

# Australia's Critical Minerals Strategy: Response to Discussion Paper

## Introduction

To ensure Australia has the right policy settings in place to advance the critical minerals sector, it is understood that the Australian Government is developing a new Critical Minerals Strategy. It will focus on creating economic opportunities, including for regional Australia, developing new sovereign capabilities and industries, and building reliable, competitive and diverse supply chains. It is intended that the issues raised in an issued discussion paper reflect the importance of the critical minerals industry to the Government and our ambition of making Australia a clean energy superpower.

It is noted in the discussion paper that the Government would like to build sovereign capabilities and industries that could also strengthen Australia's supply chain resilience and minimise over-reliance on other nations.

Therefore there is an immediate need for an overarching incentive of national priority to drive creation of an Australian sovereign, manufacturing capability.

\* The concepts of 'sovereign' and 'capability' articulate national strength, purpose, and resolve.

\* 'Collaboration' is the third implicit dimension of this multi-functional conceptualisation that enables Australians to manage network relationships based on mutual trust, communication, and commitment.

**Australia therefore requires primarily a vision for 'high value' manufacturing that reflects both high levels of independence and an organisational framework to remediate the current collaborative shortfalls.**

## Analysis

Based on analyses carried out by MotM™ and drawing on extensive E-media platform sourced policy inputs from industry and interaction with professional networks that capitalise on SME attributes, we have identified several structural improvement imperatives towards building sovereign, manufacturing capability in two new industries identified as growth markets where Australia has capabilities, know-how, IP, rare earth resources (i.e. 'critical minerals') and/or abundant new and advanced materials:

- surface transportation/ new mobility (with an 'E-mobility' core), and
- energy (especially battery storage and mobile energy).

There are process deliverables for the Australian Government which have been previously addressed by us in an earlier 2021 submission on the 'Rationale for Australian Sovereign Manufacturing Capability' <https://bit.ly/3gHOojd>

## The Authors

**Manufacturing on the Move™ (MotM™)** was formed several years ago as a whole-of-sector, professional networking group with the express intention of making significant contributions to the competitive fitness of a viable Australian manufacturing economy. MotM™'s parallel focus is on enabling and driving outcomes that are integral to government policy, corporate strategy or constructively operated interest groups. Manufacturing on the Move™ draws on the extensive international experience in manufacturing and market environments of its founders' core group and an associated pool of practitioner professionals. Link: <https://www.linkedin.com/groups/6987032>

**Key contact:** Patron / Founder: Bruce Grey <https://www.linkedin.com/in/bruce-grey-03570913/>

### Contributors:

- Jon Bradshaw <https://www.linkedin.com/in/jon-bradshaw-a45b6823/>
- Richard Jefferies <https://www.linkedin.com/in/rgj2015>
- Angus M Robinson <https://www.linkedin.com/in/angusmrobinson/>
- Eduardo Sifontes <https://www.linkedin.com/in/eduardosifontes/>

## Responses to Questions Raised in the Discussion Paper

### 6. For key technologies and value chains, such as batteries, magnets, alloys, and other clean energy technologies, what are the key obstacles to Australia moving up the value chain?

Australia possesses one of the largest known deposits of lithium and rare earth elements in the world, which are undoubtedly going to become a significant building block for producing the critical raw materials that are crucial to enable a global green transition, particularly with regards to electric vehicles.

#### European Union

However, in recent weeks there has been a concerning and largely unpublicised EU development that will create emphatic restrictions if not barriers to the processing and downstream development of an automotive battery manufacturing industry in Australia.

The implicit intention appears to be that the whole of the European automotive market will be closed to all but accredited suppliers of raw materials with processing, battery manufacture, and whole of life recycling to be conducted solely by EU member countries.

Australia needs to negotiate a process by which we can enter the whole of life battery value chain. Bottling up the massive giga factory manufacture of batteries, PV cells and semiconductors in Europe (or China) also seems an odd way of pursuing climate change objectives.

### So how did this come about?

Currently, Europe relies solely on imports of rare earth metals, which are used to make batteries for electric vehicles. Globally, China completely dominates the market, a factor which has increased the vulnerability of the European automotive industry.

The EU's commitment to electrification, self-sufficiency and independence from Russia and China has begun with investment in the development of new mines across Europe and a commitment that has commenced with EU legislation to support and strengthen industrial value chains in Europe and to create real opportunities for the electrification of their societies.

A provisional political agreement has been reached between the European Parliament and the Council that aims to make all **batteries** placed on the EU market **more sustainable, circular, and safe**. The agreement builds on the [Commission's proposal](#) from December 2020 and addresses the **social, economic and environmental matters** related to all types of batteries.

A key achievement under the [European Green Deal](#), the new law brings forward both the circular economy and zero pollution ambitions of the EU by **making batteries sustainable throughout their entire lifecycle** – from the sourcing of materials to their collection, recycling and repurposing. In the current energy context, the new rules establish an essential framework to foster further development of a **competitive sustainable battery industry**, which will **support Europe's clean energy transition** and independence from fuel imports. Batteries are also a key technology that plays a central role in advancing EU's climate neutrality by 2050.

### New rules for production, recycling, and repurposing of batteries

Once the new law enters into force, sustainability requirements on carbon footprint, recycled content and performance and durability will be introduced gradually from 2024 onwards. A more comprehensive regulatory framework on 'Extended Producer Responsibility' will start applying by mid-2025, with higher collection targets being introduced over time. For portable batteries the targets will be 63% in 2027 and 73% in 2030, while for batteries from light means of transport, the target will be 51% in 2028 and 61% in 2031. All collected batteries have to be recycled and high levels of recovery must be achieved, in particular of valuable materials such as copper, cobalt, lithium, nickel, and lead.

This will guarantee that valuable materials are recovered at the end of their useful life and brought back in the economy by adopting stricter targets for recycling efficiency and material recovery over time. Material recovery targets for lithium will be 50% by 2027 and 80% by 2031.

It is understood that companies placing batteries on the EU internal market will have to demonstrate that the materials used for their manufacturing were sourced responsibly. This means that social and environmental risks associated with the extraction, processing and trading of the raw materials used for the battery manufacturing will have to be identified and mitigated.

### Next steps

It is understood that the European Parliament and the Council will now formally have to adopt the new Regulation before it can enter into force. The new Regulation will replace the existing Batteries Directive from 2006. This new cradle-to-grave regulatory framework for batteries will require a lot of more detailed rules (secondary legislation) to be adopted from 2024 to 2028 to be fully operational.

### Background

Since 2006, batteries and waste batteries have been regulated at EU level under the Batteries Directive. The Commission proposed to revise this Directive in December 2020 because of new socioeconomic conditions, technological developments, markets, and battery uses.

Demand for batteries is increasing rapidly and is set to increase 14-fold by 2030, and the EU could account for 17% of that demand. This is mostly driven by the electrification of transport. Such exponential growth in demand for batteries will lead to an equivalent increase in demand for raw materials, hence the need to minimise their environmental impact.

In 2017, the Commission launched the European Battery Alliance to build an innovative, sustainable, and globally competitive battery value chain in Europe, and ensure supply of batteries needed for decarbonising the transport and energy sectors. <http://bit.ly/3HFI7Sb>

### Addendum

An issue that has developed very rapidly over the last few weeks that may not have been in the Australian Government's thinking when these questions were framed, was the now emerging EU legislation towards making it mandatory that all European and UK built cars contain batteries and component materials that are completely processed and manufactured in Europe.

Over the last few days, several developments have taken place that illustrate a fast-moving dynamic situation involving at least two huge 'investment plays' that are focused on building UK/EU giga factories and securing a major slice of the EU battery business. <https://bit.ly/3XfGaSd>

The announcements are apparently in response to the EU legislative developments with any outcome obviously affecting the mooted Australian giga factory of Recharge Industries, which it is understood is negotiating multi-million-dollar funding with Australian and State Government agencies. In fact, in apparent response to the EU legislation, the company now

appears keener on picking up the assets of failed UK spinout Britishvolt, a move that could revive plans to construct a new gigafactory in Northumberland. Then, a few days ago, Australian businessman Andrew Forest has announced plans to build a massive battery factory in Oxfordshire UK. <http://bit.ly/3HStCLN>

Australia obviously needs to be safeguarded against being legislated by the EU as being no more than possibly an accredited supplier of unprocessed, mined resources. Effectively it would now seem that the Australian Government has been presented with a fait accompli. Local processing options and further 'value add' for lithium towards products intended for sale in the UK and EU could well be

denied. Consequently, it now seems unlikely that the proposed investment in an Australian lithium processing and battery manufacturing facility will go ahead.

### *The Situation in the United States* #

In considering what might eventuate with battery manufacturing in the US, it is worth noting that already US subsidies for favoured industries amount to around 0.5% of GDP. This is more than any other large economy, other than China. The sum is also remarkable in that it is going mainly to private enterprises. And it involves a wide range of industries, from nuclear power to chipmaking. What is more, the support is not just for nascent technology, but also for widely used goods such as semiconductors and solar panels.

The subsidies are already reshaping US industry, with supply-chains being reforged along the lines that US politicians had hoped. On 31st January 2023, General Motors announced a US\$650 million investment in a new lithium mine in Nevada. Eventually the US could become a net exporter of those goods where domestic production is currently negligible. Credit Suisse reckons that American-made solar panels may meet 90% of domestic demand by 2030, a prospect that would have been unimaginable before the passage of the recent Inflation Reduction Act (IRA).

The manufacturing push will also help to realise President Biden's green ambitions. The IRA cleverly turns cuts to US emissions of greenhouse gases into a boon for industry, rather than a monumental burden, and thus makes them much more politically palatable. The US Government estimates that the IRA will help reduce US emissions to 60% of their level in 2005 by 2030, about 10 percentage points less than would otherwise have been the case. That would be a huge achievement, given Congress's previous refusal to vote for emissions cuts.

Whilst meeting emission reductions is politically expedient, it is reported that it creates many practical difficulties. In some instances, it is believed that it will be hard to develop new suppliers as quickly as the IRA envisages. It will also be difficult to build new solar factories, without using equipment from China, which has more or less cornered the market. "We want a lot of things that are inconsistent with the facts on the ground," says Willy Shih of Harvard Business School.

Much the same applies to the tax credits for electric cars. For buyers to receive the full US\$7,500 rebate, a rising share of the materials used to make the car's battery must have come either from the US or a country with which it has a free-trade agreement. The problem is that many of the critical minerals used are concentrated in countries with which the US does not have a free-trade agreement, including Malaysia and Indonesia in the case of nickel, and Argentina in the case of lithium. New mines take years to develop (and hammering out new trade deals is even more arduous, in US at least), so manufacturers may have to forgo the full tax credit rather than comply with the IRA's strictures.

Loosening the rules would lower the cost of EVs and speed up their adoption. It is reported that the US Treasury has signalled it may do just that in detailed regulations to be published in March.

# Source: The Economist, 3rd February 2023 <http://bit.ly/3jzQqXn>

However, Senator Joe Manchin, who nearly torpedoed the IRA, is reported to be among those inveterately opposed to any lenience. In late January this year, he introduced a bill intended to tie bureaucrats' hands. "The IRA is first and foremost an energy-security bill," he declared, "and the EV tax credits were designed to grow domestic manufacturing and reduce our reliance on foreign supply-chains." It seems that an embarrassing row is looming.

Other elements of the manufacturing push may suffer from the opposite problem - a glut. Many of the goods that the US is seeking to manufacture are at risk of oversupply as it is, including both chips and solar panels. Chipmakers' margins are already falling, thanks to a recent fall in sales of personal computers. For example, on 27th January 2023, Intel Corporation reported a staggering 32% drop in revenue in the final quarter of last year, compared with the same period the year before. It is hard to imagine that the opening of US\$20 billion-worth of new semiconductor factories will not exacerbate its woes.

The proliferation of subsidies in the US is also fermenting complaints from other manufacturing powers, which fear that their companies will be disadvantaged. South Korea is up in arms about electric-vehicle rules, which it says harm even those South Korean carmakers that are building new factories in the US since their suppliers do not yet meet the IRA's standards. Reports in November that Northvolt, a European battery-maker, might invest in the US rather than Germany has caused concern throughout Europe.

## **Question 8**

### **What can Australia do to better develop and retain IP and to attract IP investment from like-minded partners?**

Past experience has demonstrated that unfortunately retaining the IP provides little benefit for Australia. It represents a negligible return on the public funded investment in R&D. To move forward, Australia must be fully committed to the whole value chain from research translation through commercialisation, manufacture, and eventual recycling. It is also increasingly obvious that the one and only way to retain sovereign capability and in control is to be ahead of the curve in the advanced technologies the world needs and craves. This must include manufacturing capabilities. Just possessing the IP or prototypes is simply not enough.

An obvious case in point was the Australian invented and produced Suntech PERC cell technology where production was moved from Australia to China. It is generally agreed that Australia lost, or more accurately gave away, a multi-billion-dollar industry. Australia now needs to do a whole lot more than merely retaining the IP resultant from public funded research. The notion of a circular economy makes the involvement in 'whole of life cycle' initiatives absolutely essential.

Close attention should be given to a strategic approach to the structuring of Intellectual Property Rights [IPR] also in multilateral inter-nation and inter-bloc accords such as Free Trade Agreements or Comprehensive Economic Partnerships/Agreements. Owning and caring for the 'know-how', then constantly monitoring the potential for Australian-devised, market-relevant innovation cannot be over-emphasised.