

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.

Revolutionizing Energy Storage with NEO Battery Materials' Strategic Advances in Silicon Anode Technology

written by InvestorNews | April 4, 2024

[NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF), a leader in the development of low-cost silicon anode materials, is at

the forefront of a technological revolution that promises to redefine the lithium-ion battery landscape. As the demand for electric vehicles (EVs) and renewable energy storage solutions grows, the quest for more efficient and cost-effective batteries has become more critical than ever. NEO's strategic initiatives and recent achievements reflect its commitment to driving innovation in this space, amidst a broader industry shift towards silicon anodes over traditional graphite.

Since the commercial debut of lithium-ion batteries three decades ago, the technology has seen vast advancements, including a significant drop in price and improvements mostly on the cathode side. However, the graphite anodes used in these batteries have seen little innovation, until now. Silicon, capable of holding up to 10 times as many lithium ions by weight as graphite, has emerged as a promising alternative, despite its initial challenges, including volume expansion and material fracture.

NEO's recent strategic moves, including [increasing its ownership](#) in its South Korean subsidiary, NBM Korea, and filing its [9th patent](#) for a major silicon anode manufacturing innovation, underscore its role in this evolving market. The company's efforts to overcome silicon's historical challenges signify a major leap towards the commercialization of silicon anodes, which are essential for the next generation of lithium-ion batteries. These batteries promise longer ranges, faster charging times, and reduced costs for EVs, positioning silicon as a critical material in the global push towards electrification.

The significance of NEO's advancements cannot be overstated in the context of the broader industry's pivot towards silicon anodes. Companies like General Motors are already integrating silicon anodes into their products, signaling a market ready for

change. Furthermore, the recent influx of nearly half a billion dollars in investments towards commercializing silicon anode materials, including significant contributions from the U.S. Department of Energy, highlights the strategic importance of this technology.

Silicon anodes not only offer the potential for longer-range and faster-charging EVs but also promise to alleviate supply chain constraints associated with graphite anodes, nearly all of which are processed in China. By reducing reliance on overseas graphite and leveraging silicon, the most abundant metal in Earth's crust, companies like NEO are paving the way for a more sustainable and efficient future for batteries.

In its comprehensive strategy for 2024, NEO Battery Materials outlines a multi-faceted approach to commercialization, emphasizing operational execution, capital efficiency, and risk mitigation. The company's vision extends beyond mere technological innovation; it aims to optimize the electrochemical performance and cost competitiveness of its silicon anode material, NBMSiDE®, to establish advanced commercial agreements and expand its global supply chain network.

As NEO and other industry players continue to advance silicon anode technology, the promise of more affordable, efficient, and sustainable lithium-ion batteries becomes increasingly tangible. This shift not only supports the growing demand for EVs but also contributes to the global effort to transition to renewable energy sources, marking a significant milestone in the quest for greener and more sustainable energy solutions.

The [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF) market cap for Thursday, February 22, 2024 is CAD\$28.70M.

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 [to upsize](#) 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-fast charging batteries compared to existing state-of-the-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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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.

Danny Huh of NEO Battery on EV Industry Attention as it Revolutionizes Silicon Anode Technology

written by InvestorNews | April 4, 2024

In this InvestorIntel interview, Tracy Weslosky talks with [NEO Battery Materials Ltd.](https://www.sedar.com)'s (TSXV: NBM | OTCQB: NBMFF) Strategy and

Operations Manager Danny Huh about achieving a significant [technology milestone](#) in the nanocoating manufacturing process of silicon anodes that can increase the driving range of electric vehicles and enable ultra-fast charging.

Speaking about the high performance and cost-reduction capabilities of their uniform nanocoating technology, Danny discusses how there is an increased interest from ten companies, including global battery and electronic manufacturers and EV automakers, to use NEO Battery Materials' silicon anodes in their lithium-ion batteries.

Providing an update on its South Korean Commercial Plant construction that has completed the Request for Quote ("RFQ") process, Danny also discusses filing NEO's [6th patent](#) to Korean Intellectual Property Office for one-step nanocoating technology for silicon anodes.

Danny also talks about the recent [appointment](#) of Dr. S. G. Kim, a silicon/polymer material and chemical technology development expert, as NEO's Chief Technology Officer. Dr. Kim is the former Executive Vice President and Head of R&D of Hanwha Solutions Corporation (KSE: 009830), a multi-billion South Korean chemical manufacturing conglomerate.

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

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About NEO Battery Materials Ltd.

NEO Battery Materials Ltd. is a Vancouver-based company focused on electric vehicle lithium-ion battery materials. NEO has a focus on producing silicon anode materials through its proprietary single-step nanocoating process, which provides

improvements in capacity and efficiency over lithium-ion batteries using graphite in their anode materials. The Company intends to become a silicon anode active materials supplier to the electric vehicle industry.

To learn more about NEO Battery Materials Ltd., [click here](#)

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Danny Huh of NEO Battery Materials Discusses Silicon Nanocoating on Anodes for the 1000-Mile EV Battery

written by InvestorNews | April 4, 2024

In this InvestorIntel interview, Tracy Weslosky talks with NEO Battery Materials Ltd.'s Strategy and Operations Manager Danny Huh about their ongoing commercialization and optimization process to achieve the 1000-Mile Electrical Vehicle Battery using silicon anode materials. Having achieved a significant technology milestone of uniform nanocoating capability on silicon anodes, Danny explains how their technology can help increase driving range of electric vehicles and enable ultra-fast charging.

NEO Battery Materials is Disrupting the Lithium-Ion Battery Industry with Silicon Anode Materials

written by InvestorNews | April 4, 2024

Last week I wrote [an article](#) about graphite and the potential for it to see prices rise steeply in the future. There's one caveat to that article and that is the advancement of technology. Entrepreneurs, venture capitalists, and generally smart scientists and researchers are always looking for a better, and preferably cheaper, way to get things done. Currently, graphite is the single largest component of lithium-ion batteries used in electric vehicles ("EVs") at up to 48% of total battery weight. But what if someone were to build a better anode that used a different material, and that material provided improvements in capacity and efficiency over lithium-ion batteries that use graphite in their anode materials? That would certainly disrupt, if not completely ruin, my graphite pricing thesis. That's why investing is not easy and why everyone is not a billionaire.

Silicon anode solution for EV batteries

Today we are going to discuss one of the many potential disruptors in the lithium-ion battery world. [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF) is focused on silicon materials for lithium-ion batteries in EVs. The Company is looking to develop silicon anode materials, NBMSiDE™, through proprietary nano-coating layers, to transform the anode materials space for the EV industry. The energy density of a

lithium-ion battery is highly dependent on the anode material. Integrating silicon with graphite in the anode can increase battery storage capacity by 9-10 times, as well as help reduce battery cost and increase charging speed. So where do I sign up?!

Commercial plant under construction in South Korea and now US expansion

Despite the Company's strong ties to South Korea, where NEO Battery Materials will initially invest 24 billion KRW or approximately C\$25 million to support the construction and expansion of a silicon anode commercial plant, they are more recently focusing on expansion in the U.S. In January, [NEO announced](#) it was establishing NBM America Ltd., a U.S. subsidiary. NBM America will actively seek U.S. expansion opportunities that include the Company's core silicon anode business and any new projects in the battery materials space.

The subsidiary will allow closer interaction with U.S.-based parties that are currently under non-disclosure agreements ("NDAs") to expedite business and collaborative activities. It is also anticipated that NBM America will be able to secure funding opportunities from state-level programs and federal-level initiatives that include the Inflation Reduction Act and Department of Energy funding. The subsidiary will also target accessing the large pool of U.S. venture capital funding that focuses on cleantech thematic investing and strengthening EV infrastructure, assuming those targeted companies are not tangled up with the collapse of Silicon Valley Bank ("SVB").

NDAs and LOIs driving potential commercial

relationships

Pursuing this strategy appears to be paying off because, by the end of February, NEO Battery Materials was [announcing](#) it had signed 5 additional NDAs in the EV battery industry including a U.S.-based investment bank and a private equity firm. The Company also further elaborated on its U.S. aspirations stating they plan to establish an R&D Center to manufacture silicon anode samples for North American battery manufacturers to expedite the timeline for joint venture opportunities. This facility will improve logistical efficiency by reducing the time between material evaluation and optimization.

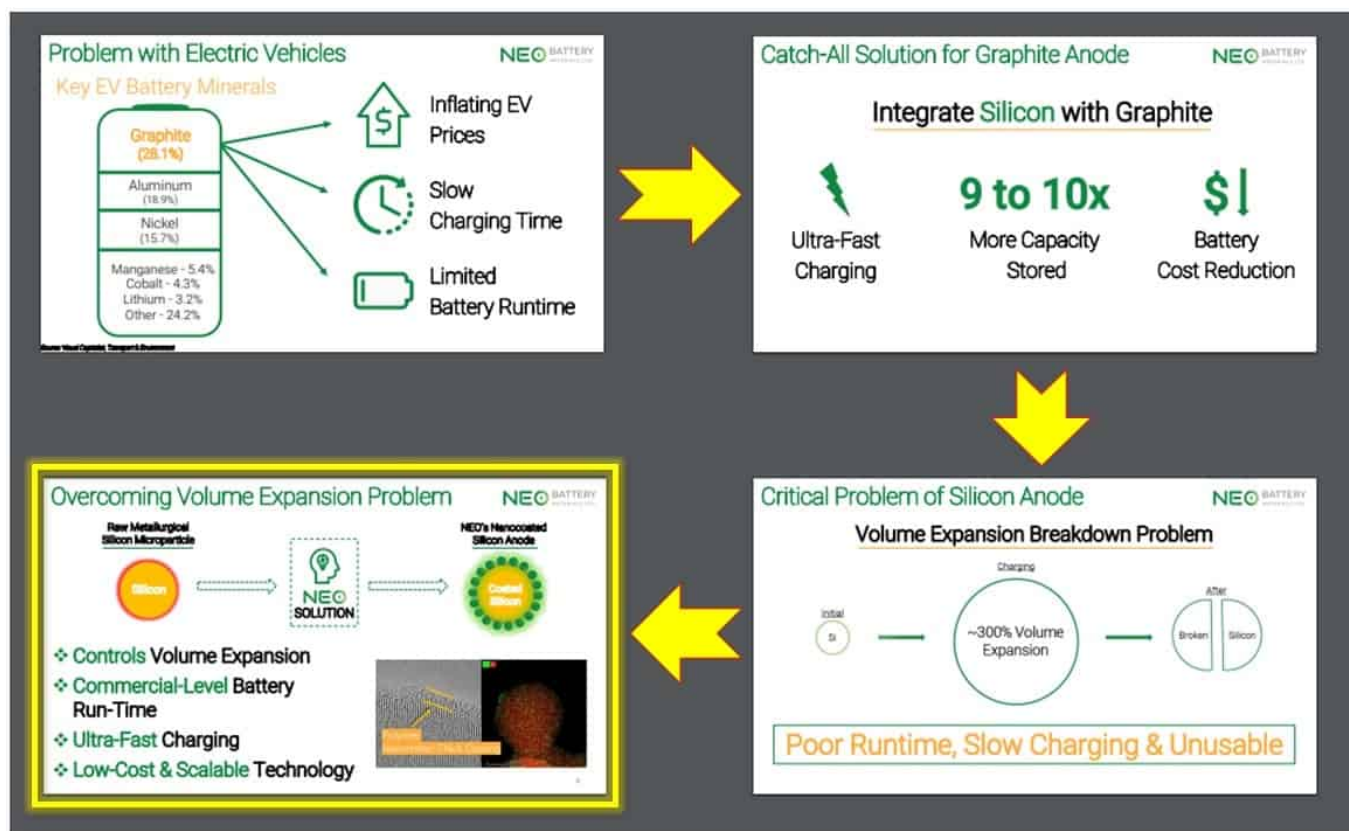
A week later NEO issued a [press release](#) that it had signed a Letter of Intent (“LOI”) with a developer of robust, durable polymer electrolytes for silicon anode optimization with a spin-out company from a top U.S. university. The LOI will jointly explore opportunities to integrate the counterpart’s polymer electrolyte technology into NEO’s silicon anode system to improve performance by effectively controlling the silicon volume expansion issue. Additionally, the non-flammable nature of polymer electrolytes can provide increased safety improvements as opposed to conventional liquid electrolytes, preventing the risk of battery fires and explosions. Although it has been a while since I have seen a video of a Tesla burning on the side of the road.

Jump ahead to this week and NEO has confirmed plans to do a tour of various locations in the U.S. The Company [announced](#) that management is expected to visit Ohio and Kentucky in late March and early April to select a site for its U.S. headquarter location. The management team and key advisors also plan to visit New York City to hold meetings with prominent cleantech VC and investment banking firms.

Final thoughts

NEO Battery Materials has some pretty ambitious plans but if all those NDAs and LOIs start leading to some deals then they will need both their facility in Korea and in the U.S. to keep pace with business. Getting funding from the big cleantech firms in the U.S. will also support that build-out and top up the treasury which was sitting at almost C\$2 million in working capital as of November 30, 2022. The Company currently trades at a market cap of C\$30 million.

Neo Battery Materials Focus on Increasing Charging Speed and Storage Capacity with a Nanocoated Silicon Anode



Source: Company Presentation (March 2023)

NEO Battery Materials moves another step forward in the EV Battery market race

written by InvestorNews | April 4, 2024

The EV battery race is heating up, and there seems to be a decided ABC (anyone but China) theme to the progression of this race, at least in the West. With that said, China likely isn't all that worried at present given the advantage they currently have in various necessary commodities (via outright ownership or purchasing control) and the subsequent upgrading and/or refining of those commodities into some of the most important end-use products. Nevertheless, the rest of the world is doing their best to work together, get along and advance the green revolution as quickly as possible.

One part of the world that is "playing nice" with the West is Southeast Asia, with many EV battery deals of late in both the U.S. and Canada being announced with joint venture partners including Panasonic (Japan), LG Energy Solution (South Korea), Posco Chemical (South Korea) to name a few. Not to mention all the actual car manufacturers from the region, like Honda, Toyota, Hyundai, etc. getting in on the act. It has become pretty obvious who these nations want to align themselves with, or perhaps it's more of a tale of who they don't want to partner with and potentially have all their IP put at risk. Maybe I'm being a little unfair, I'm sure there are plenty of reasons behind the trends we are seeing of late, but it's always fun to stir the pot a little bit.

Before I sink any deeper into speculative conspiracy theories, let's circle back to something with a more investable theme. A company looking to advance the next generation of EV batteries. [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF) is developing lithium-ion battery materials for electric vehicle and energy storage applications. NEO has a focus on producing silicon anode materials through its proprietary single-step nanocoating process, which provides improvements in capacity and efficiency over lithium-ion batteries using graphite in their anode materials. The Company intends to become a silicon anode active materials supplier to the electric vehicle industry with their [management](#) and [technical advisory team](#) cherry picked from LG Chem, Samsung and various renowned universities.

This Vancouver-based company has strong ties to South Korea, where on January 26, 2022, the Company [received approval](#) from Gyeonggi-do, the largest Economic Province in South Korea, to build its commercial plant on a 10-year lease term. The site is located in Oseong Foreign Investment Zone in Gyeonggi-do and is approximately 106,700 square feet (or 2.5 acres). NEO Battery Materials will initially invest, over the next 5 years, 24 billion KRW or approximately C\$25 million to support the construction and expansion of the silicon anode commercial plant. NEO Battery Materials aims to transform the region into an essential manufacturing and R&D hub of silicon anode materials. The first phase of the commercial plant will possess an initial annual production capacity of 240 tons of NBMSiDE™, and the facility will be with additional space that can accommodate production expansion to 1,800 tons annually of the Company's anode material.

NEO is making solid progress towards this goal on numerous fronts, having [announced in October](#) that it had successfully installed additional production equipment into the R&D Scale-Up Centre to step-up efforts in incrementally optimizing the all-

in-one mass production process for NEO's silicon anode materials, NBMSiDE™. This scale-up milestone will enable product development as the series of NBMSiDE™ material characteristics and manufacturing costs can be evaluated and adjusted to meet the various specifications of downstream customers. Additionally, on the commercial front, the Company signed NDAs with 3 European companies and 1 U.S.-based company, and a European company is scheduled to visit the R&D Scale-Up Centre to discuss practical cooperative initiatives such as a joint development agreement.

Keeping the ball rolling, at the end of November [NEO reported](#) that following the announcement of the late stage in architectural design, NBM Korea, NEO's South Korean subsidiary, has submitted the construction permit application for the Silicon Anode Commercial Plant to Pyeongtaek City, Gyeonggi Province. With a processing period of 1 month, the construction permit is expected to be obtained at the end of December 2022. Upon the approval of the construction permit, the initial construction process from site clearance to basic civil engineering work will be carried out sequentially.

It would appear shovels are about to start digging and NEO will take another step forward from concept to reality. NEO has a market cap of less than C\$22 million with roughly a little over C\$2 million in cash at the end of August. Keep an eye on this situation to see if someone steps up to help NEO fund the build out of the silicon anode commercial plant. After all, Twitter is so yesterday for Elon Musk, I'm sure he's gotta be looking for the next big thing by now.

NEO Battery Materials' next generation EV battery is the focus of its new Korean R&D hub

written by InvestorNews | April 4, 2024

I'm going to make a bold prediction. The electric vehicles we see on the road today will be virtually obsolete in 5 years. The amount of capital and brain power being applied to battery technology coupled with the desire/need for fewer and lower carbon footprint resources that go into those batteries is going to result in material step changes in vehicle range, speed of charging and hopefully the corresponding cost. Whether the electrical grid can keep up with this rapid transition to EVs remains to be seen but we can save that discussion for another day.

Imagine you want to go on a road trip in your EV, but every 300-400 miles you have to spend a few hours charging. What if the next generation of EVs could add 50+% to that range and fully re-charge in 15-30 minutes. How much would you be willing to pay for the old generation of EV versus the convenience of a new one? For sure there will still be a market for used EVs as some people only need it for their daily commute or trips to the grocery store and otherwise the vehicle sits idle for hours, at which point in time there is little to no inconvenience to charge it. But for me, as someone who likes to fish and hike in the great outdoors of the Rocky Mountains, I can assure you there is no chance I'm buying a current generation EV with its theoretical range that potentially leaves me stranded in the middle of nowhere when the actual range ends up being 25% lower

than optimal operating conditions.

One company leading the charge into the next generation of batteries is [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF), a Vancouver-based company focused on lithium-ion battery materials for electric vehicle and energy storage applications. NEO has a focus on producing silicon anode materials through its proprietary single-step nanocoating process, which provides improvements in capacity and efficiency over lithium-ion batteries using graphite in their anode materials. The Company intends to become a silicon anode active materials supplier to the electric vehicle industry with their all-star [management](#) and [technical advisory team](#) cherry picked from LG Chem, Samsung and various renowned universities.

The numbers are impressive both from a capacity/capability perspective and relative cost to their competition. In mid-2021 the Company announced that in [a half-cell coin test](#) that its nanocoated silicon anode allowed for a safe full charge within 5 minutes, which demonstrates the potential for scaling and implementation in larger cells such as those used in high power EV batteries. Through a mix of treatments and nanocoating materials, NEO utilizes pure metallurgical-grade silicon (Si) particles, which provide a 40-70% higher initial capacity compared to current competitors that employ SiO_x, SiC, or other composite silicon materials. Due to NEO's advantage of retaining a higher initial capacity, on average, a 5% silicon weight loading of NBMSiDE™ can have the equivalent impact of a 10% loading of a competitor's materials. Initial coulombic efficiencies (ICE) – the ratio of the discharge capacity after the full charge and the charging capacity of the same cycle and is usually a fraction of less than 1 – for NEO's 100% micron-size level Si anode have exceeded the 86% level, and cycling performance presents excellent capacity retention after 300 charging/discharging cycles.

And all this technology is advancing beyond research lab theoretical work. The latest press release from the Company confirms an [MOU with the Province of Gyeonggi](#) (basically Seoul, South Korea, and the surrounding area) to establish grounds for investments and cooperation between NEO and the Province to advance the mass production of silicon anode materials for EV batteries. NEO Battery Materials will initially invest, over the next 5 years, 24 billion KRW or approximately C\$25 million to support the construction and expansion of the silicon anode commercial plant located on a 107,000 sq. ft. site in Oseong Foreign Investment Complex, Pyeongtaek City, Gyeonggi-do. The Company aims to transform the Province into an essential manufacturing and R&D hub of silicon anode materials. The first phase of the commercial plant will possess an initial annual production capacity of 240 tons of NBMSiDE, and the facility will be built as a 4-story office building with additional space that can accommodate production expansion to 1,800 tons annually of the Company's anode material.

I have no idea if NEO Battery Materials will be one of the success stories to advance the next generation of battery technology for EVs and energy storage. I do know that they have generated some interesting results and have NDAs signed with over 20 globally established industry players in the battery cell manufacturing, materials manufacturing, and automotive industries. With a market cap of roughly C\$30 million, you can decide if this is one of the companies you'd like to hold if you are investing in the future of EVs.

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

written by InvestorNews | April 4, 2024

[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 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.

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](#).

Targeting next generation silicon anode materials NEO Battery Materials up 387.5% in 2021

written by InvestorNews | April 4, 2024

2021 will be remembered as the year that the western world woke up to the electric vehicle (EV) boom, especially boosted by the fact that global electric car sales look set to finish up [about 100% YoY](#). So what will 2022 bring? I previously wrote [here](#) my top 3 stock picks for 2022 and [here](#) are my top 5 graphite miners to watch in 2022; but today's company looks set to benefit from a little-known trend in the EV world.

That trend is the increasing use of silicon in battery anodes to boost battery performance, especially charging speed and energy density (range). This is because when a battery charges the rate of charge depends on how quickly the 'anode' can absorb or fill up with electrons. By adding silicon into the graphite anode it is better able to absorb more electrons and therefore the battery has better capacity. Companies continue to work on some of the challenges of silicon in anodes which include swelling, cracking and lower cycle life.

Today we look at [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF) ("NEO") whose stock price rose [387.5%](#) on the TSXV in 2021. NEO is a Canadian battery materials company with a current focus on developing silicon anode materials through an ion-and electron-conductive polymer nanocoating technology.

Looking back on 2021, NEO had a strong year ([company highlights here](#)) especially in building up both their technology and their

team. You can read some more on that in my last article: [Making lithium-ion battery components more durable and efficient to improve battery capacity](#). In that article, I discussed how NEO's 'pure' silicon anode materials were already achieving much higher cycle-life than competitors (NEO is achieving 1,000 cycles) with the main benefit of silicon material in anodes being greater energy density and charging speeds. Conventional lithium-ion batteries with graphite anodes have a cycle life of between 2,000 and 5,000+ cycles.

It should be noted that there is today a growing market for silicon anode materials to be used as an additional material combined with a conventional graphite anode to boost performance. Tesla is one of many that use silicon-graphite anodes.

In recent months NEO has made further progress as shown by three recent significant announcements:

- Dec. 6, 2021 – [NEO Battery Materials announces the launch of 3 silicon anode material products “NBMSiDE” for high performance lithium-ion batteries](#)
- Dec. 24, 2021 – [Korean Intellectual Property Office issues core patent for NEO Battery Materials' silicon anodes for high performance lithium-ion batteries](#)
- Jan. 6, 2022 – [NEO Battery Materials Builds NBM Korea R&D Scale-Up Centre in South Korea's Yonsei University](#)

Within the three announcements above the key progress for NEO is the launch of 3 types of silicon (“Si”) anode active materials (NBMSiDE-P100, NBMSiDE-P200, and NBMSiDE-C100), and the fact that NEO is on schedule for semi-commercial scale production of these materials by the end of 2022. Regarding the 3 silicon anode materials NEO [stated](#):

“The three types of products are manufactured through NEO’s proprietary nanocoating technology and are based on metallurgical-grade silicon with purities of at least 99.95%....**NEO’s technology significantly improves the life span and cycling stability compared to conventional metallurgical silicon-based particles.**”

NEO President and CEO, Spencer Huh, [stated](#): “We are very glad to bring the 3 types of silicon anode active prototypes to the market as a result of valuable research and development for the past 7 years. All our business developments are aligned with our plans and strategy, and we have complete confidence in pushing towards the semi-commercial plant facility in South Korea. **NEO is positioning itself as a low-cost, robust Si anode materials supplier for electric vehicle lithium-ion batteries, and we are set to provide long-term value for all stakeholders.**”

Note: Bold emphasis by the author.

The Company also [stated](#): “NEO is expediting the process of developing its 100% pure silicon anode based on CNT (carbon nanotube) conductive additives and new robust binder technologies, and is currently conducting research and progressing commercialization projects regarding the graphite/silicon composite anode through active collaboration with companies that have signed NDAs.....Our process that effectively reduces the cost of Si anode production will act as a stark point of differentiation compared to existing and potential competitors.”

Also of significance is that [NEO has established and built its R&D Scale-Up Centre](#) at the Yonsei University of South Korea through NEO Battery Materials Korea Co., Ltd., a wholly-owned subsidiary of the Company. NEO believes that this R&D center “could speed up further development of additional NBMSiDE

pipelines of silicon anode active materials.”

Closing remarks

NEO is at the leading edge in developing lower cost silicon anode active materials and recently launched 3 new silicon anode materials products with [another 2](#) to follow soon. Usually, once product samples are released it often leads to off-take agreements. Planned semi-commercial scale production of these materials by the end of 2022 offers a strong potential catalyst for investors.

NEO Battery Materials trades on market cap of [C\\$34 million](#) and is definitely a stock to watch closely in 2022.