The Australian Government Steps into the Critical Minerals Supply Chain Ring

written by Jack Lifton | March 14, 2024

A recent monumental development within the mining and rare earths sectors is the Australian government's financial endorsement of Arafura Rare Earths Limited's (ASX: ARU) rare earth mine and refinery project. This marks a significant step forward in the global pursuit of sustainable and secure Non-Chinese owned or operated sources for critical minerals. This move, underscored by an impressive A$840 million in loans and grants, signals a strong Australian governmental belief in the necessity and potential profitability of domestically sourced rare earth elements, vital for electric vehicle (EV) motors and renewable energy technologies.

Gina Rinehart's Hancock Prospecting, alongside other private equity interests, has seen a notable appreciation in value following this announcement, illustrating the private sector's growing confidence in rare earth ventures as a viable and lucrative investment avenue. This confidence is buoyed by government backing, which often acts as a catalyst for further private investment by demonstrating a commitment to the sector's success and stability.

Australia's strategic decision to support Arafura's project, situated near Alice Springs, showcases its ambition to become a frontrunner in the production of rare earth elements, crucial for EVs and wind turbines. This initiative not only addresses the immediate financial hurdles faced by the mining industry but also aligns with broader goals of establishing Australia as a key player in the global supply chain for renewable energy

technologies.

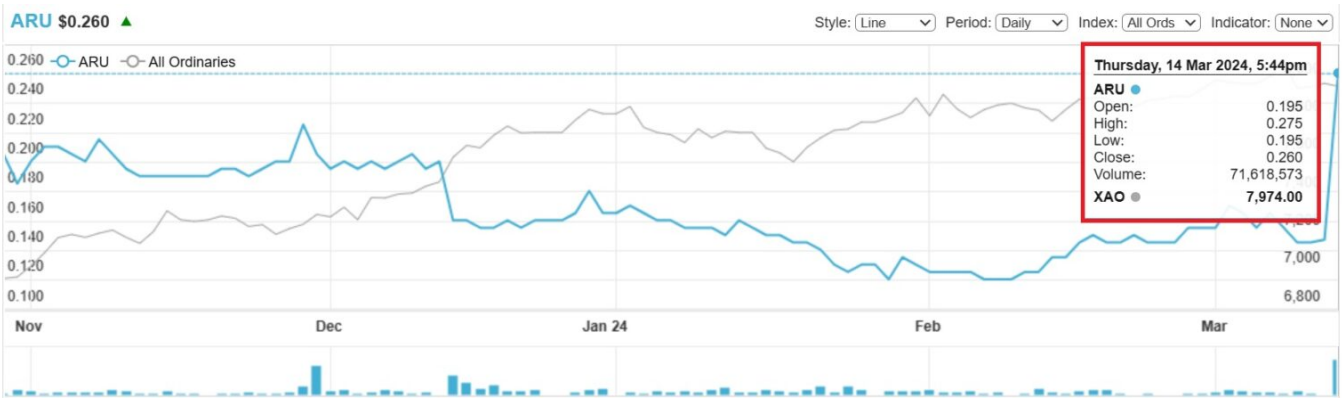
The involvement of figures like Gina Rinehart and Andrew Forrest, both of whom have substantial stakes in mining ventures, underscores a deeper shift towards mining as an investment that offers both substantial returns and strategic value in the context of the global green transition. Their investments in rare earths and the potential for vertical integration, as seen in the partnership between Forrest's Hastings Technology Metals Limited (ASX: HAS) and Neo Performance Materials Inc. (TSX: NEO), highlight a keen understanding of the sector's critical role in future technologies and energy solutions.

Australia's proactive stance, contrasted with the more cautious approaches of other Western nations, illustrates a deep understanding of the strategic importance of rare earths and the necessity for domestic processing capabilities. This is not just about securing supply chains but also about capturing more value within the country, creating jobs, and fostering technological advancements in green energy and EV production.

Moreover, the broad financial and strategic implications of this government support extend beyond the immediate economic benefits. They underscore a pivotal moment for the global rare earths market, emphasizing the critical need for diversified, reliable sources of these essential materials. As tensions and competitions intensify on the international stage, Australia's move represents a significant step towards greater independence and resilience in the face of geopolitical and market pressures.

In conclusion, this development is a clarion call to nations and investors alike to recognize the indispensable role of rare earths in the modern world. It is a testament to the vision and audacity of those like Rinehart and Forrest, who see beyond the

immediate to the immense potential that rare earths hold for the future of technology, energy, and national security. As Australia forges ahead, it sets a compelling example for others to follow, highlighting the comprehensive strategy needed to fulfill the burgeoning demand for domestic sourcing of rare earth magnets, especially among European and American EV automotive OEMs.



Technology Metals Report (02.16.2024): Australia makes Nickel a ‘Critical’, Hastings Rare Earth Deal with Baotou, and Uranium Market Continues to Rise

written by Tracy Weslosky | March 14, 2024

Welcome to the latest issue of the Technology Metals Report (TMR), brought to you by the Critical Minerals Institute (CMI).

In this edition, we compile the most impactful stories shared by our members over the past week, reflecting the dynamic and evolving nature of the critical minerals and technology metals industry. Among the key stories featured in this report are the Australian government's decision to classify nickel as a 'critical' mineral, entitling it to support from a significant stimulus fund, and the emerging competitive landscape in Africa as Western countries endeavor to reduce China's dominance in the critical minerals sector, particularly in cobalt production.

This week's report also highlights various strategic collaborations and developments, including Hastings Technology Metals Ltd.'s (ASX: HAS) offtake agreement with Baotou Sky Rock for the Yangibana Project, and the U.S. Department of Energy's funding allocation for projects aimed at extracting rare earth elements and critical minerals from coal-based resources. Furthermore, we cover the notable surge in uranium prices to a 17-year high and the strategic expansion plans by Energy Fuels Inc., alongside LG Energy Solution's efforts to secure lithium supply through a second agreement with WesCEF. Lastly, we touch on the advancements in battery technology, such as the pilot production of battery-grade purified phosphoric acid by First Phosphate Corp. and the formation of the China All-Solid-State Battery Collaborative Innovation Platform (CASIP) by leading Chinese battery and automobile manufacturers, including CATL and BYD, aiming to propel the development of all-solid-state batteries.

Australia classifies nickel as a 'critical' mineral to protect ailing industry (February 16, 2024, Source) – The Australian government has recognized nickel as a critical mineral, making it eligible for support from a A$6 billion stimulus fund due to concerns over the nickel industry's decline, exacerbated by a supply glut from Indonesia and falling EV demand. This move aims to protect thousands of jobs and key producers like IGO Limited

(ASX: IGO) and BHP Group (ASX: BHP | NYSE: BHP) from the impacts of falling nickel prices, which have dropped 43% in the past year. BHP has announced a significant impairment charge on its Nickel West division, highlighting the industry's dire situation. The government's intervention, including potential low-interest loans and grants, is a response to the challenges posed by cheaper Indonesian nickel, driven by Chinese investment and a ban on nickel ore exports from Indonesia. This situation has led to reduced investment and operational suspensions in Australia's nickel sector, threatening its survival and the country's ambition to develop alternative supply chains to China.

West challenges China's critical minerals hold on Africa (February 16, 2024, Source) – In a significant development in the global minerals market, China's CMOC Group has surpassed Glencore PLC (LSE: GLEN) to become the leading producer of cobalt, primarily through its operations at the Kisanfu mine in the Democratic Republic of Congo. This surge in production has created one of the largest cobalt surpluses in recent years, despite a drastic fall in cobalt prices. Western countries, recognizing the strategic importance of cobalt and other critical minerals for clean energy and military applications, are challenging China's dominance in Africa. They are particularly focused on the rich copper and cobalt reserves in the Copperbelt region, which spans Zambia and the Congo. Western entities, including companies backed by prominent investors like Bill Gates and Jeff Bezos, are venturing into this region, despite political and infrastructural challenges. The U.S. and other Western nations are supporting infrastructure and energy projects to facilitate mining and reduce logistical costs. Efforts to de-risk mining in the Copperbelt include upgrading rail lines and developing solar power projects. Meanwhile, the Congolese government is asserting more control over its mineral

resources, revising deals with Chinese companies and aiming to formalize artisanal mining to secure a fairer share of the revenue from its mineral wealth. This marks a pivotal shift in the geopolitics of critical minerals, highlighting the strategic competition between the West and China over Africa's mineral resources.

Hastings And Baotou Sky Rock Sign Binding Term Sheet For Integrated Tolling And Offtake Arrangement (February 16, 2024, Source) – Hastings Technology Metals Ltd. (ASX: HAS) has entered into a binding term sheet with Baotou Sky Rock Rare Earth New Material Co., Ltd for an integrated tolling and offtake arrangement concerning the Yangibana Project's rare earth concentrate. This arrangement allows Hastings to toll treat its concentrate in China, transforming it into separated rare earth oxides, and sell them, improving Hastings' revenue and cash flows beyond previous models. The agreement, lasting seven years with a possible five-year extension, guarantees a minimum of 10,000tpa of concentrate processing. This deal complements Hastings' existing contract with thyssenkrupp and is part of negotiations with other potential customers for further offtake agreements. The updated financial model reflecting this integrated approach will support the project's funding, showcasing significantly enhanced project economics, including a notable increase in post-tax NPV, IRR, and life of mine free cashflow, while reducing the capital payback period.

The Up and Coming Uranium Boom (February 15, 2024, Source) – In an interview with Hallgarten + Company's Christopher Ecclestone and the Critical Minerals Institute's (CMI) Tracy Weslosky, the discussion centered around the uranium market's burgeoning prospects. Ecclestone expressed skepticism regarding the effectiveness of a US ban on Russian uranium, suggesting that Russian uranium could be rerouted through Kazakhstan. He highlighted the challenges Western countries might face in

replacing Russian uranium sources. Ecclestone described the uranium market as vibrant, contrasting it with the stagnation in battery metals, and emphasized uranium's unique investment appeal. He advised investors to focus on proven assets from previous booms, cautioning against investing in new, unproven fields. Ecclestone also critiqued the hype around thorium and small modular nuclear reactors, advocating for their potential but also indicating a need for realism. Lastly, he mentioned Argentina and the Athabasca region as key areas for uranium investment, highlighting the importance of geographic and asset-based considerations in the uranium industry.

DOE Awards $17M To Conduct FEED Studies for Production of Rare Earth Elements, Critical Minerals (February 15, 2024, Source) – The U.S. Department of Energy (DOE) is allocating over $17 million to three projects for extracting rare earth elements and critical minerals from coal-based resources. Funded by the Bipartisan Infrastructure Law, this initiative aligns with President Biden's Investing in America agenda to diminish reliance on foreign critical minerals vital for clean energy technologies, including solar panels and electric vehicles. Leveraging America's substantial coal reserves and waste, the projects aim to foster a self-reliant supply chain, enhance national security, support environmental sustainability, and create quality jobs. This strategic move towards utilizing domestic resources for critical mineral production underscores a significant push towards energy independence, aligning economic revitalization with clean energy advancements.

India to Capitalise on Coveted 'Critical Minerals Club' to Acquire Overseas Assets (February 15, 2024, Source) – India is strategically enhancing its position in the global critical minerals market by focusing on acquiring overseas assets through collaborations with Western countries and leveraging partnerships within the US-led Minerals Security Partnership

(MSP). This international coalition aims to ensure reliable critical mineral supply chains amidst global disruptions. India, which joined the MSP in 2023, is encouraging public sector undertakings (PSUs) like Coal India Limited, NLC India Ltd., and NTPC Ltd. to secure strategic assets in lithium, cobalt, and graphite to bolster its green energy transition and manufacturing capabilities in electronics, including electric vehicles and semiconductors. Deals have been made, notably with Australia and countries in South America and Africa, to secure these essential materials. The initiative reflects India's ambition to become self-reliant in critical minerals crucial for the technology-driven world economy, particularly as it aims to accelerate its green energy transition and indigenous manufacturing.

Uranium Prices at a 17-Year High, Energy Fuels Rapidly Increases Uranium Production in 2024 (February 14, 2024, Source) – Uranium prices have surged to a 17-year high at $106/lb, driven by reduced supply and increased demand, with Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR) poised to benefit significantly. The uranium market's optimism is further bolstered by a commitment from over 20 countries at COP28 to triple nuclear energy capacity by 2050, highlighting a significant shift towards nuclear energy to meet clean energy goals. Additionally, 118 governments have pledged to triple renewable energy capacity by 2030. Energy Fuels, the leading uranium producer in the USA, has initiated production at three mines, targeting a significant increase in uranium output to over 2 million lbs by 2025, alongside exploring additional production avenues. With uranium's strategic importance in the clean energy transition underscored, Energy Fuels is leveraging favorable market conditions and long-term growth prospects, underlined by its ambitious expansion and production plans.

LG Energy signs 2nd agreement with WesCEF to expand lithium

supply (February 13, 2024, Source) – LG Energy Solution from South Korea and Wesfarmers Chemicals, Energy, and Fertilisers (WesCEF) from Australia have signed their second agreement to expand LG's lithium supply chain. WesCEF will supply LG with 85,000 tons of lithium concentrate, expected to yield about 11,000 tons of lithium hydroxide, sourced from the Mt. Holland project in Western Australia, set to start in early 2025. This agreement builds on a previous deal for 50,000 tons of lithium hydroxide in 2022. Additionally, LG Energy is focusing on expanding its presence in India's electric vehicle market, already leading in supplying battery cells to e-scooter makers. In 2023, LG secured a deal with Chile's SQM for 100,000 tons of lithium for seven years, highlighting its efforts to bolster its supply chain amidst increasing lithium demand for rechargeable batteries.

First Phosphate Corp. Completes Pilot Production of LFP Battery-Grade Purified Phosphoric Acid (February 13, 2024, Source) – First Phosphate Corp. (CSE: PHOS) announced the successful completion of a pilot project that converts high purity phosphate concentrate into battery-grade purified phosphoric acid (PPA) for the lithium iron phosphate (LFP) battery industry. In collaboration with Prayon Technologies SA, the company has transformed phosphate concentrate into merchant grade phosphoric acid and then into PPA, conforming to food and battery-grade specifications. This achievement enables the production of LFP cathode active material and battery cells from a North American source of battery-grade PPA. First Phosphate aims to integrate its mining operations in Quebec, Canada, into the supply chains of LFP battery producers, emphasizing high purity, responsible production, and a low carbon footprint.

CATL, BYD, others unite in China for solid-state battery breakthrough (February 12, 2024, Source) – In a bold move to spearhead the electric vehicle (EV) revolution, China's leading

battery and automobile manufacturers, including CATL and BYD, have joined forces under the government-led China All-Solid-State Battery Collaborative Innovation Platform (CASIP). Established in January, CASIP aims to commercialize all-solid-state batteries by 2030, enhancing EV performance with greater energy density and safety. This initiative, uniting industry rivals and leveraging AI technology, seeks to position China at the forefront of the next-generation battery technology, challenging current leaders like Japan and Western countries. With the participation of major companies and state support, China is poised to transform the EV market and maintain its global leadership in automotive battery innovation.

Investor.News Critical Minerals Media Coverage:

- February 15, 2024 – The Up and Coming Uranium Boom https://bit.ly/3uAUdcv
- February 14, 2024 – Uranium Prices at a 17-Year High, Energy Fuels Rapidly Increases Uranium Production in 2024 https://bit.ly/48wVY8N

Investor.News Critical Minerals Videos:

- February 13, 2024 – Tom Drivas on the 3 world-renowned rare earths experts on Appia's Critical Minerals Advisory Committee https://bit.ly/49bVMNj

Critical Minerals IN8.Pro Member News Releases:

- February 15, 2024 – First Phosphate and Integrals Power sign Joint Development Agreement to Produce Environmentally Compliant Battery Grade Iron III Phosphate Precursor for the LFP Battery Industry

https://bit.ly/3uDdslR

- February 14, 2024 – Imperial Mining Announces Effective Date of New Trading Symbols after TSXV Approves of Name Change to Scandium Canada Ltd. https://bit.ly/48hRylO
- February 13, 2024 – Western Uranium & Vanadium Mining Operations Update https://bit.ly/4bvDKHr
- February 13, 2024 – Donald Swartz, CEO American Rare Earths, to speak at "The Future Panel" https://bit.ly/3UF2MO5
- February 13, 2024 – First Phosphate Corp. Completes Pilot Production of LFP Battery-Grade Purified Phosphoric Acid https://bit.ly/3P51pF5
- February 13, 2024 – Defense Metals Updates Metallurgical Test Work and Preliminary Feasibility Study Progress for its Wicheeda Rare Earth Elements Project https://bit.ly/3HYiV9R
- February 13, 2024 – Power Nickel extends resource mineralization at Nisk Main https://bit.ly/49aJCE9
- February 12, 2024 – F3 Hits 66.8% U3O8 over 0.5m within 42.4% over 2.0m at JR https://bit.ly/3HUa6Oa

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Hastings Technology Metals Poised to Emerge as a Major Player in the Rare Earths

Market

written by InvestorNews | March 14, 2024

With all the talk of on-shoring, near-shoring, friend-shoring, or whatever is the popular term this week, it's easy to lose sight of the fact that most commodities are global in nature. I know I've become fixated on North American solutions when it comes to critical materials and rare earths but that's a somewhat myopic view. There are plenty of countries out there, near and far, that we consider our friends and who may or may not have cost advantages that overcome any incremental transportation fees to compete in our domestic market. Thus, we shouldn't fall into the trap of thinking that just because the U.S. Inflation Reduction Act, and other similar legislation, look to limit parts of the world from contributing to "made at home" solutions, as perhaps, North American miners and explorers aren't necessarily the best option.

One such example is Hastings Technology Metals Limited (ASX: HAS | OTCPK: HSRMF), a Company engaged in the exploration, development, and mining of rare earths and specialty metals in Western Australia. This Perth-based company is primed to become the world's next producer of neodymium and praseodymium concentrate (NdPr). Hastings' flagship Yangibana Project (which comprises a mine and beneficiation plant at the Yangibana site, and a hydrometallurgical plant at Onslow), in the Gascoyne and Pilbara regions of Western Australia, contains one of the most highly valued NdPr deposits in the world with NdPr:TREO ratio of up to 52%. The Project is permitted for long-life production, with offtake contracts signed and debt financing in an advanced stage. The first product to ship is targeted for H1/2025. Hastings also owns and operates the Brockman project, Australia's largest heavy rare earths deposit, near Halls Creek in the Kimberley.

Earlier this month, the Company increased the mineral reserves at the Yangibana Project and it now has JORC-compliant Proved and Probable Ore Reserves of 20.93 million tonnes at 0.90% TREO which includes a 37% component NdPr, making it one of the largest and highest-grade rare earths projects in the world. The company has made significant progress in advancing the project over the past few years, with a Pre-Feasibility Study completed in 2018 and a Definitive Feasibility Study (DFS) completed in 2020. The DFS confirmed that Yangibana is a highly viable project, with low operating costs and strong economic returns.

But where I find this story gets interesting is all the various financial dealings that Hastings is involved in. More than half of ~A$400 million of total debt financing required for the Yangibana Project has been secured from the Northern Australia Infrastructure Facility (NAIF), which recently increased its financial support to A$220 million with a 12½-year tenor. Hastings also completed a Two-Tranche Placement to raise A$110 million in new equity to progress the Yangibana Project in October 2022. Nothing unusual about these two deals but here's the one that intrigues me. On October 14, 2022, the Company announced the completion of the acquisition of an approximate 19.9% shareholding in Neo Performance Materials Inc. (TSX: NEO) for an aggregate price of C$134.6 million. The acquisition was funded by a A$150 million cornerstone investment in Hastings by Wyloo Metals.

It would appear that the management team at Hastings does not doubt that this mine is moving forward. The NEO acquisition provides Hastings with a strategic stake in NEO and exposure to the global downstream processing of rare earth materials into magnets, critical components of environmentally friendly products such as electric vehicles and wind turbines. Additionally in October (seemingly a very busy month for the Company), Hastings signed a non-binding offtake Memorandum of

Understanding (MOU) with Solvay, a French-based global leader in Materials, Chemicals, and Solutions. The deal outlines the intent of both parties to enter into a binding commercial offtake agreement for the supply of Mixed Rare Earth Carbonate (MREC). Under the agreement, the supply of an initial 2,500 tonnes per annum of MREC will be sent from Hastings' Yangibana Project to Solvay's plant in La Rochelle, France. Deals like this might explain why NAIF was comfortable increasing its financial support for the project.

Lastly, it's worth mentioning that Hastings has implemented rigorous environmental and social sustainability standards to ensure that its operations are in line with international best practices. This commitment and transparency were recognized with an exceptional ESG risk rating by Morningstar Sustainalytics with Hastings ranked 4th out of 159 companies rated in the Diversified Metals Mining subindustry category and placed 9th out of 193 companies in the Diversified Metals industry category. Hastings also undertook an EcoVadis assessment and achieved 68/100 which placed the company in the top 5% of companies assessed. This has not only helped the company attract investment from socially responsible investors but also win recognition for its efforts.

Hastings Technology Metals looks ready to take on the rare earths supply market and become a force to be reckoned with. The Company had A$172.2 million in cash and equivalents as of December 31, 2022 and seemingly no issues raising additional capital as needed. Agreements are in place for ~70% of production for the first 10 years and there is still plenty of blue-sky exploration upside to further expand the resource at Yangibana. It appears I need to start looking past my own backyard for resource opportunities that are world-class.

Solvay starts making noise in the rare earths sector with a Hastings MOU

written by | March 14, 2024

Solvay S.A. (BRU: SOLB | OTCQX: SLVYY) ('Solvay') has started making news in the rare earths space. Solvay, a Belgian chemical company, acquired Rhodia in 2011 and with it the rare earth division with plants in France and China. Since Ilham Kadri was appointed the new CEO of Solvay in March, 2019, their only press releases on its rare earth division have been about three patent infringement cases surrounding materials for catalytic converters and their treatment of exhaust gases from internal combustion engines. Then suddenly over September-October of this year, there were 3 news releases that were focused on developments in Solvay's rare earths division.

On October 11, 2022, Solvay announced the signing of a non-binding offtake memorandum of understanding (MOU) with Hastings Technology Metals Ltd. (ASX: HAS) ('Hastings') where Hastings will initially supply Solvay with 2,500 tonnes per year of mixed rare earth concentrate (MREC) from its Western Australian Yangibana Project. The Solvay plant in La Rochelle, France was founded in 1948 and originally was built for the separation of rare earths from monazite. The reported capacity for La Rochelle is 10,000-15,000 tonnes per annum of rare earths concentrate, which if accurate, made it a significant producer in the 1980s and 1990s. This would mean however that the agreement with Hastings alone would not bring the plant back to full capacity,

unless Hastings expands production over time or Solvay sources concentrate from other producers.

This new MOU follows Hastings' recent move to take a significant position in Neo Performance Materials Inc. (TSX: NEO). NEO and Solvay compete vigorously in all aspects of rare earths but as noted above the main area is in the materials for catalytic converters. This move by Solvay with Hastings comes on the heels of Solvay announcing its plans to expand and upgrade its plant in La Rochelle to process rare earths and recycle rare earth magnets. NEO has also announced its plan to put magnet production capabilities in Estonia where it has a rare earth separation facility in Sillamae.

NEO's plant in Estonia has traditionally received its rare earth concentrate from Russia but given current political circumstances, it begs the question how long can this last? NEO does have an arrangement with Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR) to supply concentrate from Energy's uranium operation in White Mesa, Utah. This is the only uranium production facility in the USA. Energy Fuels is going to process monazite to produce RE concentrate. To that end, Energy Fuels announced a deal in May of this year to take a position in a heavy minerals deposit in Bahia, Brazil, which contains monazite.

Another announcement from Solvay this October was that it took 100% control of Solvay Special Chem Japan (SSCJ) through its purchase of the remaining 33% from Santoku Corporation. This facility, like La Rochelle, is focused on catalyst and semiconductor industries. Decades ago this plant was processing RE concentrate from China. When China stopped exporting concentrate in the late 1990s Anan Kasei, a Japanese joint venture between Santoku Chemical and Rhodia, stopped the separation of rare earths and bought intermediate products from

China again to produce more value-added products. Ilham Kadri, Solvay's CEO, commented on the transaction saying: "This transaction marks a logical step forward in our global plan to expand our leadership in Rare Earths specialties."

It will be interesting to watch Solvay and NEO position themselves in the European market which currently only has one metal/alloy producer, Less Common Metals, and one magnet manufacturer, Vacuumschmelze, a German producer. Let the games begin.

Hastings Technology Metals buys 20 per cent of Neo Performance in strategic rare earths move

written by Raj Shah | March 14, 2024

Hastings Technology Metals Ltd. (ASX: HAS), an Australian junior mining company, has recently made some interesting moves in the rare earths space. Its major announcement on August 26th was that through an investment from Wyloo Metals in Hastings in the amount of A$150 million, it was acquiring the majority of Oaktree Capital Management's shares in Neo Performance Materials Inc. (TSX: NEO). Oaktree acquired a controlling position in NEO in 2015 as it emerged from the bankruptcy of Molycorp. This will result in Hastings owning somewhere in the range of 20% of NEO on the same day that NEO announced a bought deal of C$65 million, which would dilute the original 22.1% position Oaktree

was selling. From their press release: “Hastings views the Acquisition as the first step in its Hastings 2.0 strategy, to create a fully-integrated mine-to- magnet supply chain business. Wyloo is supportive of this vision and Hastings is pleased to have the support of Wyloo as a strategic partner.”

Wyloo Metals is a company owned by Andrew “Twiggy” Forrest, an Australian billionaire, who made his money selling iron ore from Australia. Earlier this year Wyloo outbid BHP for Noront, whose deposit in the Ring of Fire, Northern Ontario is a high-grade nickel-copper-platinum-palladium deposit with a bid worth C$616.9 million. This recent choice by Wyloo to invest in Hastings is another move in their aim “to develop and invest in the next generation of mines”. Given the funds available from Wyloo is it possible Hastings will increase its position in NEO, given the recent record profits from NEO? They have said there is no plan to increase their holding.

On September 7th Hastings announced a A$110 million two tranche placement with the goal to accelerate its rare earths deposit in Western Australia. In addition, they announced a non-underwriting share purchase plan (SPP) to raise up to A$10 million. The aim is to accelerate the rare earth deposit they are developing, which is known as the Yangibana deposit in Western Australia. The deposit had a JORC resource reported in 2019. There are seven areas reported as shown in the chart below:

Deposit	**Tonnes**	**TREO**	**$Nd_2O_3+Pr_6O_{11}$**
		%	%
Bald Hill	4,405,000	1.02	0.41
Fraser’s	638,000	1.61	0.68
Auer	728,000	1.12	0.41
Auer North	148,000	1.24	0.47

Yangibana	986,000	0.93	0.44
Yangibana West	1,478,000	1.23	0.34
Yangibana North	1,964,000	1.72	0.44
Total	10,345,000	1.22	0.43

The reported percentages of Neodymium(III) oxide (Nd_2O_3) and Praseodymium oxide (Pr_6O_{11}) are high compared to most other global deposits, which is intriguing, as these are the main revenue drivers in all deposits globally except for ionic clay deposits, like the ones in Southern China. What is challenging is the TREO (Total Rare Earth Oxides) grade averaging 1.22%, which will increase operating costs. By comparison, MP Materials' Mountain Pass mine in California is reported around 8%. However, Yangibana average Nd/Pr of 43% is about 3 times higher than Mountain Pass.

On February 21st of this year, Hastings announced an increase in the NPV of the Yangibana project of 84% to $1,012 million and an IRR of 26%. When looking at Shanghai Metal Markets pricing in mid-February Neodymium oxide (Nd_2O_3) was $190/kg USD and Praseodymium oxide (Pr_6O_{11}) was $172/kg. Today those prices are $91.11/kg or a 50% reduction.

Looking at Hastings' August and September presentations, their focus is not on separating the rare earths into single elements but view that as NEO's focus. Their stated plan is to produce 15,000 tonnes per year of a mixed rare earth carbonate, which typically is around 45-50% total rare earth oxides (TREO). This would generate 6,750-7,500 tonnes of TREO. This is over double the current capacity of NEO's plant in Estonia. Hastings has already committed 70% of their first 10 years' output to ThyssenKrupp and Skyrock, so this would leave 2,000-2,250 TPY for NEO. ThyssenKrupp will likely sell the material to China as it does for Rainbow Rare Earths. Skyrock is a part of the Baotou rare earth group, so the majority of the Yangibana deposit will

end up in China, unless there is an out clause and NEO expands its non-Chinese capacity.

It will be interesting to see how this new relationship in the rare earths space develops. This is certainly not the end of the story.

Market eyes Neo Performance Materials Constantine Karayannopoulos with, what's next?

written by InvestorNews | March 14, 2024

August is usually a slow time for business and news as it is the end of the summer holiday season in the Northern hemisphere, but this August has been a particularly busy time for Neo Performance Materials Inc.'s (TSX: NEO) management team, especially CEO Constantine Karayannopoulos.

Announcements have been coming fast and furious. Let's start with the most surprising news first:

- Hastings Technology Metals acquires a 22.1% shareholding in Neo Performance Materials – August 26, 2022

On August 26th Hastings Technology Metals Ltd (ASX: HAS) announced it was acquiring a 22.1% shareholding in Neo Performance Materials by buying out most of the position of

Oaktree Capital Management, L.P. (Oaktree) fund OPPS NPM SARL. Oaktree will sell 8,974,127 shares at C$15/share. Prior to this OPPS held 9,878,155 shares. The funding comes from Wyloo Metals, a private Australian metals company formed by Andrew “Twiggy” Forrest, whose worth is reported at US$17.5 billion. Wyloo will invest the money into Hastings who in turn will acquire the shares from the Oaktree subsidiary.

- Neo Performance Materials Announces $67.5 Million Bought Deal Treasury Offering of Common Shares – August 26, 2022

On the same day as the announcement of the share acquisition by Hastings, a bought deal was announced with Paradigm Capital being the lead underwriter. The deal was done at $15/share. At the time of writing, Neo Performance Materials was trading at $14.25. There are over 40 million shares outstanding so after this deal, there will be 45 million shares. According to the press release the funds will be used for “general corporate purposes including the expansion, maintenance of global assets and the pursuit of strategic growth opportunities around the globe.” Expansion of the operations in Estonia is likely one area for the usage of the funds. Having visited the plant over a decade ago it is a Soviet era plant which runs nitric acid to separate the rare earths. Neo Performance Materials’ two plants in China use hydrochloric acid. The nitric route is high initial capex as every component is made from stainless steel but has lower opex than the Chinese approach. At a capacity of 3,000 TPY of rare earths oxides the Greenland deposit would produce 750 TPY of Nd/Pr or about 2,500 tonnes of magnets. A nominal size.

- Second quarter results with records for revenue, Operating income and adjusted EBITDA – August 12, 2022

This is due to the high prices for the four key magnetic elements, Neodymium, Praseodymium, Terbium and Dysprosium, which hit prices not seen in the past decade. Since then, Nd and Pr have dropped about 50%, Tb 20% and Dy 35%, which means it will be a challenge for Q3 results to match Q2 numbers.

- Neo Secures $75 Million Loan to Finance Expansion and Relocation Of Its Environmental Emissions Catalyst Business – August 17, 2022

This financing came from Export Development Canada (EDC). The credit facility matures in 5 years and is available in 3 tranches of $25 million. The funds will be used to relocate its rare earth plant in Zibo, Shandong province, China, to a nearby industrial park which will provide access to water treatment and waste/water recycling. This plant produces high value materials for automotive catalytic converters. The relocation is to expand capacity from 4,000 TPY REO to 5,000 TPY REO. Based on reported analysis for Baiyan Obo this expanded capacity will produce 370 tonnes of Nd/Pr oxide which would generate an additional 1,300 TPY of NdFeB magnets.

- Hudson Resources and Neo Performance Materials Sign Agreement on The Sarfartoq Rare Earth Element Project in Greenland – August 22, 2022

This is an interesting move by Neo as they only tried to go upstream into mining once before when they got involved in a tin mine in Brazil over a decade ago. The development of this project would provide a source for their plant in Estonia which gets most of its raw material from Russia presently with the balance from Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR) in the USA. The deal is a non-refundable deposit of $250k. Once

the Greenland government gives approval for transfer of the license to Neo or its special purpose entity, Neo will pay Hudson Resources an additional $3.25 million. There are two projects in the deal. One is an REE project in SW Greenland and a nearby Nb/Ta. Deposit. The Neo plant in Estonia also produces high purity Nb and Ta metal as well as rare earths so there is synergy in this deal. The 2011 43-101 report on the REE project showed an indicated resource of 5.9 million tonnes at 1.8% rare earth oxide which translate to about 100,000 of rare earth oxides. It is an underground mine opportunity which will bring added cost to the mining process. Should Neo proceed with this acquisition it will need to develop a camp onsite and decide where to upgrade the ore prior to shipping a concentrate to Estonia – all challenges Canadian companies have dealt with for decades.

If Neo Performance Materials is an indicator for the rare earths sector, one can only wonder what's next.

Neo Performance Materials and Uranium Sector Leads this Week-in-Review….

written by Tracy Weslosky | March 14, 2024

> *"US Futures are down across the board, with no new economic data or major earnings expected. Investors are looking to the August jobs report, scheduled for Friday, as they weigh up how big a rate hike could be coming from the Fed in September.*

> *Last week saw equity markets close the last week on a down note, as all three major U.S. indexes sold off sharply for their worst closes in months after Federal Reserve Chairman Jerome Powell said the central bank would continue fighting inflation with rate increases. Don't expect much in the way of a reprieve in early trading as we get the day under way." –* ***Kevin Thomsen, Morning Chatter*** *for August 29, 2022*

Friday was an intense day of speculation and discussion in the rare earths sector. With breaking news early AM with Agreement to acquire strategic shareholding in Neo Performance Materials and cornerstone investment in Hastings by Wyloo Metals, Christopher Ecclestone put out a piece on InvestorIntel titled Neo Performance and Hastings – Will Wonders Never Cease? – that was followed later that day, with a second announcement Neo Performance Materials Announces $67.5 Million Bought Deal Treasury Offering of Common Shares.

Allow me to remind you that Constantine Karayannopoulos will be the luncheon speaker at the Critical Minerals Institute's summit scheduled for Wednesday, November 9, 2022.

This morning, we see indicators that the uranium sector has interest, we coincidentally have a headline story written by Jack Lifton titled Are we slaves to Russian uranium processing? It seems we are in the right place at the right time as we start out the InvestorTalk.com schedule this week with 2 uranium companies… followed by an antimony story on Thursday.

InvestorTalk.com line-up for this week:

- 9-9:20 AM EST, Tuesday, August 30, 2022 – InvestorTalk.com with John Cash from **Ur-Energy Inc.** (NYSE American: URG | TSX: URE), click here to register
- 9-9:20 AM EST, Wednesday, August 31, 2022 –

InvestorTalk.com with Dev Randhawa from **Fission 3.0 Corp.** (TSXV: FUU | OTCQB: FISOF), click here to register

- 9-9:20 AM EST, Thursday, September 1, 2022 – InvestorTalk.com with Christopher Ecclestone from **Molten Metals Corp.** (CSE: MOLT), click here to register

Now for some highlights from the Week-in-Review for the week of August 22-26, 2022 –

The Top 10 Trending Columns on InvestorIntel.com for the last 30-days include:

1. Nano One's cathode materials are inventing the zero-emission battery future
2. Announcing the Launch of the Critical Minerals Institute for Companies and Experts Focused on Electric Vehicles, Green Energy and Secure Supply Chains
3. The King of Tin is Alphamin
4. Rare earths expert Alastair Neill on Vital Metals
5. Lynas Bets $500 Million on Rare Earths Market Expansion
6. Zentek sets its sights on treating skin conditions as it expands potential uses for its ZenGUARD graphene coating
7. Eye on the price of uranium, Cameco brings crown jewel back into production and Ur-Energy is set to go.
8. Molybdenum – securing a domestic supply of the vital but underappreciated mineral
9. A titan of titanium – with a big HAMR
10. Valeo Pharma's Steve Saviuk talks about the US$40M non-dilutive financing from Sagard Healthcare Partners

InvestorIntel Columns to REVIEW:

- August 26, 2022 – Neo Performance and Hastings – Will Wonders Never Cease?

- August 25, 2022 – The Dean's List – Part 6: What cobalt companies could benefit from Canada's commitment to critical minerals?
- August 24, 2022 – dynaCERT puts its carbon emission reduction technology to the test
- August 23, 2022 – Mining our way to the Green Revolution
- August 22, 2022 – Musk Twitter Deal, Predatory Short Selling Takes a Hit and Rethinking Greenland Rare Earths in this Week-in-Review….
- August 22, 2022 – Greenwashing – It's not easy pretending to be green

ii8 System News Releases for the Week in Review for August 22-26, 2022:

- August 26, 2022 – West Red Lake Gold Closes $4,100,000 Flow Through Financing
- August 26, 2022 – Neo Performance Materials Announces $67.5 Million Bought Deal Treasury Offering of Common Shares
- August 26, 2022 – Agreement to acquire strategic shareholding in Neo Performance Materials and cornerstone investment in Hastings by Wyloo Metals
- August 25, 2022 – Awakn Life Sciences Signs Agreement with a Leading Drug Development Company to Deepen IP Moat for Its Lead Program
- August 25, 2022 – Rackla Metals focuses on Tombstone intrusive related gold
- August 25, 2022 – dynaCERT Advances its Verified Carbon Standard Application with Verra
- August 25, 2022 – Completion of Institutional Placement
- August 24, 2022 – Westward Gold Completes Turquoise Canyon Anniversary Payment
- August 24, 2022 – Molten Metals Corp. Announces Formation

of Strategic Advisory Board

- August 24, 2022 – Bald Eagle Announces Exchange Approval for Name Change to Hercules Silver Corp. and Provides Exploration Update
- August 23, 2022 – Molten Metals Samples 39.4% Antimony (Sb) and 9.69g/t Au, at Tienesgrund, Slovakia
- August 23, 2022 – TrustBIX Inc. Announces June 30, 2022 Third Quarter Financial Results
- August 23, 2022 – Auxico Signs Offtake Agreement for Tin Concentrate from the Massangana Tin Tailings Project in Brazil
- August 23, 2022 – DOE Funds Next-Generation Rare Earths Processing Research Collaboration
- August 23, 2022 – Silver Bullet Mines Corp. Updates on Washington Mine in Idaho
- August 23, 2022 – Nano One Receives C$1.8M towards SDTC Milestone 4 and Granted 2 Patents
- August 22, 2022 – Hemostemix Announces Closing of UNIT Private Placement
- August 22, 2022 – Hudson Resources And Neo Performance Materials Sign Agreement On The Sarfartoq Rare Earth Element Project In Greenland
- August 22, 2022 – dynaCERT to Equip the City of Timmins with Winterized Carbon Emission Reduction Technology

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Neo Performance and Hastings –

Will Wonders Never Cease?

written by InvestorNews | March 14, 2024

The term “Holy Moley” is seldom, if ever, used by us but our powers of speech are severely hampered by trying to digest the implications of the latest deal in the rare earths space. Neo Performance Materials Inc. (TSX: NEO) has now succeeded in flooring us twice in two weeks.

First, there was its announcement that it was acquiring a rare earths elements (REE) mining project in Greenland and making all the right noises as if it was going to move that forward (and if anyone can, it would be them). And then we have the shock announcement that Hastings Technology Metals Ltd (ASX: HAS), the sometime REE developer in Australia, is to acquire a 22.1% strategic shareholding in Neo Performance Materials. We need not remind investors that Neo is not only ***a*** leading global rare earths processing and advanced permanent magnets producer, but it is ***THE*** leading global rare earths processing and advanced permanent magnets producer outside China, with a string of plants around the world and most particularly its Silmet plant in Estonia, which is a cornerstone of the monazite sands processing strategy of Energy Fuels Inc. (NYSE: UUUU | TSX: EFR).

The market cap of Neo, on the eve of this announcement, was CAD$605 million. The acquisition has been agreed at a price of CAD$15.00 per Neo share, representing a total consideration of CAD$135 million. Bargain basement, indeed, in our view.

According to the release, the acquisition is intended to be funded by an AUD$150 million strategic investment in Hastings by Wyloo Metals through the issuance of secured, redeemable, exchangeable notes.

Interestingly, the stake is not a *de novo* investment by Hastings but rather the purchase of a stake from an affiliate of Oaktree Capital Management. Those with long memories will recall that this stake dates back to the ancient history of when Molycorp went spectacularly bust just under ten years ago and Neo was reconstituted bigger and better out of the ruins. The stake being vended by Oaktree consists of 8,974,127 common shares in Neo, representing a 22.1% shareholding.

The proposed acquisition provides Hastings (and Wyloo) with a strategic stake in Neo and exposure to the global downstream processing of rare earth materials into magnets.

We have written about Hastings' Yangibana deposit so long ago that we must fight through a veil of cobwebs to find what we wrote. The company claims that the project remains the key priority for Hastings, "with good progress being made on funding initiatives and other key milestones." But they would say that, wouldn't they?!

The acquisition of the Neo stake, and in particular the Wyloo investment, are subject to shareholder approval (50% voting threshold). All this begs the question as to whether Canada (or indirectly the US) will allow the crown-jewel (indeed the Queen on the REE chessboard) to pass into the hands of Wyloo Metals.

Hastings Technology Metals

secures Australian Government Funding for Yangibana, World's Richest NdPr Deposit

written by InvestorNews | March 14, 2024
Many are now asking will Hastings Technology Metals Ltd. (ASX: HAS) ("Hastings") be Australia's next rare earths producer?

The answer is 'maybe yes' after the Company announced on February 2, 2022: "NAIF approves $140 million loan for Yangibana Rare Earths Project……NAIF loan forms part of A$300-400 million of total debt financing required for Yangibana."

Yangibana is the first Australian rare earths project to receive NAIF funding. The above mentioned Northern Australia Infrastructure Facility (NAIF) loan has a 12½-year tenure and is subject to pre-completion conditions.

Hastings stated: "Yangibana early works construction and design for long-lead items underway in anticipation of plant construction commencing in September 2022 Quarter." The NAIF loan first drawdown is expected to occur in early 2023, aligned to the Yangibana funding schedule.

Hastings states about its planned project: "The Yangibana project, which comprises a mine and beneficiation plant at the Yangibana site and a hydrometallurgical plant at the Ashburton North Strategic Industrial Area (ANSIA) near Onslow, will become Australia's second rare earths producer and expands the country's strategic capability in downstream processing of rare earths minerals."

More about Hastings Technology Metals Ltd.

Hastings controls two rare earth projects in Western Australia. They are the Yangibana and Brockman Projects. The more advanced Yangibana Project contains a predominance of neodymium, praseodymium, dysprosium and europium.

The Yangibana Project (mine, beneficiation plant, and hydrometallurgical plant) – Western Australia

Hastings state: "Yangibana has the world's highest composition of neodymium and praseodymium and is located in the Tier 1 mining jurisdiction in Western Australia." The significance here is that neodymium and praseodymium (NdPr) are the highly valued magnet metals.

The Yangibana Project Proven & Probable Reserve is 16.7Mt at 0.95% TREO (0.35% NdPr oxide) for a total contained 158,419 t TREO. The Total Mineral Resource has a contained TREO of 266,417 t (at 0.97% TREO).

Yangibana Project has great metrics – Has a 37% NdPr content – double the world average

Source: Company presentation

The Yangibana Project's CapEx is estimated at A$516 million (A$67 million contingency) but is currently being revised. The Project's November 2019 NPV was A$549 million (IRR 21.1%). NdPr prices have increased significantly since then, so updated Project economics are expected soon.

The Yangibana Project is planned to have a 1.2Mtpa ore throughput, a 15 year mine life, ~15,000 tpa of MREC production, ~8,500 tpa TREO production and 3,400tpa NdPr production. Commissioning is targeted for 2024, subject to final project funding.

Hastings' Yangibana Rare Earths Project and their planned Onslow hydromet plant in Western Australia

Source: Company presentation

Hastings has commenced early site works at Yangibana (Mining Proposal has been approved) and recently received Commonwealth environmental approvals to develop the hydrometallurgical plant site at ANSIA near Onslow. Subject to funding, Hastings intends to then commence construction of the beneficiation plant and the hydrometallurgical plant.

On February 2, 2022, Hastings Executive Chairman Charles Lew, stated

"The commitment by NAIF will enable Hastings to finalise the funding requirements for Yangibana's development and move into full-scale construction throughout 2022, with the objective of delivering first production by 2024. Yangibana is an amazing, rare earths, opportunity that will supply the world's highest composition neodymium and praseodymium concentrate to Tier 1 customers in Europe and Asia. This is an exciting time not just for Hastings but for Australia's emerging rare earths sector. We look forward to finalizing the funding arrangements that will enable the Hastings' Board to make a final investment decision in the coming months."

Hastings Technology Metals investment highlights (as of November 25, 2021)

Source: Company presentation

Note: The 52% NdPr to TREO ratio refers to the highest-grade

deposit within Yangibana called Simon's Find, which contains 52% of rare earths as NdPr. It potentially provides strong early cash flows to the Project.

Closing remarks

Hastings Technology Metals certainly looks well on the way to becoming Australia's next rare earths producer, and only the second one following on from the very successful Lynas Rare Earths Limited (ASX: LYC) (market cap ~A$8 billion).

Hastings ticks all the right boxes in terms of a great resource, high NdPr content, location, integrated project, off-take contracts signed, and now is getting closer to achieving project funding (awaiting final credit-approved commitments from lenders' consortium) with only minor regulatory approvals remaining. Executive Chairman Charles Lew owns 7.1% of the Company so that is also a great endorsement.

All going well Hastings could begin Yangibana Project construction in 2022 (September Quarter 2022) and commercial production in 2024. Hastings Technology Metals trades on a market cap of A$516 million and looks set to have a very big 2022.