

Nano One Materials Corp. (TSXV:NNO)

Cathode Manufacturer: A Unique Way to Invest in Battery Metals and the Electric Vehicle Movement

Company Description

Nano One Materials Corp. ("Nano One") is developing advanced, low-cost technology for the manufacturing of cathode materials for lithium-ion rechargeable batteries. The cathode market is projected to be US\$10B by 2025, which includes electric vehicles (EV), consumer products and energy storage systems (ESS). The Company's core proprietary technology employs a three-stage process using low-cost raw materials sources (such as lithium, cobalt, nickel) in solution, before driers and kilns finish the reaction. Nano One anticipates its methodology could reduce the cost of equipment and operation while increasing the performance of cathode materials for the full range of battery applications. Importantly, the Company's process, using novel coatings & additives, cause increased durability whereby lithium structures form in hours, rather than days. To simulate full-scale production of cathode materials, with notable financial assistance from the Government of Canada (~\$4.2M in grants in 2016), Nano One completed construction of a pilot plant in May 2017. The Company now plans to add end-user partners in 2018. Nano One also continues to build a portfolio of patents related to cathode materials and lithium-ion batteries. To-date, five patents have been granted and over 30 are pending worldwide.

Investment Highlights

- On January 29, 2018, Nano One announced a working partnership with a Tier 1 automotive supplier. To advance the solid-state lithium-ion battery effort, the Company anticipates the unnamed supplier to assist development of its lithium nickel manganese cobalt oxide (LNMC) cathode materials and fast-charging cobalt-free high-voltage spinel also known as lithium nickel manganese oxide (LNMO). Both have already been successfully piloted, with nickel content ranging from 25% to 60%. The pilot tests were done at ~100x lab scale. For reference, NMC cathode materials are commercially available in Ni:Mn:Co ratios of 1:1:1 and 6:2:2. The EV market is pushing for even higher Ni content as it will increase the capacity of NMC lithium-ion batteries and reduce Co content, but these materials are less stable and less durable. Nano One has developed process related innovations that improve stability and durability of these high nickel low cobalt materials and anticipates increasing attention and demand from the EV space.
- Engineering plans are in the works to build a modular 3,300 ton/year cathode production unit. The Company anticipates this could supply ~24,000 60kWh electric vehicle batteries. UBS reports estimates todays cost of a battery at \$205/kWh and anticipates the cost to fall to \$130/kWh by 2025. This reduction in cost should, in turn, make EVs more affordable, thus increasing demand for lower-cost, high-performance batteries employing Nano One's products.

Financial Analysis

• **Cashed up for the near-term.** In August 2017, Nano One completed a \$4.3M private placement at \$1.00/unit. Each unit includes a two-year half warrant with a \$1.25 strike price. Proceeds were used towards technology, corporate development, and working capital.

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Price Performance



Market Data (TSXV:NNO)	
Price (February 22, 2018)	\$2.04
52 Week Range	\$0.63 - \$2.64
Market Cap (M)	\$133.7
Current Shares Outstanding (basic, M	f) 64.6
Current Shares Outstanding (fully dil	uted, M) 70.9
Free Float	93%
Average Daily Volume (3 months)	213K
Total Debt (M)	\$0.0
Last Reported Cash (M)	\$5.1
Total Assets (M)	\$6.9
Headquarters B	urnaby, BC, Canada
Management	
Paul Matysek	Chairman
Dan Dlandal	CEO

I auf Watysek	Channan
Dan Blondal	CEO
John Lando	President
Dr. Stephen Campbell	Principal Scientist
Dr. Joe Guy	IP Advisor & Director
Joe Lowry	Strategic Advisor
Dr. Byron Gates	Chemistry Advisor

All figures in CAD unless otherwise stated. Source: Company Reports, Thomson Reuters

Figure 1: Demonstration Pilot Plant



Source: Company Reports



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