Critical Raw Materials in Europe
April 2022

TSX.V: LEM
Nasdaq First North: LEMSE
OTCQB: LEMIF
FRA: 7FL
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The Woxna project has never defined a mineral reserve. On June 9, 2021, Leading Edge announced the results of an independent preliminary economic assessment for the development of Woxna (the “2021 Woxna PEA”), the full details of which are included in a technical report entitled “NI 43-101 Technical Report – Woxna Graphite” prepared for Woxna Graphite AB with effective date June 9, 2021 and issue date July 23, 2021, available on Leading Edge's website www.leadingedgematerials.com and under its SEDAR profile www.sedar.ca. The 2021 Woxna PEA 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. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

On July 22, 2021, Leading Edge announced the results of an independent preliminary economic assessment for the development of Norra Kärr (the “2021 Norra Kärr PEA”), the full details of which are included in a technical report titled "PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN" prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021, available on Leading Edge's website www.leadingedgematerials.com and under its SEDAR profile www.sedar.ca. The 2021 Norra Kärr PEA 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. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

This presentation has been prepared by Leading Edge Materials Corp. The scientific, technical and economic information related to the Norra Kärr project has been reviewed and approved by Dr. Rob Bowell of SRK Consulting (UK) Ltd, a chartered chemist of the Royal Society of Chemistry, a chartered geologist of the Geological Society of London, and a Fellow of the Institute of Mining, Metallurgy and Materials, who is an independent Qualified Person under the terms of NI 43-101 for REE deposits. The scientific, technical and economic information related to the Woxna Graphite project has been reviewed and verified by Christopher Stinton of Zenito Limited, BSc (Hons), CEng MIMMM, an independent Qualified Person as defined by NI 43-101.
Strategy and Project Portfolio

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.

**Woxna Graphite (100%)**
- One of few fully-built graphite mines in the western world, ideally located to supply European industry
- Four deposits under mining leases, fully-built processing plant and infrastructure
- Targeting a vertically integrated natural graphite mine to lithium-ion battery anode material production
- 2021 PEA with post-tax Net Present Value (8%) of US$248m, IRR of 37.4% and EBITDA of US$49m*
- Proposed 50/50 JV with Sicona Battery Technologies Pty Ltd for silicon-graphite composite anode materials
- Investigating planned restart of flake graphite production due to significant price increases

**Norra Kärr REE (100%)**
- Significant heavy rare earth deposit with an unusually high enrichment of dysprosium and terbium
- Ideally located to offer a secure and sustainable supply of rare earth oxides to European industry
- Proposed production of nepheline syenite at site and off-site production of rare earth oxides
- 2021 PEA presents post-tax Net Present Value (10%) of US$762m, IRR of 26.3% and EBITDA of US$206m**
- Incorporating newly proposed project design towards mining lease application

**Bihor Sud Ni-Co (51%)**
- Exploration alliance with local JV partner with the potential to move to 90% ownership
- Project located in part of the Tethyan Belt in an area with historic mining activities
- Initial prospecting and sampling indicates potential for high-grade nickel-cobalt mineralizations
- Awaiting final decision on exclusive exploration license tender application

* See National Instrument 43-101 report entitled “NI 43-101 Technical Report – Woxna Graphite” prepared for Woxna Graphite AB with effective date June 9, 2021 and issue date July 23, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.

** See National Instrument 43-101 report titled “PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN” prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.
## Board and Management

**Canadian public company with experienced EU leadership**

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman</td>
<td>Lars-Eric Johansson</td>
<td>Past President &amp; CEO Ivanhoe Mines, CFO Kinross Gold Corporation, CFO Noranda Inc, CFO Falconbridge, Vice President &amp; CFO Boliden Mineral</td>
</tr>
<tr>
<td>Director</td>
<td>Daniel Major</td>
<td>CEO GoviEx Uranium Inc. (TSXV), Past Chief Executive and later Non-Executive Chairman of Basic Element Mining and Resource Division in Russia, Mining analyst HSBC Plc and JPM, Rio Tinto Rossing Uranium Mine</td>
</tr>
<tr>
<td>Director</td>
<td>Eric Krafft</td>
<td>Private investor and largest shareholder, Serves on the boards of numerous private financial holding and ship- owning companies, Director GoviEx Uranium Inc. (TSXV), Past Trafalgar Shipping/Dragon Maritime, Corporate Finance DVB Bank AG</td>
</tr>
<tr>
<td>CEO</td>
<td>Filip Kozlowski</td>
<td>Past Director Leading Edge Materials, Portfolio Manager Macro HF, Investment Manager Family Office, Portfolio Trader Deutsche Bank London</td>
</tr>
<tr>
<td>CEO</td>
<td>Magnus Leijd</td>
<td>CEO and founder SKS Business Services Ltd., Past CFO Mandalay Resources (TSX)</td>
</tr>
<tr>
<td>Director</td>
<td>Sanjay Swarup</td>
<td>Past CFO Mandalay Resources (TSX), Past CFO Noranda Inc, Past CFO Falconbridge, Past CFO Boliden Mineral</td>
</tr>
<tr>
<td>Director</td>
<td>Peter Young</td>
<td>Past CEO and founder SKS Business Services Ltd., Past CFO Mandalay Resources (TSX), Past CFO Noranda Inc, Past CFO Falconbridge, Past CFO Boliden Mineral</td>
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</tbody>
</table>

**Board & Management Ownership**

35% (48%)
Share

- **Tickers:** LEM.V (TSXV), LEMIF (OTCQB), LEMSE (NFN), 7FL (Fra)
- **Quote:** CAD $0.52 / SEK 3.90 (per 21.4.2022)
- **Mkt Cap:** CAD $79m / SEK 603M (non-diluted)

Swedish Ownership: 51% (60%)

Share price and rolling 20-day volume across listings
# Shares, Warrants and Options

## Share Structure

<table>
<thead>
<tr>
<th>Issued and Outstanding as of Jan 26, 2022:</th>
<th>151,645,499</th>
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</thead>
<tbody>
<tr>
<td><strong>Stock Options</strong></td>
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<tr>
<td>Expiring May 30/22</td>
<td>@ 0.225</td>
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<tr>
<td>Expiring Nov 02/22</td>
<td>@ 0.64</td>
</tr>
<tr>
<td>Expiring Aug 11/23</td>
<td>@ 0.155</td>
</tr>
<tr>
<td>Expiring Aug 14/23</td>
<td>@ 0.33</td>
</tr>
<tr>
<td>Expiring Jan 27/25</td>
<td>@ 0.62</td>
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<tr>
<td><strong>Warrants</strong></td>
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<tr>
<td>Expiring Dec 30/2023</td>
<td>@ 0.10</td>
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<tr>
<td>Expiring Aug 7/2024</td>
<td>@ 0.20</td>
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<tr>
<td><strong>Fully Diluted:</strong></td>
<td>209,194,785</td>
</tr>
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</table>

## Insider Ownership

- 0%: 0
- 20%: 0
- 40%: 0
- 60%: 0
- 80%: 0
- 100%: 0

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# Potential proceeds from exercise (CAD)

![Graph showing potential proceeds from exercise (CAD)]
Critical Raw Materials

**Supply Risk**
- EU is dependent on imports of CRMs
- A few single countries dominate the export of CRMs which leave the EU vulnerable for supply disruptions

**Economic Importance**
- CRMs are directly linked to technologies such as batteries and permanent magnets that are critical for growth industries like renewables, energy storage and electromobility
- CRMs enable the transition to a green, digital and autonomous EU
CRMs are key enablers of a green, digital and autonomous EU...

E-mobility and renewables are mineral intensive and built out rapidly...

<table>
<thead>
<tr>
<th>Mineral Intensity</th>
<th>Growth outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric cars</td>
<td>6x more mineral inputs than a conventional car&lt;sup&gt;1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>On- &amp; offshore wind power</td>
<td>9x &amp; 13x more mineral inputs than natural gas&lt;sup&gt;1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>Energy storage</td>
<td>Intensive end-use of graphite, nickel, and cobalt</td>
</tr>
</tbody>
</table>

...and demand for graphite, REE, cobalt and nickel-cobalt grow in tandem<sup>6)</sup>

Global extraction of Critical Raw Materials is concentrated to a few countries, and processing even more so – exposing the EU to significant value chain risk, and in turn, risk of not making the transition to a green, digital, and autonomous economy.

Meanwhile, coated spherical graphite can be produced at Woxna with an 85-90% lower CO₂ impact than market dominant Chinese methods.

"Green and digital technologies currently depend on a number of scarce raw materials. We import lithium for electric cars, platinum to produce clean hydrogen, silicon metal for solar panels. 98% of the rare earth elements we need come from a single supplier: China. This is not sustainable. So we must diversify our supply chains."

- Opening speech by European Commission President von der Leyen at the EU Industry Days 2021
Woxna Graphite Anode project
Flake Graphite Market on the Rise

GLOBAL GRAPHITE PRICES

<table>
<thead>
<tr>
<th></th>
<th>New price</th>
<th>Previous</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite flake 94% C, +100 mesh, fob China, $/tonne</td>
<td>1,010</td>
<td>1,010</td>
<td>0</td>
</tr>
<tr>
<td>Graphite flake 94% C, -100 mesh, fob China, $/tonne</td>
<td>830</td>
<td>830</td>
<td>0</td>
</tr>
<tr>
<td>Graphite flake 94% C, +80 mesh, fob China, $/tonne</td>
<td>1,250</td>
<td>1,250</td>
<td>0</td>
</tr>
<tr>
<td>Graphite flake 94% C, +100 mesh, cif Europe, $/tonne</td>
<td>1,400</td>
<td>1,350</td>
<td>▲3.70</td>
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<td>Graphite flake 94% C, -100 mesh, cif Europe, $/tonne</td>
<td>920</td>
<td>885</td>
<td>▲3.95</td>
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<tr>
<td>Graphite flake 94% C, +80 mesh, cif Europe, $/tonne</td>
<td>1,535</td>
<td>1,490</td>
<td>▲3.02</td>
</tr>
<tr>
<td>Graphite spherical 99.95% C, 15 microns, fob China, $/tonne</td>
<td>3,500-3,800</td>
<td>3,500-3,800</td>
<td>0</td>
</tr>
<tr>
<td>Graphite amorphous 80% C, -200 mesh, fob China, $/tonne</td>
<td>480-560</td>
<td>480-550</td>
<td>▲0.97</td>
</tr>
<tr>
<td>Graphite amorphous 80% C, -200 mesh, FCL, cif Europe, $/tonne</td>
<td>720-835</td>
<td>650-800</td>
<td>▲7.24</td>
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</table>

Adjustment:

<table>
<thead>
<tr>
<th></th>
<th>This quarter's VIU</th>
<th>Previous quarter's VIU</th>
<th>Quarterly Change</th>
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</thead>
<tbody>
<tr>
<td>Carbon VIU in %</td>
<td>2.80</td>
<td>3.90</td>
<td>▼1.10</td>
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<tr>
<td>94% C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95% C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96% C</td>
<td></td>
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</tr>
<tr>
<td>97% C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Fastmarkets
Climate Transition Super Materials
Graphite – Electrifying Net Zero

Focus on Graphite Increasing

Battery Materials
Anode Material Deep Dive: Cut Through the Noise; Graphite to Remain Dominant

Battery Life: In this transition decade, the unwavering need for conventional graphite-based anodes is underappreciated. The perception that replacement technologies are around the corner, and entirely and immediately disruptive is a discomfit from reality. Despite EV mobility looking for secure supply of power materials and reliance on lithium-ion (Li-ion) battery technology, while the volume of battery production is rising. A resulting price demand backward for graphite anode material is this decade, we see an unique opportunity for learned natural graphite/ anode material (CPG), as synthetic graphite alternatives. New graphite-anode projects are in an early stage of development. Beyond the large increase in performance capacity growth plans diversity synthetic foundries, and new entrants will look to break into Western Asia’s supply chains. This environment, we see new opportunities for CPG price rising this decade.

Key Points
- We expect graphite-based anode material to remain dominant in this decade (underpinning robust demand growth 2.4M kWh by 2030, 23% CAGR out to 2050 levels).
- We assume graphite holds underlying competitive mix within battery anode material around 45%/55% in 2025/30’s (vs. 78%/22% current).
- Next-gen battery commercialization at scale (with lithium metal or silicon anodes) is not expected until half of the decade at the earliest, and that is only if remaining lithium can be overcome. Next-gen battery anode materials potentially ready in the coming years: the following, by multi-year value propositions, with key periods including upstream commodity volatility (i.e., world production cost competitive with conventional Li-ion batteries by late at mature scale).

We recommend: For best-exposed natural graphite-based anode material (CPG) to gain incremental mix share within blends with synthetic graphite alternatives as downstream (OEM) lead to lower battery production costs (e.g., Tesla is mimicking natural CPG blends/lithium anode material across the decade (vs. 15%-20% natural/synthetic blends in 2020).

We expect a supportive backdrop for CPG price upside. Graphite massive price discovery is very scarce; we feel confident modeling CPG at 405$/t in 2027/8/9 across the decade. Downstream anode material (anode ingot) annual revenue (US$5.5B). Current graphite synthetic material is above the $5B.

Opportunity for new entrant anode material suppliers to penetrate horizontally conventional and Chinese-dominant supply chains given downstream desire to localize supply to lower carbon footprint and reduce geopolitical risk.

Anode material production is complex adding to overall greenfield development risk. Multi-year anode material qualification programs with the downstream is a key hurdle for new entrants.

Conclusive: We expect low coverage of NMG at Outbursts and NMS at Market Perform.

This report was prepared by an analyst employed by Credit Suisse and does not intend to be used in connection with computer-aided investment research reports. A small investor should be aware that their firm may, have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.
Battery Value Chain Gap

Predicted share of EU supply vs. expected EU demand until 2030 per value chain step

Expected EU Demand in 2030: 900 GWh
Exp. EU Demand in 2025: 400 GWh

Source: Business Sweden, The Nordic Battery Value Chain Step 2, August 2021
Woxna Graphite Overview

- Mine
- Concentrator
- Sizing
- Shaping
- Purification
- Coating

Existing

Planned

Coated Spherical Purified Graphite
European Battery Industry

Woxna Graphite is ideally positioned to become a Swedish supplier to the European battery industry

1,000,000 tpa of anode demand by 2030 based on 1,000 GWh battery production planned in Europe

25x Expected increase in demand for graphite by 2040 (IEA, SDS)

71% – 100% China’s global supply dominance of graphite raw material and spherical graphite (Benchmark Mineral Intelligence)

Transport routes on sealed roads from mine site to various port options

Announced gigafactory plans in Europe

Global raw material imports to China and processed materials exports out of China
Woxna Graphite Anode PEA*

Financial Highlights

- Post-tax Net Present Value (NPV 8%) of $248m
- Post-tax IRR of 37.4%
- Accumulated project revenues of $1,425m
- Average annual EBITDA of $49m
- Initial Capital Expenditures (CAPEX) of $121m

Operational Highlights

- Life of Mine (LOM) is 15 years
- LOM average annual plant feed of 159,967 tonnes
- LOM average annual CSPG product 7,435 tonnes

Mineral Resource Estimate – Measured and Indicated

<table>
<thead>
<tr>
<th>Property</th>
<th>Classification of Mineral Resource</th>
<th>Tonnes (Mt)</th>
<th>Grade C (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kringel</td>
<td>Measured</td>
<td>0.96</td>
<td>9.21</td>
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<tr>
<td></td>
<td>Indicated</td>
<td>1.65</td>
<td>9.09</td>
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<tr>
<td>Gropabo</td>
<td>Sub-total Measured + Indicated</td>
<td>2.61</td>
<td>9.13</td>
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<tr>
<td>Mattsmyra</td>
<td>Indicated</td>
<td>2.33</td>
<td>7.72</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10.77</td>
<td>7.75</td>
</tr>
</tbody>
</table>

Mineral Resource Estimate – Inferred

<table>
<thead>
<tr>
<th>Property</th>
<th>Classification of Mineral Resource</th>
<th>Tonnes (Mt)</th>
<th>Grade C (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kringel</td>
<td>Inferred</td>
<td>0.39</td>
<td>8.72</td>
</tr>
<tr>
<td>Gropabo</td>
<td>Inferred</td>
<td>0.61</td>
<td>8.07</td>
</tr>
<tr>
<td>Mattsmyra</td>
<td>Inferred</td>
<td>1.51</td>
<td>8.06</td>
</tr>
<tr>
<td>Total</td>
<td>Inferred</td>
<td>2.51</td>
<td>8.16</td>
</tr>
</tbody>
</table>

Source: ReedLeyton 2021

Notes: Inconsistencies in totals are due to rounding; 4% Cg mill cut-off grade applied for reporting purposes constrained within the MPPlan 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/m³ applied to in situ; Density of 2.82 t/m³ applied to Type A Graphite and Density of 2.86 t/m³ 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.

* See National Instrument 43-101 report entitled "NI 43-101 Technical Report – Woxna Graphite" prepared for Woxna Graphite AB with effective date June 9, 2021 and issue date July 23, 2021. See Leading Edge Materials Corp.'s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.
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

- Thermal purification process which, combined with access to low cost hydropower offers a low carbon footprint for the Project demonstrated through a recently announced life cycle assessment (LCA) report
- Improved waste management process for tailings further improving the sustainability ambitions of the Project
- 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

* See National Instrument 43-101 report entitled "NI 43-101 Technical Report – Woxna Graphite" prepared for Woxna Graphite AB with effective date June 9, 2021 and issue date July 23, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.
Woxna Graphite LCA Results*

- 1 tonne of natural graphite anode material (coated spherical purified graphite ("CSPG")) from natural graphite extracted at the Woxna Graphite mine is forecast to have an impact of 1.8 tonnes CO2 eq.
- 85% to 90% lower impact than the current market dominant Chinese alternatives.
- Significant factor influencing the dramatically reduced carbon footprint for Woxna Graphite is the access to hydropower as the main electricity source.

- 62.5% of the 1.8 tonnes CO2 eq. for Woxna contributed by argon and nitrogen. Local suppliers can offer climate neutral alternatives which would lead to further improvements in Woxna's footprint.
- The LCA study was conducted according to the requirements of the ISO-10404:2006 and ISO-14044:2006 standards and used a cradle-to-gate approach.

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Proposed 50/50 JV with Sicona*

Targeting the production of advanced natural graphite and silicon–graphite–carbon composite active anode materials

- Sicona is commercialising innovative silicon-graphite-carbon composite anode and binder technology and materials that have been developed over the last ten years at the Australian Institute for Innovative Materials at the University of Wollongong and now owned by Sicona.

- Due to its improved storage capacity, silicon graphite composite anode materials attract higher selling prices. However, due to the higher capacity the cost per capacity unit becomes lower for battery cell manufacturers, driving an increased interest to transition into these materials over the future.

- Proposed Sweden-based advanced anode materials production facility targeting an annual production of up to 20,000 tonnes per year of multiple active anode materials products using Woxna graphite and other complementary suitable feedstocks such as externally sourced silicon and other carbon or graphite materials utilizing Sicona’s significant proprietary IP and know-how.

* For further details, see news release dated October 6, 2021.
Woxna Graphite Mine
Annual potential anode output from Woxna Graphite* could support the production of lithium-ion batteries needed for a significant amount of electric cars.
Rare Earth Elements and permanent magnets

Lanthanide Series

<table>
<thead>
<tr>
<th>Light REEs (LREEs)</th>
<th>Heavy REEs (HREEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 Sc</td>
<td>57 La</td>
</tr>
<tr>
<td>58 Ce</td>
<td>59 Pr</td>
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<td>68 Er</td>
<td>69 Tm</td>
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<tr>
<td>70 Yb</td>
<td>71 Lu</td>
</tr>
<tr>
<td>39 Y</td>
<td></td>
</tr>
</tbody>
</table>

Permanent Magnets

- Electric Vehicles
- Wind Power

Categories

- Battery Alloys
- Catalysts
- Ceramics, Pigments & Glazes
- Glass Polishing Powders & Additives
- Metallurgy and Alloys
- Permanent Magnets
- Phosphors
- Other

By Volume

- 26%
- 35%

By Value

- 91%

Source: Adamas Intelligence
REE Prices Rising

Price history for Neodymium oxide (99.5% FOBChina) ($/kg)

Price history for Yttrium oxide (99.999% FOBChina) ($/kg)

Price history for Terbium oxide (99.99% FOBChina) ($/kg)

Price history for Dysprosium oxide (99.5% FOB China) ($/kg)
Location of Norra Kärr

350km
Norra Kärr Site Overview
Norra Kärr Mineral Resource Statement

Norra Kärr Mineral Resource Statement (SRK, 18 August 2021)*

<table>
<thead>
<tr>
<th>Mineral Resource Classification</th>
<th>Tonnes (Mt)</th>
<th>TREO (%)</th>
<th>ZrO₂ (%)</th>
<th>Nb₂O₅ (%)</th>
<th>Nepheline Syenite (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred</td>
<td>110</td>
<td>0.5</td>
<td>1.7</td>
<td>0.05</td>
<td>65</td>
</tr>
</tbody>
</table>

*Notes:
1. Effective date 18 August 2021.
2. Qualified Person Mr Martin Petrucc MSc C.Eng
3. Mineral Resources are not Mineral Reserves until they have indicated, or Measured confidence and they have modifying factors applied and they have demonstrated economic viability based on a Feasibility Study or Preliminary Feasibility Study.
4. There is no guarantee that Inferred Mineral Resources will convert to a higher confidence category after future work is conducted.
5. The Mineral Resources reported have been constrained using an open pit shell assuming the deposit will be mined using open pit bulk mining methods and above a cut-off grade of USD150/t, including a 30% premium on projected commodity prices and unconstrained by commodity production rates and the 260m highwall buffer zone.
6. The Mineral Resources reported represent estimated contained metal in the ground and has not been adjusted for metallurgical recovery.
7. Total Rare Earth Oxides (TREO) includes: La₂O₃, Ce₂O₃, Pr₂O₃, Nd₂O₃, Sm₂O₃, Eu₂O₃, Gd₂O₃, Tb₂O₃, Dy₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃, Y₂O₃.
8. Heavy Rare Earth Oxides (HREO) include: Eu₂O₃, Gd₂O₃, Tb₂O₃, Dy₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃, Y₂O₃.
9. HREO is 52% of TREO.

Norra Kärr Rare Earth Element Distribution

<table>
<thead>
<tr>
<th>Light REO proportion of Total REO</th>
<th>Heavy REO proportion of Total REO</th>
</tr>
</thead>
<tbody>
<tr>
<td>La₂O₃</td>
<td>Ce₂O₃</td>
</tr>
<tr>
<td>0.100</td>
<td>0.210</td>
</tr>
<tr>
<td>0.48</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Resource REO Distribution

52% HREO

52% HREO

-contained dysprosium

* See National Instrument 43-101 report titled "PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN" prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.'s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.

** August, 6, 2018 – Lynas Corporation Ltd, Reserve update
**Operational Highlights**

- **Life of Mine (LOM) is 26 years**
- **LOM average annual**
  - Mining rate of 1,150,000 tonnes
  - strip ratio of 0.32
  - TREO 5,341 tonnes
  - Magnet REOs (Nd, Pr, Dy, Tb) 1,005 tonnes
    - Dy$_2$O$_3$: 248 tonnes
    - Tb$_2$O$_3$: 36 tonnes
    - Nd$_2$O$_3$: 578 tonnes
    - Pr$_2$O$_3$: 143 tonnes
  - Nepheline Syenite co-product 732,885 tonnes
  - Zirconium dioxide co-product 10,200 tonnes
  - Niobium oxide product 525 tonnes

*See National Instrument 43-101 report titled “PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN” prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.*
Norra Kärr 2021 PEA*

Financial Highlights

- Post-tax Net Present Value (NPV 10%) of $762M
- Post-tax Internal Rate of Return (IRR) of 26.3%
- Accumulated LoM project revenues of $9,962M
- Average annual EBITDA of $206M
- Initial Capital Expenditures (CAPEX) of $487M
  - Split across $165m on-site and $323m off-site
- Pre-tax Payback Period from first production of 5.1 years
- Life of mine average gross basket price per kg of separated mixed REO product at $53

* See National Instrument 43-101 report titled “PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN” prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.
Norra Kärr 2021 PEA*

LoM Unit Operating Cost Economics (USD/kg REO)

Total Operating Cost (excl. toll separation, by-product credit): USD14.27/kg

Total Operating Cost (incl. toll separation, by-product credit): USD14.57/kg

* See National Instrument 43-101 report titled “PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN” prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.
Norra Kärr 2021 PEA* vs 2015 PFS

- More than 50% of total mined material is planned to be sold as products compared with less than 1% in the previously project submitted for permitting
  - Opportunity for further improvement with waste rock for construction material and aegirine for paint pigment or block colouring
- Only mining, crushing, milling and magnetic separation at site.
- Chemical processing moves to a more suitable off-site location
- Waste at site is aegirine, dry stacked in a lined impoundment together with waste rock
- No wet tailings at site
- 80% reduction in land area usage
- 50% reduction in water requirements, and no processing water discharge planned

* See National Instrument 43-101 report titled “PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN” prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.’s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized.
Off-site Chemical Plant Localization

- Luleå chosen conceptually due to vicinity of sulphuric acid production, brownfield industrial areas and logistics
- Access to low cost low carbon footprint hydropower
- 900 kilometers by train
- Other locations in Sweden, or neighbouring countries will be evaluated
Comparison of dysprosium production from different resources by life cycle assessment

Fig. 3. Normalised impacts of process chains in person equivalents per kg Dy with deviation. Source: Zapp, 2018
Radionuclide Content

Data for peer projects is management's estimates based on publicly available data. Leading Edge Materials Corp. does not guarantee the exact accuracy of these estimates.
Sweden’s Power Advantage

Energy price index

CO₂ Emission index

Source: NodePole
Social License of Norra Kärr

2009
• Exploration license granted

2012
• Scoping study released

2013
• Mining lease granted with support by Mining Inspectorate and County Administrative board

2014
• Mining Lease upheld by Government

2015
• Pre-Feasibility study released

2016
• Mining Lease reverted to application by Supreme Administrative Court

2019
• County Administrative Board demands N2000 permit prior to mining lease granting

2020
• Exploration license extended to 2025

2021
• Mining Inspectorate rejects mining lease application due to no N2000 permit

2021
• Parliament majority votes for government to propose legislation that N2000 permit should be a pre-requisite for mining lease

2021
• Appealed to Government

2021
New Scoping Study released focussed on maximizing resource efficiency and minimizing local footprint of project which will drive permitting forward.
Annual potential output from Norra Kärr* could support the production of NdFeB permanent magnets needed for a significant amount of electric cars.

<table>
<thead>
<tr>
<th>Element</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nd (Neodymium)</td>
<td>1,200,000</td>
</tr>
<tr>
<td>Pr (Praseodymium)</td>
<td>1,900,000</td>
</tr>
</tbody>
</table>

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* Management estimate calculations based on publicly available data and product output numbers from National Instrument 43-101 report titled "PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN" prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.'s SEDAR profile on www.sedar.ca or www.leadingedgematerials.com for report and more information. The PEA 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 PEA will be realized. Image source: Polestar.
Bihor Sud Exploration Project
Bihor Sud Nickel–Cobalt Project

Overview

- JV from 2018 with 51% ownership with potential to move to 90%. Local JV partner operates a Dolomite mine in the area offering shared resources and local knowledge.
- Located in the upper Cretaceous megalogenic belt, part of the Tethyan Belt in a historic mining area with a number of historic mines, one being a significant uranium mine.
- Initial prospecting campaign and sampling from past mine workings indicates potential for high grade nickel–cobalt mineralizations.

Opportunity

- Bihor Sud is relatively isolated site whilst the road and power network is well developed due to prior mining and forestry. No permanent residences lie within 5km of the Exploration License boundary.
- Awaiting final ruling from court on tender process for exclusive exploration license for the Bihor Sud perimeter which would launch prepared exploration program.
- Romania is a historic mining country but nowadays one of Europe’s poorest countries which should attract interest from strategic investors.
Current and Future Focus
Current and Future Focus

**Woxna Anode project**
- Working with equipment suppliers for bulk samples of anode precursor material
- Natural graphite and graphite-composite anode material qualifications together with Sicona for binding JV discussions
- Localization studies for anode material plant in Sweden
- Investigating restart of flake graphite production

**Norra Kärr HREE project**
- Incorporating new plan for the project into mining lease application
- Magnetic separation beneficiation testwork to produce representative material bulk samples
- Product development for nepheline syenite, aegirine and waste rock

**Romania project**
- Waiting for exclusive exploration license tender to finalize

**Corporate and Financial**
- Internally funded through options and warrants that are in the money for planned development initiatives over next 12-18 months
- Increasing investor awareness, with added focus on Germany due to importance of projects for German industry
- Engaging with EU industrial alliances to support the establishment of secure and sustainable EU value chains, and enabling access to future public funding instruments

**Future**
- Woxna Anode project
  - Incorporated JV with Sicona
  - 500 tpa anode material demonstration plant and customer qualification trials
- Norra Kärr HREE project
  - Commercialization of industrial mineral products
  - Hydrometallurgical pilot plant
  - Separation capability development
- Romania project
  - Exploration programme