

Rising demand benefits the only integrated producer of bonded rare earth permanent magnets outside of China

Neo Performance Materials Inc. (TSX: NEO) (Neo) is an almost totally integrated Western (Canadian) company that processes mixed rare earth concentrates to produce separated individual and specifically blended rare earths to produce rare earth metals, alloys, and “bonded” rare earth permanent magnets. What makes Neo special is that they are the only company in the world that operates dual supply chains inside and outside of China for REE separation and REE advanced materials and end-use products. Neo owns the only operating commercial rare earth separation facility outside of Asia. It’s in Europe (Estonia facility) and it has sales and production centers spread across 10 countries globally.

All of the above makes Neo unique as a Western producer of rare earth materials as well as end-use products, which are critical in the green energy and EV revolution.

Award winning facilities

As announced on February 22 and March 28, 2022, Neo won awards for two of its key factories, the first in Thailand and the second in Estonia. The awards were Gold Medals awarded by EcoVadis for 2021 sustainability performance.

The second announcement stated: “This places Neo’s Silmet facility in Sillamäe, Estonia in the top five percent of all facilities around the world reporting to EcoVadis for its sustainability programs in 2022... The Silmet facility processes mixed rare earth feedstock into a variety of high-purity rare earth specialty materials, including neodymium-praseodymium

(NdPr) oxide, which is used by Neo's Magnequench business unit to produce neodymium-iron-boron (NdFeB) magnetic materials and magnets for automotive, factory automation, home appliance, circulation pump, and other applications."

This impressive recognition is also very well timed given the surging demand for NdFeB magnets used in many EV motors. Global electric car sales finished March 2022 with 851,000 sales for the month (the second best month ever), 60% higher YoY, with market share of 15%.

The global OEM automotive industry today uses mainly sintered NdFeB rare earth permanent magnets, but the use of bonded type NdFeB in this application is growing rapidly. Neo has pioneered the use of bonded NdFeB magnets in automotive applications with Japanese customer/partner, Honda, and this use is expanding. Neo has agreed with European magnet customers to expand its capacity there and to add sintered NdFeB magnets to its product lines. The EU has encouraged and is financially supportive of this move by Neo.

Prices for rare earths materials and end-user products used in the green economy have been surging the past year, due to demand exceeding supply, and this is reflected in Neo's latest financial results. This supply deficit looks to be baked in for at least the next decade due to the growth of the green economy.

Q4 2021 and Full-Year financial results highlights (in USD)

As reported on March 10, 2022, Neo achieved the following outstanding financial results:

- "Q4 2021 revenue of \$153.4 million higher by 39.0% YoY; full-year 2021 revenue of \$539.3 million was higher by 55.5% YoY.
- Volumes in the fourth quarter of 3,311 tonnes; full-year volumes expanded by 20.2%.
- Operating income of \$12.7 million in the quarter; \$59.9

million for the year.

- Adjusted Net Income for the quarter of \$16.1 million, or \$0.39 per share, with full-year Adjusted Net Income of \$55.0 million, or \$1.42 per share.
- Adjusted EBITDA for the quarter of \$19.7 million; 2021 Adjusted EBITDA of \$81.9 million was 183.7% higher YoY.
- Cash balance of \$89.0 million after raising \$38.0 million from equity offering and distributing \$12.8 million in dividends to shareholders.”

As shown above, full-year 2021 revenue was 55.5% higher YoY, based on volume growth of 20.2%. Clearly higher-end product prices helped support the stellar results. Neo sums it up well and the general direction the business is heading by stating:

“Neo reported strong year-over-year (YoY) gains in revenue, volumes, operating income, Adjusted EBITDA, and profitability in the year ended December 31, 2021, driven largely by increased demand for products across all three of its operating divisions, higher selling prices for rare earth materials, and continuing progress in several of the Company’s strategic initiatives.”

I did warn investors that this was what we were expecting from Neo with our December 22, 2021 article: “Neo Performance Materials looks to expand capacity as it rides the tailwind of growing rare earth permanent magnet demand.”

Neo Performance Materials is one of a few Western companies able to process rare earths and make magnets



Neo Performance Materials processes rare-earth materials at its facility in Sillamae, Estonia.

THE WALL STREET JOURNAL.

Businesses and governments across the West are gearing up to counter China's dominance in a key component of modern technology: the magnet," the [Wall Street Journal](#) noted recently.

EXCERPT: "For these minerals to go from a hole in the ground to an electric motor, you need vast skills and expertise, which barely exist out of China," said Constantine Karayannopoulos, chief executive of Neo Performance Materials ULC, one of a few Western companies able to process rare earths and make magnets."

[The full article can be seen here](#) (subscription required).

Source: Neo Performance Materials website

Closing remarks

Neo Performance Materials occupies a rare and critical position in the Western supply chain to produce rare earths specialty products. Demand for powerful rare earth type magnets used in many consumer goods as well as in wind turbines and EVs is expected to surge this decade.

Neo Performance Materials trades on a market cap of C\$546 million and a current PE of 17.6. 2022 PE is forecast at 7.82.

The next catalyst for Neo will be the Q1, 2022 earning results due out before the market opens on May 13, 2022. Stay tuned.

NEO Battery Materials fast tracks their silicon anode EV battery material plant in

Korea

NEO Battery Materials Ltd. (TSXV: NBM | OTCQB: NBMFF) (“NEO”) is advancing at full speed with their recent announcement that they have “completed a contract for the Commercial Plant’s construction, design, and permits with an architectural firm”. The plant will be located in Gyeonggi Province’s Oseong International Investment Zone in South Korea, near major battery manufacturers LG Energy Solution and Samsung SDI.

As a brief reminder for new investors, NEO has developed high-performance silicon anode materials to replace parts of the graphite used by anode and battery manufacturers in their battery anodes. Their leading product is NBMSiDE™, a silicon anode material for EV lithium-ion batteries. NBMSiDE™ is manufactured through the Company’s proprietary nanocoating technology, achieving a high specific capacity of >2,500 mAh/g. This essentially means the NEO silicon anode material helps improve the all-important battery energy holding capacity and ultimately the charging speed of the EV.

As NEO states: “Through a mix of treatments and nanocoating materials, NEO utilizes pure metallurgical-grade silicon particles, which provide a 40-70% higher initial specific energy or capacity compared to current competitors that employ SiO_x, SiC, or other composite silicon materials.”

South Korea anode plant design progressing with an increased production target

Regarding the new anode materials plant, the final site approval has now been granted. Due to the land site being in a Foreign Investment Zone, NEO will receive a range of benefits including a 99% reduced lease rate and tax incentives. NEO may also access Provincial financial support for equipment purchases, employment subsidies, and education/training subsidies.

Additionally, NEO recently stated that the “Company will now advance to the detailed process design for the production lines and will proceed with early orders of components that have long lead times for the commercial plant. Through a structured execution plan of performing procurement and construction processes one after another, NEO expects to achieve the initial commission of the Commercial Plant by the first half of next year... We are currently working on pursuing strategic investments and communicating with the respective companies and investors to finance the construction of the commercial plant.”

In another very interesting development from NEO, the Company has increased their anode material production targets again. The original pilot plant capacity was 10 tons, which last year was increased 12 fold to a commercial scale of 120 tons pa. This was recently increased to 240 tons pa. Even more impressive is the longer term target of the full facility capacity after installing the maximum number of mass-production lines through expansion, of 2,000 tons of NBMSiDE™ anode material pa.

NEO Battery Materials is fast tracking towards commercialization of their silicon anode material ('NBMSiDE™') for the EV industry



Management from **Globally Largest** Battery Manufacturers



Targeting Commercial Plant Capable of Producing **240 Tons Annually**



Launch of 3 Silicon Microparticle Anode Products "**NBMSiDE**" for Lithium-Ion Battery Applications



Over 17 NDAs Signed with Solid-State Developer, Battery Metals, Cell & Material Manufacturers

Source: NEO Battery Materials company presentation

NEO has also been busy sending NBMSiDE™ product samples to several potential off-take companies for testing. If this stage goes well then usually off-take agreements follow, which then typically helps the project financing process.

“The first refined sample of NBMSiDE™ has been provided to a Europe-based battery materials company,” NEO recently stated, “and a second delivery is planned in April. NEO is additionally conducting sample tests with several Asia-based and European battery manufacturers.”

NEO has also recently internally developed NBMSiDE™ pouch-type full cells which have been manufactured to evaluate product performance, viability, and durability in genuine battery charging conditions.

In an April 5, 2022 news release NEO stated that: “NEO Battery Materials will commence construction in June 2022 and will follow stringent timelines and protocols to aim completion in June 2023.” I would assume this is subject to project financing.

Summary of NEO's plans and targets for their new silicon anode materials plant

South Korean Commercial Plant Facility

Fast-Track to Silicon Anode Commercialization



NEO has Upgraded to a Commercial Plant Scale Following Positive Internal Results and Optimized Processes

Original: Pilot Plant Scale

10 Tons per Year



New: Commercial Plant

240 Tons per Year

24-Fold Increase
of NEO's Silicon Anode Materials

Details of Commercial Facility

- Completed Conceptual Design and Initiated **Engineering Phase** of EPC (Engineering, Procurement, Construction) Stage
- Approved for Land Use of 106,700 square feet or 2.5 acres
- Site Selected in South Korea for Optimal Integration into Battery Supply Chain
- **More Mass-Production Lines** to be added for full-fledged facility
- Annual Production of ~2,000 Tons per Year

Targeted Completion

End of Year 2022

With 5% silicon loading in the anode component, commercial plant will be able to supply to 160,000 electric vehicles

Source: NEO Battery Materials company presentation

Closing remarks

NEO is making great progress with their silicon-anode material commercialization plans, with the excellent advantage of locating their manufacturing facility in the Oseong International Investment Zone in South Korea.

Investors should understand that the next stages of product evaluation and testing, off-take deals, financing, and project construction all carry risks and the possibility of delay. Nonetheless, NEO is certainly making all the right moves and looks to be very well connected to the major Korean battery manufacturers.

NEO Battery Materials trades on a market cap of C\$52 million.

Constantine Karyannopoulos on Neo Performance Materials' banner sales and profits in 2021

In a recent InvestorIntel interview with Tracy Weslosky, Neo Performance Materials Inc.'s (TSX: NEO) President, CEO and Director Constantine Karayannopoulos detailed Neo Performance's dramatic rise in revenues and profits in 2021, the highest profits in the consistently profitable company's history. He then outlined his plans for Neo to maintain and continue an upward revenue and profits trajectory. Constantine also said that Neo's gold medal winning ESG audit for its (European) Estonian operations would be a goal for all of its worldwide operations.

The discussion also covered the variety of Neo's products and their uses and markets not only in rare earths but also in other critical technology metals, including gallium, niobium, and tantalum for the electronics and specialty alloys industries.

Constantine pointed out that Neo Performance Materials is the most vertically integrated rare earths products manufacturer in the world outside of China, and one of only two niobium and tantalum processors in Europe. It is the only commercial separator of rare earths in Europe. All of its products are in high demand by the OEM automotive industry and the OEM semiconductor industry. Neo, he also said, is the leading manufacturer of bonded-type rare earth permanent magnets in the world, and their use in the OEM automotive industry is

rapidly expanding.

To watch the full interview, [click here](#)

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 offices in Greenwood Village, Colorado, US; Singapore; and Beijing, China. Neo operates globally with sales, research and development, and production across 10 countries, being Japan, China, Thailand, Estonia, Singapore, Germany, United Kingdom, Canada, United States, and South Korea.

To learn more about Neo Performance Materials Inc., [click here](#)

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If you have any questions surrounding the content of this interview, please contact us at +1 416 792 8228 and/or email us direct at info@investorintel.com.

Constantine Karayannopoulos, Jack Lifton and Byron W. King on the synergies between the global rare earths' supply and the real-world markets

In this episode of **Critical Materials Corner**, Jack Lifton and Critical Materials Corner Co-Host & InvestorIntel Columnist

Byron W. King are joined by Constantine Karayannopoulos, President, CEO and Director of Neo Performance Materials Inc. (TSX: NEO). Constantine describes the real state of the rare earth mining, refining, and end-use product industry, outside of China, as it exists and operates today, from the perspective of the largest non-Chinese owned vertically integrated, beyond the mine, rare earth products producer in the world. Questions from Jack and Byron lead Constantine to describe and differentiate today's European and North American markets with regard to their sizes, existing supplies and suppliers, and their futures as he sees them.

Although Neo Performance Materials is a Canadian company, headquartered in Toronto, it produces and sells rare earth product lines within China, Europe, SE Asia, and North America. Jack points out that this makes Constantine Karayannopoulos a uniquely qualified expert to analyze the global rare earths' products' markets. And surmises that those watching may learn a great deal in this conversation about the synergies between rare earths' supply and the real-world markets.

To access the complete episode of this Critical Materials Corner discussion, [click here](#)

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globally with sales, research and development, and production across 10 countries, being Japan, China, Thailand, Estonia, Singapore, Germany, United Kingdom, Canada, United States, and South Korea.

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Under the Hood with a rare earths' products manufacturer that is consistently profitable and cashed up

Apparently, my "watchlist" is far too large these days. When I circle around to have a look at some of the names on the list, I'm often shocked by the progress they've made since the last time I looked at them. Fortunately, in some cases, I can potentially still purchase the stock at a price comparable to the last time I reviewed it, despite its success in the interim. Today is a great example of this. It's a stock that I last wrote about in June 2021. Since that time the Company has continued to grow its revenue and be profitable, increased the cash on its balance sheet, pays a quarterly dividend and yesterday closed 6.5% lower than it was trading at the beginning of last June.

That company is Neo Performance Materials Inc. (TSX: NEO), which is currently trading at 17x trailing 12-month earnings, has a 2.5% dividend yield and over \$2/share of cash sitting on the balance sheet. These may not seem like outstanding metrics for an industrial stock as compared to its peers but Neo Performance is not like its industrial peers. They are sitting squarely in the driver's seat of the green revolution. Neo

manufactures the building blocks of many modern technologies that enhance efficiency and sustainability. The Company'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 are used in numerous end-use applications including micro motors, traction motors, auto catalysts, water pollution controls, healthcare (such as medical imaging), aerospace, clean energy technologies (such as HEVs and EVs), consumer electronics (such as smartphones and tablets), fiber optics, HDDs and a number of other applications.

Not only is Neo involved in the manufacturing of materials integral to a sustainable future, but there's also the old real estate adage – location, location, location. The Company's Estonian facility is the only commercial producer of rare earths in Europe and one of only two producers of aerospace-grade tantalum and niobium in the EU. A key business focus is to meet the rapidly growing demand for magnetic rare earths in Europe, which are needed by electric vehicles and high-efficiency electric motors. Neo is partnering with industry and government leaders across Europe with an aim toward helping establish production in Europe of sintered neo magnets to help meet demand using rare earth feedstock from North America and elsewhere outside of China. If you are like me and that last sentence is a little over your head, I encourage you to go to the Company's website and click on all the "Learn More" boxes. It's pretty fascinating stuff, even if I still didn't understand a lot of it.

As bullish as this sounds, coupled with a track record of success and growth over the last couple of years, I can see a couple of things that may account for the uninspired performance of the stock price of late. The first is that 37% of corporate revenue in 2021 came from Chinese customers. With China's zero tolerance COVID policy and lockdown after

lockdown making the news headlines, investors may wonder if Q1/22 financials might be impacted. They might, but that is somewhat short sighted in my opinion. Yes, I realize COVID has been annoying us for over 2 years now, but the world is adapting and starting to get on with life. It's possible there could be an impact to Q1 numbers but if there is, I would simply view that as a buying opportunity if the stock were to sell off (assuming this was the sole reason). Secondly, investors might be concerned that Estonia is a neighbor of Russia and formerly part of the USSR, which Putin seems to want to reunify. However, Estonia is part of NATO (and the EU), and thus not likely to be in Putin's sights anytime soon as I'm pretty sure he doesn't want to stick his hand in that hornet's nest, especially given how poorly things are going for him in Ukraine at present. So without trying to understate the atrocities and humanitarian crisis going on in Ukraine, I personally don't view there to be much, if any, risk to Neo's Estonian assets.

As the market is tending to drift towards value and industrial stocks with the specter of rising interest rates making investors second guess the multiples applied to tech stocks, assuming they even have earnings, one could question why Neo's stock price is trading far closer to its 52 week low instead of its 52 week high. Even if it were considered a "show me" stock, I would suggest looking at the last 4 (or more) quarterly earnings and question what else investors might be looking for. Net income, positive cash flow, virtually no debt and a 2.5% dividend yield put Neo Performance on a pretty good footing. Then consider the upside of the business segment they are involved in and one can make a strong case for taking a closer look at Neo Performance Materials.

In 2022 Neo Lithium Shareholders prospered, and Neo Performance Materials is in the spotlight

Neo Lithium Corp. (TSXV: NLC | OTCQX: NTTHF) was one of the standout performers in 2021 delivering a return to investors of 219%, a 5.35x gain for those investors lucky enough to have bought in at the IPO on July 20, 2016 at C\$1.20 per share. Neo Lithium is now trading at C\$6.42 with the Zijin Mining takeover offer at C\$6.50 a share having recently been approved by Neo Lithium shareholders.

Today's article gives an update on Neo Lithium and mentions another company that has several things in common with Neo Lithium, meaning it could be the next success story.

Neo Lithium stock price went from C\$1.20 at IPO to \$6.42



Source: Yahoo Finance

An update on Neo Lithium

As announced on December 10, 2021 Neo Lithium shareholders approved the arrangement effectively selling their shares in Neo Lithium to China's Zijin Mining Group at C\$6.50 a share. 91.42% of shareholder votes were in favour of the transaction. The announcement stated: "Subject to obtaining all required approvals and satisfying all required conditions, the Transaction is expected to close in the first quarter of 2022....Following closing of the Transaction, the Common Shares will be de-listed from the TSX Venture Exchange." There is the option for investors to buy into China copper-gold miner Zijin Mining Group (SHA: 601899) (HK: 2899) if they wish to still have exposure to Neo Lithium's prized 3Q Project, whose Environmental Impact Assessment (EIA) was recently approved by the Catamarca Government in Argentina.

Effectively this ends the story for investors in Neo Lithium. But there is a another 'Neo' to consider.

Neo Performance Materials Inc. (TSX: NEO) – The next 'Neo'

While there is no doubt that Neo Lithium President & CEO, Dr. Waldo Perez, (who also discovered Lithium Americas Cauchari Project) and its CFO, Carlos Vincens, played a huge role in the success of Neo Lithium, there is another person of interest. And that is Neo Lithium Chairman Constantine Karayannopoulos, who served on the Neo Lithium Board from February 9, 2016. He is also the President and Chief Executive Officer of Neo Performance Materials Inc. (TSX: NEO). Neo Performance Materials returned shareholders a 49% gain in 2021 and offers investors a similar early stage (to get in) opportunity, albeit this time in rare earths processing and permanent magnets materials.

For investors who believe success breeds success (as I do), and who look to follow star performers then I suggest you take a closer look at Neo Performance Materials. The Company is

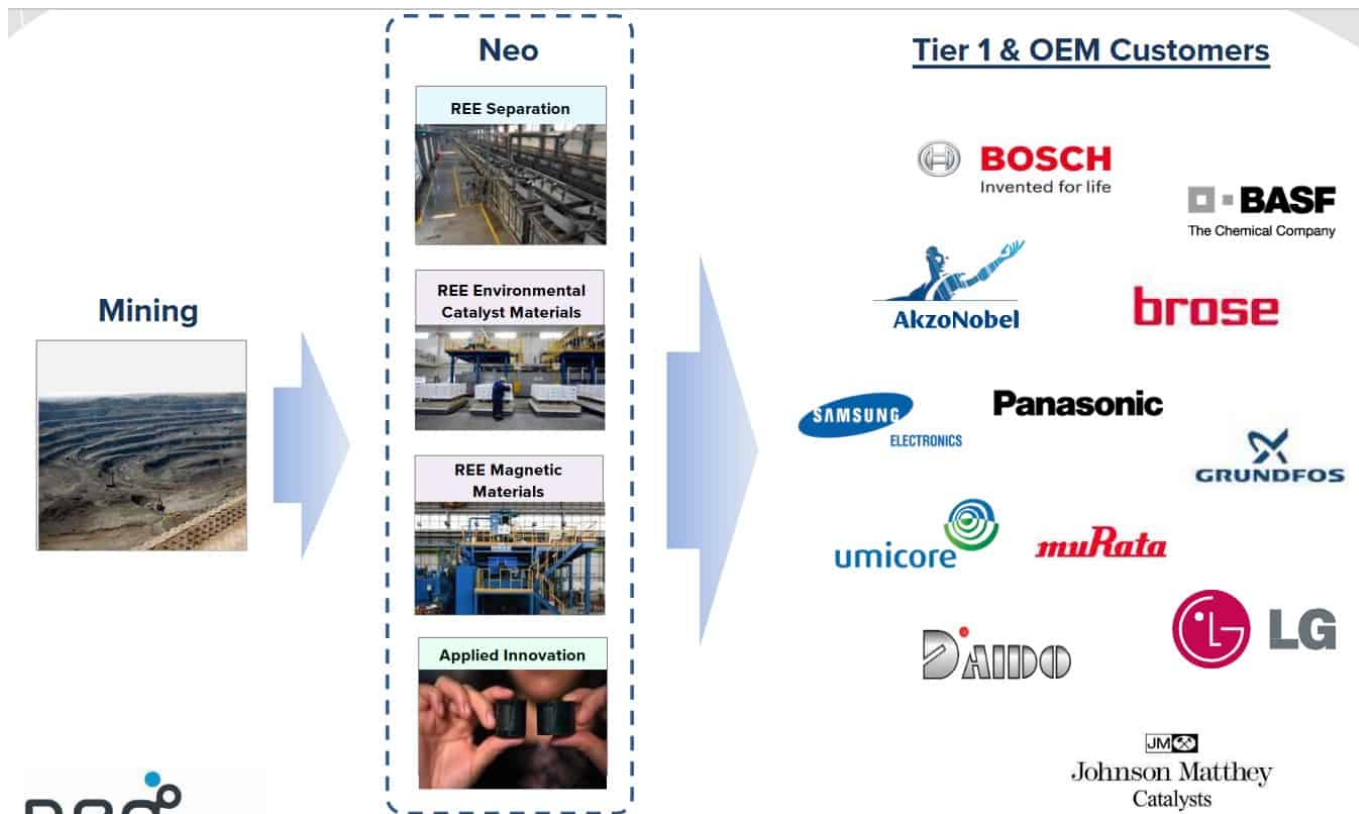
unique in the way it is positioning itself as the only non-Chinese processor of rare earth materials into separated rare earth chemicals that are then used internally to produce rare earth fine chemicals, metals, alloys, and “bonded” rare earth permanent magnets. You can read more about Neo Performance Materials in my linked article below.

- Neo Performance Materials looks to expand capacity as it rides the tailwind of growing rare earth permanent magnet demand

In the above article global rare earths expert Jack Lifton quotes his view on Neo Performance Materials stating:

“Neo Performance Materials is today, the only Western company that is vertically integrated with the capability and commercial scale capacity to separate the rare earths, manufacture rare earth metals and alloys, and manufacture rare earth permanent magnets. It is the non-Chinese model for any venture seeking to enter or assemble a total rare earths permanent magnet supply chain.”

Neo Performance Materials position in the supply chain for rare earths based products



Source: Neo Performance Materials company presentation

Closing remarks

The story on Neo Lithium is now closing with the successful takeover by Zijin Mining now in its final stages. Investors who were in early, since the IPO, made a very nice 5.35x gain, and in some cases even more if they followed me buying at the 2019 low around C\$0.58 (see my article here) and selling recently above C\$6.40 for a 11x gain.

Looking ahead I see some similarities between Neo Lithium and Neo Performance Materials. Both have top quality management and Constantine Karayannopoulos is involved in both. Both companies are leaders in their field, noting Neo Lithium in lithium and Neo Performance Materials in rare earths processing and production of valuable rare earth based end products. Finally, both are beneficiaries of the EV boom and the demand for EV related metals such as lithium and the rare earths, NdPr.

They say follow the money and that is true, but better still

is to follow successful top tier management, especially if they have the tailwind of a winning trend.

In 2022 we say farewell to Neo Lithium and hello to Neo Performance Materials. It should be another great year for those companies related to the electric vehicle boom.

Neo Performance Materials looks to expand capacity as it rides the tailwind of growing rare earth permanent magnet demand

Demand for rare earth metals and magnets has been very strong in 2021, boosted by an approximate 100% surge in electric car sales so far in 2021. This means that companies that sell the valuable magnet metals such as neodymium and praseodymium (NdPr) are doing very well, as NdPr (the combination is called “didymium” in the trade) is used to produce high performance neodymium, iron, and boron (NdFeB) magnets, used in many electric cars today.

Neo Performance Materials Inc. (TSX: NEO) (“Neo”) is a rare Western company that processes natural rare earth mixtures to produce individual high value separated rare earth chemicals, then uses them to produce rare earth fine chemicals, metals, alloys, and “bonded” rare earth permanent magnets. Neo summarizes well when they state:

“Neo is the only company in the world that operates dual

supply chains inside and outside of China for REE separation and REE advanced materials. Neo owns the only operating commercial rare earth separation facility in Europe.”

Neo operates globally with sales and production across 10 countries including: Japan, China, Thailand, **Estonia**, Singapore, Germany, United Kingdom, Canada, United States, and South Korea.

Neo Performance Materials global operations



Source: Neo Performance Materials investor presentation

Neo explores a possible expansion, and new production of advanced rare earth element products in Estonia

As announced on November 17, 2021: “Joint Communiqué in Support of Expanding Valued-Added Rare Earth Product Manufacturing in Estonia. A joint effort between the Estonian Ministry of Economic Affairs and Communications and Neo Performance Materials has been launched **to explore a possible**

expansion of Neo's current production of advanced rare earth element ("REE") products in Estonia, and well as to potentially launch new manufacturing of REE-based metals, alloys, and magnetic materials for use in electric vehicles and other green technologies."

The timing to expand in Europe is perfect given the massive rise in European and global EV sales. For example, Europe's electric car sales were 184,000 in October 2021, up 26% YoY, reaching 23% market share. Germany reached 30% share, France 23%, and Netherlands 35% share in October 2021. It also times nicely with Tesla beginning electric car production at Giga Berlin in 2022.

Only a day earlier on November 16, 2021, Neo announced: "Completion of \$100.66 Million Bought Deal Treasury and Secondary Offering of Common Shares....The Company issued and sold from treasury an aggregate of 2,598,000 Common Shares at a price of \$19.25 per share for total gross proceeds to the Company of approximately \$50.01 million."

The above announcement does not mention what the \$50.01 million will be used for; however, it seems to me more than just a coincidence that only a day later Neo announced their Estonia expansion plans. I will let the reader draw their own conclusions.

Neo continues to produce strong financials in 2021

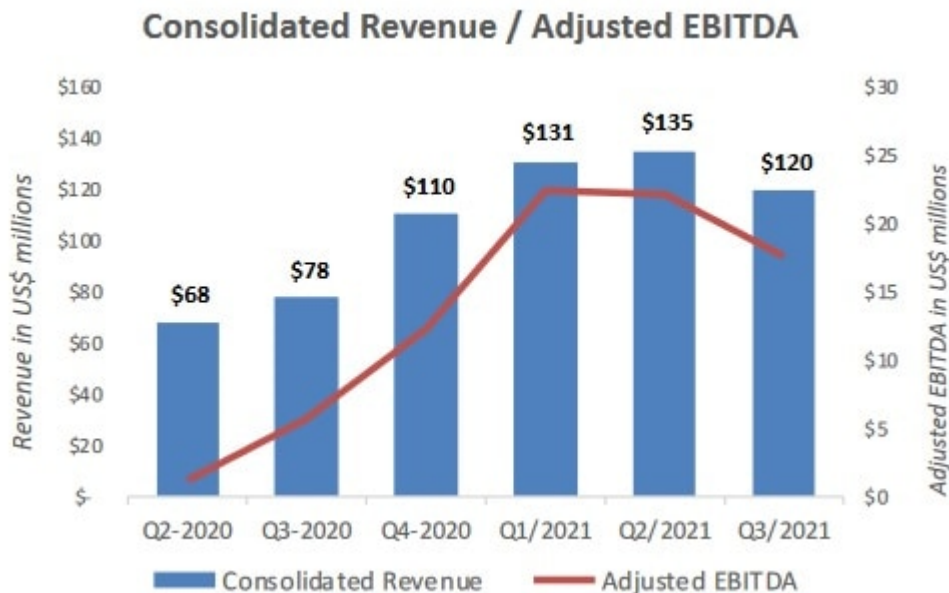
In 2021 Neo continues to deliver strong YoY revenue and income growth; albeit revenue and adjusted net income were slightly lower than last quarter.

As announced on November 8, 2021, Neo reported Q3 2021 revenue of US\$119.8 million, higher by 53.9% YoY. Volumes in the quarter of 3,523 tonnes improved by 16.1% YoY. Adjusted net income was US\$9.8 million, or \$0.26 per share.

This compares to Q2 2021 results of revenue of US\$135.1

million up 99.5% YoY and adjusted net income of US\$14.1 million, or US\$0.37 per share.

Neo Performance Materials financials summary quarter by quarter from Q2 2020 to Q3 2021



Source: Neo Performance Materials investor presentation

More about Neo

Neo is a processor and manufacturer of advanced industrial materials including rare earth metals, alloys, and “bonded” rare earth permanent magnets, specialty chemicals, technology metals, and alloys. Neo is well positioned in markets that are forecast to see robust, long-term growth driven by multiple global macro trends, such as vehicle electrification, industrial automation, consumer electronics, energy efficient lighting, air and water pollution control, and greater use of superalloys.

Global rare earths expert Jack Lifton’s view on Neo:

“Neo Performance Materials is today, the only Western company that is vertically integrated with the capability and commercial scale capacity to separate the rare earths, manufacture rare earth metals and alloys, and manufacture rare

earth permanent magnets. It is the non-Chinese model for any venture seeking to enter or assemble a total rare earths permanent magnet supply chain.”

Closing remarks

While companies such as Tesla get all the headlines, did you know that Neo's stock price is performing better than Tesla in 2021. YTD in 2021 Neo Performance Materials stock price is up 62% compared to Tesla up 46%.

The other key difference is Neo trades on a PE of 14.8 compared to Tesla on a PE of 302. Both stocks are being supported by the booming EV trend, just one is many multiples cheaper (based on current PE ratios).

Investors would be wise to take a deeper look at Neo Performance Materials especially now while they trade on a reasonable multiple and look set to expand in Estonia.

Making lithium ion battery components more durable and efficient to improve battery capacity

NEO Battery Materials' Progressing on the Development and Commercialization of Longer Lasting Higher Energy Density

Lithium Ion Battery Components

Investors looking for a cutting edge technology company in the electric vehicle (EV) battery components sector need look no further than NEO Battery Materials Ltd. (TSXV: NBM | OTCQB: NBMFF). NEO is a North American battery materials company with a current focus on developing silicon anode (the negative electrode in a battery) materials through its “ion-and electronic-conductive polymer nanocoating technology.” Or, in simpler language, a ‘silicon material’ for batteries, used to make the anode last longer in service (make it capable of being charged and recharged more times without losing integrity or efficiency) and be capable of holding more energy, thus making the battery more durable and efficient

NEO states: “NEO has a focus on producing silicon anode materials through its proprietary single-step nanocoating process, which provides improvements in capacity and efficiency over that of lithium-ion batteries using graphite in their anode materials.”

NEO’s stock price has been on a tear in 2021; however, the recent pullback potentially gives a better entry point for investors.

NEO Battery Materials (TSXV: NBM) 1 year stock price chart



Source: Yahoo Finance

Another thing that investors love is active management that can rapidly progress a company and produce lots of good news. We'll take a look at the news flow summary below, just for November 2021.

- Nov. 23, 2021 – NEO Battery Materials appoints lithium-ion battery electrode binder and polymer technology expert, Dr. Byeong-Su Kim, to Scientific Advisory Board. The news states: “Utilizing robust binder technologies with characteristics such as a high elastic modulus can **help contain and control the volume expansion of silicon**, resulting in lower probabilities of particle pulverization and a cracking anode.”
- Nov. 18, 2021 – NEO Battery Materials receives approval for a core patent from the Korean Intellectual Property Office.
- Nov. 16, 2021 – NEO Battery Materials announces research consortium LOI with both the University of Toronto **and with an undisclosed global OEM for R&D and scale-up of EV Battery Materials**. The preliminary project will involve the full electrode fabrication of silicon-carbon

composite anodes through NEO's silicon particle nanocoating process....With the active material (silicon and/or graphite), binders and conductive additives as core components...

- Nov. 10, 2021 – NEO Battery Materials appoints Dr. Dongmok Whang, expert in low-dimensional nanomaterials and graphene, to Scientific Advisory Board. His research expertise lies in the field of fabrication and manufacturing of low-dimensional nanomaterials, especially **graphene, semiconductor nanowires, and porous nanostructures** for applications in electric vehicle lithium-ion batteries, fuel cells, and various energy storage solutions.
- Nov. 4, 2021 – NEO Battery Materials accomplishes **anode production capacity upscaling Project** over the past three months. The news states: "From the initial production rate of several grams per hour for manufacturing silicon anode materials at the lab-scale, **NEO's engineering team has accomplished to expand the rate to a level of several kilograms per hour.** This is a result of improving productivity by more than 1,000-fold, and the success of the Project at this level has given stronger validation for **the 120-ton semi-commercial plant that is scheduled to be commissioned by the end of next year.**" President & CEO Spencer Huh, added: "As NEO understands the need to fast-track into mass production, we are pleased to announce the accomplishment of the Upscaling Project. The Company is at the forefront of developing unique Si anode lines through the low-cost manufacturing process, and we are customizing solutions for various downstream users to optimize the products for high-power electric vehicle lithium-ion battery applications."

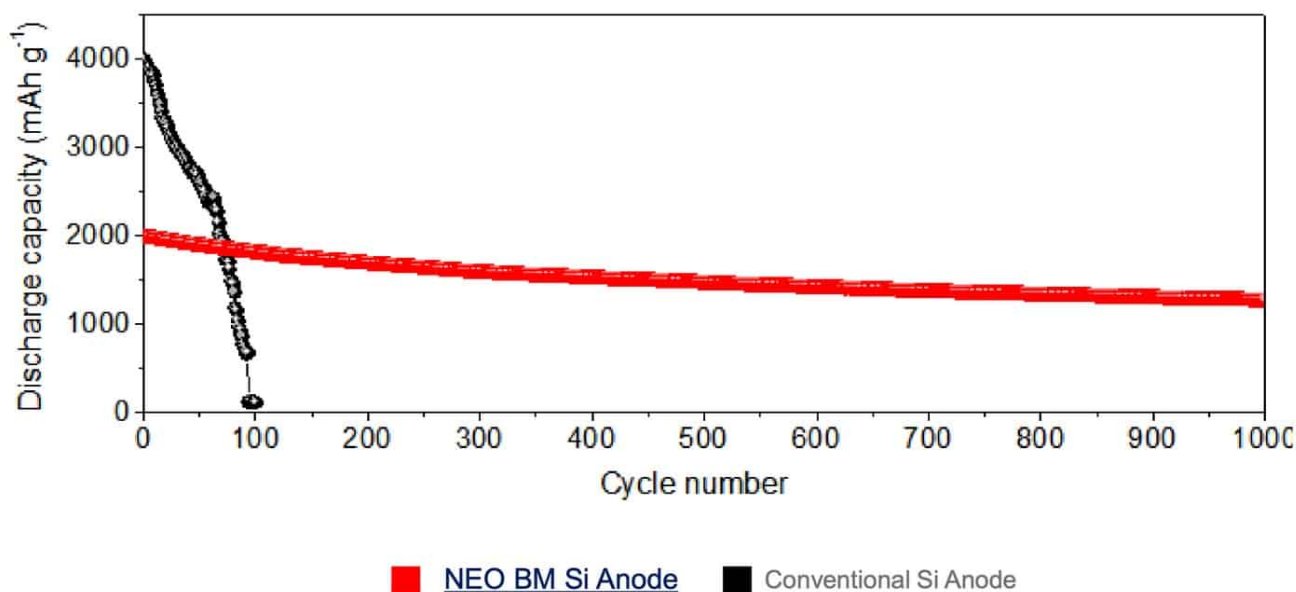
The above 5 news items, when added together' show the rapid pace and progress NEO is achieving. Looking back on the previous two months there were even more great achievements by

NEO. The standout news came on October 26 when NEO announced: **“Completion of semi-commercial plant conceptual design and initiates engineering EPC stage for construction.”** The facility will be in South Korea. President & CEO, Spencer Huh, stated: “NEO is now another step towards commercializing our silicon anode materials for EV lithium-ion batteries and is actively expediting our timelines and milestones.”

As shown below the problem with silicon in anodes can be that as the silicon absorbs the electrons it expands then cracks the anode, leading to a low cycle life (low longevity). NEO has managed to improve this by using its cost-effective and efficient one-pot, single-step, nanocoating process.

NEO Battery Materials state that their silicon anode materials are already achieving much higher cycles than competitors

Long Lasting pure Si Anodes > 1000 Cycles – Minimal Volume Expansion during Cycling



Source: NEO Battery Materials company website

Closing remarks

A lot of the details surrounding NEO Battery Materials' achievements are not very well understood by investors. This is only natural as most investors are not battery material

scientists.

The key to understanding NEO's work is that its silicon anodes or composite silicon graphite anodes can significantly improve battery capacity, which relates to greater energy density, and hence longer range for the same size battery. What EV manufacturers and customers all want is better performing batteries that result in longer driving range for a given size battery. Silicon anodes today present many challenges, especially cracking leading to poor cycle life. NEO is making great strides in solving this problem by producing silicon anode materials with a much longer cycle life.

If NEO can succeed in meeting commercial standards it will have Tesla and other EV and battery/anode OEMs knocking on its door. For now it appears there is plenty of promise, especially given the longer cycling results (1,000 cycles) and recent production scaling progress, as well as the interest from an OEM in joining NEO's research consortium.

NEO Battery Materials trades on a market cap of C\$39 million. It's one to watch.

Jack Lifton and Constantine Karayannopoulos discuss the non-Chinese rare earths' markets

In a recent InvestorIntel interview, Jack Lifton spoke with Constantine Karayannopoulos, President, CEO and Director of Neo Performance Materials Inc. (TSX: NEO) about the current

rare earths supply and demand situation outside of China.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Constantine highlighted that the growth in rare earths demand in Europe is primarily driven by the burgeoning growth there in green technology applications such as electric vehicles (EV) and wind power. He continued by saying that although automakers in Europe are setting the goals of having 50% of their rare earths supply chain located within Europe by 2025, there are not enough rare earths produced to satisfy the EV demand, securely, outside of China, at this time. As the owner of the only operating commercial sized rare earth separation facility in Europe, Constantine explained how Neo Performance is very well positioned to capitalize on the opportunity.

To watch the full interview, click here.

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 offices in Greenwood Village, Colorado, US; Singapore; and Beijing, China. Neo operates globally with sales and production across 10 countries, Japan, China, Thailand, Estonia, Singapore, Germany, the United Kingdom, Canada, the United States, and South Korea.

To learn more about Neo Performance Materials Inc., click

here.

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If you have any questions surrounding the content of this interview, please email info@investorintel.com.

Neo Performance's Constantine Karayannopoulos on the growth opportunities for rare earths in the EV market

In a recent InvestorIntel interview, Tracy Weslosky spoke with Constantine Karayannopoulos, President, CEO and Director of Neo Performance Materials Inc. (TSX: NEO) about joining the UN Global Compact to promote sustainability and about the 'massive' growth opportunities in the rare earths space.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Karayannopoulos highlighted the lack of sufficient supply of rare earths, lithium, and other critical materials required by the energy transition and electric vehicle (EV) revolution. In addition to being the only company in the world operating dual supply chains inside and outside of China for rare earths and rare earth based advanced materials, Neo also owns the only operating commercial rare earth separation facility in Europe, which allows it to have a significant footprint in the fast-growing European EV market. With its presence in 10 countries, Constantine explained that Neo Performance is well-positioned to capture growth in the electric vehicle supply chain in Europe and eventually in North America.

To watch the full interview, click here.

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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 offices in Greenwood Village, Colorado, US; Singapore; and Beijing, China. Neo operates globally with sales and production across 10 countries, Japan, China, Thailand, Estonia, Singapore, Germany, the United Kingdom, Canada, the United States, and South Korea.

To learn more about Neo Performance Materials Inc., click [here](#).

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