NEO Battery Demonstrates Step-Change Performance in Drone Batteries with Over 50% Capacity Improvement Versus Commercial Batteries

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- Achieves Over 50% Capacity & 40% Energy Density Improvement Versus Widely Deployed Commercial Drone Batteries at Identical Cell Size and Dimensions
- Demonstrates Competitive Performance & Quality Against Incumbent Mass-Manufactured Chinese Drone Batteries, Addressing Critical Supply Chain Concentration & Security Concerns
- Preparing for Live Surveillance Drone Field Test in Early February for Performance Evaluation of Extended Flight Duration
- Positions NEO as Differentiated Non-Chinese Battery Supplier for Drone, UAS, and Mission-Critical Electronics Markets

NEO Battery Materials Ltd. ("NEO" or the "Company") (TSXV: NBM) (OTC: NBMFF), a low-cost, silicon-enhanced battery developer that enables longer-running, rapid-charging batteries for drones, robotics, and electronics, today announced a significant technological milestone: the successful development and manufacturing of its first high-performance battery cells designed for drone applications (the "NBM Drone Cell"), delivering over 50% more capacity and 40% greater energy density compared to current commercial drone battery cells.

The newly developed NBM Drone Cell, intended for reconnaissance and surveillance applications, achieves an average discharge capacity of 34.2 amp-hours (Ah) and energy density of approximately 300 watt-hours-per-kilogram (Wh/kg), compared to 22.0 Ah and 214 Wh/kg in widely deployed commercial drone cells manufactured in China. This performance improvement was achieved without altering the physical size or dimensions of the cell, addressing a fundamental constraint in drone and unmanned aerial system (UAS) platforms where battery dimensions are fixed by airframe and design. These advancements are expected to translate into tangible benefits for end customers, including prolonged flight time, widened mission operability, and expanded payload capacity.

"This achievement represents both a technological and strategic milestone that demonstrates NEO's capability to compete directly with incumbent Chinese drone battery cells in both performance and quality," expressed Mr. Spencer Huh, President & CEO of NEO. "We will leverage our engineering expertise and execution capabilities to actively penetrate the Western and North American markets where customized, non-Chinese battery cell supply is practically non-existent for drones, UAS, and electronics."

Strategic Benchmarking & Targeted Drone Battery Development

The development program was initiated following a comprehensive teardown evaluation of Chinese-manufactured drone battery cells currently integrated in operational surveillance systems. These cells represent the prevailing industry benchmark, given China's dominant market share in global drone battery cell supply. This benchmarking process enabled NEO to assess cell architecture, materials selection, and performance characteristics, forming the technical foundation for a targeted redesign.

Using insights from analysis, NEO engineered a new cell architecture optimized for higher energy density while maintaining compatibility with existing drone and UAS platforms. A total of 48 prototype cells were manufactured and evaluated to validate performance consistency and repeatability across the sample set. Internal testing demonstrated that the NBM Drone Cells consistently exceeded the capacity and energy density of Chinese-sourced benchmark cells, supporting the effectiveness of the underlying design and manufacturing quality.

NEO advanced the program from initial analysis through prototype manufacturing and testing within a compressed 2-month development timeline. Following successful cell-level validation, NEO has proceeded to battery pack assembly in collaboration with a pack manufacturing partner in South Korea. The Company plans to conduct a live field test in early February, installing finished NBM Drone Cell packs into a commercial surveillance drone platform to evaluate performance under real-world operating conditions.

Mr. Seok Joung Youn, Head of Facility Operations and Manufacturing of NEO, commented, "Chinese-sourced battery cells currently represent nearly all global supply for drone and UAS platforms. Our demonstrated ability to materially improve performance at fixed battery sizes provides a compelling opportunity for customers seeking supply diversification, extended operational range, enhanced mission flexibility, and increased payload capacity without requiring system-level redesigns. NEO's battery customization and optimization capabilities can be applied across a range of drone platforms and any battery-powered electronics systems."

This performance milestone builds on NEO's recent progress with OEM purchase orders, commercial-scale manufacturing for OEM pilot products, and official vendor onboarding activities. The Company views the drone and UAS segment as an early commercial entry point and strategic target market where performance, customization, and supply security are decisive purchasing criteria.

About NEO Battery Materials Ltd.

NEO Battery Materials is a Canadian battery technology company focused on developing and producing silicon-enhanced lithium-ion batteries in drones, unmanned aerial vehicles (UAV), robotics, unmanned systems, electronics, electric vehicles, and energy storage systems for AI data centers. With a patent-protected, low-cost manufacturing process, NEO Battery enables longer-running and ultra-fast charging batteries and provides end-to-end battery solutions from materials selection, cell architecture, and process optimization. The Company aims to be a globally-leading producer of high-performance lithium-ion battery components and materials, building a secure, robust battery supply chain in North America. For more information, please visit the Company's website at: https://www.neobatterymaterials.com/.

On Behalf of the Board of Directors
Spencer Huh
Director, President, and CEO

This news release includes certain forward-looking statements as well as management's objectives, strategies, beliefs and intentions. All information contained herein that is not clearly historical in nature may constitute forward-looking information. Generally, such forward-looking information can be identified notably by the use of forward-looking terminology such as "plans", "expects" or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur" or "be achieved". Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including but not limited to: volatile stock prices; the general global markets and economic conditions; the possibility of write-downs and impairments; the risk associated with the research and development of battery-related technologies; the risk associated with the effectiveness and feasibility of battery material, electrode, and cell technologies that have not yet been tested or proven on commercial scale or under real-world operating conditions; the risks associated with battery-related manufacturing process scale-up, including maintaining consistent material, component, and cell quality, production yields, and process reproducibility at a pilot, semi-commercial, or commercial scale; the risks associated with compatibility of existing battery chemistries, formulations, components, or designs; unforeseen risks associated with entering into and maintaining collaborations, joint ventures, partnerships, or commercial contracts with battery cell manufacturers, original equipment manufacturers, and various companies in the global battery and downstream end-user supply chain; the risks associated with the failure to develop and produce commercially viable battery-related products or that technical goals may not be achieved within expected timelines or budgets under a joint development or collaboration; the risks associated with the Company's technologies and products not meeting performance requirements or customer specifications; the risks that prototype and pilot-scale products do not advance into commercially produced products or translate into commercial orders; the risk associated with battery components and cell purchase orders and offtake supply that may not be fulfilled in full, on time, or at all as actual revenue realization depends on delivery schedules, achievement of technical milestones, and customer acceptance

and validation; the risk associated with losing official vendor registration or status with existing customers; counterparty risk upon delivery of prototype and commercial products; the risks associated with constructing, completing, securing, and financing pilot, semi-commercial, and commercial battery materials, components, and cell manufacturing facilities including the Canadian and South Korean facilities; the risks associated with potential delays or increased costs with site preparation, equipment procurement and installation, and facility commissioning; the risks associated with integrating silicon anode material production, electrode manufacturing, and cell assembly within a single operational cluster or the Company's business portfolio; the risks associated with supply chain disruptions or cost fluctuations in raw materials, processing chemicals, and additive prices, impacting production costs and commercial viability; the risks associated with uninsurable risks arising during the course of research, development and production; competition faced by the Company in securing experienced personnel, contracts and sales, and financing; access to adequate infrastructure and resources to support battery materials, components, and cell research and development activities; the risks associated with changes in the technology regulatory regime governing the Company; the risks associated with the timely execution of the Company's strategies and business plans; the risks associated with the lithium-ion battery industry and end-users' demand and adoption of the Company's silicon anode technology and battery products; market adoption and integration challenges, including the difficulty of incorporating silicon anodes and silicon battery products within battery manufacturers and OEMs' systems; the risks associated with the various environmental and political regulations the Company is subject to; risks related to regulatory and permitting delays; the reliance on key personnel; liquidity risks; the risk of litigation; risk management; and other risk factors as identified in the Company's recent Financial Statements and MD&A and in recent securities filings for the Company which are available on www.sedarplus.ca. Forward-looking information is based on assumptions management believes to be reasonable at the time such statements are made, including but not limited to, continued R&D and commercialization activities, no material adverse change in precursor, raw material, equipment, and relevant cost prices, development and commercialization plans to proceed in accordance with plans and such plans to achieve their stated expected outcomes, receipt of required regulatory approvals, and such other assumptions and factors as set out herein. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in the forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such forward-looking information. Such forward-looking information has been provided for the purpose of assisting investors in understanding the Company's business, operations, research and development, and commercialization plans and may not be appropriate for other purposes. Accordingly, readers should not place undue reliance on forward-looking information. Forward-looking information is made as of the date of this presentation, and the Company does not undertake to update such forward-looking information except in accordance with applicable securities laws.

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Contact
For Investor Relations, PR & More Information: info@neobatterymaterials.com, T: +1 (437) 451-7678.