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

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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.

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

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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.