicon nitride nano-fibre made using West Coast coals, which has uses in composite materials that add lightness, strength, and resistance to wear and tear in specialised applications such as automotive and aerospace.

Another example of coal as a mineral of interest is that coal itself contains other critical and essential minerals. These minerals can be found directly in coal or in the surrounding rock layers and play a

pivotal role in numerous applications. When coal is burned, it produces valuable coal ash (fly ash) that reduces the climate impact of concrete by substituting partially for the cement component.

Additionally, coal ash and coal sludge contain high volumes of aluminium ore, as well as heavier metals, such as cobalt, copper, iron, lead, silver, nickel, and zinc. At Bathurst, we have been investigating the economic viability of extracting rare earth elements from coal byproducts such as [scandium](#).

Coal provides essential backup to national grid electricity generation, and its role is likely to increase given uncertainty in future gas supply.

Producing coal domestically, instead of importing it, saves on CO<sub>2</sub> emissions from transporting the coal to New Zealand. This is significant for New Zealand because of our country's geographical isolation. Imports, as opposed to domestic production, also increases the financial costs and carbon footprint costs to purchasers, which then incur additional business costs, flowing through to New Zealanders who buy their products.

Domestic production also provides economic activity in communities, through jobs, local investment in property, spending in the local economy, and the intangible through real benefits of mining employees households' engagement in their communities. Refer to case study in Bathurst's [FY20 annual report](#).

## RECOMMENDATIONS

Bathurst Resources recommends MBIE to:

1. Note our support for the concept of a critical minerals list.
2. Agree that the New Zealand context is fundamentally different to that of other countries that have critical minerals lists.
3. In relation to Recommendation 2, agree that New Zealand's geographical isolation makes our country particularly vulnerable to supply chain disruption risks for minerals used domestically that are essential or critical to the New Zealand economy. The geographical isolation also increases financial costs and carbon footprint costs of importing coal which incur additional economic costs to New Zealand businesses and New Zealanders who buy their products.
4. Agree to consider a wider set of criteria to developing a critical minerals list that takes in the New Zealand context.
5. Agree on the basis of the above to include coal on the critical minerals list.
6. In support of the above, note that coal is essential for steelmaking at scale, and that steel is a fundamental input into constructing and manufacturing low-carbon transition technologies.

7. Note that coking coal - an essential ingredient for steelmaking - figures on the European Union's 2020 list of critical raw materials.
8. Note that in New Zealand, coal is an essential source of industrial process heat in dairy and other food processing, and cement and lime manufacture, for which electricity and biomass are inadequate substitutes, or currently ineffective.
9. Note that New Zealand export coal is sought after for its high quality, which reduces fuel requirements per unit of product, thereby also reducing CO<sub>2</sub> emissions in steelmaking.
10. Note that New Zealand export coal contributes to New Zealand's foreign exchange earnings, thereby contributing to our country's export-led economy.
11. Note that coal is a critical input into the development of advanced carbon-based material technologies, which are in development and commercialisation.
12. Note that coal is critical as backup to New Zealand's national grid electricity generation.
13. Note that domestic coal production leads to reduced CO<sub>2</sub> emissions compared with imported coal, and generates economic activity in regions and communities.