LEADING EDGE MATERIALS CORP.

1305 – 1090 West Georgia Street, Vancouver, BC, V6E 3V7
info@leadingedgematerials.com | www.leadingedgematerials.com
TSX.V: LEM | Nasdaq First North: LEMSE | OTCQB: LEMIF

NEWS RELEASE June 09, 2021

LEADING EDGE MATERIALS ANNOUNCES POSITIVE PRELIMINARY ECONOMIC ASSESSMENT RESULTS FOR ITS WOXNA GRAPHITE ANODE PROJECT WITH US$317M PRE-TAX NPV AND 42.9% PRE-TAX IRR

Vancouver, June 09, 2021 – Leading Edge Materials Corp. ("**Leading Edge Materials**" or the "**Company**") (**TSXV: LEM**) (**Nasdaq First North: LEMSE**) (**OTCQB: LEMIF**) is pleased to announce the results of a Preliminary Economic Assessment ("PEA" or the "Report") for the development of its 100%-owned Woxna Graphite mine and vertically integrated anode material production located in Sweden ("Woxna" or the "Project"). The PEA was prepared by Zenito Limited. All figures in the PEA are US dollars unless otherwise specified.

Main PEA Highlights

- The PEA indicates the potential viability of a Swedish operation producing battery grade graphite anode material utilizing an existing graphite mine and concentrator with the addition of a value-add processing facility offsite;
- The proposed process route in the PEA uses a thermal purification process which, combined with access to low cost hydropower offers a low carbon footprint for the Project to be further demonstrated in an upcoming life cycle assessment (LCA) report. The PEA also focused on improved waste management process for tailings further improving the sustainability ambitions of the Project;
- The Report shows a financially robust Project with average annual EBITDA of $49m and a pre-tax Internal Rate of Return (IRR) of 42.9%;
- The PEA utilizes one out of four deposits currently owned by Woxna under granted exploitation concessions, where two of the other deposits also have indicated and inferred mineral resource estimates offering potential upside for further expansion in future development or studies;

Project Financial Highlights

- Pre-tax Net Present Value (NPV) of $317m using an 8% discount rate
- Pre-tax IRR of 42.9%
- Accumulated project revenues of $1,425m
- Average annual EBITDA of $49m
- Initial Capital Expenditures (CAPEX) of $121m

- Pre-tax Payback Period from first production of 2.24 years
- Operating cost per tonne of coated spherical purified graphite (CSPG) of $2,519 after revenue credit from micronized graphite product

Operational Highlights

- Life of Project (LOP) is 19 years
- Life of Mine (LOM) is 15 years
- LOM average annual plant feed of 159,967 tonnes
- LOM average annual CSPG product 7,435 tonnes
- LOM average annual micronized graphite product 8,421 tonnes
- LOM average strip ratio of 3.7:1

Filip Kozlowski, CEO of Leading Edge Materials states "*I am pleased to share the exciting results from the PEA for our vertically integrated Woxna Graphite mine to anode material project. With forecast post tax IRR of 37.6% the project could potentially deliver a great financial opportunity whilst enabling Europe to reduce reliance on Chinese imports, which currently dominates 100% of the processing of natural flake graphite for lithium-ion battery anode applications. The PEA demonstrates the competitive advantage of the project's Swedish location, with access to hydropower the planned production is not only shown to be potentially cost competitive with current global alternatives but also enables a minimal carbon footprint for our products. This is expected to be born-out in the previously announced planned LCA report where independent consultancy Minviro Ltd. will use the data from the PEA to calculate the environmental impact of the project.*"

Location and Infrastructure

The Woxna Graphite project is located near the town of Edsbyn in Ovanåker Municipality, Gävleborg County, in the Kingdom of Sweden approximately 300 km northwest of the capital Stockholm. Woxna holds four separate deposits under exploitation concessions with additional surrounding exploration licenses. The Kringel deposit has already been developed as an existing mine with a partially exploited open pit and is the only deposit used as a basis for the Project in the PEA. A modernized processing plant, tailings storage facility (TSF), office and workshop buildings exist adjacent to the Kringel resource, are fully connected with power and water services, and are currently under care and maintenance. Regional access from all major cities and ports to Edsbyn is by sealed road and the last local access to the Kringel concession is via unsealed all-weather forestry roads.

Geology and Mineral Resource Estimate

The mineralization found within the four Woxna Graphite deposits comprise of metasomatically/hydrothermally formed graphite in association with prominent pegmatitic intrusions into steeply-dipping calcareous quartz-rich meta-tuff, with interbedded metasedimentary material. The Kringel concession's tabular mineralization

extends to at least 150 m below surface with an average overburden thickness of 3.5 m and over an approximate strike length of 600 m.

Systematic exploration took place from 1985 onwards initially only using geophysics and later diamond drilling with current combined historical data for a total number of 92 drillholes for a total length of 6,581 m.

All of the mineral resource estimates were prepared in accordance with the NI43-101 Standards of disclosure and the classification of levels of confidence are considered appropriate on the basis of drillhole spacing, sample interval, geological interpretation, and all currently available assay data. Drillhole data for the concessions were verified by ReedLeyton for the mineral resource estimate in the PEA.

Mineral Resource Estimate – Measured and Indicated

Property	Classification of Mineral Resource	Tonnes (Mt)	Grade C (%)
Kringel	Measured	0.96	9.21
	Indicated	1.65	9.09
	Sub-total Measured + Indicated	2.61	9.13
Gropabo	Indicated	2.33	7.72
Mattsmyra		5.83	7.14
Total	Measured + Indicated	10.77	7.75

Mineral Resource Estimate – Inferred

Property	Classification of Mineral Resource	Tonnes (Mt)	Grade C (%)
Kringel	Inferred	0.39	8.72
Gropabo		0.61	8.07
Mattsmyra		1.51	8.06
Total	Inferred	2.51	8.16

Source: ReedLeyton 2021

Notes:

- Inconsistencies in totals are due to rounding;
- 4% Cg mill cut-off grade applied for reporting purposes constrained within the MPlan 2021 pitshell;
- Reported according to CIM Definition Standards 2011;
- Reported according to CIM Mineral Exploration Best Practice Guidelines (Nov 2018);
- No geological losses applied;
- Default Density of 2.7 t/m^3 applied to in situ, then Density of 2.82 t/m^3 applied to Type A Graphite and Density of 2.86 t/m^3 applied to Type B Graphite for Gropabo and Mattsmyra; and Default Density for Kringel remained at 2.7 t/m3;
- The previous Mineral Resource Estimates for the Project were developed without the constraint of an applied mine plan and open-pit shell. In the light of more rigorous compliance requirements, the Mineral Resources were reported by ReedLeyton within the constraints of the PEA mine plan as a means of demonstrating “reasonable prospects for economic extraction” as required by numerous international reporting codes. No new exploration data was included in the reporting process;
- Effective date of Mineral Resource Estimate is June 9, 2021; and
- Mineral resources are not mineral reserves and do not have demonstrated economic viability;

The preliminary economic assessment is preliminary in nature, it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

The economic analysis in the PEA only considers the Kringel deposit for which a new Mineral Resource Estimate has been disclosed within a constraining optimised open pit-shell at 2.61 million tonnes Measured + Indicated Mineral Resources at a grade of 9.13% and 0.39 million tonnes Inferred Mineral Resources at 8.72%.

It is the opinion of ReedLeyton that these Mineral Resource estimates for Kringel, Mattsmyra and Gropabo satisfy the definitions Measured, Indicated and Inferred Mineral Resources as per the CIM Definition Standards. The estimate for the Mansberg deposit remains historical in nature and may be superseded when additional exploration and verification has been undertaken.

Property	Classification of Mineral Resource	Tonnes (Mt)	Grade C (%)
Mansberg	Historical	1.35	9.44

Source: ReedLeyton 2021

Mining

Conventional open-pit drill and blast combined with trucks and shovel mining methods have been selected to be operated by a local specialist mining contractor, to maximise the operational efficiency, provide flexibility, and potentially lower investment risk to the project.

The processing schedule assumes LOM 159,967 tonnes of Type A graphite (average LOM grade of 10.2%) annual mill feed starting from Year 1 until Year 16 after which the lower grade stockpiled Type B graphite is then fed into the mill. The production plan for the process plant continues until Year 19 when the low-grade mill feed from the stockpile is exhausted. In total the LOM production schedule will produce an expected approximately 258,000 tonnes of contained graphite in concentrate. The mine production schedule includes approximately 10% inferred mineral resources over the life of the Project. Inferred Mineral Resources form part of the Potentially Mineable Resource upon which the PEA is based. Inferred Mineral Resources cannot be directly converted into Mineral Reserves and due to their uncertainty of existence it cannot be assumed that any part of an Inferred Mineral Resource will ever be upgraded to a higher Mineral Resource category.

The waste rock storage plan is designed to temporarily store 1.4 Mt of overburden soil material over the life of mine for rehabilitation purposes of backfilling the open pit area. The hard rock waste will amount to 10.1 Mt over the life of mine and may be utilised as construction material for TSF maintenance.

Graphite Processing

In the PEA, the existing processing plant at the Kringel deposit and mine location are planned to be utilized to produce a graphite concentrate product. The PEA includes capital expenditure for minor upgrades of the plant to improve the quality of the concentrate produced. Existing rod mill comminution circuit should be complemented with a new crushing plant, crushed material stockpile and rod mill classifier. Material is then beneficiated in a proven flotation circuit which is to be further upgraded with additional flotation cells, vertical mills, dewatering cyclones and clarifiers to improve on the carbon grade of the final graphite concentrate product.

The upgrade of the processing plant is based on metallurgical testwork commissioned by the Company. The processing plant will receive LOM 159,967 tonnes per annum of mineralized material at an average LOM grade graphite of 10.2%. At an average recovery of 93.8% the LOM output of the processing plant is circa 16,584 tonnes per annum of a graphite concentrate product grading an average 92.3% carbon which is then transported to the value add processing facility for further upgrading.

Value-add Processing

For the purpose of the PEA an existing industrial brownfield site in the town of Edsbyn has been used to evaluate the downstream upgrading of the graphite concentrate to higher value products. The value-add facility receives the graphite concentrate which then is milled, spheronized and classified to a particle size of d50 at 15µm.

The spheronized particles are then thermally treated in high temperature furnaces at 2,600°C which brings the purity up to a minimum of 99.95% C which is the minimum requirement to be suitable for use in lithium-ion battery applications.

Lastly the spherical purified graphite is coated with a carbon material with further thermal treatment to produce a suitable active anode material product suitable for electric vehicle applications.

The milling and spheronization processing step results in a significant amount of the material being rejected as too fine for the active anode material product. The PEA is based on a 45% yield to the active anode material product stream. The rejected fines will be further processed with jet mills to produce a micronized graphite product.

Market overview and price assumptions

Coated Spherical Purified Graphite product

For the purposes of the PEA, a high-level market study of the graphite anode market was commissioned from Benchmark Mineral Intelligence which both provides forecasted demand and supply data and estimated price ranges for the type of anode product that the Project is looking to produce.

In 2020, flake graphite demand was still dominated by the refractory and foundry markets representing a 52% of demand, with the lithium-ion battery market representing 27% of demand. Going forward, most of the increase in demand is expected from the lithium-ion battery markets.

Graphite is the main material used as anodes and is agnostic to the cathode chemistry. Graphite for anodes can either be synthetic or natural where by 2030 natural graphite anodes is expected to represent 49% of the material. Flake graphite demand for lithium-ion batteries is expected to grow from 202,617 tonnes in 2020, to 1,108,448 tonnes in 2025 and 2,896,225 tonnes in 2030. In Europe, announcements have been made for battery factories representing more than 700GWh annual capacity, which requires approximately 700,000 tonnes per year of anode material. Assuming 50% of this is natural graphite based anode material and a 50% spheronization yield, this would equal to an annual demand for natural graphite for the lithium-ion battery industry of 700,000 tonnes in Europe alone.

In 2020, China represented 71% of graphite raw material supply, whilst for spherical graphite supply China's share of world supply was 100%. There are a number of projects globally looking to bring online new supply of graphite raw material. In reality a number of these projects already have or will target to sell their material for further processing in China. With its existing graphite mine and targeted vertically integrated production of CSPG in the European Union, Woxna offers a unique proposition.

There is an increasing focus on the sustainability and environmental footprint of materials for lithium-ion batteries and any material considering entering the European market needs to demonstrate highest sustainability standards. Woxna's thermal purification process and access to hydropower provides a strategic advantage compared with current supply where Environmental, Social, Governance (ESG) standards have been questioned due to reagent intensity and poor waste management.

The market study by Benchmark Mineral Intelligence provides a range of forecasted prices depending on the quality of the CSPG anode material; with low quality material targeting Chinese domestic electric vehicle or non-electric vehicle applications, average quality material targeting tier 1 electric vehicle application and high quality material targeting tier 1 applications in Japan, South Korea, North America and Europe. Over the next decade, the average forecasted prices for the three price qualities are $6,650, $11,000 and $15,350 per tonne. For the purposes of the PEA financial models, a conservative price of $10,000 per tonne has been used for the Woxna CSPG. It should be noted that CSPG is not a product traded on the open market but rather sold on long term contracts with buyers after extensive product qualification and hence Woxna's ability to sell material at these prices will be dependent on successfully producing sample materials to qualify with potential customers and sign the appropriate sales agreements.

Micronized Graphite product

For the micronized graphite product, a leading European graphite expert was commissioned to produce a market report for this product stream. Micronized graphite is a classification of very finely milled graphite powders, normally below 40µm at different carbon grades that have broad industrial applications such as coatings, lubricants, battery materials, conductive additives and insulation materials. The same European graphite expert providing the market information has performed metallurgical testwork providing an understanding of the Woxna graphite's suitability to target these end-markets. The market report gave an estimate of 19,000 tonnes per annum market size for Europe and price ranges for both >12µm and <12µm material of €800-€1200 per tonne and €1400-€2100 respectively. For the financial model of the PEA, a price of $1200 per tonne of

micronized graphite product has been conservatively used. It should be noted that these products are not traded on a market and any sale and pricing of such will depend on the success of Woxna to qualify material with potential customers and negotiate pricing to sell those products.

Project Profitability, Capital and Operating costs

Project profitability

Parameter	Value
Pre-Tax NPV(8%)	$317m
Post-Tax NPV(8%)	$248m
Pre-Tax IRR	42.9%
Post-Tax IRR	37.4%
Accumulated Project Revenues	$1,425m
Accumulated Project EBITDA	$936m
Initial Capital Expenditures (CAPEX)	$121m
Average Annual Revenue	$75m
Average Annual Operating Expenditures (OPEX)	$26m
Average Annual EBITDA	$49m
Pre-Tax Payback Period from first production	2.24 years
Post-Tax Payback Period from first production	2.51 years
USD$/SEK conversion rate	8.40

Pre-tax sensitivities

CSPG price per tonne	$7,000	$8,500	$10,000	$11,500	$13,000
NPV(8%)	$146m	$231m	$317m	$403m	$489m
IRR	25.1%	34.1%	42.9%	51.5%	60.0%

Post-tax sensitivities

CSPG price per tonne	$7,000	$8,500	$10,000	$11,500	$13,000
NPV(8%)	$112m	$180m	$248m	$257m	$384m
IRR	22.5%	30.1%	37.4%	44.5%	51.5%

The project cost estimates are compiled from supporting engineering documents and cost information derived from quotations from equipment suppliers and local service providers, historical cost information sourced from in-house and commercial databases and Woxna Graphite derived data from existing operations. This Project estimate is AACE Class 5 targeting overall accuracy of ±30%.

Initial Capital Expenditures

Direct	
Buildings	$1 689 478
Concrete	$334 952
Control and Instrumentation	$1 022 662
Earthworks	$2 337 400
Electrical	$3 773 693
Mechanical	$69 354 246
Mechanical Installation	$7 880 600
Mining Pre-strip	$2 029 500
Mobile Equipment	$133 390
Piping	$2 110 985
Platework	$581 168
Steelwork	$328 417
Direct Total	**$91 576 492**
Indirect	
Commissioning	$882 143
Construction Facilities	$696 188
Contingency	$17 441 918
EPCM	$5 000 000
Owners Cost	$654 890
Indirect Total	**$24 675 140**
Working	
Inventory	$4 858 455
Working Total	**$4 858 455**
Initial Grand Total	**$121 110 086**

Average Annual Operating costs

	Total	**General and Mining**	**Graphite Processing**	**Value-add Processing**
General & Administration	$433 083	$433 083		
Mining costs	$3 731 931	$3 731 931		
Labour	$4 874 249		$2 827 670	$2 046 579
Maintenance & Spares	$4 090 514		$893 200	$3 197 314
Mobile Equipment	$139 266		$106 007	$33 259
Reagents	$1 355 796		$85 676	$1 270 120
Utilities	$2 954 716		$809 722	$2 144 995
Consumables	$6 377 409		$174 308	$6 203 100
Sales Costs	$1 650 927			$1 650 927
Total Annual Operating Costs	**$25 607 891**	**$4 165 014**	**$4 896 583**	**$16 546 294**

ESG and permits

Woxna holds four separate deposits under exploitation concessions with additional surrounding exploration licenses. The Kringel deposit is currently the only deposit with an environmental and water permit which enables mining and is the only deposit included as the basis for the project in the PEA. The PEA has assumed a mining rate in excess of current permits to utilize the full capacity of the graphite processing plant. It is therefore planned to initiate an application for a new environmental permit to gain the benefits of the higher rate of production with the associated benefit of the new permit to fall under the current Environmental Act which has superseded the regulatory framework under which current permits are valid.

Waste management has been improved in the PEA design by separating the potentially acid-generating tailings from the non-acid generating tailings, enabling a separated storage of the tailings in the Tailings Management Facility (TMF) with resulting benefits for mine closure.

The inputs and outputs generated as part of the PEA are being used to finalize an LCA report by independent consultancy Minviro Ltd. When released, the LCA report will provide detailed understanding of the impact of the project across various impact categories and in addition benchmark this against other alternative suppliers globally.

Qualified Persons

- ReedLeyton Consulting Limited (ReedLeyton) - an independent firm specialising in estimation of mineral resources commissioned to review, validate, and update the PEA Mineral Resource statements. The ReedLeyton Qualified Person is Geoffrey Reed, B App Sc, MAusIMM (CP), MAIG.
- M.Plan International Limited (MPlan) - an independent firm of engineering consultants commissioned to review and update the PEA mine engineering. The MPlan Qualified Person is Mathieu Gosselin, Eng.
- Golder Associates AB (Golder) - commissioned to review the project environmental scope and review and design of the TSF to accommodate the production from the upgraded Woxna Concentrator and CVAP. The Golder Qualified Person is Henning Holmström, MSc, PhD, MAusIMM, MAIG.
- Zenito Limited (Zenito) - an independent firm of engineering consultants focussed on minerals processing and infrastructure projects, Zenito is engaged as the lead PEA consultant and for the processing and infrastructure. The Zenito Qualified Person is Christopher Stinton, BSc (Hons), CEng MIMMM.

ReedLeyton, MPlan, Golder and Zenito Qualified Persons are all independent as defined by NI 43-101, and have contributed to their corresponding sections of the PEA, and have reviewed and approved the scientific, technical and economic information contained in this news release.

The full details of the PEA will be available in a NI43-101 (*Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects*) compliant technical report, filed and available on the Company's website and SEDAR profile within 45 days of this release.

On behalf of the Board of Directors,
Leading Edge Materials Corp.

Filip Kozlowski, CEO

For further information, please contact the Company at:
info@leadingedgematerials.com
www.leadingedgematerials.com

Follow us
Twitter: https://twitter.com/LeadingEdgeMtls
Linkedin: https://www.linkedin.com/company/leading-edge-materials-corp/

About Leading Edge Materials

Leading Edge Materials is a Canadian public company focused on developing a portfolio of critical raw material projects located in the European Union. Critical raw materials are determined as such by the European Union based on their economic importance and supply risk. They are directly linked to high growth technologies such as batteries for electromobility and energy storage and permanent magnets for electric motors and wind power that underpin the clean energy transition towards climate neutrality. The portfolio of projects includes the 100% owned Woxna Graphite mine (Sweden), Norra Kärr HREE project (Sweden) and the 51% owned Bihor Sud Nickel Cobalt exploration alliance (Romania).

Additional Information

This information is information that Leading Edge Materials Corp. (publ). is obliged to make public pursuant to the EU Market Abuse Regulation. The information was submitted for publication through the agency of the contact person set out above, on June 09, 2021 at 2:15 pm Vancouver time.

Leading Edge Materials is listed on the TSXV under the symbol “LEM”, OTCQB under the symbol “LEMIF” and Nasdaq First North Stockholm under the symbol "LEMSE". Mangold Fondkommission AB is the Company’s Certified Adviser on Nasdaq First North and may be contacted via email CA@mangold.se or by phone +46 (0) 8 5030 1550.

Reader Advisory

This news release may contain statements which constitute “forward-looking information” under applicable Canadian securities laws, including predictions, projections and forecasts. Forward-looking information includes, but are not limited to, statements that address activities, events or developments that the Company expects or anticipates will or may occur in the future, including such things as the results of the PEA, mineral resource estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new deposits, permitting time lines, currency exchange rate fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, timing and possible outcome of pending litigation, title disputes or claims and limitations on insurance coverage and with respect to the results of

the PEA, including future Project opportunities, future operating and capital costs, closure costs, the projected NPV, IRR, timelines, and the ability to obtain the requisite permits, economics and associated returns of the Project, the technical viability of the Project, the market and future price of and demand for graphite, the environmental impact of the Project, and the ongoing ability to work cooperatively with stakeholders, including the local levels of government. as well as plans, intentions, beliefs and current expectations of the Company, its directors, or its officers with respect to the future business activities of the Company.

The words "may", "would", "could", "will", "intend", "plan", "anticipate", "believe", "estimate", "expect" and similar expressions, as they relate to the Company, or its management, are intended to identify such forward-looking information. Investors are cautioned that any such forward-looking information is not a guarantee of future business activities and involves risks and uncertainties, and that the Company's future business activities may differ materially from those in the forward-looking information as a result of various factors, including, but not limited to, success of the appeals process; fluctuations in market prices; successes of the operations of the Company; continued availability of capital and financing; changes in planned work resulting from weather, logistical, technical or other factors; the possibility that results of work will not fulfil expectations and realize the perceived potential of the Project; changes in project parameters as plans continue to be refined; risk of accidents, equipment breakdowns and labour disputes or other unanticipated difficulties or interruptions; the possibility of cost overruns or unanticipated expenses; the risk of environmental contamination or damage resulting from the Company's operations and other risks and uncertainties; the failure of contracted parties to perform; other risks of the mining industry; delays in obtaining governmental approvals or financing or in the completion of exploration and general economic, market or business conditions, as well as those factors disclosed in the Company's publicly filed documents. Although the Company has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking information, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurances that such information will prove accurate and, therefore, readers are advised to rely on their own evaluation of such uncertainties. The Company does not assume any obligation to publicly update or revise any forward-looking information except as required under the applicable securities laws.

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