

The Post-COP26 World Looks To Australia For Future Non-Chinese Rare Earths Production

written by InvestorNews | November 18, 2021

To achieve U.N. climate change management goals the world needs to shift rapidly to clean energy, and that means we need to build or secure, reliable sources of rare earths. While the USA and Canada have made some progress in this direction, Australia will also be needed to play a key role.

When looking at [a chart of rare earths reserves by country](#), China shows the largest reserves followed by Vietnam, Brazil, Russia, India, and Australia, in that order. The USA is ranked 8th and Canada is outside of the top ten. Given Australia's stellar track record as a reliable supplier of raw materials, it should not be surprising to know that the West is looking towards Australia to step up production of rare earths, especially those needed to support the surging cleantech sectors of electric vehicles, wind energy, and solar energy.

ClearWorld.us says it well, [stating](#):

"Renewable energy development relies upon sufficient quantities of rare earth minerals, specifically neodymium, terbium, indium, dysprosium, and praseodymium. These are used in the production of solar panels and wind turbines. If the world is to meet the greenhouse gas emissions targets sought in the Paris Climate Agreement the availability of these minerals must increase by 12 times by 2050."

(Emphasis by the author.)

Rare earths are key elements in the cleantech revolution



Australian listed rare earths companies:

Producers

Lynas Rare Earths Limited (ASX: LYC) (“Lynas”)

Lynas is the second largest neodymium and praseodymium (“NdPr”) producer in the world. Lynas owns the Mt Weld rare earth mine, which is one of the world’s highest grade rare earths’ mines, and the Mt Weld ORE Concentration Plant, both located in Western Australia. Lynas also owns the Lynas Advanced Materials Plant (LAMP), which is an integrated manufacturing facility, separating and processing rare earths’ materials in Malaysia. The Lynas 2025 growth strategy encompasses plans to build the Kalgoorlie Rare Earths Processing Facility (cracking and leaching) in Australia and an LRE/HRE separation and specialty materials facility in the USA. Lynas trades on a market cap of [A\\$7.3 billion](#).

Iluka Resources Ltd. (ASX: ILU) (“Iluka”)

Iluka is a relatively new (April 2020) producer of rare earths at their Eneabba Project in Western Australia. Iluka intends to ramp to selling 50,000 tpa of a 20% monazite-zircon ore concentrate for further processing offshore. Iluka has an offtake agreement for 50,000 tpa. Iluka [is working on developing a Phase 2](#) of the Eneabba Project which involves investigating techniques to beneficiate and purify the monazite to an 80% concentrate for sale further down the value chain. Iluka is mostly known for being an Australian heavy mineral sands, zirconium and titanium, producer. Iluka trades on a market cap of [A\\$3.5 billion](#).

Vital Metals Limited (ASX: VML) (“Vital”)

Vital recently began mining ore at its Nechalacho' Mine in Canada's Northwest Territories (NWT), with commencement of ore processing at Vital's, under construction, Saskatoon cracking and leaching facility expected to begin in 2022. The Nechalacho Mine is a high grade, light rare earth (bastnaesite) project with a world-class resource of 94.7Mt at 1.46% REO (measured, indicated and inferred). Nechalacho's North T Zone, which is being mined by Vital, hosts a high-grade resource of 101,000 tonnes at 9.01% LREO (2.2% NdPr). Vital has a [non-binding MOU](#) with Ucore Rare Metals Inc. for the supply to it of a mixed rare rare earth carbonate, beginning H1 2024. Vital Metals trades on a market cap of [A\\$250 million](#).

Explorer/Developers (in alphabetical order):

[Arafura Resources Limited](#) (ASX: ARU) ("Arafura")

Arafura 100% own the Nolan's Bore rare earth project 135kms from Alice Springs in the Northern Territory, Australia. Arafura [states](#): "The Project is underpinned by low-risk Mineral Resources that have the potential to supply a significant proportion of the world's NdPr demand. It is a globally significant and strategic NdPr project which, once developed, will become a major supplier of these critical minerals to the high-performance NdFeB permanent magnet market."

The deposit contains a JORC 2012-compliant Mineral Resources of 56 million tonnes at an average grade of 2.6% total rare earth oxides (TREO). 26.4% of the total rare earths contained are NdPr. The Project is [supported by](#) Export Finance Australia (EFA), and the Northern Australia Infrastructure Facility (NAIF), via non-binding letters of support for a proposed senior debt facility of up to A\$200 million and A\$100 million respectively. Arafura is looking to raise further funds to get the project started. Arafura recently [stated](#): "The momentum with

offtake discussion has enabled engagement to expand to include the options for strategic investment as part of the Nolan's project funding." Market cap is [A\\$379 million](#).

[Australian Rare Earths Limited](#) (ASX: AR3) ("AREL")

AREL is progressing in the exploration of a significant deposit of valuable 'clay-hosted' rare earth elements, located at their Koppamurra Project spread over [~4,000km²](#) of tenements in South Australia and Victoria. Past exploration of the Koppamurra region has shown it contains [mineralization containing the rare earth elements](#) neodymium, praseodymium, dysprosium and terbium. The Koppamurra Project is an 'ionic clay' rare earth opportunity with a 2021 JORC [Inferred](#) Mineral Resource of 39.9Mt @ 725ppm TREO. AREL trades on a market cap of [A\\$98 million](#).

[Australian Strategic Materials Ltd.](#) (ASX: ASM) ("ASM")

ASM owns the Dubbo Rare Earths Project in NSW, Australia. The Dubbo Project is a 100% owned 'construction ready' poly-metallic and rare earths project with potential to become a key global supplier of specialty metals and rare earths. ASM's goal is a "[mine to metal](#)" strategy to extract, refine and manufacture high-purity metals and alloys, supplying directly to global technology manufacturers. Market cap is [A\\$1.92 billion](#).

[Northern Minerals Limited](#) (ASX: NTU)

Northern Minerals own the Browns Range heavy rare earth minerals project in Western Australia. Northern Minerals has built a pilot plant to test a number of deposits and prospects that contain high-value dysprosium and other Heavy Rare Earths (HREs) such as yttrium, hosted in xenotime mineralization.

The Company [states](#): "Northern Minerals is positioned to become the world's first significant producer of dysprosium outside of

China. Accounting for 60% of the Browns Range Project's (the Project) revenue, dysprosium is the key value driver of the Project and is at the core of Northern Minerals' marketing strategy. With a high value, high purity, dysprosium rich product, the Company is set to become a long term and reliable supplier of dysprosium and other critical heavy rare earths to world markets." Market cap is [A\\$339 million](#).

Peak Resources Limited (ASX: PEK)

Peak Resources 75% owns the Ngwalla Tanzania rare earth project, which the Company [states](#) is one of the world's, largest and highest grade, undeveloped rare earth projects. The Ngwalla Project has ore reserves of 18.5 million tonnes at 4.8% REO; 22% of the total mineral resource is NdPr, with an expected 26 year life of mine. The Project is currently at the funding stage having completed a BFS in 2017. The BFS summary details are [here](#). About 90% of the Project's revenues will be coming from NdPr. Peak Resources [state](#): "Operating cost of US\$ 34.20/kg NdPr* Oxide, demonstrating potential to be the world's lowest-cost fully integrated rare earth development project." Market cap is [A\\$135 million](#).

Closing remarks

With rare earths demand set to grow strongly this decade as the world moves towards cleaner energy and technology, investors would be wise to take a second look at the [rare earths sector](#).

Australian critical minerals projects were recently in the news after the Government announced that they would receive an [A\\$2 billion boost](#) (via a loan facility), to support the sector. This bodes well for the Australian rare earths junior miners to join Lynas as producers. Stay tuned as this sector looks set to shine this decade.

Newly listed Australian Rare Earths Limited is off to a flying start

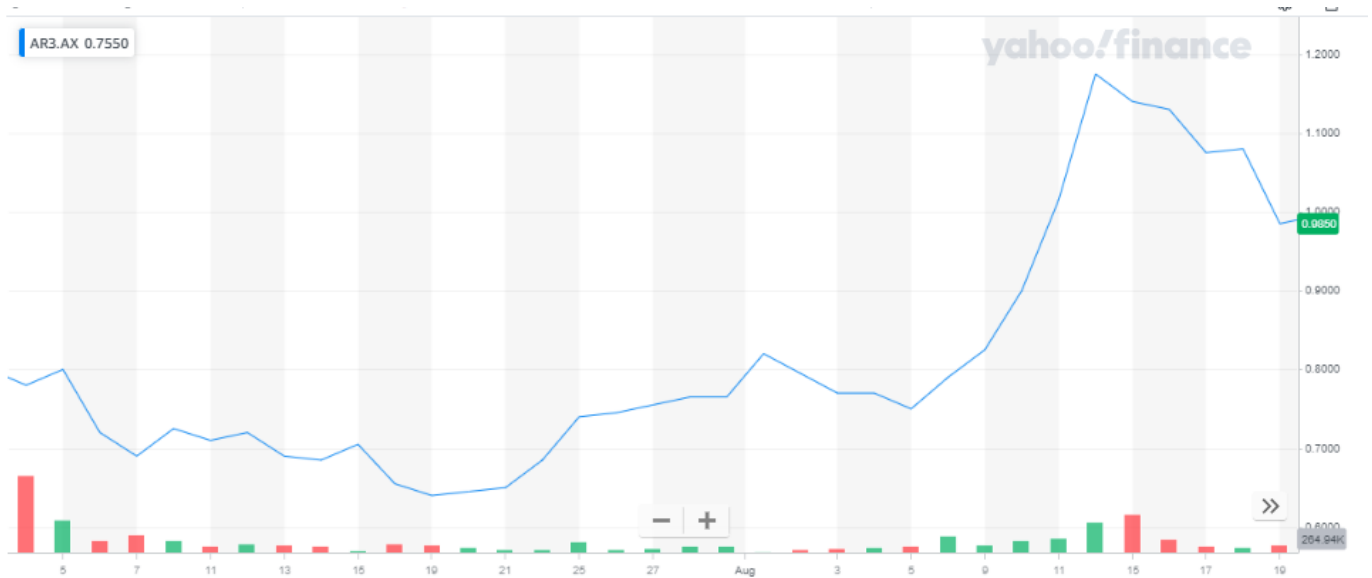
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Rare earth permanent magnets are so powerful they are the heart of modern 'efficient' motors that drive many electric vehicles, wind turbines and electrical appliances. Their advantage is that they achieve stronger output and therefore reduce power consumption and boost efficiency compared to other electric motors with no rare earth permanent magnets. These magnets contribute [30% of the market](#) by volume and >90% by value.

Key magnet rare earth material prices such as Neodymium (Nd), Praseodymium (Pr) and Dysprosium (Dy) have been [rising the past 2 years](#), partly due to the surge in electric vehicle (EV) sales and also due to supply concerns out of China.

[Australian Rare Earths Limited](#) (ASX: AR3) ("AREL") is a newly listed Australian company focused on the valuable magnet rare earths at their Koppamurra Project in Australia. The Company listed at A\$0.30 on July 1, 2021 raising A\$12 million. The stock tripled in the first five days after listing reaching A\$0.90, and is currently trading at A\$1.08.

Australian Rare Earths Limited stock price chart (IPO at A\$0.30 on July 1, 2021)










[Source](#)

The Koppamurra Project

AREL is progressing the exploration of a significant deposit of valuable 'clay-hosted' rare earth elements, located at their Koppamurra Project spread over tenements in South Australia and Victoria. Past exploration of the Koppamurra region has shown it contains [mineralization](#) containing the rare earth elements neodymium, praseodymium, dysprosium and terbium as revealed [from reviewing](#) historic drilling data and samples available from State core repositories. The rare earths were found to accumulate in the shallow clay layer deposited onto a limestone base (Gambier Limestone).

The Koppamurra Project is a frontier 'ionic clay' rare earth opportunity in South Australia and Victoria, Australia, spread over a massive [~4,000km²](#). Clay hosted rare earth mining is shallow-excavation mining involving progressive rehabilitation and is much lower impact than many other forms of mining. The deposits of interest are non-radioactive, which is a significant advantage over other mineral sand and hard rock rare earth element deposits.

Ionic clay projects have significant advantages over mineral sand and hard rock rare earth projects

		Ionic Clays	Hard Rock
	Location	<ul style="list-style-type: none"> Currently mined in China and Myanmar, but resources are depleting 	<ul style="list-style-type: none"> China still dominates but mines in production and under development in USA, Australia etc
	REE Assemblage	<ul style="list-style-type: none"> Supply virtually all heavy REEs (>80%) and a significant portion of light (La-Eu) REE globally 	<ul style="list-style-type: none"> Monazite or Bastnaesite ores which are typically higher in light REE assemblage
	Scale	<ul style="list-style-type: none"> Scalable development – lower initial capex requirements 	<ul style="list-style-type: none"> Typically require significant scale for economic viability given higher capex requirements
	Exploration	<ul style="list-style-type: none"> Quick and inexpensive to define resources given shallow drilling using aircore, auger, push-tube core 	<ul style="list-style-type: none"> Similar to other hard rock base metals requiring substantial drilling, geochemistry, geophysics etc
	Mining	<ul style="list-style-type: none"> Shallow free digging material with low strip ratio Progressive rehabilitation 	<ul style="list-style-type: none"> Drill and blast with large mining fleet Deep open pits or underground mining
	Processing	<ul style="list-style-type: none"> Simple metallurgy; screen then heap or tank leach No toxic chemicals nor radioactive waste streams 	<ul style="list-style-type: none"> High temperature +/- pressure leaching Radioactive tailings
	Risk / Economics	<div>Fast to drill and develop, low capex and high value product</div>	<div>Significant time and cost to develop, complex processing, radioactivity issues, lower product value</div>

Source: [Company presentation](#)

Current news and next steps

Prior to AREL listing on the ASX, [470 aircore](#), auger and push tube drill holes were completed in January 2021 and a JORC 2021 **[Inferred Mineral Resource of 39.9Mt @ 725ppm TREO](#)** was announced. A feature of the Koppamurra Mineral Resource is low radioactivity. Preliminary testwork at ANSTO has demonstrated that recovery improves at lower pH levels and this will be investigated further to improve optimization of metallurgical recoveries, currently [around](#) 50% to 70%.

More recently a further 79 hole drill campaign was completed with assay results pending and expected by [mid to late August](#). Further field exploration will begin [in October](#).

In July AREL announced that they had acquired new tenements and [expanded the Koppamurra project by greater than 40%](#).

Board and management are highly regarded

The [AREL board](#) consists of renowned metallurgist [Dudley Kingsnorth](#). He is an internationally recognized expert in the rare earths industry, providing advice to producers, end-users and government entities. He has over 50 years of experience in operations, project development and marketing.

Australian Rare Earths Limited reasons to invest summary

WHY INVEST IN AUSTRALIAN RARE EARTHS



Created by Silas Creative
from Nour Project

Unique asset in a strategic Tier 1 mining jurisdiction



Created by Petherson
from Nour Project

High demand for Koppamurra's assemblage of REEs in future economies



Created by very studio
from Nour Project

Targets identified; Low cost drilling



Created by Vectorial
from Nour Project

Fully funded program to significantly expand resources

Source: [Company presentation](#)

Closing remarks

It is still very early days for Australian Rare Earths Limited and their ionic clay rare earths Koppamurra Project in Australia, already with an Inferred Mineral Resource of 39.9Mt @ 725ppm TREO. The IPO raised A\$12 million which will largely be used for exploring their tenements with drill assays due out shortly in August, to be followed by a further exploration program starting in October. Ionic clay projects have several

advantages including lower CapEx, faster and easier development and processing, and no radioactive waste streams.

The Board and Management are highly experienced and include renowned rare earths expert Dudley Kingsnorth. The stock price has already taken off given the excitement behind the Company's potential. Despite this, the market cap is still reasonable at A\$122 million. One to follow closely.