Danny Huh on Neo Battery Materials' Process Innovation, 9th Patent and Position in NBM Korea

written by InvestorNews | April 4, 2024 In a recent enlightening interview with Tracy Weslosky of InvestorNews, Danny Huh, the Senior Vice President of Strategy and Operations at NEO Battery Materials Ltd., (TSXV: NBM | OTCQB: NBMFF) detailed the company's strides in silicon anode technology for lithium-ion batteries, underlining their consistent progress over the past three years. Particularly notable was the discussion around the application for their 9th patent a month ago, marking a technological leap aimed at significantly enhancing their silicon anode materials' production capacity and efficiency.

Neo Performance's Rahim Suleman on being 'the most vertically integrated rare earth magnetics company in the

world.'

written by InvestorNews | April 4, 2024 During an engaging interview at PDAC 2024 with Critical Minerals Institute (CMI) Co-Chairman Jack Lifton, Rahim Suleman. President, CEO, and Director of Neo Performance Materials Inc. (TSX: NEO), shed light on the company's strategic endeavors and its unique positioning in the rare earth materials sector. Suleman emphasized Neo's role as a pivotal player in the rare earth magnetics market, underlining the critical importance of these materials in driving the energy transition and their explosive demand growth. He highlighted Neo's existing vertical integration in the rare earth magnet sector and its innovative dual supply chain strategy that provides a robust solution to the market's over-reliance on China, which dominates the extraction, processing, and magnet production of rare earth materials. "We are the most vertically integrated rare earth magnetics company in the world," Suleman remarked, illustrating Neo's commitment to mitigating concentration risks and fostering resilience in the supply chain.

Suleman further detailed Neo's significant investments in expanding its operational footprint, particularly mentioning the development of a sintered magnet facility in Estonia, which is poised to serve both the North American and European markets starting in 2025. This ambitious project, heralded as a landmark move to diversify the global rare earth magnet production landscape, underscores Neo's proactive approach to addressing the critical shortage of rare earth permanent magnet manufacturing capacity outside China. With plans to extend its manufacturing capabilities to North America and ongoing support from the European Union, Neo is strategically positioning itself to meet the burgeoning demand for rare earth magnets essential for electric vehicles and other green technologies. "We're in the process of investing in phase one… but we would immediately follow it with phase two and then immediately follow that and probably even concurrent to that do a large phase in North America as well," Suleman shared, highlighting Neo's comprehensive strategy to fulfill European and American EV Motor OEMs' demand for domestic sourcing of rare earth magnets.

To access the complete interview, <u>click here</u>

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About Neo Performance Materials Inc.

Neo manufactures the building blocks of many modern technologies that enhance efficiency and sustainability. Neo's advanced industrial materials - magnetic powders and magnets, specialty chemicals, metals, and alloys - are critical to the performance of many everyday products and emerging technologies. Neo's products help to deliver the technologies of tomorrow to consumers today. The business of Neo is organized along three segments: Magnequench, Chemicals & Oxides and Rare Metals. Neo is headquartered in Toronto, Ontario, Canada; with corporate Greenwood Village, Colorado, offices in United States; Singapore; and Beijing, China. Neo has a global platform includes ten that manufacturing facilities located in Canada, China, Estonia, Germany, Thailand, the United Kingdom, and the United States, as well as one dedicated research and development centre in Singapore.

To learn more about Neo Performance Materials Inc., click here

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Neo Performance Materials Establishes a Brighter Future with New Permanent Magnet Plant in Estonia

written by InvestorNews | April 4, 2024

They say in tough times it makes sense to make acquisitions and expand the business ready for the cyclical upturn that inevitably follows. Well, that is what today's company is doing with a new acquisition, a new investment, and the commencement of construction of a new permanent magnet facility.

Neo Performance Materials Inc. (TSX:

NEO) ("Neo")

<u>Neo Performance Materials</u> manufactures advanced industrial materials including magnetic powders and magnets, specialty chemicals, metals, and alloys. These products are critical to the performance of many everyday products and emerging technologies.

Neo has recently acquired 90% of SG Technologies Group Limited, invested to acquire 44% of Neo North Star Resources, and completed the groundbreaking for a new permanent magnet manufacturing plant in Narva, Estonia. They also delivered a record <u>Q2 2023 revenue</u> of US\$170.4 million, albeit with lower adjusted net income for the quarter.

SG Technologies Group Limited's 90% acquisition

As <u>announced</u> on April 18, 2023, Neo has agreed to acquire 90% of SG Technologies Group Limited ("SGTec") for "an initial payment of £10.8 million (US\$13.4 million) plus future earn-out considerations of between 0 and £5.4 million (US\$6.7 million) based on Adjusted EBITDA performance over the SGTec's fiscal years 2024 through 2026." SGtec is one of Europe's leading advanced, specialty manufacturers of rare earth and other high performance magnets. The announcement <u>stated</u>:

"Today, SGTec produces a variety of high-performance magnets and magnetic assemblies for some of the world's leading brands in electric and hybrid vehicles, multi-fuel and medium-duty engines, hydrogen fuel cell vehicles, off-highway fuel systems, automotive systems, and consumer electronics. It is recognized as a leader in the production of fully dense bonded neodymiumiron-boron ("NdFeB") magnets, soft magnetic composites (used in high-speed solenoids and electric motor applications), and other high-performance magnets."

A summary of SGTec's business – now 90% owned by Neo Performance Materials

Your partner for engineered magnetics solutions



Source: <u>SGTec website</u>

Investment to acquire 44% of Neo North Star Resources

In Q2, 2023 Neo completed an investment of <u>~US\$4.5 million for a</u> <u>44% stake</u> of Neo North Star Resources Inc. ("NNSR"), including an off-take agreement of 60% of the product produced. NNSR is a JV between Neo and North Star Resources which owns the license for the Greenland Sarfartoq Rare Earth Project. Neo's plan is for the Project, once in production, to be a source of neodymium and praseodymium ("NdPr") for their Estonia rare earth separations plant.

You can read more details <u>here</u> about the Neo North Star Resources Inc. JV and the Greenland Sarfartoq Rare Earth Project <u>here</u>.

Permanent magnet manufacturing plant in Estonia

As <u>reported</u> on July 7, 2023, Neo has commenced construction of their European permanent rare earth magnet Plant in Estonia. Interestingly the Plant will recycle end-of-life magnets to make new permanent magnets. High-purity magnetic rare earth oxide feed will come from Neo's existing rare earth separations plant in Estonia. Once in operation, the two Neo plants will form Europe's first and only fully integrated supply chain for sintered rare earth permanent magnets designed to produce specialized rare earth permanent magnets for use in electric vehicles, wind turbines, and other clean energy technologies.

Neo state:

"Phase 1 production of 2,000 tonnes/year is slated to begin in 2025, an amount that can support the manufacturing of ~1.5 million electric cars. Neo's expected Phase 2 production of 5,000 tonnes/year can support the manufacturing of ~4.5 million electric cars."

Given the <u>typical forecasts</u> for global plugin electric cars is an increase from ~14 million pa in 2023 to ~24 million pa by the end 2025 and ~50 million pa by the end of 2030, there should be enormous demand for permanent rare earth magnets, even if some cheaper EVs choose to use inferior magnets. Added to this will be all the other demand areas such as wind turbines etc.

The recent groundbreaking ceremony of Neo's new rare earth magnet manufacturing facility in Estonia, Europe (set to begin in 2025)



Source: Neo news July 7, 2023

Record Q2 2023 revenue, but lower adjusted net income

As <u>reported</u> on August 11, 2023, Neo achieved record Q2 consolidated revenue of US\$170.4 million compared to US\$168.2 million for the same period in the prior year; an increase of \$2.2 million or 1.3% YoY. Adjusted Net Income was US\$2.5 million (US\$0.05 per share), down from US\$15.9 million (US\$0.39 per share) in the corresponding period of the prior year. Neo ended Q2, 2023 with a cash balance of US\$126.9 million, after funding acquisitions and investments of \$16.1 million, distributing \$6.7 million in dividends to its shareholders, and repurchasing \$1.2 million of shares.

<u>New Neo Performance Materials CEO</u>, Rahim Suleman, <u>stated</u>:

"Despite the subdued market environment for rare earth magnetics, and continuing lead-lag pricing challenges that we must navigate, our top-line performance was helped by high volumes for value-added rare earth products outside of China. This performance generated healthy cash from operations and free cash flow, which allowed us to fund the acquisition of SG Technologies Group Limited, the investment in Neo North Star Resources, and the groundbreaking for our permanent magnet manufacturing plant in Narva, Estonia. Neo continues to be well positioned to execute our future growth initiatives."

Closing remarks

Neo is using the tough current market conditions to grow their business ready for the next cyclical upturn. Neo has done this via a clever acquisition and investment, combined with pushing forward on a new permanent magnet plant in Estonia. The current subdued demand for magnet products (typically used in powerful electric motors such as wind turbines and electric vehicles) will turn around at some point. And when it does Neo should potentially be better positioned than where it was before we entered the current global slowdown, at least in terms of its product lineup and supply chain.

Neo Performance Materials trades on a market cap of C <u>C</u> <u>S</u> <u>Million</u>.

NEO Battery Materials Focuses on EV Market Transformation

with Silicon Anodes

written by InvestorNews | April 4, 2024 In this InvestorIntel interview, Tracy Weslosky talks with NEO Battery Materials Ltd.'s (TSXV: NBM | OTCQB: NBMFF) Strategy and Operations Manager Danny Huh about their South Korean commercial plant to manufacture silicon anode materials for lithium-ion batteries. With the pre-construction phase expected to start in August 2023, Danny explains how NEO Battery Materials has accelerated its commercialization efforts with targeted completion of the South Korean plant by the first half of 2024.

Highlighting the need for expanded production capacity due to their growing customer pipeline, Danny discusses NEO Battery Materials' recent decision <u>to upsize</u> their R&D Scale-Up Centre in "one of the epicenters of battery production, as well as battery research, in South Korea."

Danny goes on to provide an update on their American subsidiary, NEO Battery Materials America LLC (NBM America), to market NEO Battery Materials' silicon anode materials in the US. Danny also discusses their plans to establish another R&D facility in either Ontario or Quebec, Canada, to establish closer ties with battery manufacturers and other battery material players involved in the Canadian EV battery supply chain.

To access the full InvestorIntel interview, click here

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About NEO Battery Materials Ltd.

NEO Battery Materials is a Canadian battery materials technology company focused on developing silicon anode materials for lithium-ion batteries in electric vehicles, electronics, and energy storage systems. With a patent-protected, low-cost manufacturing process, NEO Battery enables longer-running and ultra-fasting charging batteries compared to existing state-ofthe-art technologies. Building the first commercial plant in South Korea, the Company aims to be a globally-leading producer of silicon anode materials for the electric vehicle and energy storage industries.

To learn more about NEO Battery Materials Ltd., click here

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Weathering the rare earth prices storm, all eyes are on Neo Performance

written by InvestorNews | April 4, 2024

"Neo Performance Materials' organization today is the closest that North America has yet come to a totally vertically integrated rare earth permanent magnet supplier. Now, the company has acquired and is moving to bring a significant rare earth deposit in Greenland into production. When that occurs, it will be the first company outside of China, ever, to be a totally vertically integrated manufacturer of rare earth permanent magnets. We should all be watching Neo Performance as if our (self-sufficient and secure) independent economic lives depend on it." – Jack Lifton, Co-Chairman, Critical Minerals Institute

Assessing China's Potential Rare Earth Export 'Bomb': Dud or Threat?

written by Melissa (Mel) Sanderson | April 4, 2024 Recent press reports suggest that China might ban export to the US of rare earth-related products and technologies, particularly magnets, in response to the US decision to restrict exports of chipmaking technology to China. Japan and the Netherlands have signed on to these restrictions, but so far. the EU has not. Perhaps part of the EU delegation visit to Beijing is designed to cool tempers and avert a broader "trade war."

I suspect they must be smiling in Beijing today at the degree of alarm these articles have produced. But let's take a collective breath and look at the potential consequences from a couple of angles and see if it makes geopolitical sense. After all, the Chinese are nothing if not pragmatic.

Rare earth magnets

Let's begin with magnets, the single most important product. China does not have a monopoly on production and arguably is not even making the best quality magnets. Bonded neodymium (neodymium, iron, and boron or "NdFeB") magnets are made in Japan, Korea, the Philippines, Thailand, Germany, the UK, and the US (albeit in small quantities) in addition to China. Rare earths ("RE") oxides are converted to metals in Vietnam and Thailand, as well as the UK. NdFeB alloys are made in Vietnam, Thailand, Japan, Germany, and the UK. The highest-performance sintered magnets in the world are made by Shin-Etsu in Japan. Hitachi is a close second. TDK Corporation is close behind. The Chinese magnet producers always try to close the gap in performance with the Japanese.

All of this suggests that, from this angle at least, global sourcing could work around a Chinese product ban.

Rare earths refining

What about refining? Rare earths currently are refined in Malaysia by Lynas Rare Earths Ltd. (ASX: LYC) (although some recent political difficulties there for Lynas suggest that might change in the near future), in Estonia by <u>Neo Performance</u> <u>Materials Inc.</u> (TSX: NEO), in France by <u>Solvay SA</u> (ENXTBR: SOLB) and in Japan by <u>Shin-Etsu</u> (TSE: 4063) and <u>Mitsui</u> (TSE: 8031) subsidiaries.

The technology to refine both light and heavy rare earths is well known outside of China. The organic extractants to separate REEs were all imported into China for decades and are still produced by non-Chinese companies (Solvay, Albright & Wilson, and a collection of Japanese).

So, alternative sources also exist for refining, although China does remain the processing giant by output, accounting for approximately 85% of refining activity.

Returning to Chinese pragmatism, and its history of avoiding making the second mistake twice: the rare earth embargo China imposed in 2010 against Japan led to an important defeat for China in 2015 at the WTO, an organization China continues to view as useful to its strategic ends. Having a ruling already in place that export quotas violate trade rules imposes a significant constraint on history repeating itself.

US perspective

From a purely US perspective, however, the refining question is troublesome and Washington knows it. The sole rare earth mining company operating in the US, <u>MP Materials Corp.</u> (NYSE: MP), currently sends its output to China for processing. That issue will change in a couple of years, since MP, with partial funding from the Department of Defense, has begun work on a processing facility near its operations. Australia's Lynas Corp is building two new processing facilities in Texas, one for Light Rare Earths and another for Heavy Rare Earths, also with US Government ("USG") funding assistance. Two other processing facilities reportedly are under consideration, one in Arkansas and yet another in Texas.

Thus, the processing issue is a real vulnerability for the US, as MP could not swiftly pivot to send its output to one or more of the existing processing facilities cited above, even if those would have space to accommodate additional flow on an urgent basis, which they might not.

From this perspective, China still has a means by which to "strike" the US if that truly were its intention — and perhaps it is. Interestingly, Presidents Xi and Putin met recently: one can wonder what sort of "economic penalties" against the US that Mr. Putin might have floated to a Chinese leader potentially irked by various recent US moves, including luring Taiwan SemiConductor to establish a huge factory in Arizona (visited by President Biden in March) or the potential ban of TikTok currently being bandied about in DC. Or — most irritatingly of all — the USG funding the growth of rare earths processing capability in the US. I would add that Washington needs to feel an equal sense of urgency and commitment to building more rare earth mines in the US to ensure secure sourcing of the minerals needed to transform the economy.

Rare earths and the automotive industry

Finally, let's look at a concrete example of an industry whose future seems irrevocably tied to access to rare earths – the automotive industry. Pat Ryan, Chairman and Chief Executive Officer of <u>Ucore Rare Metals Inc.</u> (TSXV: UCU) contributed:

"In the automotive world there are three primary markets, Europe, North America and the Far East. Risk mitigation in each of these markets is more important now than ever before, including the sourcing of critical metals, as supply chains must be independent of each other and shift from high dependency to diversified, sustainable, circular and innovative solutions.

This is absolutely necessary so that individual markets, including North America, are secure, costs can be understood and managed by OEM's and jobs created in the market where products are sold. Threats or posturing are just that, and never forget that decade after decade North America has been successful because of its innovation, openness and entrepreneurial ideas. That is a point of reference and confidence and with a global energy transition upon us, the sense of urgency is more paramount than ever."

Final thoughts

So generally speaking, I can't share the current alarm. Not while so many other more subtle and effective means remain available to China if it really wants to make problems for the US economy. After all, the problem with a 'nuclear bomb' is that once used, it's impossible to contain the fallout.

Constantine Karayannopoulos on the State of the Critical Minerals Market

written by InvestorNews | April 4, 2024

At the <u>Critical Minerals Institute</u>'s recent Critical Minerals Summit "**The Race to Achieve a Critical Minerals Supply Chain ROW**", Tracy Weslosky talked to keynote speaker Constantine Karayannopoulos on the state of the critical minerals market.

Held at the National Club on November 9th in Toronto, Constantine, who is CEO, and Director of Neo Performance Materials Inc. (TSX: NEO), offers compelling commentary on market evolution and why the demand for critical minerals will continue to escalate. Sharing breaking news about receiving a multi-million dollar grant from the Government of Estonia for the construction of Neo Performance Materials' Sintered Rare Earth Magnet Manufacturing Plant in Estonia, Constantine explains how this will offer "a very meaningful addition to the Western world's magnet capacity."

From supply chain challenges to addressing what the market really needs today, Constantine offers relevant examples of where we are in this process today. From billionaire investment dollars to controversial headlines in the sector, the conversation does not shy away from the impact of geopolitical issues facing the market.

Providing an update on Neo Performance Materials' rapidly advancing "Magnets-to-Mine" vertical integration strategy, Constantine discusses how Neo is progressing towards being a fully integrated magnet producer outside of China. With trillions of dollars in investment required for the world to achieve the decarbonization targets, Constantine says that we "need an extraordinary level of capacity expansion for all the critical minerals."

To access the full InvestorIntel interview, click here

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About Neo Performance Materials

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Momentum versus fundamentals, that is the question for Neo Performance Materials

written by InvestorNews | April 4, 2024 I can honestly say that the volatility around earnings the last 2 to 3 quarters has been unprecedented. A miss versus expectations or disappointing guidance can lead to enormous losses for a stock with a single day double digit percentage loss becoming increasingly common. I don't know if it's related to the lack of confidence in the overall market, the rise of the retail investor (Robinhood and Reddit come to mind), or the increasing influence of algo trading that exacerbates both positive and negative momentum, but something has changed making these massive one day moves far more frequent. I guess one possible benefit to this is that if you feel the market has overreacted it could make for a great short-term trade in the event the market re-evaluates all the information available and determines things aren't as bad as the market initially thought.

That introduction sets the stage for us to review a company that continues to see sequential top line growth, has an iron clad balance sheet, is squarely in the driver's seat of the green revolution but as a result of some input cost pressures and demand issues, the bottom line saw an unexpected quarterly loss leading to a 17% yard sale on Friday. That company is <u>Neo</u> <u>Performance Materials Inc</u>. (TSX: NEO), manufacturer of the building blocks of many modern technologies that enhance efficiency and sustainability. Neo's advanced industrial materials – magnetic powders and magnets, specialty chemicals, metals, and alloys – are critical to the performance of many everyday products and emerging technologies. Neo has a global

platform that includes 10 manufacturing facilities located in China, the United States, Germany, Canada, Estonia, Thailand and South Korea.

So let's see if we can diagnose what happened in <u>03</u> that caused the market to punish Neo, driving it down to lows not seen since the pandemic plunge in early 2020. As I noted above, revenue numbers continue to see sequential growth both quarterly and year over year in all three of the Company's business segments – Magnequench, Chemicals & Oxides and Rare Metals. For the three and nine months that ended September 30, 2022, revenues of US\$146.6 M and US\$481.1 M were 22.4% and 24.7% higher, respectively, than the corresponding periods of 2021. Unfortunately, there's more to earnings than just revenue and that's where some of the challenges in the quarter occurred.

Starting with the Magneguench division, where Neo is the world leader in the production of permanent magnetic powders used in bonded and hot-deformed, fully dense neodymium-iron-boron magnets, there was a decline in volumes compared to the corresponding periods of 2021. The recent spike in COVID-19 has affected the free flow of people and production supplies across many parts of Asia and the ongoing semiconductor chip shortage is continuing to impact customers in the automotive and other industries. Additionally, by the third guarter of 2022, selling prices for Magnequench powders declined 30% to 40% from the peak (in the first quarter of 2022) negatively affecting (when prices are falling) overall pricing and margins due to the lead-lag effect of higher cost inventory on hand. In addition to lower margin on sales in the guarter, Neo recorded \$8.0 M of provisions for inventories in the third guarter, related to higher cost inventory on hand, relative to lowered selling prices.

Moving on to the Chemicals & Oxides (C&O) division, which

manufactures and distributes a broad range of rare-earth-based industrial materials including automotive catalysts, permanent magnetics, consumer electronics, petroleum refining catalysts, medical devices, and wastewater treatment, we see a similar theme. This segment was the biggest drag on the quarter with the three months ended September 30, 2022, reporting an operating loss of US\$5.3 M, compared to operating income of \$7.1 M in the same period of 2021. The C&O segment continues to see strong demand for various rare earth products, particularly its magnetic-based products, although the segment was adversely affected by the earlier noted rapid decline of rare earth prices while processing higher cost inventory. C&O saw mixed volumes for rare earth elements but slower volumes in the environmental catalyst end markets driven by semiconductor chip shortages. The rapid decline in prices necessitated C&O to record US\$6.0 M of provisions for inventories.

As a potential investor, it's now up to you to decide if the headwinds faced in Q3 are transitory or not. Looking forward, Magnequench, which accounts for roughly 45% of Neo's revenue, has pass-through pricing agreements for rare earth magnetic elements on the vast majority of its sales contracts. Magnequench earns a targeted margin spread per ton when rare earth prices are stable and over the long term. However, the short-term timing mechanics of the pass-through agreements generally lead to increasing margins when rare earth prices rise and declining margins when rare earth prices fall. The C&O segment, accounting for a little over $1/3^{rd}$ of revenue, continues to see strong demand for various rare earth products, particularly its magnetic-based products and the environmentally protective water treatment solutions business continues to perform well with higher volume and new customer adoption. The Rare Metals business continues to make progress in several key strategic initiatives, including selling more products outside

of the aerospace industry, expanding its customer base, and diversifying its total end-market exposure. Sales prices in a number of end markets have recovered and gallium-based products are exhibiting improved market demand.

Neo Performance Materials closed Friday trading at 9.2x trailing 12 month earnings, has a 4.4% dividend yield and C\$3.65/share of cash sitting on the balance sheet. Last week the Company announced it has been awarded a grant of up to 18.7 M Euros from the Government of Estonia under Europe's Just Transition Fund program to help pay for the cost of constructing a state-of-theart sintered rare earth permanent magnet manufacturing facility in Estonia. The question is, are fundamentals the most important thing in the market these days or momentum trading?

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

written by Raj Shah | April 4, 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 <u>August 26th</u> 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 <u>Neo Performance Materials</u> <u>Inc.</u> (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 <u>bought deal</u> of C\$65 million, which would dilute the original 22.1% position Oaktree was selling. From their <u>press release</u>: "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 <u>Andrew "Twiggy" Forrest</u>, 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 <u>recent record profits</u> from NEO? They have said there is no plan to increase their holding.

On September 7th Hastings <u>announced</u> a A\$110 million two tranche placement with the goal to accelerate its rare earths deposit in Western Australia. In addition, they announced a nonunderwriting 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 <u>reported as shown in the chart</u> <u>below</u>:

Deposit	Tonnes	TRE0	$Nd_{2}O_{3}+Pr_{6}O_{11}$
		%	%
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 (Nd2O3) and Praseodymium oxide (Pr6O11) 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 <u>announced</u> 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 (Nd2O3) was \$190/kg USD and Praseodymium oxide (Pr6O11) 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 | April 4, 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 <u>Neo</u> <u>Performance Materials Inc.</u>'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:

 <u>Hastings Technology Metals acquires a 22.1% shareholding</u> <u>in Neo Performance Materials</u> – August 26, 2022 On August 26th <u>Hastings Technology Metals Ltd</u> (ASX: HAS) announced it was <u>acquiring a 22.1% shareholding</u> 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.

<u>Neo Performance Materials Announces \$67.5 Million Bought</u> <u>Deal Treasury Offering of Common Shares</u> – 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.

 <u>Second quarter results with records for revenue, Operating</u> <u>income and adjusted EBITDA</u> – 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.

 <u>Neo Secures \$75 Million Loan to Finance Expansion and</u> <u>Relocation Of Its Environmental Emissions Catalyst</u> <u>Business</u> – 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.

<u>Hudson Resources and Neo Performance Materials Sign</u>
<u>Agreement on The Sarfartoq Rare Earth Element Project in</u>
<u>Greenland</u> – 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.