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

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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 Ngualla Tanzania rare earth project, which the Company states is one of the world's, largest and highest grade, undeveloped rare earth projects. The Ngualla 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.

As Chinese rare earths' stock prices rally, pressure rises for the rest of the world…

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Rising US-China tension has resulted in some rare earths' stock prices rising sharply, particularly those in China. Given the recent US moves to introduce critical materials legislation it seems likely that the non-Chinese rare earth stocks will also rally strongly this year, particularly if the new bills and financial support are passed.

Let's start with a recap of the recent US support highlights for rare earths:

- May 18, 2018 – The US declared a list of 35 critical materials. A large part of the list includes rare earths.
- May 2, 2019 – U.S. Sen. Lisa Murkowski and others submitted the American Mineral Security Act
- In mid May, 2020, Senator Ted Cruz submitted the Onshoring Rare Earths Act – the 'ORE Act'
- On May 28, 2020 US Representative Michael Waltz submitted the American Critical Mineral Exploration and Innovation Act of 2020

The ORE Act focuses on six critical materials – **Rare earths**, scandium, lithium, cobalt, graphite, and manganese. The Critical Mineral Exploration and Innovation Act directs the U.S.G.S. to complete updated resource assessments for each critical mineral. It has been reported that there will be a focus on **rare earths**

and other so-called strategic minerals.

Then just last week rare earths expert and Technology Metals Show host Jack Lifton stated exclusively to InvestorIntel: "The US Defense Department has announced last week that it will seek $1.7 billion for rare earths purchases in the 2021 National Defense Authorization Act that means the budget for fiscal 2021. In addition they will ask for another $300 million **(a total of $2 billion)**, for rare earths for specialized weapons which they name as hypersonic missiles…"

Given all of the above proposed support to the rare earths sector, it is abundantly clear that the US is now finally moving rapidly to secure critical rare earths supply, particularly from US deposits, where possible. Current rare earths producers and listed rare earths stocks stand to be beneficiaries. Especially if they have US rare earths projects, but quite likely any non-Chinese rare earth juniors that can achieve funding and production should find very strong western demand for their products. Most of the western world is now looking to diversify their supply chains especially after the trade war and COVID-19 problems of the past 2 years.

Some rare earth miners with US projects include:

- MP Materials (private)
- Rare Element Resources Ltd. (OTCQB: REEMF)
- Texas Mineral Resources Corp. (OTCQB: TMRC)
- Ucore Rare Metals Inc. (TSXV: UCU | OTCQX: UURAF)

Some miners with US rare earth processing potential include:

- Energy Fuels Inc. (NYSE: UUUU | TSX: EFR) recently stated their White Mesa Mill in the USA could be used in future for rare earths processing.
- Lynas Corporation (ASX: LYC) has received US support for a

planned US rare earths processing facility.
- Peak Resources (ASX: PEK) plan to have a US rare earths processing facility.

Some rare earth miners with Canadian projects include:

- Avalon Advanced Materials Inc. (TSX: AVL | OTCQB: AVLNF)
- Appia Energy Corp. (CSE: API | OTCQB: APAAF)
- Search Minerals Inc. (TSXV: SMY)

Some rare earth miners with Australian projects include:

- Alkane Resources Ltd. (ASX: ALK | OTCQX: ALKEF)
- Scandium International Mining Corp. (TSX: SCY)

Rare earths are vital ingredients for modern technology

Closing remarks

The massive recent news of two new rare earth/critical materials related Acts and a proposed "US$2 billion towards rare earths in 2021", appears to have been somewhat missed by the market. The Chinese rare earths stocks have already bounced leaving the potential rest of the world rare earth miners to play catch up.

News flow in future months should continue to be extremely promising for the rare earths sector following on from the tremendous news from the last few weeks.

Investors should not wait too long as any further increased US-China tensions, threats of China supply loss, or passing of rare earths related Bills, will likely send non-Chinese rare earth miners stock prices higher.