



**LEADING EDGE  
MATERIALS**

# Emerging Supplier of Critical Raw Materials in Europe

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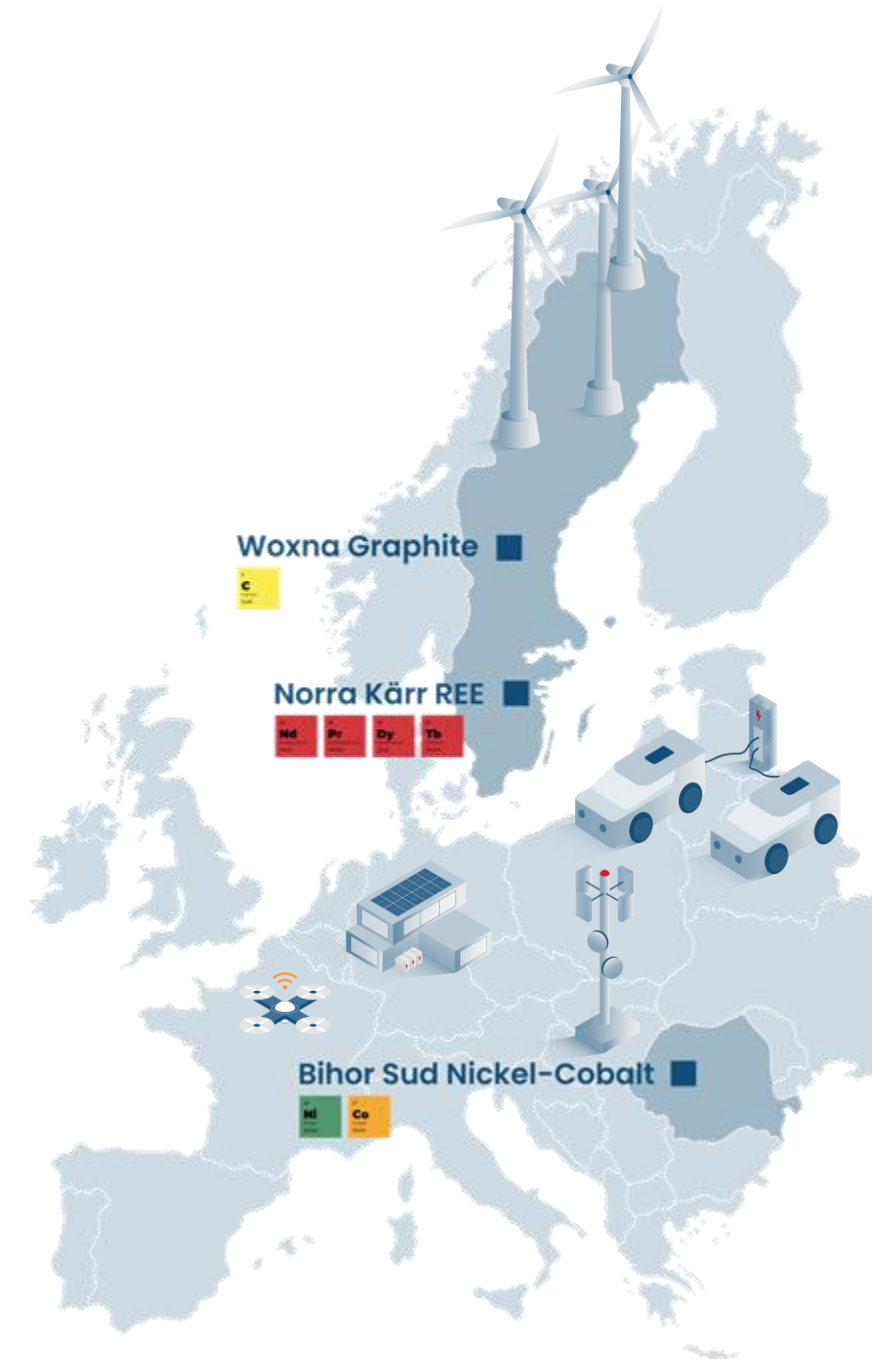
September 2024

**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](http://www.leadingedgematerials.com) and under its SEDAR profile [www.sedar.ca](http://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](http://www.leadingedgematerials.com) and under its SEDAR profile [www.sedar.ca](http://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.

# Investment Highlights



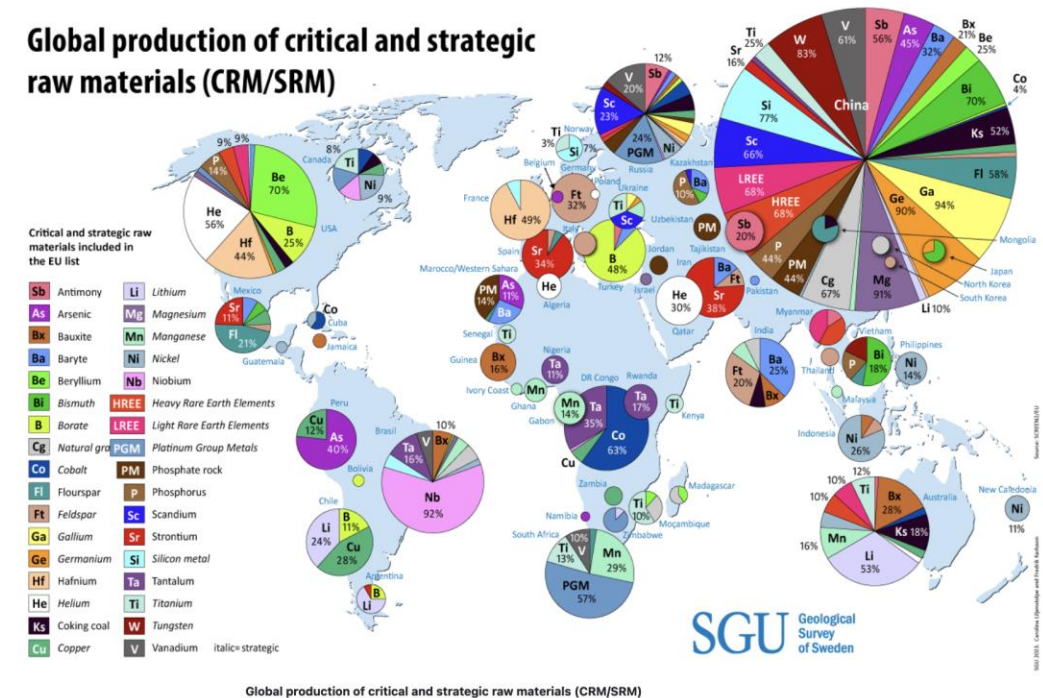
## Portfolio

- Critical raw materials (CRMs):
  - natural graphite;
  - rare earth elements (REEs);
  - cobalt; and
  - nickel.
- All assets located in the EU: Sweden and Romania including:
  - 100% owned graphite mine in Sweden;
  - 100% owned HREE development project in Sweden; and
  - Base metal exploration in Romania.
- Part of the solution to EU's over dependence on China.
- Offering secure and sustainable sources of supply.

## Corporate

- Highly experienced leadership team.
- Significant Swedish and Insider shareholdings.
- Focused on creating shareholder value.
- Listed in Toronto and Stockholm.
- Tickers: LEM.V (TSXV), LEMSE (NFN), LEMIF (OTCQB), 7FL (Fra).

## Global production of critical and strategic raw materials (CRM/SRM)



# Sustainable and secure CRMs supply



- **Developing critical raw material (CRMs) projects in the EU**
- **EU determines CRMs based on their economic importance and supply risk.**
- **CRMs feed into high growth markets: batteries for EVs and energy storage, and permanent magnets for electric motors and wind power.**

## Woxna Graphite (100%)

- Ideal location in Sweden – access to renewable power and industrial skills, and proximity to EU markets.
- Fully built and permitted mine and processing plant. Concentrate capacity 10,000tpa +94% Cg.
- Options to expand capacity and to vertically integrate 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\*.
- Reviewing strategic options, including mine restart options.

## Norra Kärr HREE (100%)

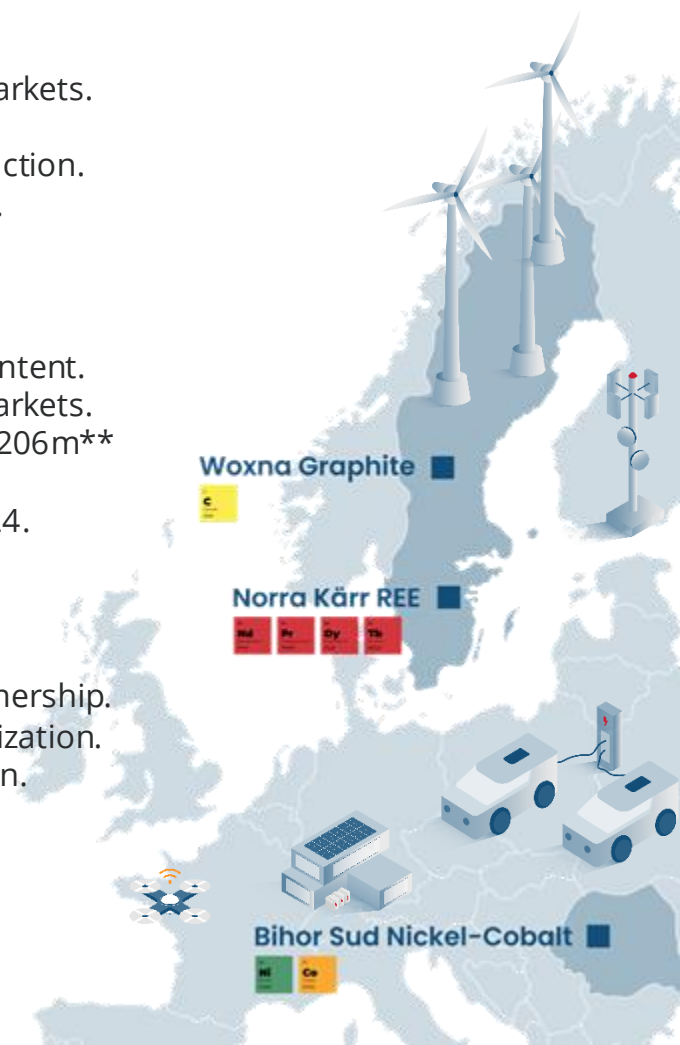
- Most advanced heavy rare earth (HREE) project in the EU – high value dysprosium and terbium content.
- Ideal location in Sweden – access to renewable power and industrial skills, and proximity to EU markets.
- 2021 PEA presents post-tax Net Present Value(10%) of US\$762m, IRR of 26.3% and EBITDA of US\$206m\*\*.
- Estimated production 5,341 tpa TREOs including 1,005tpa MagREOs over 26-year Life of Mine.
- CRMA Strategic Project application submitted. Mining lease application to be submitted in Q4 2024.

## Bihor Sud Ni-Co (51% to 90%)

- Historic mining district in highly prospective Tethyan Belt.
- Safe access to underground development and for exploring mineralization.
- Exploration alliance with capable local JV partner with the potential to move from 51% to 90% ownership.
- Opening of underground galleries in January 2023 has revealed over 400 m visible Co –Ni mineralization.
- Underground drilling to start in September 2024 focusing on Co-Ni and polymetallic mineralization.

\* 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](http://www.sedar.ca) or [www.leadingedgematerials.com](http://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](http://www.sedar.ca) or [www.leadingedgematerials.com](http://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.



# Experienced Leadership – Mining & Markets



**Lars-Eric Johansson**  
Chairman



**Past**

President & CEO Ivanhoe Mines (2006-19)  
CFO Kinross Gold Corporation  
CFO Noranda Inc  
CFO Falconbridge  
Vice President & CFO Boliden Mineral

**Daniel Major**  
Director



**Present**

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

**Eric Krafft**  
Director



**Present**

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 at DVB Bank AG

**Kurt Budge**  
CEO



**Past**

CEO Beowulf Mining plc (AIM, Spotlight Stock  
Market)

**Sanjay Swarup**  
CFO



**Present**

CEO and founder SKS Business Services Ltd

**Past**

CFO Mandalay Resources (TSX)

**Manuela Balaj-Coroiu**  
Company Secretary



**Present**

Vancouver based chartered governance  
professional and corporate secretary.

# Share Information



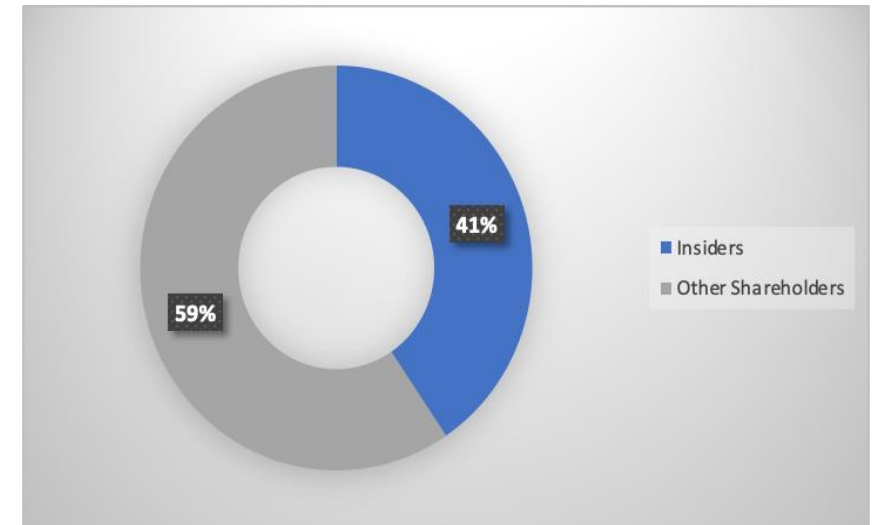
**Tickers:** LEM.V (TSXV), LEMSE (NFN), LEMIF (OTCQB), 7FL (Fra)  
**Quote:** CAD 0.11 / SEK 0.88 (20 Sept 2024)  
**Mkt Cap:** CAD 24.8m / SEK 198.8m

As of August 31, 2024				Total
<b>Issued and Outstanding Common Shares</b>				<b>225,351,949</b>
<b>Stock Options</b>	<b>Expiration</b>	<b>Exercise price</b>	<b>Quantity</b>	
	Jan 27/25	0.620	3,200,000	
	Apr 26/26	0.195	500,000	
	Nov 3/27	0.200	700,000	
	Apr 26/28	0.195	4,200,000	
	Apr 25/29	0.100	9,650,000	
				<b>18,250,000</b>
<b>Warrants</b>	<b>Expiration</b>	<b>Exercise Price</b>	<b>Quantity</b>	
	Aug 23/25	0.225	7,000	
	Aug 23/27	0.225	21,739,000	
	July 23/28	0.225	34,400,000	
				<b>56,146,130</b>
<b>Fully Diluted:</b>				<b>300,290,028</b>

## LEM.V (TSXV) 6 months



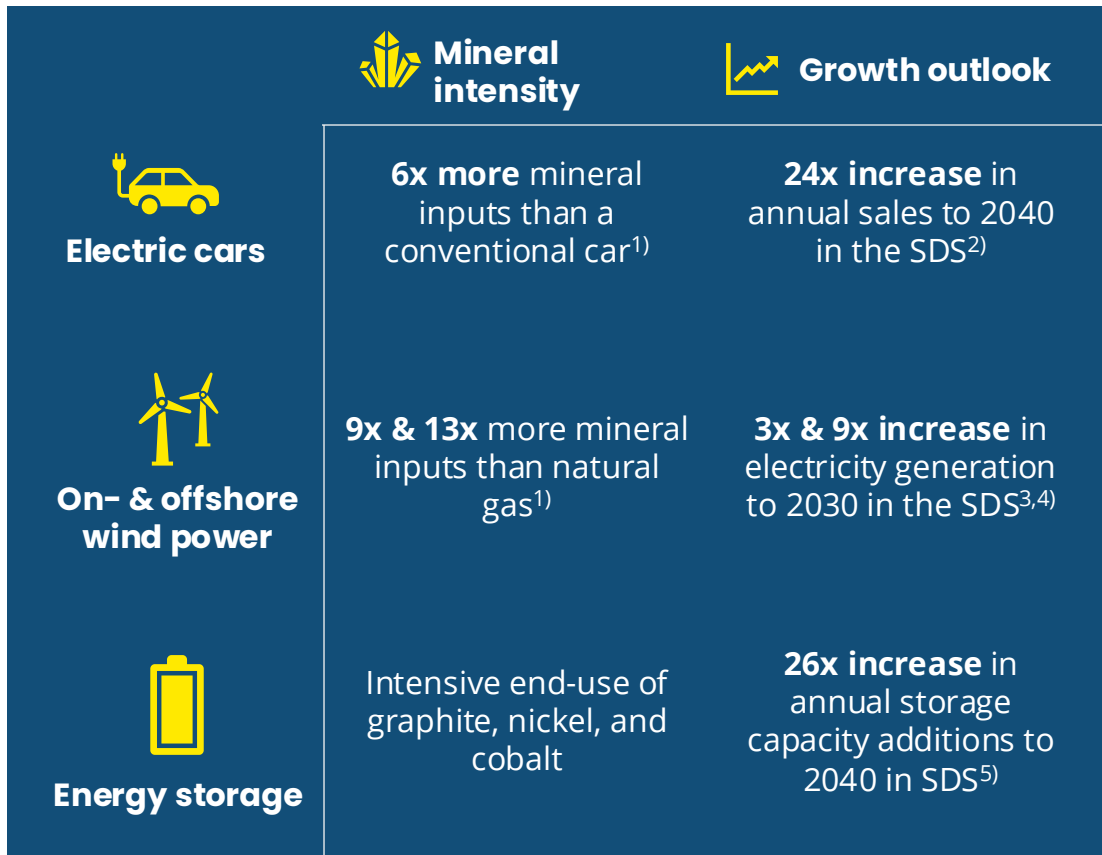
## Common Shares



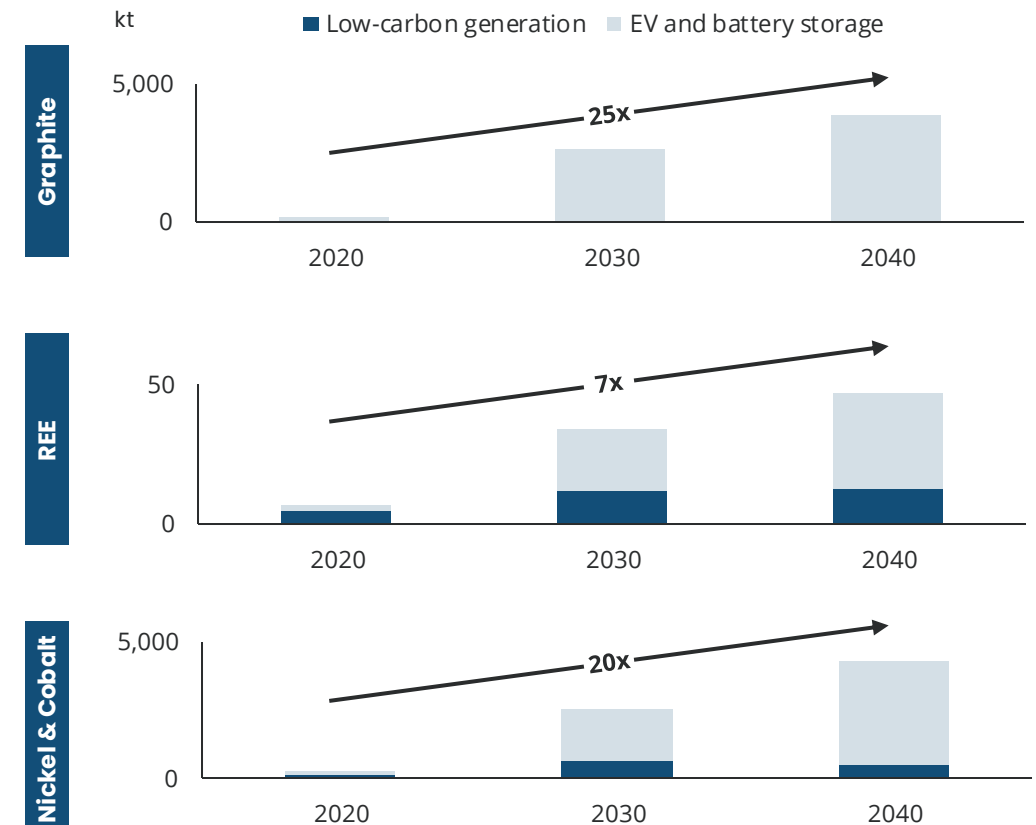
# CRMs are key enablers of an EU green transition



## E-mobility and renewable power are mineral intensive and growing rapidly



## Driving demand for graphite, REE, nickel-cobalt<sup>6)</sup>



1) IEA (2021), *The Role of Critical Minerals in Clean Energy Transitions*, IEA, Paris <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

2) IEA, *Annual electric car sales in the Sustainable Development Scenario, 2020-2040*, IEA, Paris <https://www.iea.org/data-and-statistics/charts/annual-electric-car-sales-in-the-sustainable-development-scenario-2020-2040>; "SDS" is the Sustainable Development Scenario

3) IEA, *Offshore wind power generation in the Sustainable Development Scenario, 2000-2030*, IEA, Paris <https://www.iea.org/data-and-statistics/charts/offshore-wind-power-generation-in-the-sustainable-development-scenario-2000-2030>

4) IEA, *Onshore wind power generation in the Sustainable Development Scenario, 2000-2030*, IEA, Paris <https://www.iea.org/data-and-statistics/charts/onshore-wind-power-generation-in-the-sustainable-development-scenario-2000-2030>

5) IEA, *Annual battery storage capacity additions in the Sustainable Development Scenario, 2020-2040*, IEA, Paris <https://www.iea.org/data-and-statistics/charts/annual-battery-storage-capacity-additions-in-the-sustainable-development-scenario-2020-2040>

6) IEA, *Total mineral demand from new EV sales by scenario, 2020-2040*, IEA, Paris <https://www.iea.org/data-and-statistics/charts/total-mineral-demand-from-new-ev-sales-by-scenario-2020-2040>

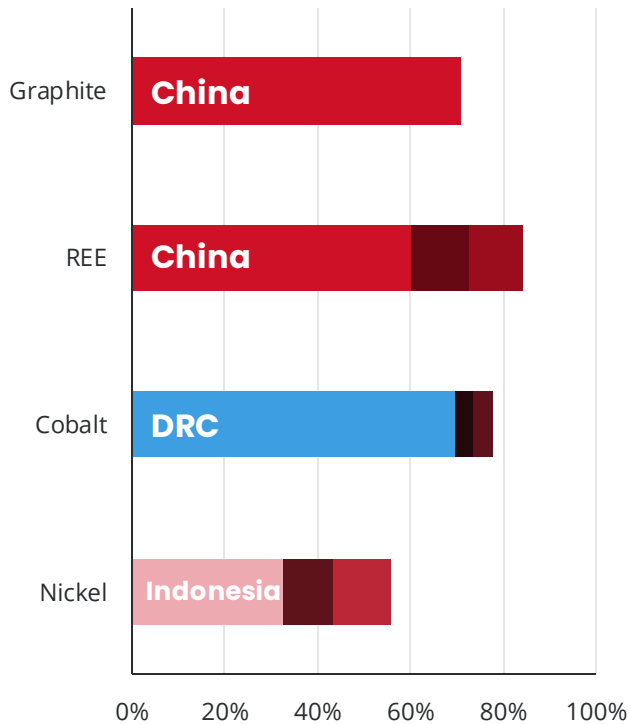
# ...and the EU is exposed to significant supply risk



**CRM extraction and processing is heavily concentrated in a few countries – the EU's current over dependency threatens the green transition**

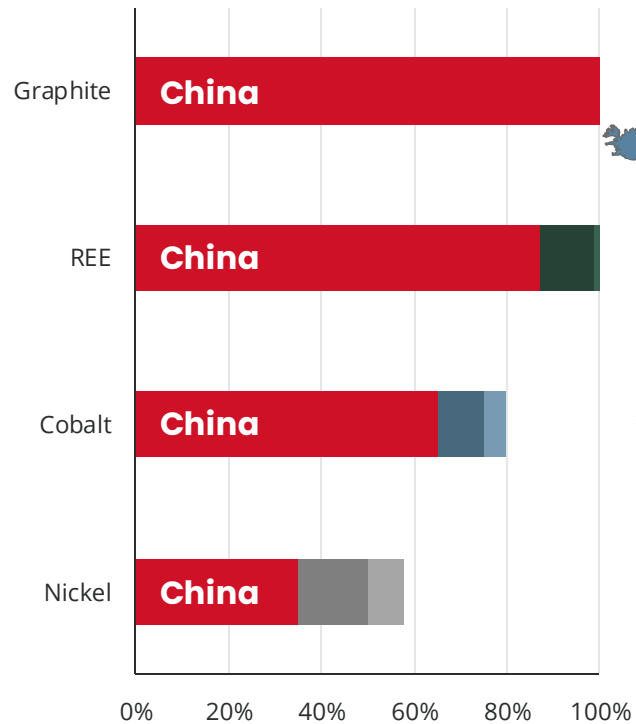
## Extraction

Share of global<sup>1)</sup>



## Processing

Share of global<sup>2)</sup>



1) IEA, Share of top three producing countries in extraction of selected minerals and fossil fuels, 2019, IEA, Paris <https://www.iea.org/data-and-statistics/charts/share-of-top-three-producing-countries-in-extraction-of-selected-minerals-and-fossil-fuels-2019>  
2) IEA, Share of top three producing countries in total processing of selected minerals and fossil fuels, 2019, IEA, Paris <https://www.iea.org/data-and-statistics/charts/share-of-top-three-producing-countries-in-total-processing-of-selected-minerals-and-fossil-fuels-2019>  
3) Woxna Graphite LCA, see news release dated June 21, 2021: <https://leadingedgematerials.com/leading-edge-materials-announces-preliminary-life-cycle-assessment-results-on-woxna-graphite-project/>



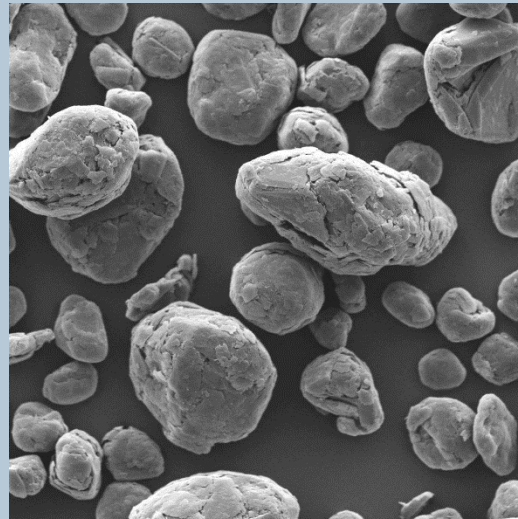
# Europe has taken action



- 18 March 2024, the European Council adopted the regulation to establish a framework to ensure a secure and sustainable supply of critical raw materials, known as the Critical Raw Materials Act (CRMA).
- CRMA introduces clear deadlines for permit procedures for EU extracting projects, allows the Commission and member states to recognise a project as strategic, requires supply-chain risk assessments, requires member states to have national exploration plans and ensures the EU's access to critical and strategic raw materials through ambitious benchmarks on extraction, processing, recycling and diversification of import sources.
- On 23 May 2024, a call for Strategic Projects as defined by the CRMA was opened. The CRMA designates strategic projects to increase EU capacity to extract, process and recycle strategic raw materials and diversify EU supplies from third countries. Strategic raw materials are crucial for the success of the green and digital transitions as well as the resilience of the defence and aerospace sectors.

***Norra Kärr, and its potential importance in ensuring the security of the supply of HREE in Europe, is a leading candidate for Strategic Project designation.***

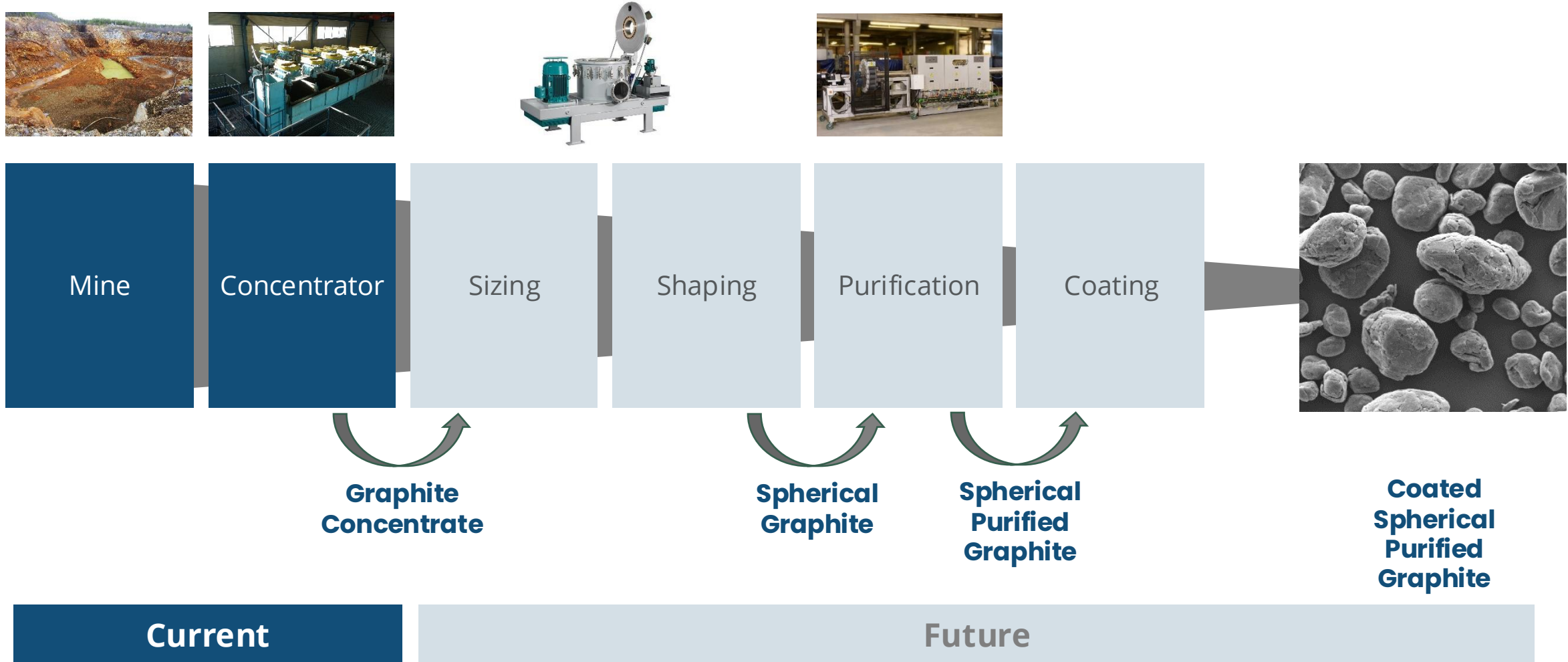




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# Woxna Graphite Anode Project

# Overview



***Option to vertically integrate -  
natural flake graphite mine to lithium-ion battery anode material production***

# Battery Industry on the doorstep

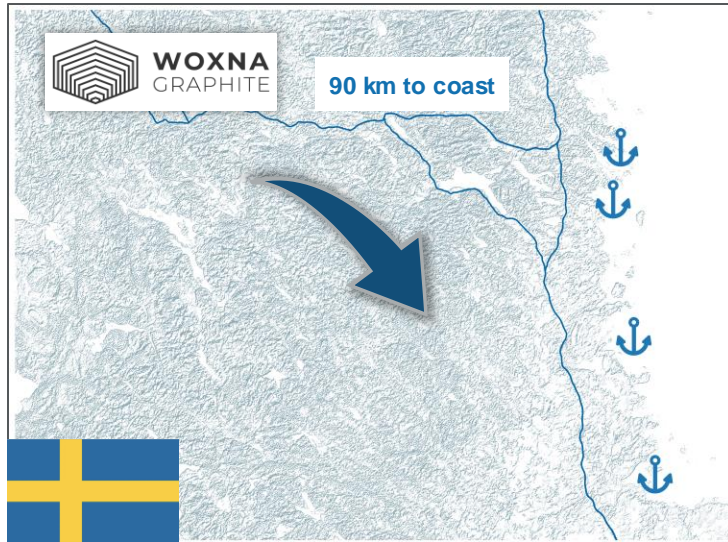


**Established Swedish production base in proximity to growing EU markets.**

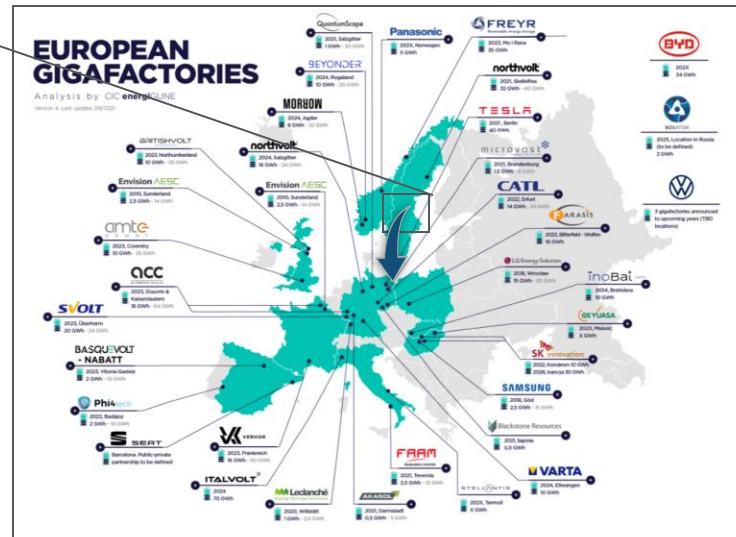
Flake Graphite production needs \$7.5B capex to meet 2035 battery demand.  
(Benchmark Minerals)

International Energy Agency's Sustainable Development Scenario (SDS) base case projects the mineral demand for battery storage-related materials to increase drastically by 2040 compared to 2020. For manganese, nickel cobalt, graphite, and lithium the projected 2040 estimates range between eight and forty times the 2020 demand.\*

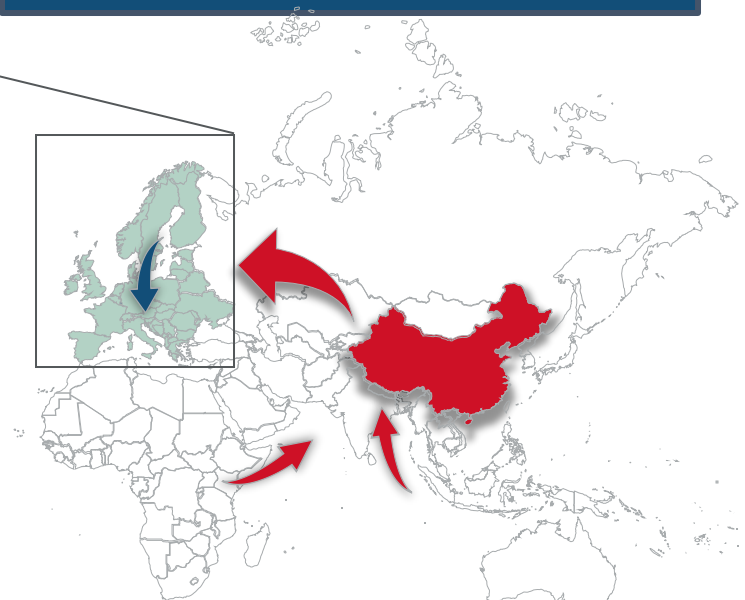
In 2023, China produced about 70% of global supplies of natural flake graphite and almost all the spherical graphite used in anodes for lithium-ion batteries.  
(Benchmark Minerals)



**Woxna is built. Excellent access – roads, ports – to markets.**



**Proximity to Gigafactory developments in Europe**



**Contributing to reduced EU dependency on China**

\*<https://erma.eu/app/uploads/2023/07/e33fa4d1.pdf>

# 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

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

## Mineral Resource Estimate – Inferred

Property	Classification of Mineral Resource	Tonnes (Mt)	Grade C (%)
Kringel	Inferred	0.39	8.72
Gropabo		0.61	8.07
Matt Smyra		1.51	8.06
<b>Total</b>	<b>Inferred</b>	<b>2.51</b>	<b>8.16</b>

### 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<sup>3</sup> applied to in situ, then Density of 2.82 t/m<sup>3</sup> applied to Type A Graphite and Density of 2.86 t/m<sup>3</sup> applied to Type B Graphite for Gropabo and Matt Smyra; and Default Density for Kringel remained at 2.7 t/m<sup>3</sup>; 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;

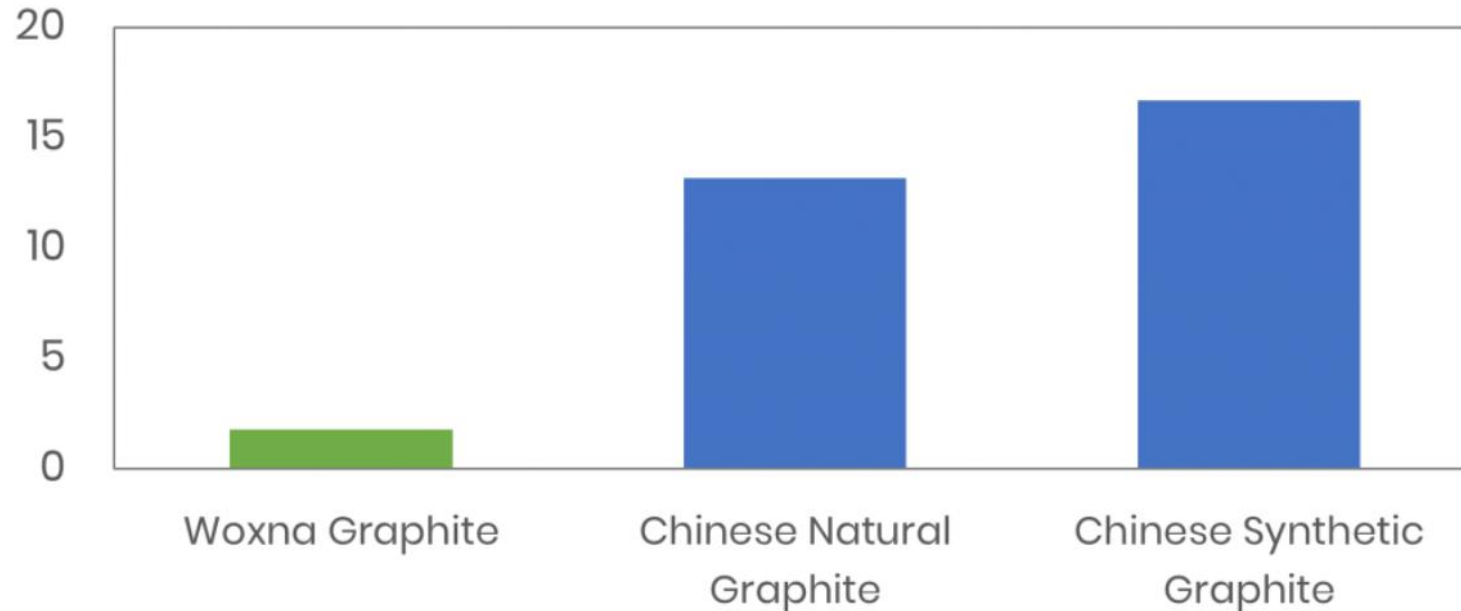
\* See National Instrument 43-101 report entitled “NI 43-101 Technical Report – Woxna Graphite” prepared for Woxna Graphite AB with effective date June 9, 2021 and issue date July 23, 2021. See Leading Edge Materials Corp.’s SEDAR profile on [www.sedar.ca](http://www.sedar.ca) or [www.leadingedgematerials.com](http://www.leadingedgematerials.com) 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.

# Sustainability leadership\*



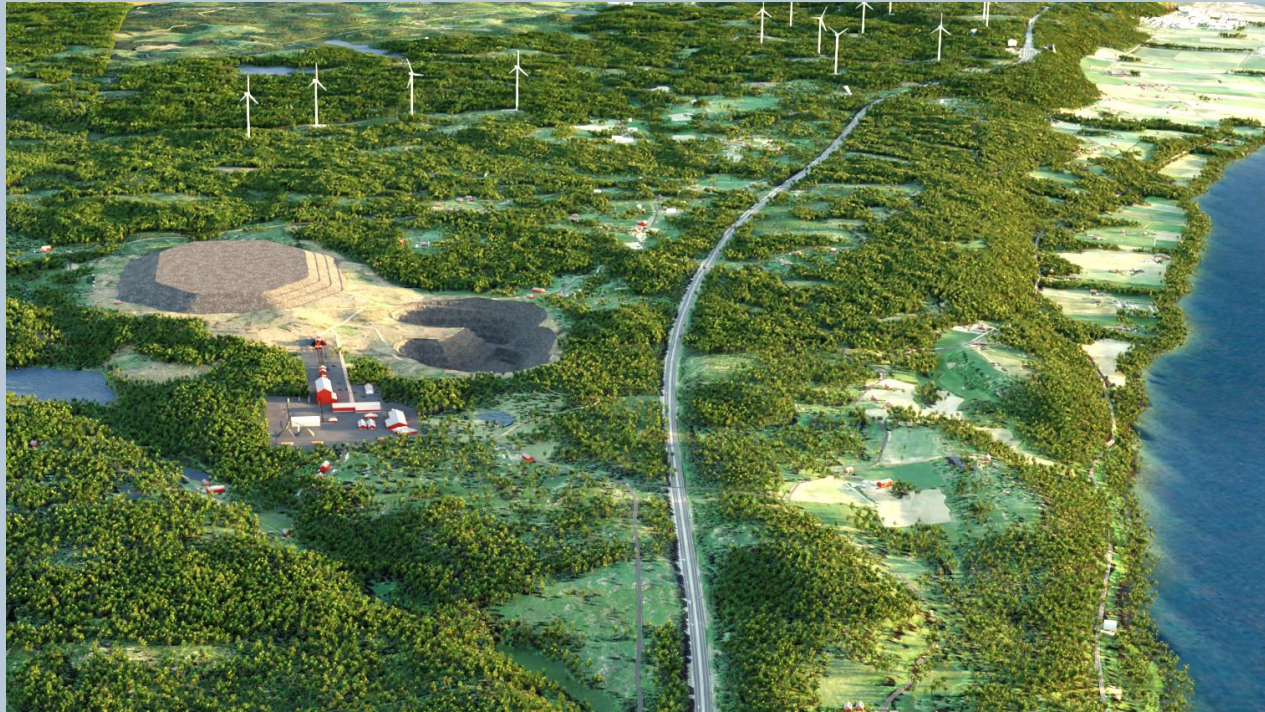
***Coated spherical purified graphite produced from Woxna has 85–90% lower impact than the market dominant Chinese alternatives***

kg CO2 eq.



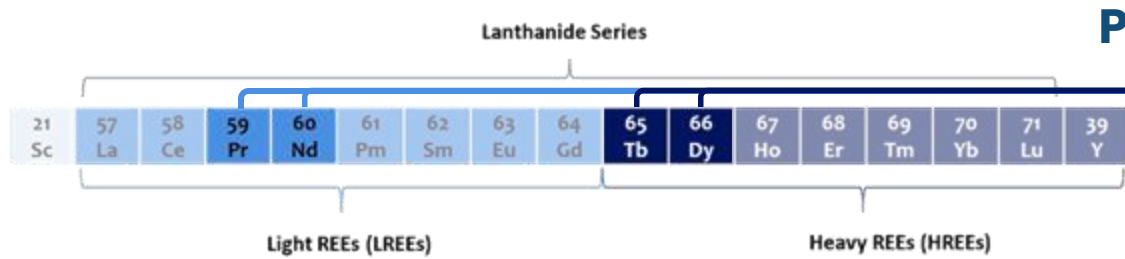
- 1 tonne of coated spherical purified graphite (“CSPG”) produced from Woxna natural graphite is forecast to have an impact of 1.8 tonnes CO2 eq.
- LCA study completed to ISO-104040:2006 and ISO-14044:2006 standards and used a cradle-to-gate approach.

\* See news release dated June 21, 2021: <https://leadingedgematerials.com/leading-edge-materials-announces-preliminary-life-cycle-assessment-results-on-woxna-graphite-project/>

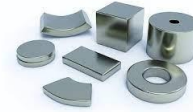


# Norra Kärr HREE Project

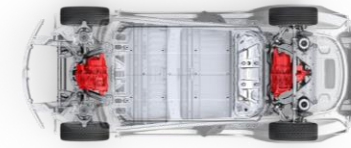
# Importance of HREEs for permanent magnets



## Permanent Magnets



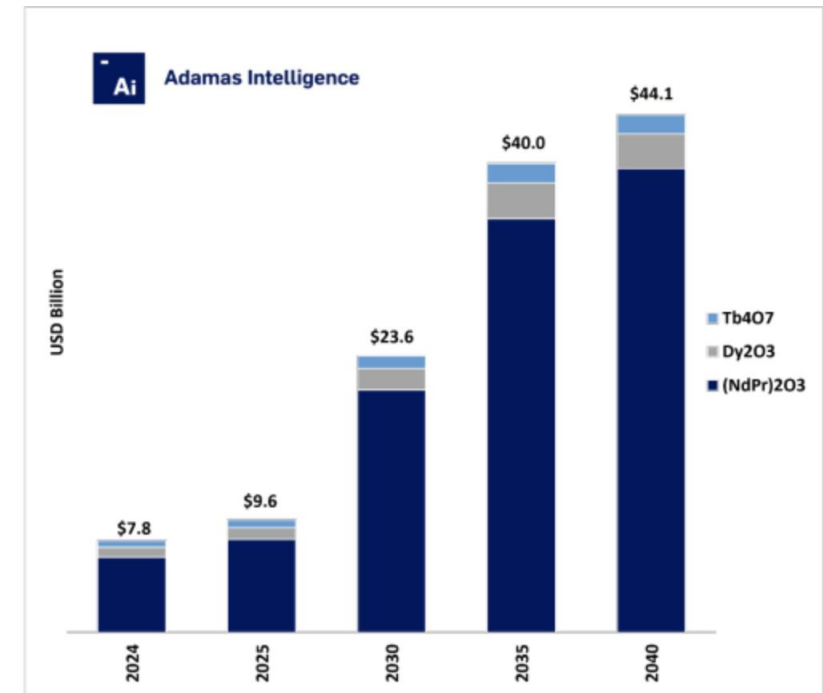
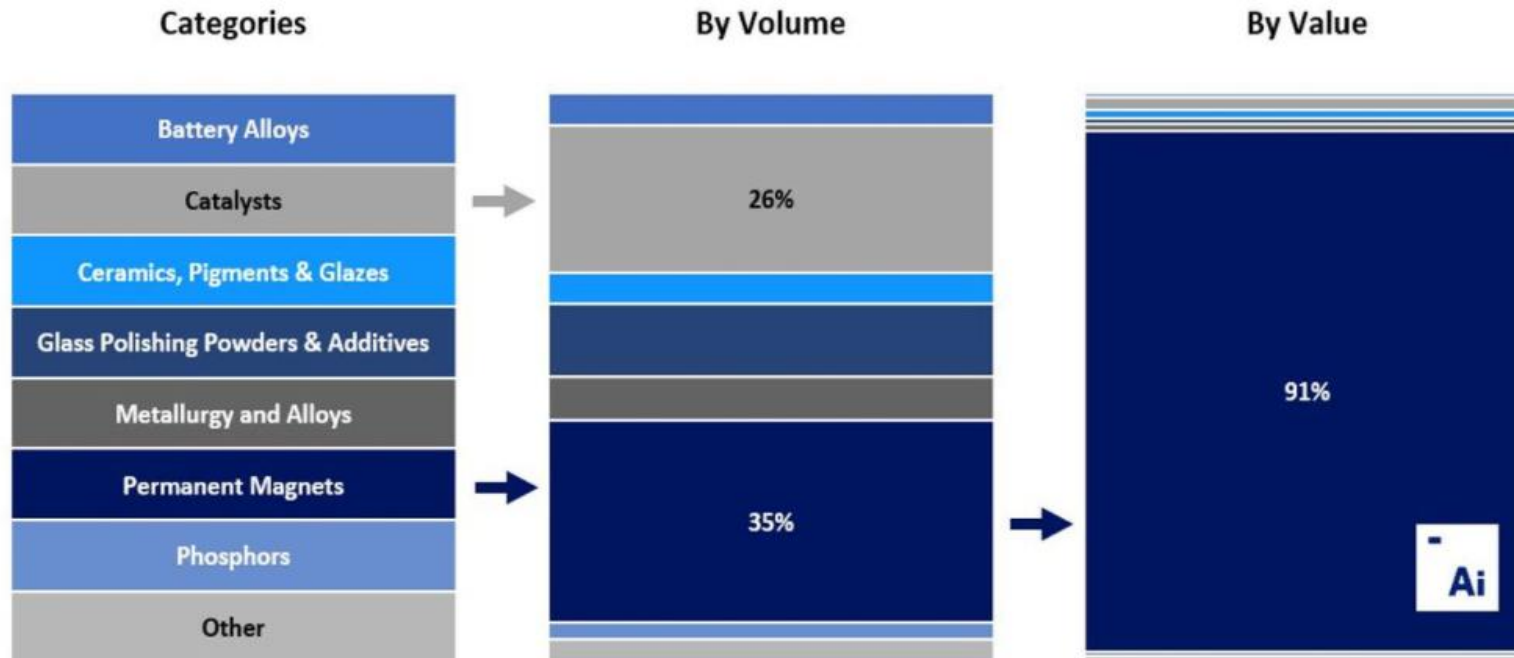
## EVs



## Wind Power



[Adamas Intelligence forecasts](#) that the value of global magnet rare earth oxide consumption will increase more than five-fold by 2040, from US \$7.8 billion this year to US \$44.1 billion by 2040.





# EU's supply chain challenge

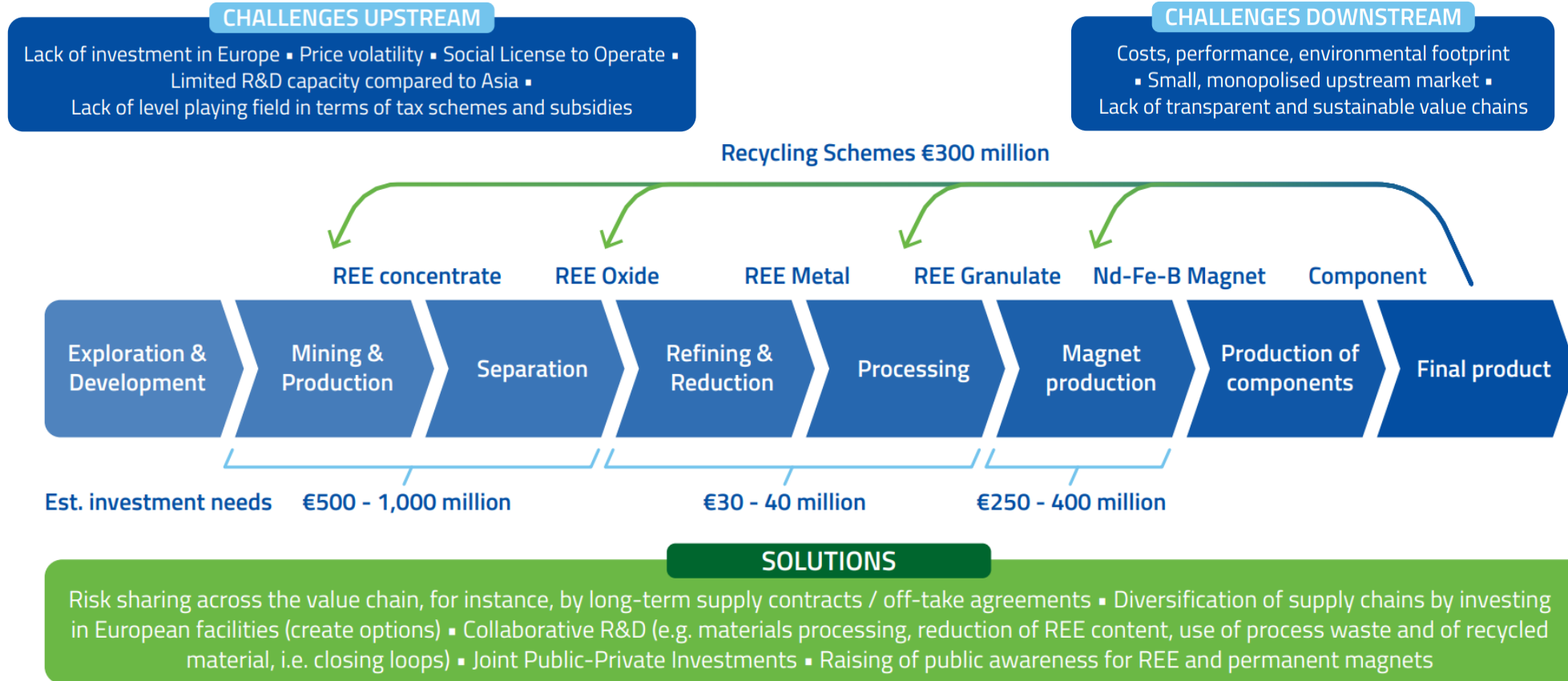
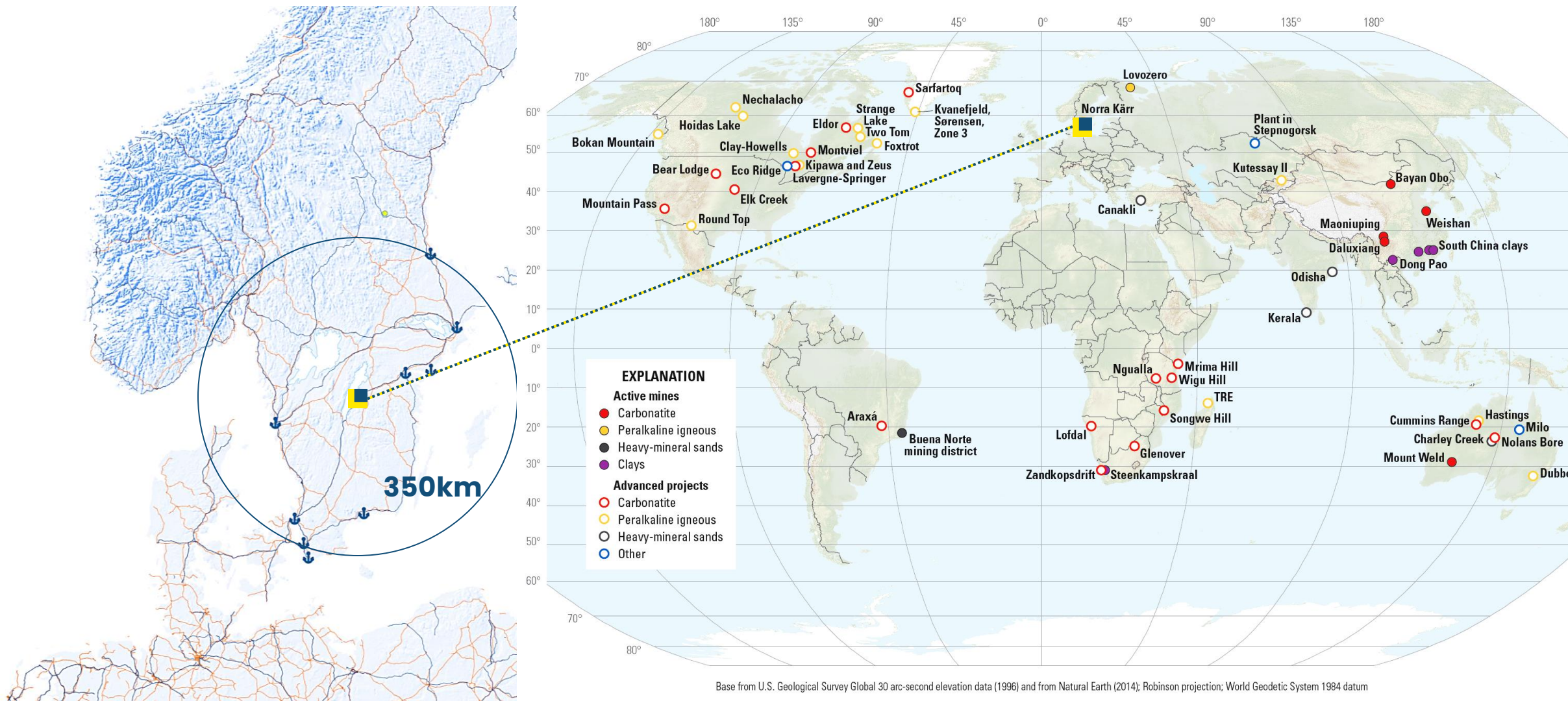


Fig. 1: ERMA Cluster Rare Earth Magnets and Motors: Challenges and solutions and price tags per value chain step indicating the order of magnitude of investment needs for an EU value chain capable of matching 20% of domestic materials demands by 2030 (see Fig. 8). The size of investments relates to the nature and cost structure of each value chain step and potential production outputs. Note that end-of-life electric vehicles will boost the magnet recycling market, particularly beyond 2030. (see Fig. 7).

# Ideal Location – Sweden and EU



Base from U.S. Geological Survey Global 30 arc-second elevation data (1996) and from Natural Earth (2014); Robinson projection; World Geodetic System 1984 datum

# Strategic Resource – 52% HREO



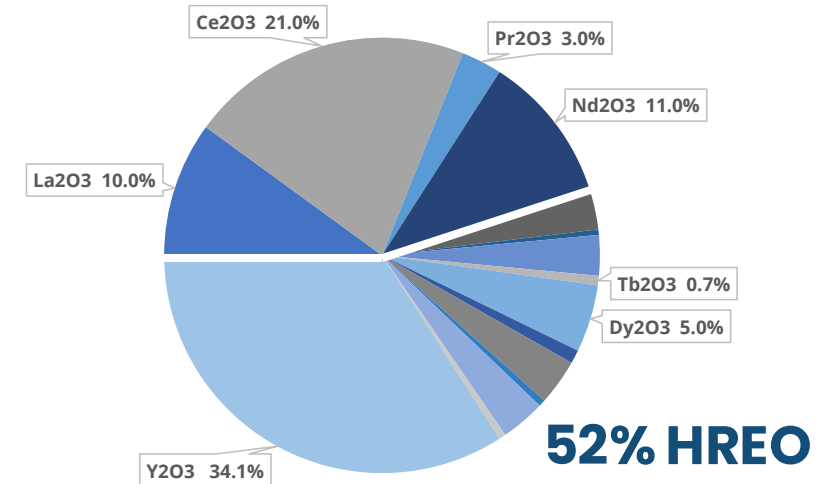
## Norra Karr Mineral Resource Statement (SRK, 18 August 2021)\*

Mineral Resource Classification	Tonnes (Mt)	TREO (%)	ZrO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nepheline Syenite (%)
Inferred	110	0.5	1.7	0.05	65

## Norra Karr Rare Earth Element Distribution

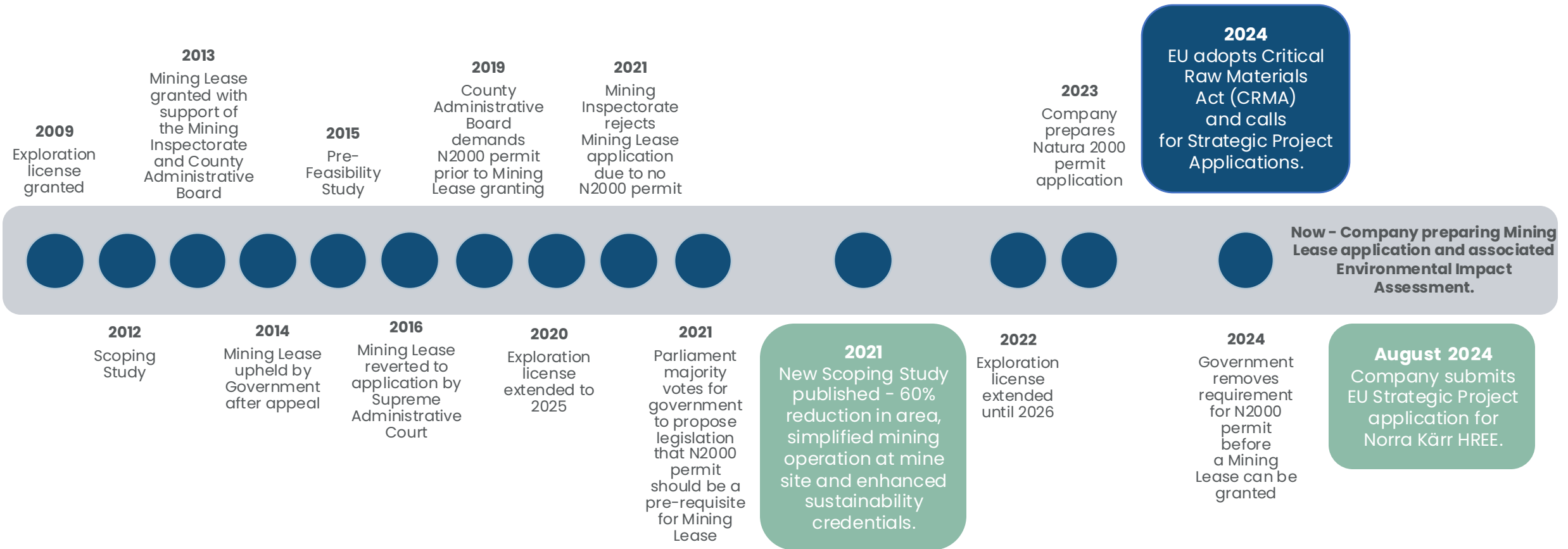
Light REO proportion of Total REO					Heavy REO proportion of Total REO									
La <sub>2</sub> O <sub>3</sub>	Ce <sub>2</sub> O <sub>3</sub>	Pr <sub>2</sub> O <sub>3</sub>	Nd <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Tb <sub>2</sub> O <sub>3</sub>	Dy <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>
0.100	0.210	0.030	0.110	0.030	0.004	0.030	0.007	0.050	0.010	0.034	0.005	0.033	0.005	0.340
0.48					0.52									

## Resource REO Distribution

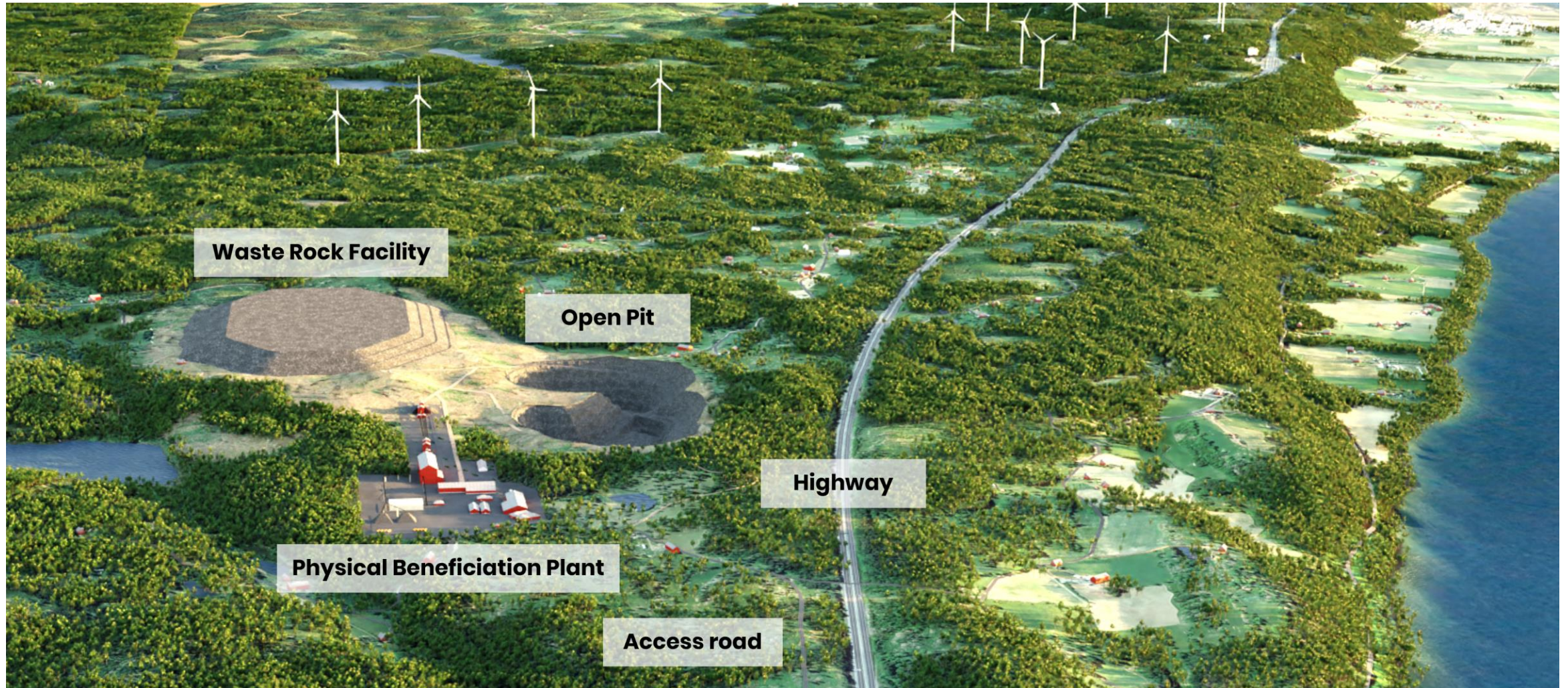


\* See National Instrument 43-101 report titled "PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN" prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.'s SEDAR profile on [www.sedar.ca](http://www.sedar.ca) or [www.leadingedgematerials.com](http://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.

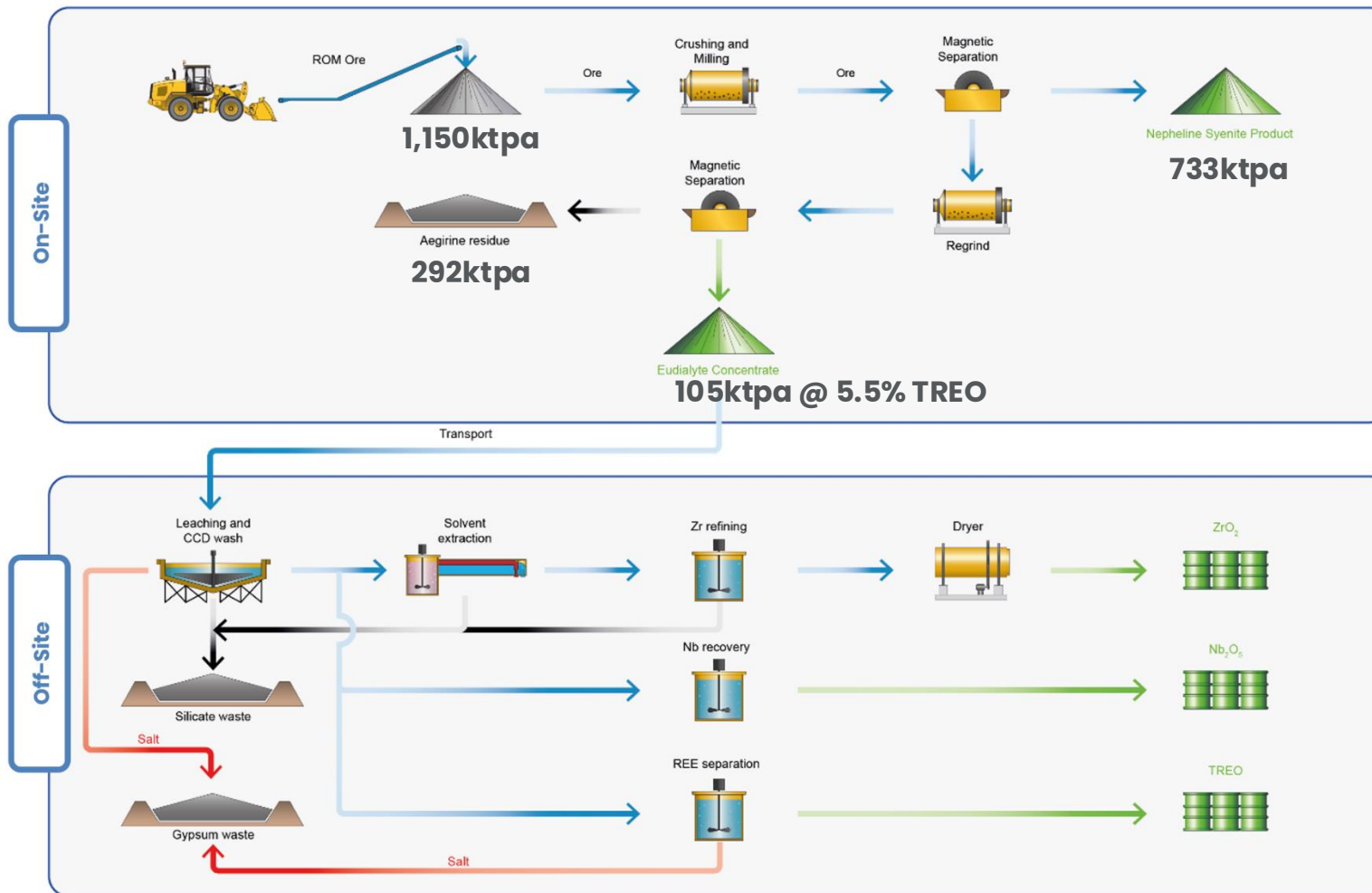
# Norra Kärr – 15 years in development



# Simple plan - mining & concentration on-site



# Norra Kärr 2021 PEA\* – Operational Highlights



Life of Mine (LOM)	26 years
Mining rate	1.15 Mtpa
Strip Ratio	0.32
TREOs Including MagREOs (Nd, Pr, Dy, Tb)	5,341 tpa 1,005 tpa Dy <sub>2</sub> O <sub>3</sub> 248t Tb <sub>2</sub> O <sub>3</sub> 36t Nd <sub>2</sub> O <sub>3</sub> 578t Pr <sub>2</sub> O <sub>3</sub> 143t
Nepheline Syenite	732,885 tpa
Zirconium Oxide	10,200 tpa
Niobium Oxide	525tpa

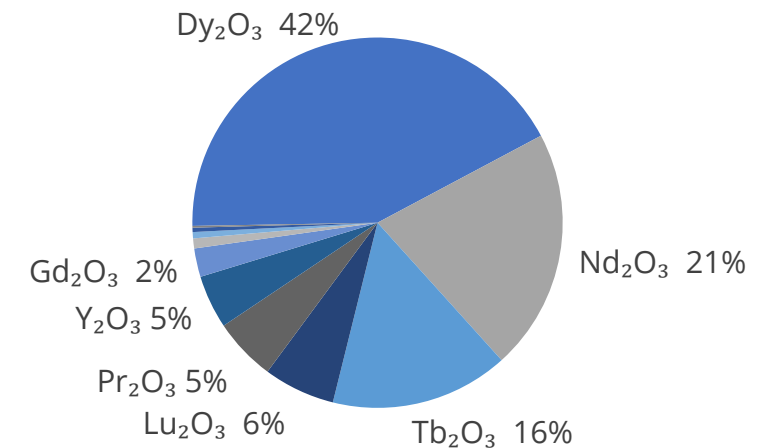
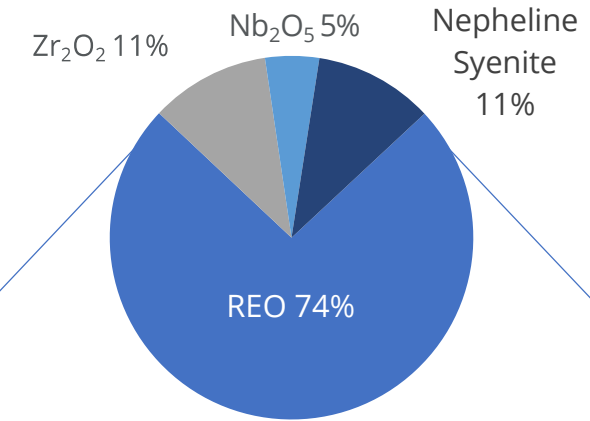
\* See National Instrument 43-101 report titled "PRELIMINARY ECONOMIC ASSESSMENT OF NORRA KÄRR RARE EARTH DEPOSIT AND POTENTIAL BY-PRODUCTS, SWEDEN" prepared for Leading Edge Materials Corp. with effective date August 18, 2021 and issue date August 19, 2021. See Leading Edge Materials Corp.'s SEDAR profile on [www.sedar.ca](http://www.sedar.ca) or [www.leadingedgematerials.com](http://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 <sub>10</sub> )	\$762M
Post-tax Internal Rate of Return (IRR)	26.3%
Accumulated LoM project revenues	\$9,962M
Average annual EBITDA	\$206M
Initial Capital Expenditures (CAPEX)	\$487M (Mine \$165m; and Off-site Processing \$323m).
Pre-tax Payback Period from first production	5.1 years
LoM average gross basket price	\$53/kg of mixed REO product

## Revenue Distribution

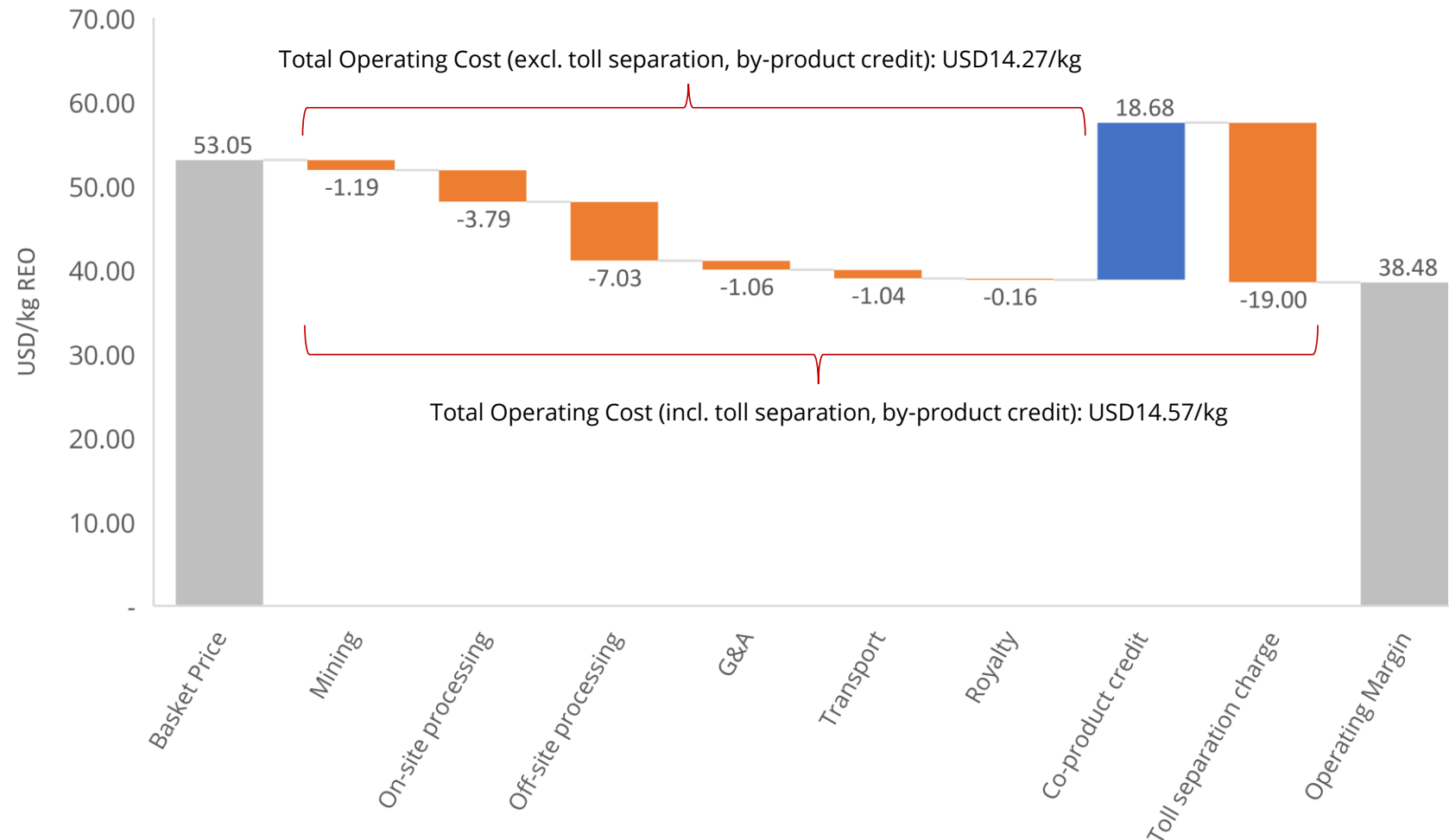


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# Norra Kärr 2021 PEA\* – Operating Costs



## LoM Unit Operating Cost Economics (USD/kg REO)



\* 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](http://www.sedar.ca) or [www.leadingedgematerials.com](http://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



- Only mining, crushing, milling and magnetic separation at mine site
- No wet tailings at mine site
- Chemical processing situated at an established industrial site, such as Luleå
- 65% reduction in land area usage at the mine site
- 20-30% reduction in water requirements at the mine site, and no processing water discharge planned
- 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
- Waste at mine site is aegirine, dry stacked in a lined impoundment together with waste rock

***Reduced environmental impact, increased sustainability.***

\* 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](http://www.sedar.ca) or [www.leadingedgematerials.com](http://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 – 65% reduction in area



# Norra Kärr – Sustainability advantage

## Comparison of dysprosium production from different resources by life cycle assessment

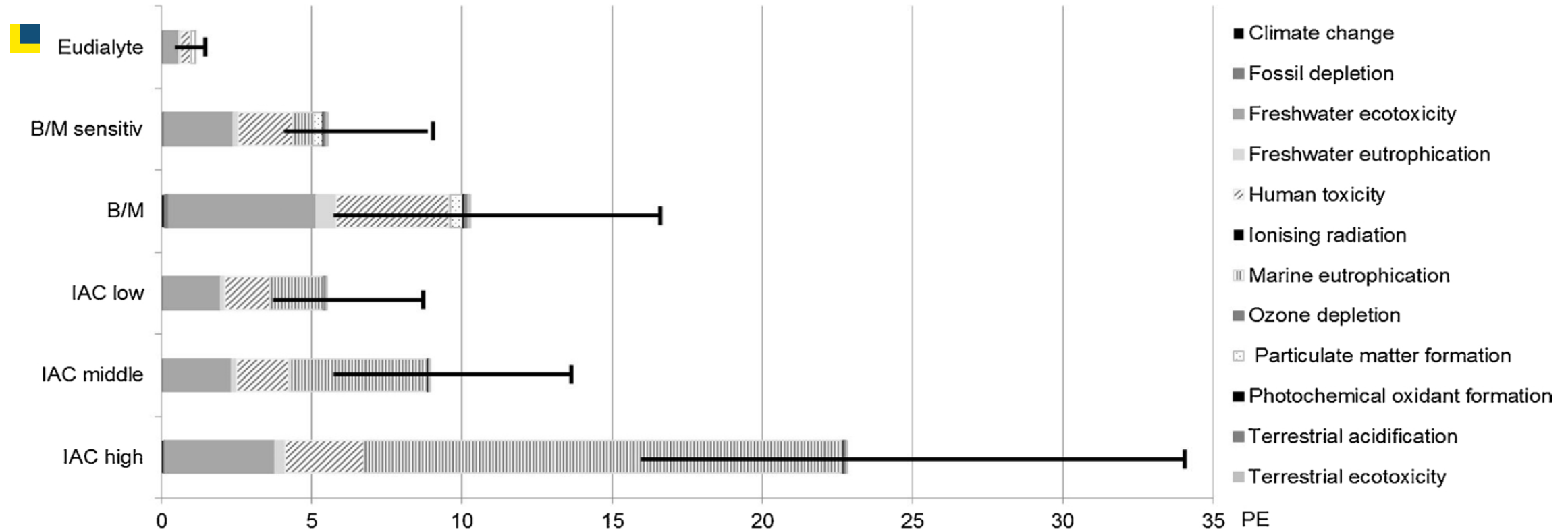


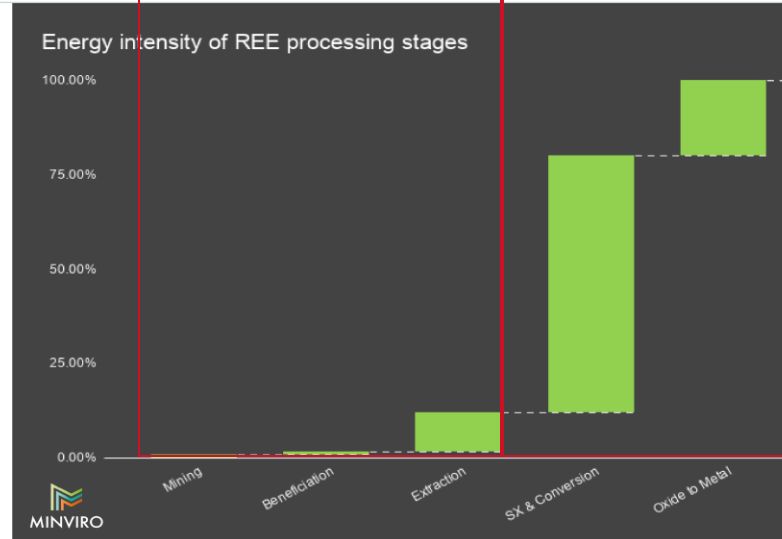
Fig. 3. Normalised impacts of process chains in person equivalents per kg Dy with deviation.

# Nordic/EU supply chain potential



**CRMA has a pivotal role in making this a reality**

	Mining	Refining	Separation	Metals & Alloys	Magnets
Large companies					
SMEs					
Service providers, suppliers					
Academia/Research					
Public authorities					





# Bihor Sud Exploration Project

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# Cobalt-Nickel exploration in the Tethyan Belt

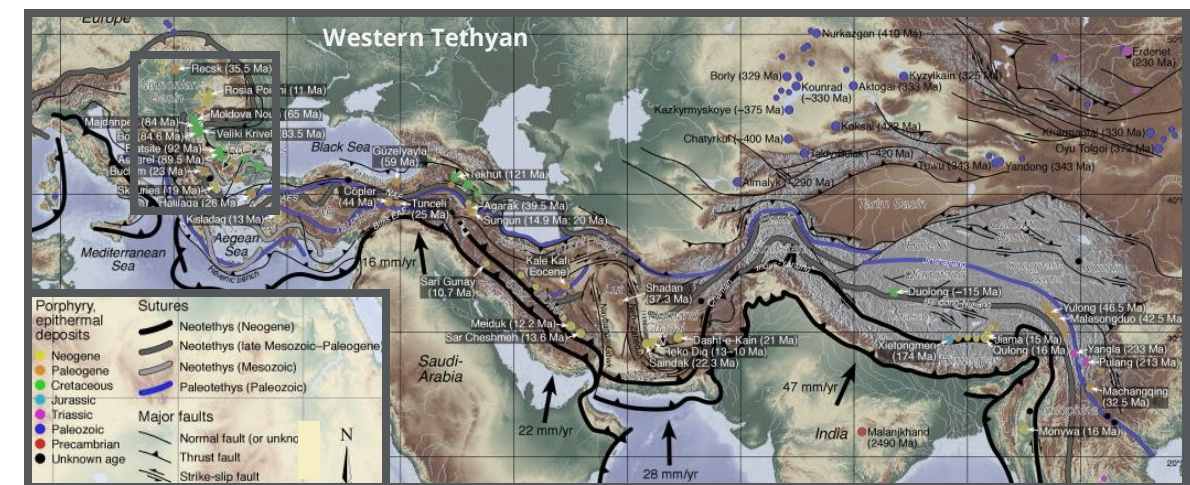
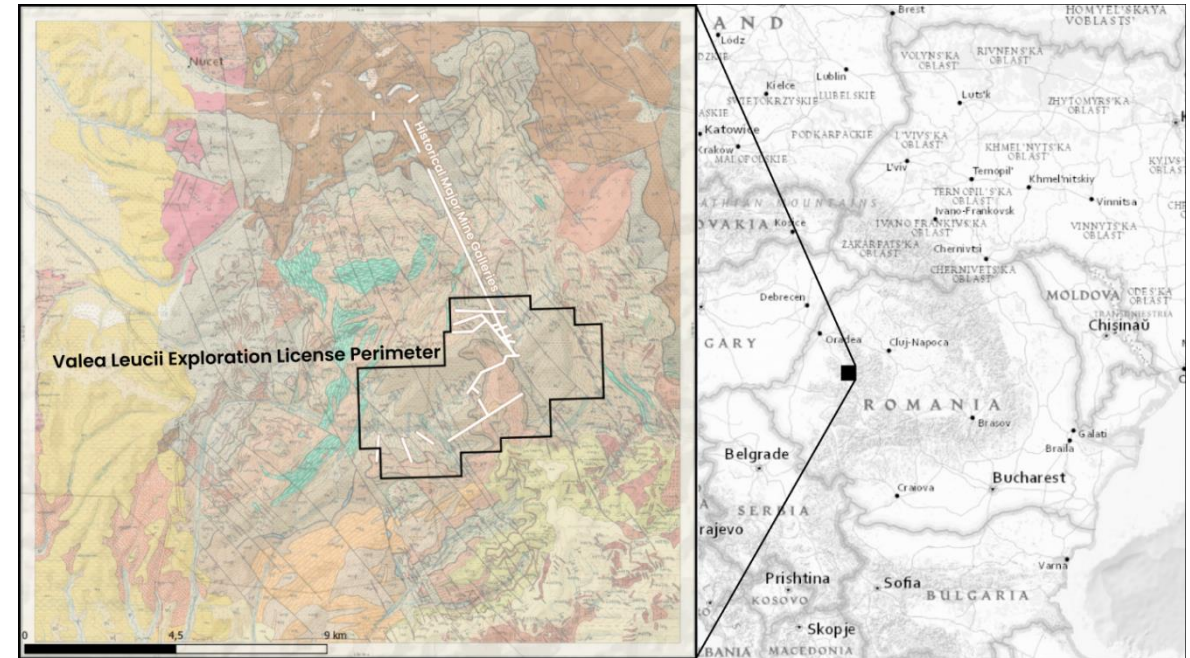


## Overview

- 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 metallogenic belt, part of the Tethyan Belt in a historic mining area with several historic mines, one being a significant uranium mine.
- Initial prospecting campaign and sampling from past mine workings indicates potential for high grade nickel-cobalt mineralization.

## Opportunity

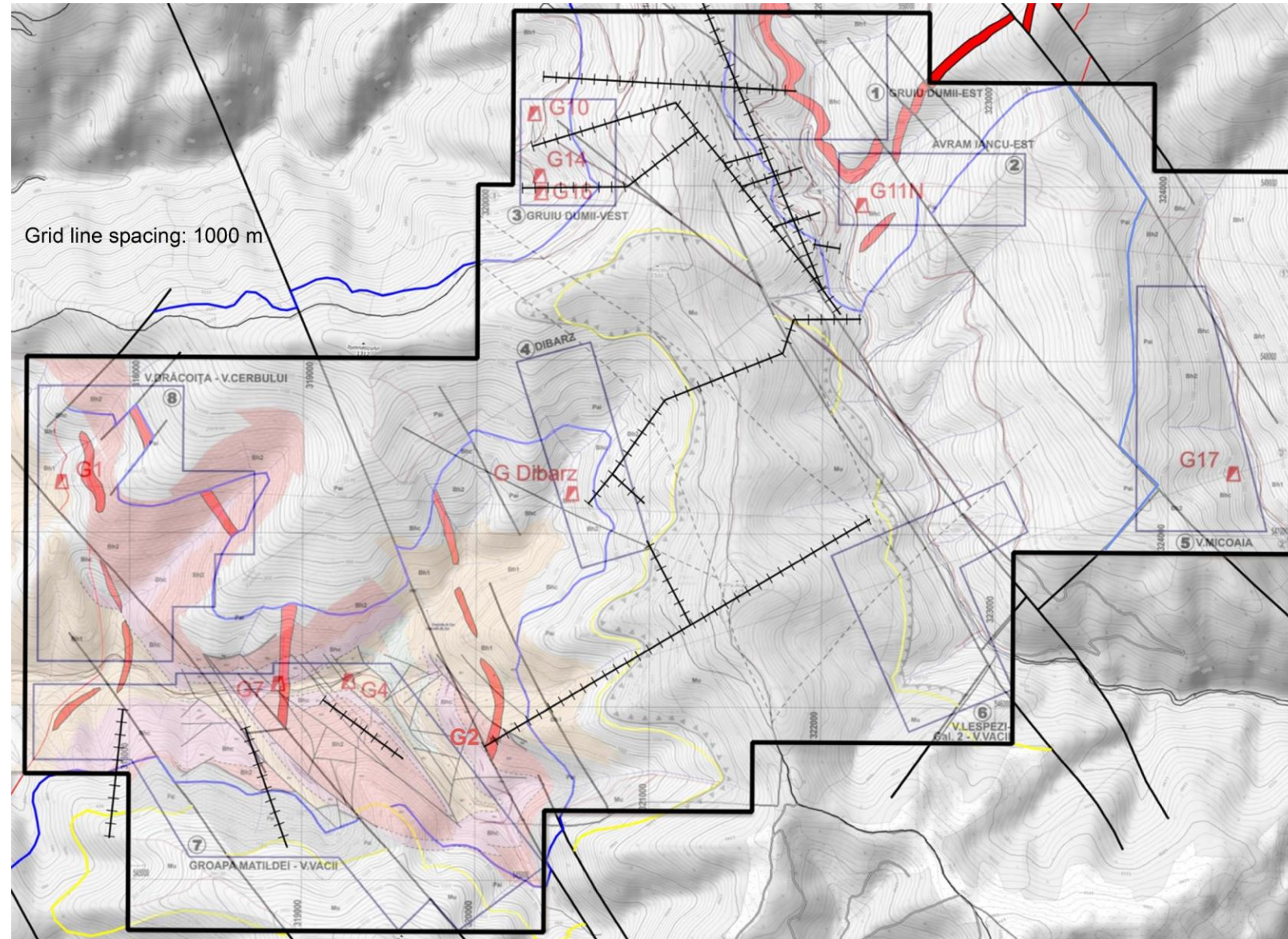
- Bihor Sud is relatively isolated site whilst the road and power network is well developed due to prior mining and forestry. No permanent residences lie within 5km of the Exploration License boundary.
- Exclusive five-year exploration license was granted on 12 May 2022, moving the project towards pre-submitted exploration program. A two year-extension is possible.
- Romania is a historic mining country with rich opportunities but is one of Europe's economically weaker nations which should attract interest from strategic investors.



# Exploration License – Historic Mining Camp



- Tens of kilometers of galleries are developed in the license area, previously targeting and mining uranium in replacement orebodies on carbonate.
- A separate mineralization phase yielded Co-Ni-bodies, which was ignored because the responsible division of 1960–90s Romanian state mining only targeted what was then called “strategic metals”, which did not include Co and Ni.
- Extensive Co-Ni-mineralization has been reported from the galleries, especially in the north (area with G10–G16 on the map).
- LEM achieved first the opening of galleries G4 and G7 in the southwestern license area, followed by G2 in Spring 2024.
- Waste dump samples suggested the presence of Co-Ni chiefly in G7, but also Zn-Pb-Cu-Ag mineralization in G4. High-grade Zn-Pb-Cu-Ag has reportedly been mined from G. Dibarz, which forms a near-term target of exploration.



# Visible polymetallic mineralization



**Left: Stringers of silvery-golden Co-Ni mineralization in low grade metamorphic sediments (gray) from the waste dump of G7.**

**Right: Cu-rich sample from previously mined Zn-Cu-Pb-Ag deposit in the license area.**





# Underground – In situ Co-Ni mineralization



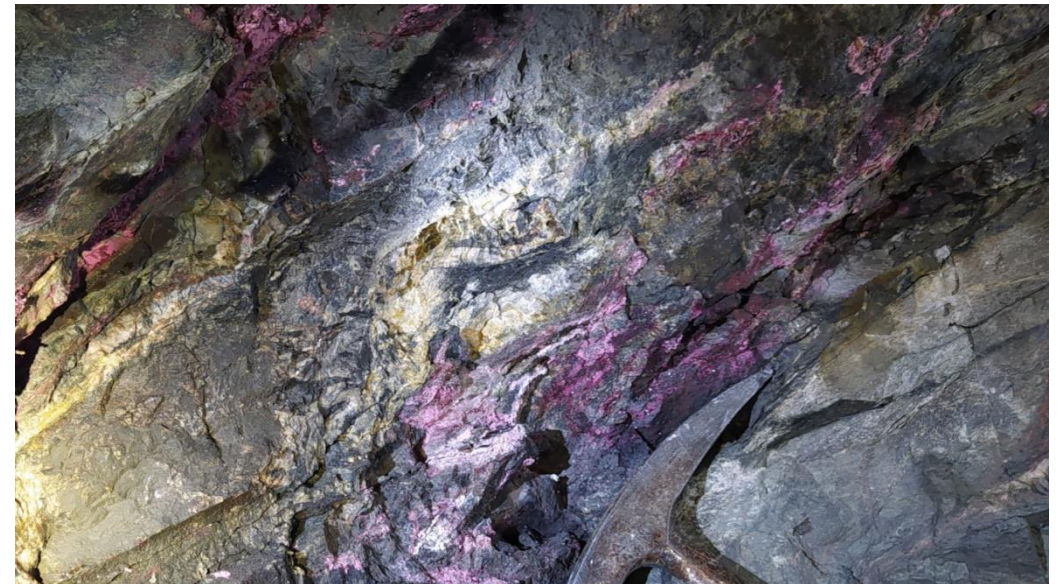
- On 23 January 2023, the Company reported having entered historic galleries G7 and G4 head of schedule because of stringently following all applicable procedures.
- Systematic chip sampling confirms in-situ high grade Co-Ni-Au in G7 and Cu-Zn-Pb-Ag mineralization in G4 within +150 m and 350 m gallery segments, respectively.
- G7 highlights include 6.7% Cobalt, 29.7% Nickel, 15.65 g/t Au with about half of the chip samples exceeding 0.44% Nickel equivalent.
- Co-Ni-Au mineralization occurs on shallow-dipping foliation in schists, on fault cleavage, and in late-state veins cutting the other mineralization styles.
- Although high-grade, the Cu-Zn-Pb-Ag veins in G4 were found to be too thin and discontinuous, not forming a target for further exploration.

**Below: Powdery, greenish nickel oxide minerals on the wall of G7 and rocks on the gallery floor. Yellow magnetic pen for scale.**



**Left: Powdery, pinkish cobalt oxide mineral on foliation in graphitic schist. Individual Co-oxide mineral grains are about 1 mm across.**

**Below: Pinkish cobalt oxide mineral weathering from schists. Hammer for scale.**



# Romania Bihor – Reopened galleries



## Gallery safety

- The re-opened historic galleries G2, G4, and G7 are technically in very good condition.
- Measurements of the air quality detected radon in G4 and G7, which needed to be reduced for a safe work environment.
- Romanian contractor Radioactiv Mineral Magurele (RMM, a 100 % state-owned company) installed ventilation systems in G4 and G7. Tests demonstrated the successful removal of radon, creating a safe work environment for LEM's geologists and partners. The same system will be installed in other galleries as needed, to allow safe working for mapping, channel sampling, and underground drilling.
- G2 is connected via raises to the higher, northern gallery systems of Dibarz and G10-G16 (see Slide 3 for location). This causes a continuous natural air flow, which becomes strong at times. Due to this fortunate circumstance, the Company will most probably not have to install a large ventilation system for radon-removal.
- Beyond its restored mouth zone, G2 is very well preserved and provides safe access to the principal gallery axis of about 3,200 m straight length, from which extensive transversals emanate to the north for a total of over 8,000 m of galleries in the G2-level.



# Romania Bihor – Outlook

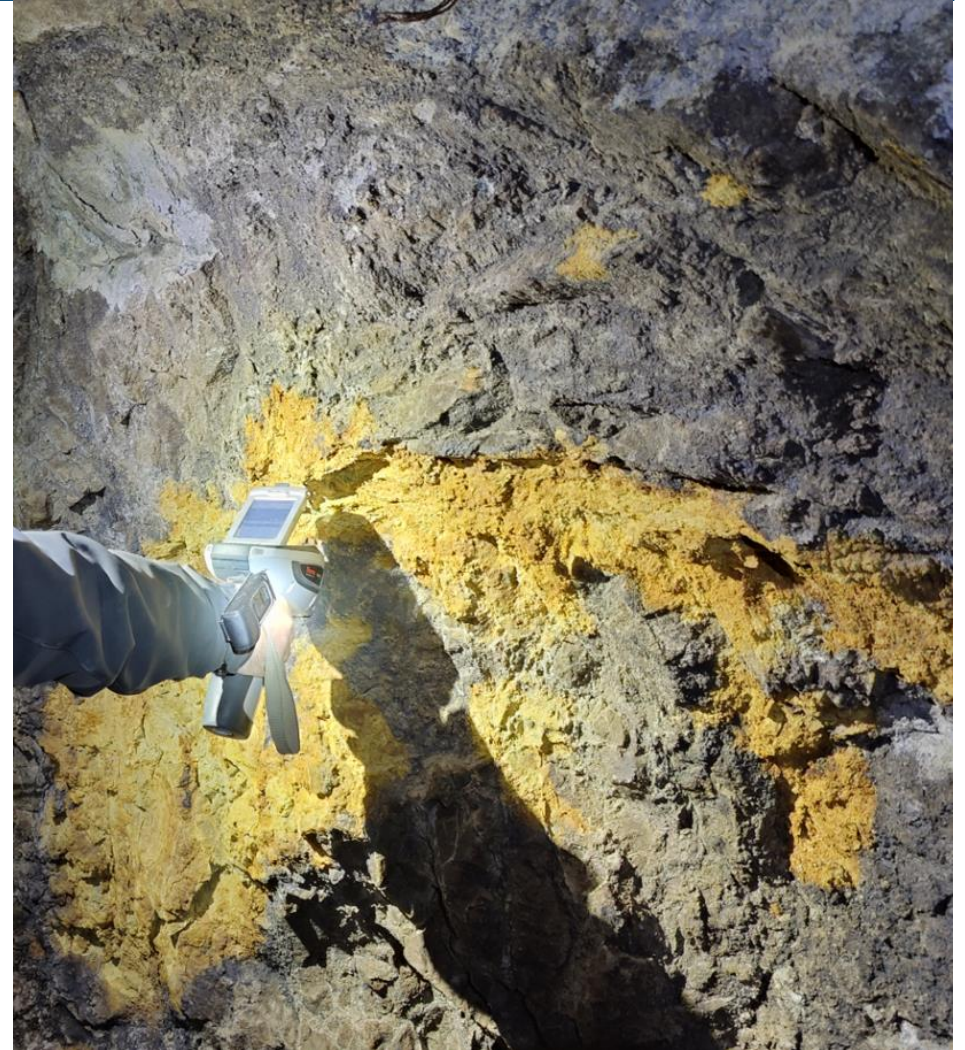


## Preliminary observation in G2

- A preliminary visit in the secured G2 gallery system yielded further Co-Ni and Pb-Zn-Ag zones of significant extent. In the first 1,600 m, a several meters thick carbonate level was found pervasively altered and mineralized in several places on a +100 m scale as far as exposed underground. Hand-held XRF-data shows Pb-Zn grades of several percent along with significant silver grades in the altered carbonates.

## Imminent tasks

- Preparation and submittal of the Year 2 annual exploration report to the National Agency of Minerals Resources (NAMR) in Romania.
- Establishment of an on-site laboratory for crushing-grinding of larger samples and cutting drill core.
- Test of recently purchased Atlas Copco Diamec 232 underground drill rig.
- Drilling of mapped and sampled Co-Ni-Au mineralization in G7 to understand its extent and thickness.
- Surface drilling of geophysically detected conductivity anomalies.
- Mapping and sampling of Co-Ni and Zn-Pb-Ag-mineralized zones detected visually and by hand-held XRF in G2.
- Opening of further galleries to the north of G2 and establishing a safe work environment inside.



Altered and pervasively Zn-Pb-Ag-mineralized carbonate (gray) in G2, exhibiting partial oxidation of accompanying Fe-sulphide (ocre).



# Current Focus

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# 2024 Action Plan



## Norra Kärr HREE project

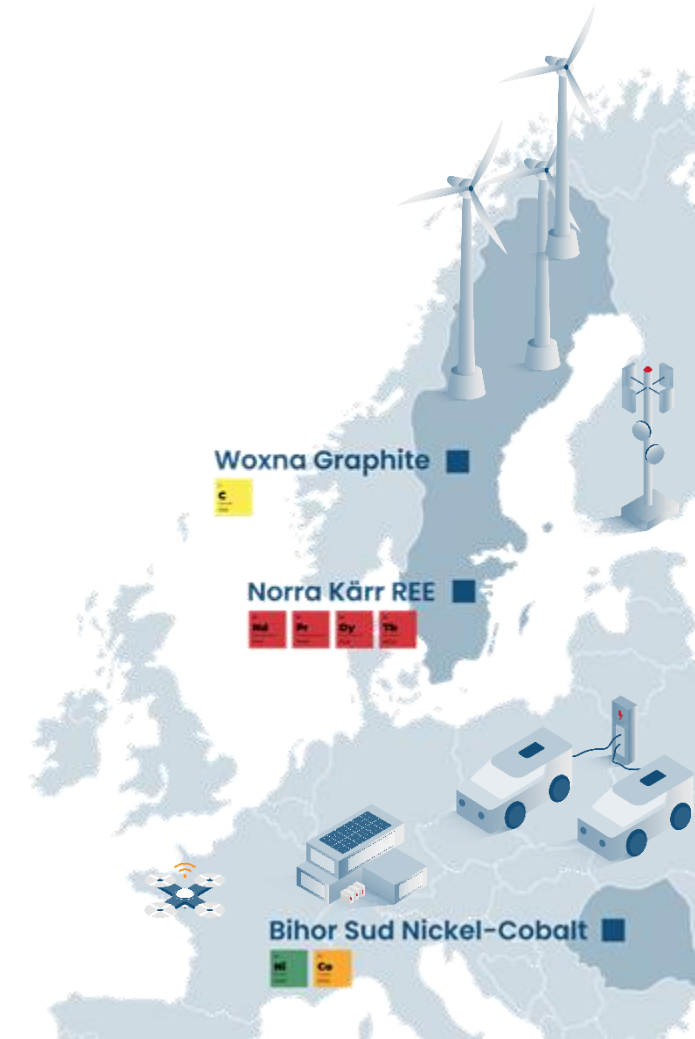
- CRMA Strategic Project Application submitted August 2024
- Mining lease application based on new design to be submitted Q4 2024
- Scope PFS for commencement in 2025
- Focus on building strategic partnerships in the supply chain

## Woxna Graphite Mine

- Strategic review including mine restart options
- Market assessment of Woxna's positioning in natural graphite supply chain in the EU
- Consideration of CRMA Strategic Project Application for anode materials project

## Bihor Sud project

- Underground drilling to start in gallery G7 with a focus on high grade Co-Ni
- Thereafter moving to gallery G2 with a focus on polymetallic mineralization
- Focus on defining scale and grade that would sustain mining





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