

Electra's Study on Integrated EV Battery Materials Facility in Ontario Demonstrates Compelling Economics

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-Provides path to growing nickel refining capacity in North America-

TORONTO, Sept. 8, 2022 - [Electra Battery Materials Corp.](#) (NASDAQ: ELBM) (TSXV: ELBM) ("Electra") today released highlights of a scoping study prepared by a global engineering firm supporting the creation of an integrated electric vehicle battery materials park in Ontario that would include nickel, cobalt and manganese refining, recycling of battery black mass material, and precursor cathode active material (pCAM) manufacturing.

The scoping study assessed the economics and carbon footprint of various nickel feed options to develop an integrated facility producing 10,000 tonnes per annum of battery grade nickel sulfate and nickel equivalent pCAM, components essential to production of electric vehicle batteries. All amounts are in U.S. currency unless otherwise noted.

"With U.S. electric vehicle manufacturers moving swiftly to reduce reliance on Chinese and Russian critical minerals in order to qualify for the \$7,500 EV credit under the Inflation Reduction Act, Electra is capitalizing on the opportunity to provide secure domestic supply of EV battery materials," said Trent Mell, CEO of Electra Battery Materials. "The scoping study supports our view that an integrated refining-recycling-pCAM battery materials complex in Ontario would deliver compelling economics, emit low carbon emissions and address the onshoring of battery materials needed by the North American automotive industry."

Mr. Mell added, "Backed by compelling project economics, we are now proceeding with an engineering prefeasibility study to narrow our focus on feed sources and devise a multi-phased approach to growing nickel refining capacity in North America."

Scoping Study Highlights and Project Economics

- The scoping study examined the construction of a battery grade nickel sulfate refinery in Ontario by 2025-26, with three feed base loads: nickel sulfides, Class 1 nickel metal and ferro nickel, supplemented with recycled battery black mass and nickel-rich mixed hydroxide precipitate (MHP).
- Capital costs to build an integrated facility producing 10,000 tonnes per annum of nickel sulfate and nickel equivalent pCAM materials are anticipated to be between \$550 and \$650 million.
- Operating costs to produce 10,000 tonnes per annum of nickel sulfate and nickel equivalent pCAM materials on an integrated basis are anticipated to be between \$125 and \$133 million per year or between \$13,000 and \$13,600 per tonne of nickel sulfate produced (excluding byproduct credits), configured for NMC 811 EV battery chemistries.
- The integrated production facility is expected to contribute \$225 million of GDP impact during the construction phase, including \$112 million of salaries and \$35 million of taxes plus an additional \$415 million during the first 10 years of operations, including \$111 million of salaries and \$78 million of taxes.
- The integrated facility will utilize a hydrometallurgical flowsheet and leverage Electra's emerging expertise and permitted refining complex.
- 10,000 tonnes of per annum production of battery grade nickel sulfate and nickel equivalent pCAM could support domestic manufacturing of up to 250,000 fully electric vehicles per year.
- China refineries account for approximately 75% of battery grade nickel sulfate today.

"The benefits of an integrated recycling, refining, and pCAM facility identified by the scoping study provide a significant opportunity for Electra to further leverage its Ontario refinery location and assets," said Electra's VP of Engineering, Dave Marshall. "By using a phased approach towards project development and exploring collaboration opportunities for manganese and pCAM production, we will now look towards reducing capital and operating costs as we launch our engineering prefeasibility study."

Superior ESG Metrics

- Total Scope 1 and Scope 2 greenhouse emissions producing 10,000 tonnes per annum of nickel sulfate and pCAM materials configured for NMC 811 battery chemistries would range from 14,000 and 16,000 of tCO_{2e} per year.
- The scoping study estimates that an NMC 811 battery using materials produced at Electra's integrated facility would be up to 60% less carbon intensive than benchmark values.
- The low carbon footprint is due to Electra's hydrometallurgical process, that is less energy intensive, and to Ontario's clean electricity grid, from which more than 90% of electricity is generated from zero or low carbon sources.

Scoping Study Background

In addition to the construction of a battery grade nickel sulfate refinery, the scoping study also examined the construction of an integrated pCAM manufacturing facility, which would receive nickel, cobalt and manganese in solution, thereby eliminating the capital and operating costs associated with refined product crystallization and handling. Electra has had discussions with several pCAM manufacturers and envisions that precursor production would be done by an existing producer seeking to establish a presence in North America.

Commissioning of a nickel sulfate refinery would allow Electra to treat battery black mass through to pCAM and return recycled material back to partner battery cell manufacturers, thereby creating an integrated EV battery supply chain loop.

The scoping study was conducted in partnership with the Government of Canada, the Government of Ontario, Glencore plc and Talon Metals. The consortium is collaborating on engineering, permitting, socio-economic and cost studies associated with the construction of a nickel sulfate plant as well as a pCAM plant adjacent to Electra's cobalt refinery and recycling plant. The realization of this vision will result in the creation of an integrated, localized and environmentally sustainable battery materials park in Ontario for the electric vehicle market.

Electra Battery Materials Park

Electra is pursuing a multi-phased approach to build an integrated battery materials park in Ontario. The first phase consists of commissioning a battery grade cobalt sulfate refinery in the spring of 2023, followed soon after with the commissioning of a battery recycling plant once a demonstration currently slated for the fall of 2022 is successfully completed. The third and fourth phases will consist of developing an integrated nickel sulphate refinery and pCAM manufacturing facility. Manganese refining is also under consideration.

With completion of the scoping study, Electra is now commencing a prefeasibility study to assess a phased approach to nickel refining while lowering initial capital and operating cost estimates. The study, which will be developed in consultation with Electra's upstream and downstream supply chain partners, will be led by Dave Marshall, Vice President of Engineering. Mr. Marshall recently joined Electra following a 29-year career spent with Vale in a number of senior project roles. Mr. Marshall is also overseeing development of Electra's prefeasibility study focused on development of a cobalt refinery in Bécancour, Quebec.

Electra is targeting commercialization of an integrated nickel sulfate refinery and pCAM plant over the next three to four years following completion of requisite prefeasibility and feasibility studies and project construction.

The integrated nickel sulfate and pCAM facility is projected to have a 76,190 square metre footprint, all of which can be built on Electra's 600 acre land package in Temiskaming Shores, Ontario where the company is progressing with the commissioning of its cobalt sulfate refinery.

Key Study Inputs & Assumptions

Commensurate with a scoping study, a number of general and untailed assumptions were used to assess the economics of a potential nickel sulfate refinery constructed and operated in conjunction with Electra's to be completed cobalt refinery in Ontario. As such, the outcomes and economic metrics have a margin of error of +50% / -30%.

Key assumptions affecting the economics presented are; CAD values were converted to USD at 1.31,

forward escalation or contingencies for future construction and operating costs were not considered, by-product values were excluded and sensitivities to changes in key inputs were not performed.

Key construction cost assumptions include, most inputs will be Canadian sourced apart from process equipment where approximately 50% will be sourced in Canada. Construction driven GDP impacts include direct, indirect and induced spending, including labour with more than 2,500 job years generated through the construction phase.

Operating assumptions assume more than 65% of costs are derived from reagents and consumables and more than \$16 million annually in labour costs. Operational driven GDP impacts also include direct, indirect and induced spending.

Electra cautions that the study does not constitute a scoping study within the definition employed by the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM"), as it relates to a standalone industrial project and does not concern a mineral project of Electra. As a result, disclosure standards prescribed by National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101") are not applicable to the scientific and technical disclosure in the study. Any references to scoping study, prefeasibility study or feasibility study by Electra, in relation to the refinery development, are not the same as terms defined by the CIM Definition Standards and used in NI 43-101.

ATM Program Update

Electra is also pleased to report that it has issued a total of 305,600 common shares on the TSX Venture Exchange at an average price of C\$5.7789 per share and 13,877 common shares on the Nasdaq Capital Markets at an average price of \$3.915 during Q2 2022 under its at-the-market equity program launched in January 2022, providing gross proceeds of C\$1,766,033.52 and \$54,328.48, respectively. Commissions of C\$44,150.86 and \$1,358.21 were paid to CIBC World Markets Inc. and CIBC World Markets Corp., respectively, in relation to these distributions.

About Electra Battery Materials

Electra is a processor of low-carbon, ethically-sourced battery materials. Currently commissioning North America's only cobalt sulfate refinery, Electra is executing a multipronged strategy focused on onshoring the electric vehicle supply chain. Keys to its strategy are integrating black mass recycling and nickel sulfate production at Electra's refinery located north of Toronto, advancing Iron Creek, its cobalt-copper exploration-stage project in the Idaho Cobalt Belt, and expanding cobalt sulfate processing into Bécancour, Quebec. For more information visit www.ElectraBMC.com.

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.

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This news release may contain forward-looking statements and forward-looking information (together, "forward-looking statements") within the meaning of applicable securities laws and the United States Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, are forward-looking statements. Generally, forward-looking statements can be identified by the use of terminology such as "plans", "expects", "estimates", "intends", "anticipates", "believes" or variations of such words, or statements that certain actions, events or results "may", "could", "would", "might", "occur" or "be achieved". Forward-looking statements involve risks, uncertainties and other factors that could cause actual results, performance, and opportunities to differ materially from those implied by such forward-looking statements. Factors that could cause actual results to differ materially from these forward-looking statements are set forth in the management discussion and analysis and other disclosures of risk factors for [Electra Battery Materials Corp.](#), filed on SEDAR at www.sedar.com. Although [Electra Battery Materials Corp.](#) believes that the information and assumptions used in preparing the forward-looking statements are reasonable, undue reliance should not be placed on these statements, which only apply as of the date of this news release, and no assurance can be given that such events will occur in the disclosed time frames or at all. Except where required by applicable law, [Electra Battery Materials Corp.](#) disclaims any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

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