

**Submission from the Australian Government to the U.S. Department of
Commerce**
**Section 232 National Security Investigation into Imports of Neodymium-
iron-boron (NdFeB) Permanent Magnets**
(86 FR 53277)

Australia welcomes the opportunity to submit the following information to the U.S. Department of Commerce's investigation into imports of neodymium-iron-boron (NdFeB) permanent magnets on U.S. national security under Section 232 of the *Trade Expansion Act of 1962*. The U.S. 100 day supply chain reviews highlighted the risk of concentrated global supply chains, and the need for strategic and commercial partnerships to ensure diverse and resilient sources of supply of key materials, like critical minerals – including rare earth elements. The recent European Raw Materials Alliance report, 'Rare Earth Magnets and Motors: A European Call for Action',¹ similarly highlighted (excerpt below) the high product concentration existing across all rare earth value chain steps.

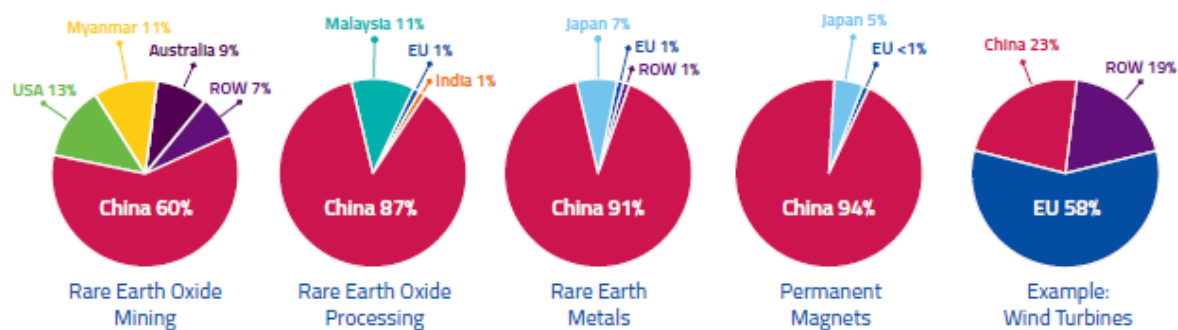


Fig. 3: From rare earths mining to wind turbine manufacturing: estimated market shares in 2019. Sources: Team analysis and Roskill 2018; Adamas Intelligence 2019; Peteves 2017; Carrara et al. 2020; IEA 2021; USGS 2021.

The Australian Government welcomes President Biden's call to increase the resilience, diversity and security of U.S. supply chains, including critical minerals/rare earths. Australia is a major current and prospective global source of critical minerals and is also host to world-class capabilities and knowledge in the extraction and processing of critical minerals, including rare earths. There is a natural synergy between Australia and the United States in the critical minerals sector, exemplified by the significant investment by Australian companies in the U.S. critical minerals sector, including Lynas.

Australia's critical minerals sector can play a major role supporting the U.S. clean energy transition through resilient, strategic supply chains of processed critical minerals. With regard to rare earth permanent magnets (such as NdFeB magnets), Australia is developing a number of globally significant rare earth recovery and processing operations which can significantly expand supplies of neodymium and praseodymium (NdPr) oxides into U.S. supply chains.

¹ Available at [Ensuring access to the raw materials for the European Green Deal: A European Call for Action \(erma.eu\)](https://erma.eu).

Australia seeks to produce rare earth oxides and, potentially, metals domestically, but will continue to rely on stable and secure global supply chain partnerships – for example, with Japan and the Republic of Korea, and potentially the United States - for downstream metal and magnet-making to support end-use markets. The health of the U.S. magnet-making and -consuming sector is of fundamental interest to Australia. Our ability as a reliable and market-oriented producer of upstream materials is an ideal complement to a developing U.S. downstream magnet industry.

Bilateral cooperation on critical minerals/rare earths

In recent years, Australia and the United States have strengthened bilateral cooperation to improve the resilience and diversity of global critical minerals supply chains. In September 2019, President Trump and Prime Minister Morrison agreed to establish a bilateral critical minerals dialogue and develop a United States-Australia Critical Minerals Plan of Action. Similar discussions are also being taken forward in our bilateral Energy Security Dialogue, through Australia's inclusion in the U.S. National Technology and Industrial Base and related engagements with the U.S. Department of Defense (DoD), in bilateral supply chain review consultations, and in plurilateral forums such as the Quad. The U.S. 100-day Supply Chain Review report cited U.S. bilateral engagement with Australia as a 'model example for international cooperation on strategic and critical minerals' and identified that allies, such as Australia, play a key role in strengthening collective resilience.

Potential as a long-term, reliable supplier of rare earths

Under Australia's Critical Minerals Strategy, the Australian Government is committed to playing a globally significant role in meeting rapidly increasing critical minerals (including rare earths) demand over the next decade and beyond. To achieve this, the Government is supporting our domestic sector to move further downstream by making available the possibility of substantial new funding for critical mineral processing capabilities – including through a new A\$2 billion (US\$1.4 billion) Critical Minerals Facility that will provide finance to advanced critical minerals projects where private sector finance is unavailable or inadequate - and seeking strategic and/or commercial partnerships with allies and partners to integrate these materials in their supply chains.

The Australian Government has identified resources technology and critical minerals processing as one of six priority areas under our Modern Manufacturing Strategy. As part of the Strategy, the A\$1.3 billion (US\$860 million) Modern Manufacturing Initiative aims to encourage more private investment and support large projects to build scale, connections and capabilities of local manufacturers. To date, approximately A\$50 million (US\$34 million) has been allocated to Australian critical minerals activities. Additional rounds for priority sectors are expected in the future.

Australia is the world's fourth-largest producer of rare-earth elements, including NdPR which are used in permanent magnets, and has the world's sixth-largest resource base (refer table).

Key Australian resources indicators²

Critical Mineral	Geological potential	Economic reserves ranking	Production ranking
Cobalt	High	2 nd in the world	3 rd largest producer
Graphite	Moderate	7 th in the world	No production
Lithium	High	2 nd in the world	World's largest producer
Rare earths	High	6 th in the world	4 th largest producer
Titanium	High	Ilmenite – 2 nd in the world Rutile – 1 st in the world	Ilmenite – 4 th largest producer Rutile – world's largest producer
Tungsten	Moderate	2 nd in the world	Minimal production
Vanadium	Moderate	2 nd in the world	No production
Nickel	High	1 st in the world	6 th largest producer

Source: *Australia's Identified Minerals Resources 2020*

As above, Australian companies are already present in the United States supporting efforts to develop secure and reliable critical mineral/rare earth supply chains (see **Attachment A**). Australia welcomes the U.S. DoD award of a technology investment agreement to Lynas Rare Earths to build a light rare earths separation facility in the United States. Lynas is also looking to develop heavy rare earth separation capability for this facility in the United States. These are promising first steps towards the development of resilient rare earths supply chains among allies and likeminded partners.

Lynas' Advanced Materials Plant in Malaysia is the most advanced global facility for producing a mixed rare-earth oxide and the largest facility outside of China. It is the leading supplier of NdPr products to the Japanese market. In Australia, Lynas' Mt Weld mine and nearby rare earths processing facility (which the Australian Government has supported the development of a A\$14.8 million (US\$10 million) grant under the Modern Manufacturing Initiative) will provide feedstock for its proposed separation plant in the United States. This will support the development of a domestic U.S. rare earth magnet supply chain.

Australia also has several other advanced rare earths projects under development that could provide important import sources for the United States and we welcome consideration of possible investment in, or offtake from, these projects (for further details see **Attachment B**). A number of these companies have expressed their willingness to increase collaboration and potential processing capabilities to support U.S. industrial priorities.

Robust ethical and environmental sustainability credentials

Much of the current dominant value chain for permanent magnets is exposed to considerable environmental, social, and governance risks. As a world leader in sustainable mining, with a history of implementing strong environmental and safety regulation, and adopting voluntary standards and codes of practice, Australia sets the world standards. Australia is piloting the use of blockchain technology to create a 'digital certification' for critical minerals throughout the extraction and movement phases and is researching mechanisms for certification and

² Available at [Australia's Identified Mineral Resources | Geoscience Australia \(ga.gov.au\)](https://www.ga.gov.au/australias-identified-mineral-resources).

provenance of battery minerals that provide Australian data to assist the industry to meet customer requirements.

As a founding partner of the Energy Resource Governance Initiative (ERGI), Australia and the United States are leaders in promoting sound mining sector governance and secure, resilient energy mineral supply chains. To that end, Australia is co-funding (A\$1 million) with the United States delegations from countries in the Indo-Pacific to attend the ERGI Academy, delivered by the University of Nevada, for training in mining sector operations, management and regulation.

Australia is also taking the lead to ensure robust global standards for critical minerals. Australia currently chairs the Strategic Advisory Group of the International Organization for Standardization, a Group established in 2020 to undertake an analysis of existing and potential standardization work in the area of critical minerals and make recommendations to the Technical Management Board. Cooperation among partners and allies in this process is very important to ensure that international standards represent industry best practice.

Australia is a close strategic and economic partner for the United States

This year marks the 70th anniversary of the Australia, New Zealand, United States Security Treaty (ANZUS). The ANZUS alliance has been the foundation of our bilateral security cooperation and a key pillar for peace and stability in our Indo-Pacific region. In 2021, it has been supplemented by the announcement of the Australia – United Kingdom – United States (AUKUS) trilateral security partnership which promises to forge closer links between the three countries' defence industrial bases. The alliance is broad, deep and beneficial, spanning foreign policy, defence and security, intelligence, development, energy, environment, education, law, trade and investment.

The United States-Australia Free Trade Agreement (USAFTA) underpins the close economic relationship. Since USAFTA's entry into force in 2005, bilateral trade has grown from A\$41 billion (US\$28 billion) to A\$74 billion (US\$51 billion) in 2019, and the stock of two-way investment has grown by over 150 percent, to A\$1.8 trillion (US\$1.2 trillion).

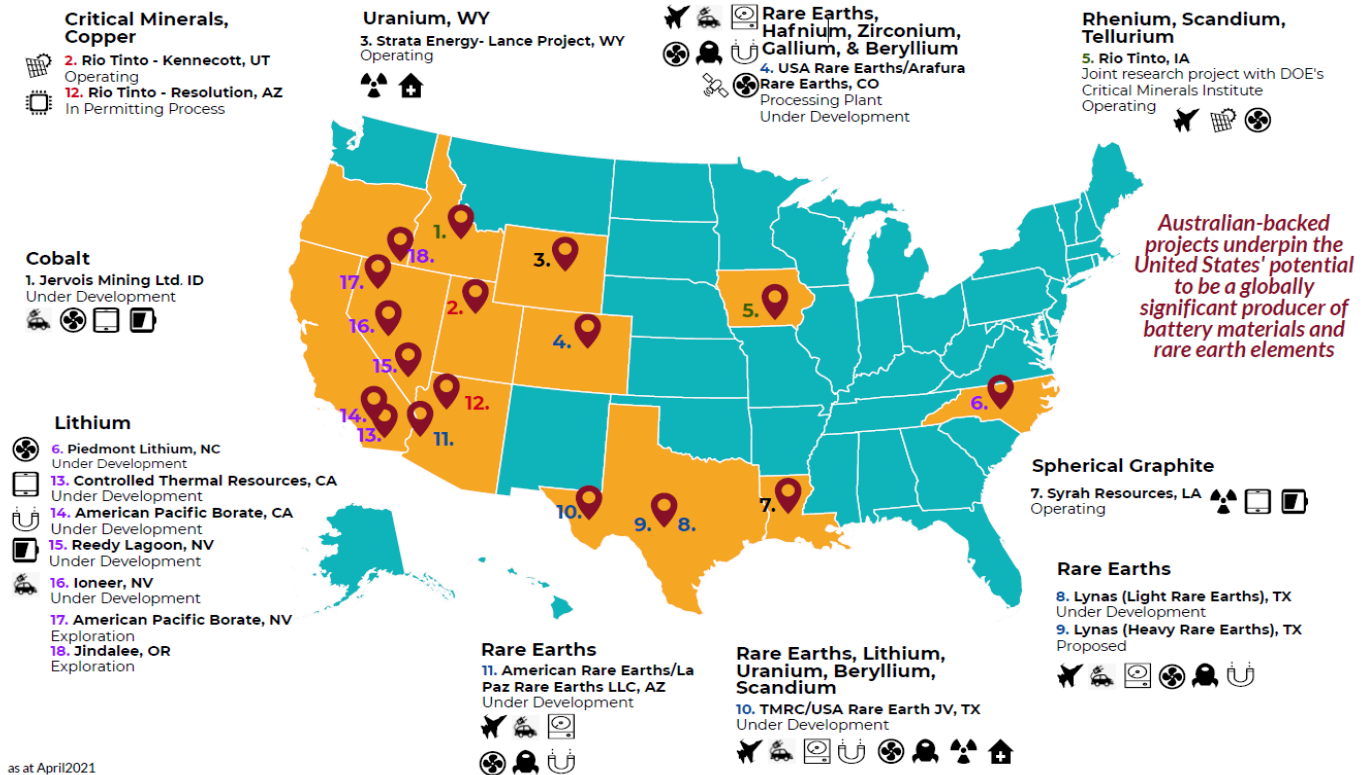
In 2017, Congress expanded the definition of the U.S. National Technology and Industrial Base (NTIB) to include Australia and the United Kingdom. Inclusion in the NTIB recognises the capacity and capability of Australian companies to support U.S. supply chain gaps and vulnerabilities. In July 2021, the House Armed Services Committee Defense Critical Supply Chain Taskforce recommended the U.S. DoD better leverage ally and partner capabilities through the NTIB. It labelled the NTIB as a test bed for closer international cooperation and supply chain resilience. Australia welcomes news that Pentagon Industrial Base Analysis officials are exploring mechanisms to augment *Defense Production Act* Title III authorities and expand sourcing possibilities. Changing the definition of "domestic sources" to include NTIB nations could provide the means for co-investment and to leverage nascent or extant Australian industrial capabilities.

Conclusion

Like the United States, Australia is determined to help establish diverse, resilient and secure supply chains of critical minerals. In addition to our long-standing bilateral alliance with the United States, Australia stands shoulder-to-shoulder with the United States internationally through our membership of the Quad and a variety of forums in the Indo-Pacific region, including APEC and the East Asia Summit. Our complementary capabilities position us to supply critical minerals products to the United States, including processed neodymium that will support the development of U.S. supply chains and right through to the advanced manufacturing of NdFeB magnets. While Australia is less likely to produce permanent magnets in the near term, by integrating with established Japanese and South Korean and emerging U.S. permanent magnet supply chains, we can together develop a resilient, diverse end-to-end supply chain.

Attachment A: Overview of Australian Critical Mineral/Rare Earth presence in US

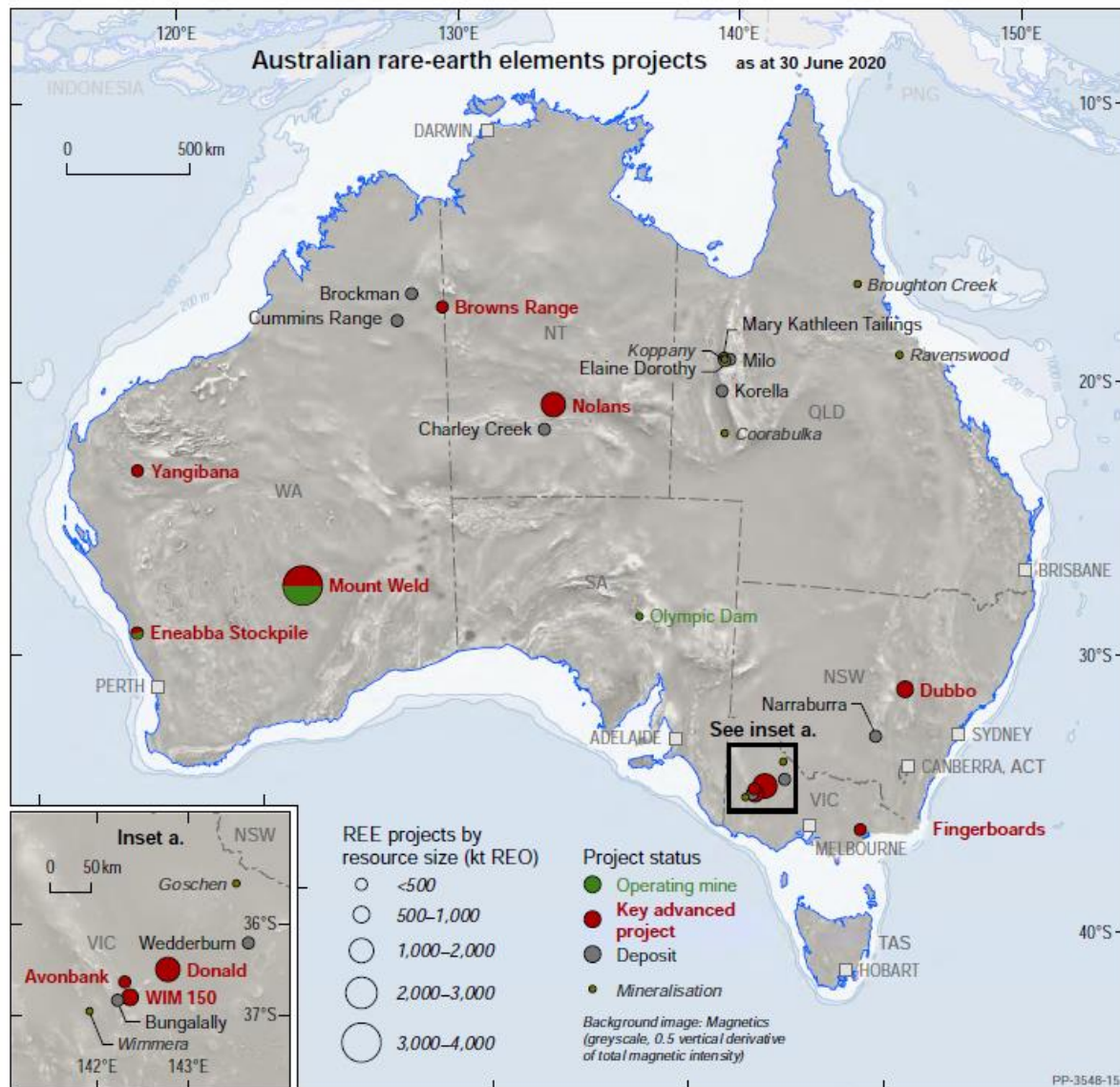
Australia is Helping Develop US Critical Minerals Capacity



Attachment B: Key Australian rare earths projects

The *Australian Critical Minerals Prospectus 2020*³ showcases significant investment opportunities in hundreds of critical minerals (including rare earths) projects across Australia.

The Prospectus includes six projects at various stages of development, from advanced planning to construction, that represent significant rare earth supply chain opportunities and could serve to support U.S. rare earths demand needs.



³ Available at [New Critical Minerals Prospectus showcases investment opportunities | Department of Industry, Science, Energy and Resources](#).

The most advanced projects are:

Lynas Corporation Limited – Mt Weld	
Project overview	<ul style="list-style-type: none"> • Lynas' Mt Weld Rare Earths Mine is one of the world's highest grade rare earth deposits. It currently produces rare earth concentrate (including NdPr oxide). • A new proposed facility will operate as a cracking and leaching plant allowing for rare earths separation (producing rare earth oxides). • Lynas has an existing relationship with the U.S. DoD which invested US\$30 million in Lynas' proposed Texas processing facility. • The Australian Government granted the Mt Weld Rare Earths Processing Facility Major Project Status in early 2020.
Status	Preliminary site works for a new Rare Earths Processing Facility is underway. Lynas aim to have this project operational by mid-2023.
Iluka Resources Ltd - Eneabba Stockpile	
Project overview	<ul style="list-style-type: none"> • Iluka is an existing critical minerals producer based in Western Australia and South Australia, and has operations overseas. • The company has previously produced monazite concentrates fit for rare earths refinery. An upgrade of the production facility is underway. • Iluka is also proposing to build and operate a downstream fully integrated rare earths refinery in Western Australia (Eneabba) to produce a separated NdPr oxide product. • Iluka is engaging with Australian Government financing agencies to discuss financing options for the project.
Status	The project is currently conducting to a final feasibility study and aim to have the project commissioned by late 2024.
Arafura Resources Ltd – Nolans Rare Earths Project	
Project overview	<ul style="list-style-type: none"> • Arafura's proposed processing facility will undertake both rare earths cracking and leaching and solvent extraction to produce separated NdPr oxide and mixed mid-heavy rare earth oxide for export. • The Australian Government granted Major Project Status to the Nolan's Rare Earths Project in mid-2016. Major Project Status was renewed in early 2020 for a further three years. • Arafura have been in discussions with several significant NdFeB magnet developers in the United States who have noted the potential significant costs of operating an NdFeB plant locally.
Status	The project is currently at a pre-construction stage and Arafura aim to have the project commissioned by the end of 2024.
Northern Minerals - Browns Range	
Project overview	<ul style="list-style-type: none"> • Northern Minerals is well advanced in relation to heavy rare earths such as Dysprosium and Terbium and is positioned to become the first significant dysprosium producer outside of China.

	<ul style="list-style-type: none"> • The company commenced the production of heavy rare earth carbonate in 2018 as part of a three year pilot assessment of economic and technical feasibility of a larger scale development. • The company has commenced studies on individual rare-earth separation methods and this will form part of the future plans of the company to produce separated heavy rare earth oxide. • The company has previously engaged with the U.S. DoD and other organizations within the U.S. Government, and has also engaged with USA Rare Earths in Texas.
Status	Fast-tracking feasibility for a full-scale, commercial mining and beneficiation operation.
Australian Strategic Materials Ltd: Dubbo	
Project overview	<ul style="list-style-type: none"> • ASM's Dubbo Project is a large in-ground polymetallic resource of rare earths, zirconium, niobium, hafnium, tantalum and yttrium. Dubbo has all major approvals and licences in place. • ASM acquired 95% of its joint venture partner Ziron Tech, which owns patented low-emission, high-purity metal refining technology. • ASM also acquired the pilot plant constructed in 2020 and confirmed scalability of the technology. The technology has application to produce rare earth elements metals. • ASM have received a Letter of Support from the Government's Export Finance Australia.
Status	Pre-construction – feasibility study completed. ASM aim to have the project commissioned by the end of 2023 / early 2024.
Hastings Technology Metals Ltd - Yangibana	
Project overview	<ul style="list-style-type: none"> • Hastings are developing a mining project at Yangibana and a hydrometallurgical plant in the Pilbara, both in Western Australia. • The project would see Hastings produce mixed rare-earth carbonate (MREC). Yangibana's MREC boasts extremely high concentrations of the high-value neodymium and praseodymium elements. • Hastings received commitments to raise A\$101 million (US\$70 million) through two placements (A\$57 million and A\$44 million, respectively) in February 2021 to advance the project. • The company has recently received environmental approval by the Department of Agriculture, Water and Environment to proceed with construction of its rare earths plant.
Status	Pre-construction. Hastings successfully completed a Definitive Feasibility Study for the project in 2017.