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# Green Battery Materials



RIU Fremantle – February 2023

ASX: NMT | AIM: NMT | OTC: RDRUY | DEU: 9R9

# Disclaimer

## Summary information:

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## Forward-looking information:

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## Financial data:

All figures in this document are in Australian dollars (AUD) unless stated otherwise.

## Not financial product advice:

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## Investment risk:

An investment in securities in Neometals is subject to investment and other known and unknown risks, some of which are beyond the control of Neometals. The Company does not guarantee any particular rate of return or the performance of Neometals. Investors should have regard to the risk factors outlined in this document.

## Compliance Statement:

The information in this document that relates to Exploration Results, the Mineral Resource Estimate and the Ore Reserve Estimate for the Barrambie VTM Project has been extracted from ASX Releases set out below, which are available at [www.neometals.com.au](http://www.neometals.com.au)

17/04/2018	<a href="#">Updated Barrambie Mineral Resource Update</a>
11/07/2018	<a href="#">Barrambie Test Work Produces +90% Purity Titanium Slag at High Recoveries</a>
22/12/2020	<a href="#">Barrambie Flowsheet Breakthrough</a>
3/11/2022	<a href="#">Barrambie - Successful Commercial Smelting Trials For Barrambie</a>
17/11/2022	<a href="#">Robust Outcomes From Barrambie Titanium Project PFS</a>

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that in the case of estimates of Mineral Resources or Ore Reserves all material assumptions and technical parameters underpinning the estimates in the market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcements.

# Executive Summary



## Neometals

Neometals is an emerging, sustainable battery materials producer.



3 business units supporting energy transition in the EV / ESS supply chains:

- Li-ion Battery Recycling (Ni/Co)
- Vanadium Recovery
- Lithium Chemicals



Underpinned by proprietary, green, processing technologies

- 16 Granted Patents
- 54 Patents Pending



ESG commitment. Recycling and recovery minimise reliance on mined materials and reduce carbon footprint


















Focus on continuous development and innovative commercialisation with strong partners



Strong, growing team with track-record of value creation, project execution and shareholder return.

# Core Battery Materials Business Snapshot

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<b>Business Unit</b>	<p><b>Lithium-ion Battery Recycling</b> </p>	<p><b>Vanadium Recovery</b> </p>	<p><b>Lithium Chemicals</b> </p>
<b>Business Unit Partners</b>	<p>50:50 Incorporated JV <b>Primobius</b></p>	<p>Co-operation Agreement for 50:50 Incorporated JV</p>	<p>Reed Advanced Materials ("RAM") 70:30 Incorporated JV</p>
<b>Project Development Partners</b>	<p><b>SMS group</b></p> <p> Mercedes-Benz</p> <p> </p>	<p><b>Critical Metals</b></p> <p><b>SSAB</b></p> <p><b>H2green steel</b></p>	<p> 30%</p>
<b>Key Regions of Focus</b>	<p>  </p>	<p> </p>	<p>Co-operation Agreement for 50:50 Incorporated JV with RAM</p> <p> EVOLVING CHEMISTRY</p> <p> </p>
<p><b>Underpinned by proprietary, sustainable processing technologies that recover battery materials</b></p>			

# Experienced & Growing Team



**Steven Cole**  
Chair



**Chris Reed**  
Managing Director /  
CEO



**Dr Natalia Streltsova**



**Doug Ritchie**



**Dr Jennifer Purdie**



**Les Guthrie**



**Jason Carone**  
Company Secretary /  
CFO



**Giuliano Giordani**  
Financial Controller



**Jeremy Mcmanus**  
GM – Investor  
Relations and  
Commercial



**Pablo Carabajal**  
Manager - Finance



**Anél Joubert**  
Manager - ESG



**Michael Tamlin**  
COO/Lithium



**Paul Wallwork**  
GM – Marketing and  
Product  
Development



**Matthew Carter**  
Manager - Data



**Matthew Read**  
GM – Lithium  
Projects



**Dirk Kotzee**  
Manager – Project  
Services



**Merrill Gray**  
Head of Recycling



**Gavin Beer**  
GM – Lithium  
Processing



**Adam Farghaly**  
Senior Project  
Metallurgist



**Darren Townsend**  
CDO/Vanadium



**Irena Ivanova**  
GM – Evaluation  
Studies



**Rihanna Vanin**  
Project Engineer



**David Robinson**  
GM – Metallurgy and  
R&D



**Eric Taarland**  
GM – Vanadium  
Marketing



**Greg Hudson**  
GM – Geology



**Owen Casey**  
Senior Project  
Geologist



**Casper Adson**  
GM – Barrambie  
Project

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# Corporate Dashboard

NEOMETALS HAS SIGNIFICANTLY OUTPERFORMED THE ASX200  
A\$82M RETURNED VIA DIVIDENDS AND BUY BACKS IN THE LAST ~5 YEARS

ASX: NMT	OTC:RDRUY	
Shares on Issue <sup>(1)</sup>	m	552.7
Share Price	A\$	0.86
Market capitalisation	A\$m	<b>467.1</b>
Cash (30-Dec-22)	A\$m	42.0
Debt	A\$m	-
Investments (30-Dec-22) <sup>(2)</sup>	A\$m	29.4

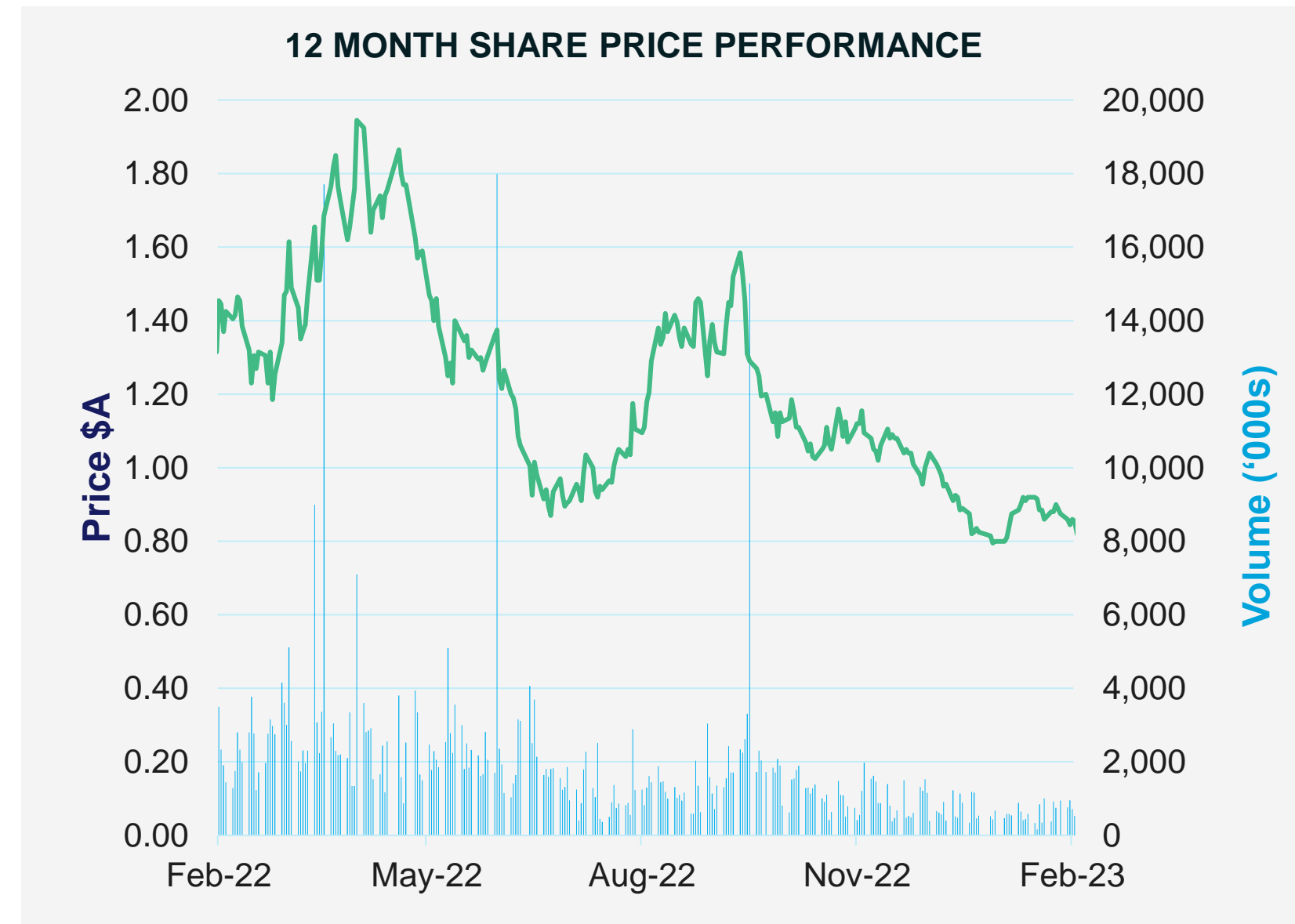
MAJOR SHAREHOLDERS	
David Reed	5.5%
Clearstream/Deutsche Börse	3.9%
Top 20	39.8%
No of Shareholders	~14,572

Notes: Market data as at 15 February 2023 (unless otherwise noted)

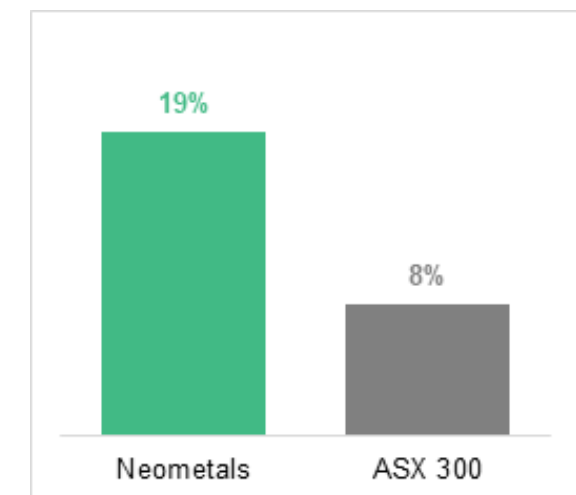
<sup>(1)</sup> Excludes 12.6M performance rights

<sup>(2)</sup> Receivables and investments

<sup>(3)</sup> Sourced from Bloomberg (as at 30 December 2022) assumes dividends re-invested



5-Year TSR<sup>(3)</sup>





# Lithium-ion Battery (LiB) Recycling

Intellectual Property Holding Company  
50% Neometals / 50% SMS group

Primobius GmbH – Commercialisation  
Incorporated 50:50 JV with SMS group

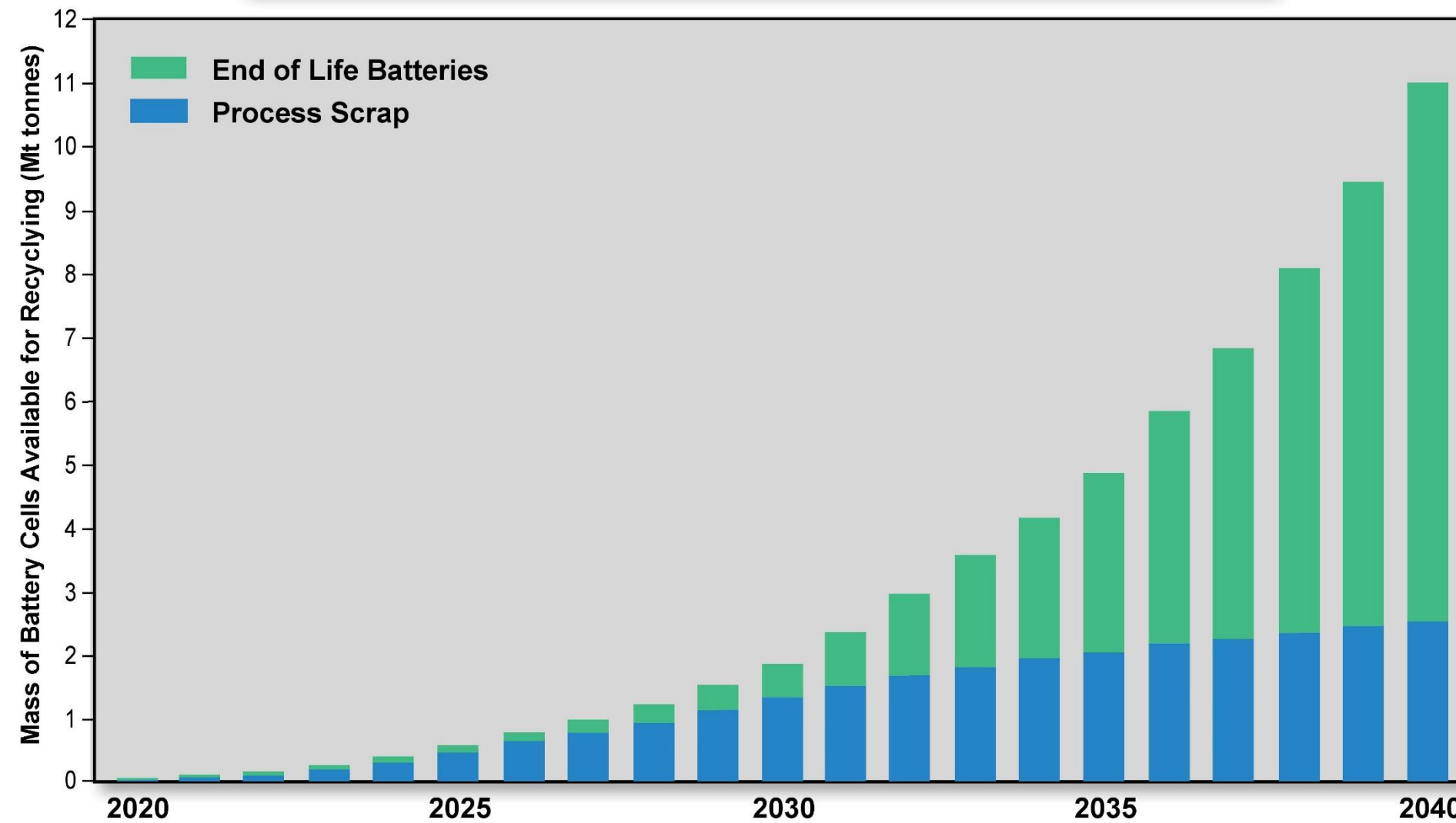
**Primobius**  
Battery recycling without limits



# Aim is to be leading provider of recycling solutions to OEM's

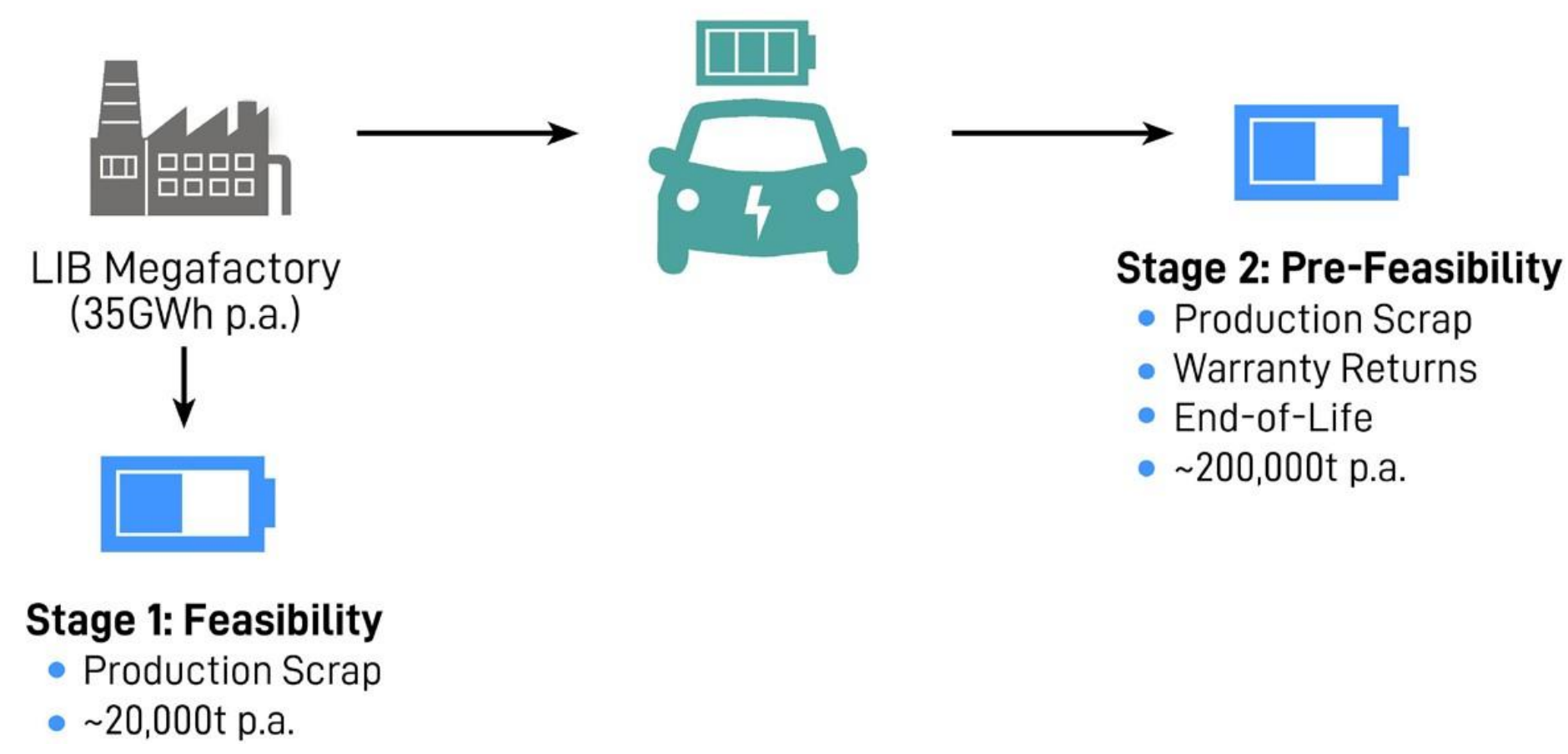
OUR SCALABLE PLANT SOLUTIONS ADDRESS GROWING VOLUMES OF PRODUCTION SCRAP AND END-OF-LIFE BATTERIES

### Global Battery Volume Available for Recycling



Source: Benchmark Minerals Intelligence (Dec. 2022), Battery Density - NMT Management (4t/MWh)

### Aim is to be Recycler of Choice for Cellmakers & Car Makers



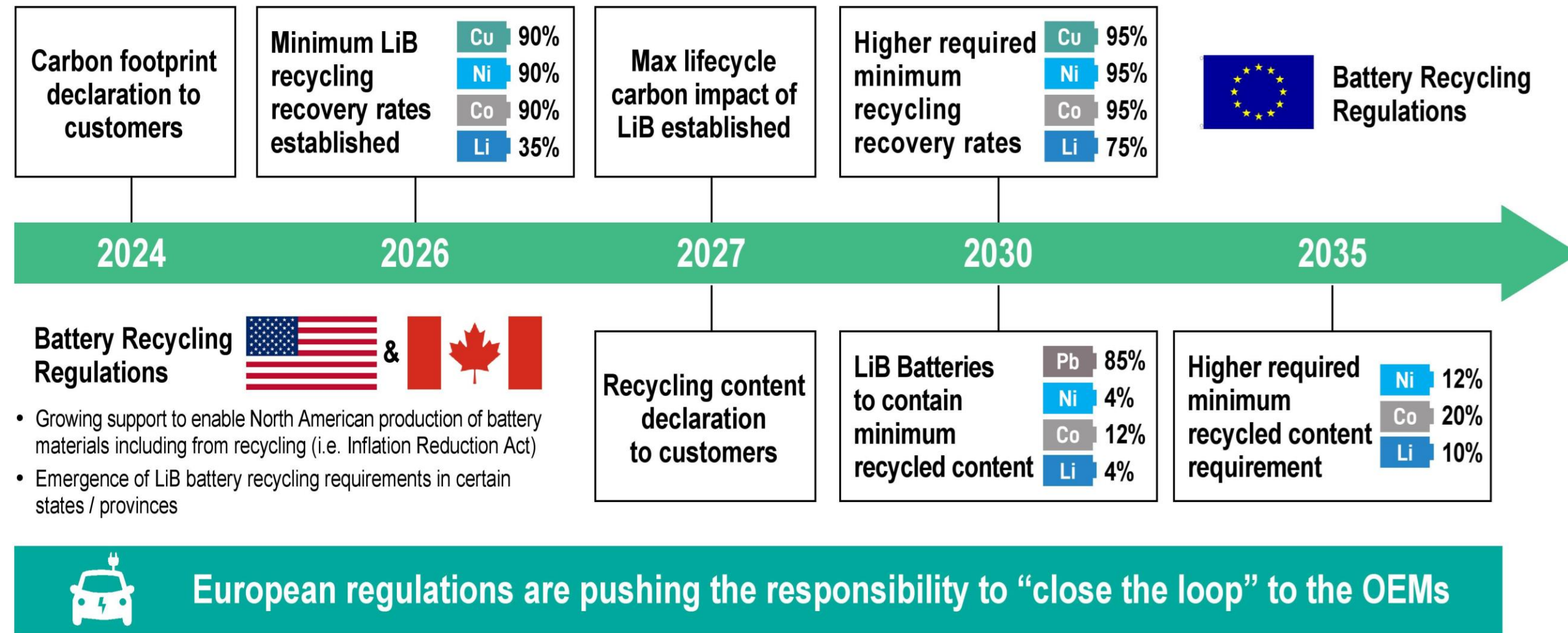
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# European Regulation Driving Automakers to “Close the Loop”

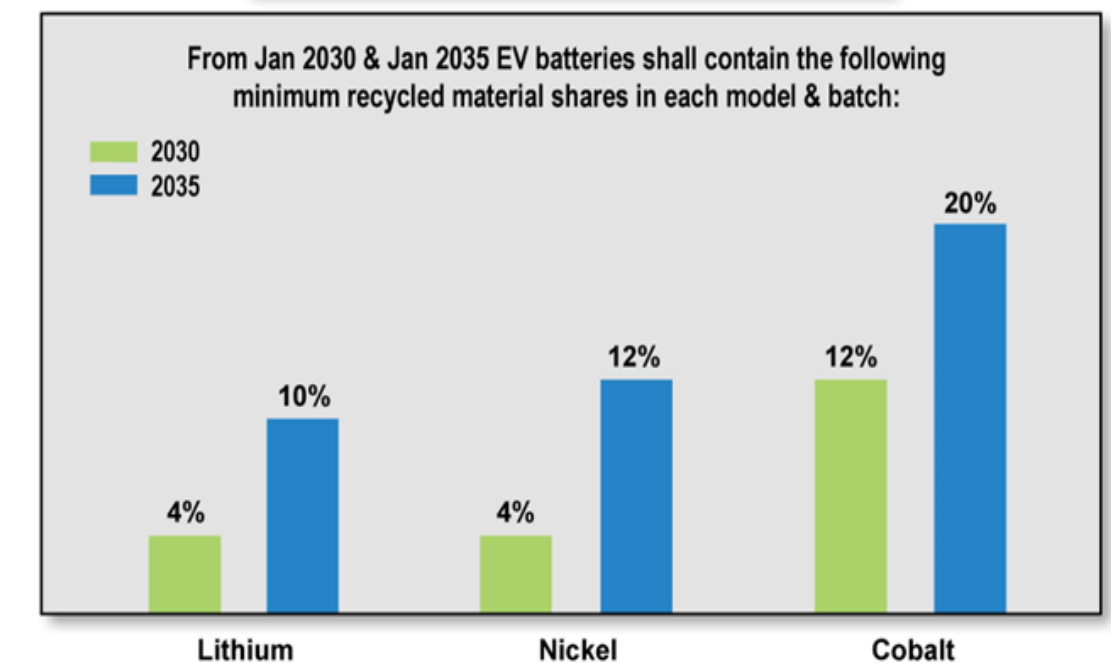
AIM TO BE THE FIRST TO BE FULLY COMPLIANT WITH ALL EU BATTERY REGULATIONS FOR LiB RECYCLING, ON TRACK FOR 2026



Source: European Commission, FCAB

	Current TRL
Copper Recovery	87.4%
Nickel total recovery	84.4 %
Cobalt total recovery	82.3 %
Lithium total recovery	83.5 %

### EU Mandatory Recycling Content



Source: EU, Roland Berger

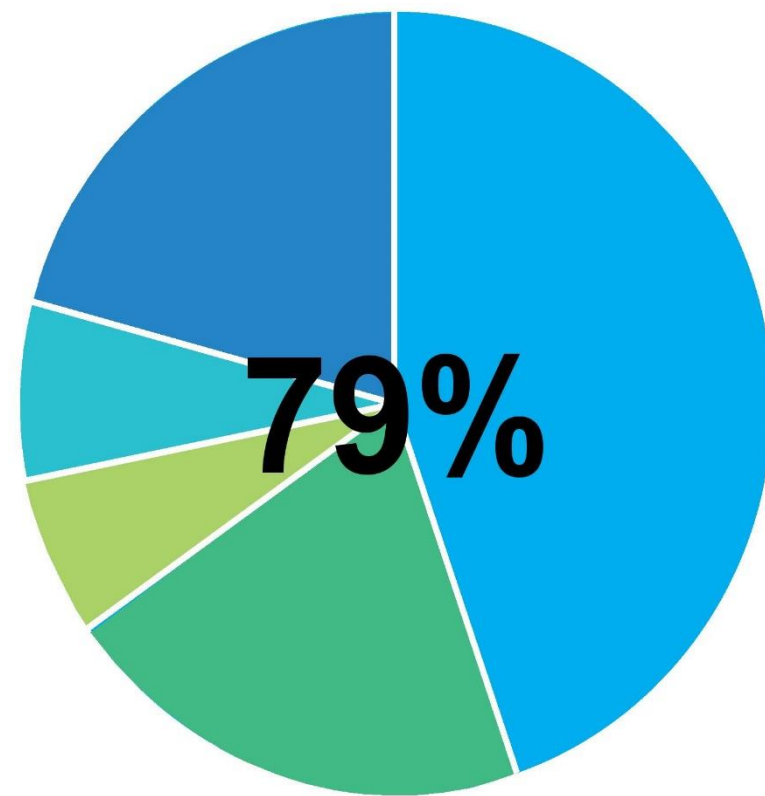
Source: European commission, FCAB

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# Recycling = lowest cost materials

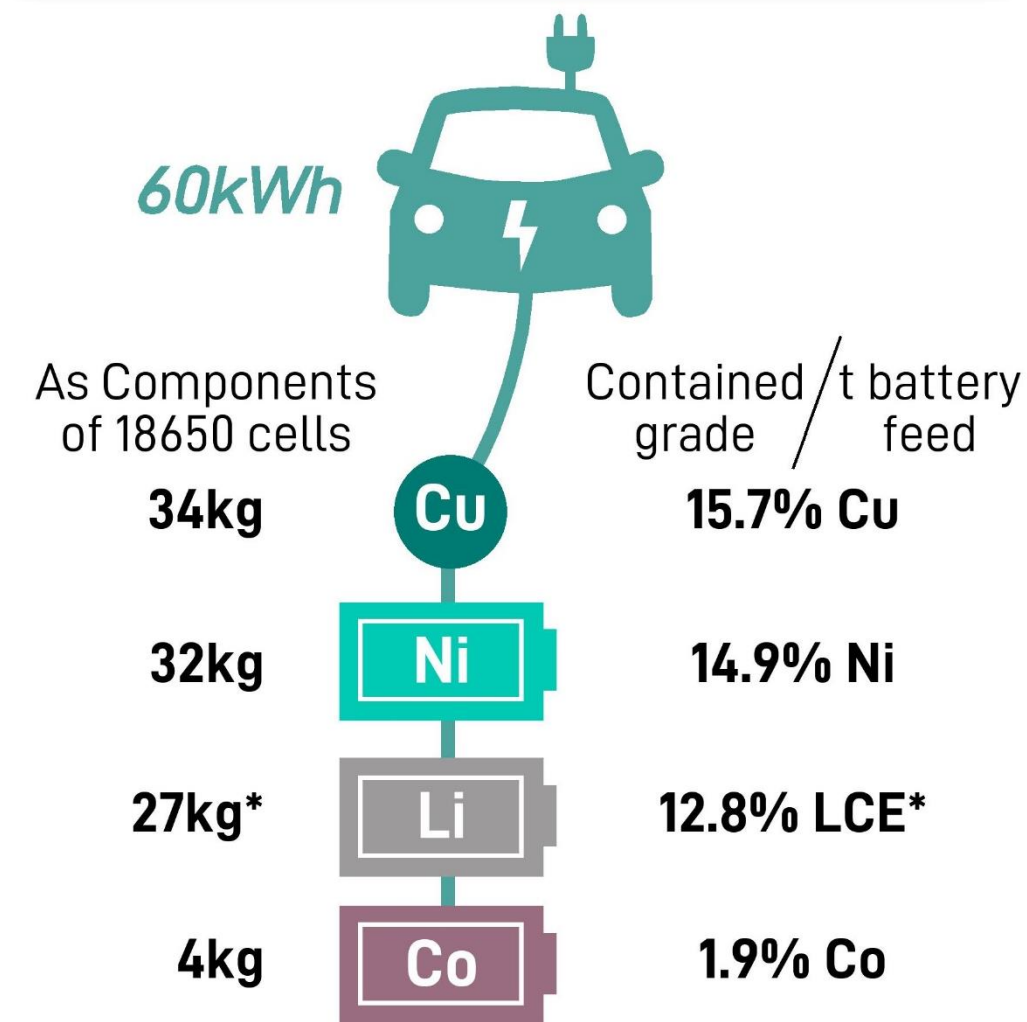
APPROX. 80% OF THE COST OF LITHIUM-ION BATTERIES IS IN THE RAW MATERIALS

Lithium Ion Cell Manufacturing Cost



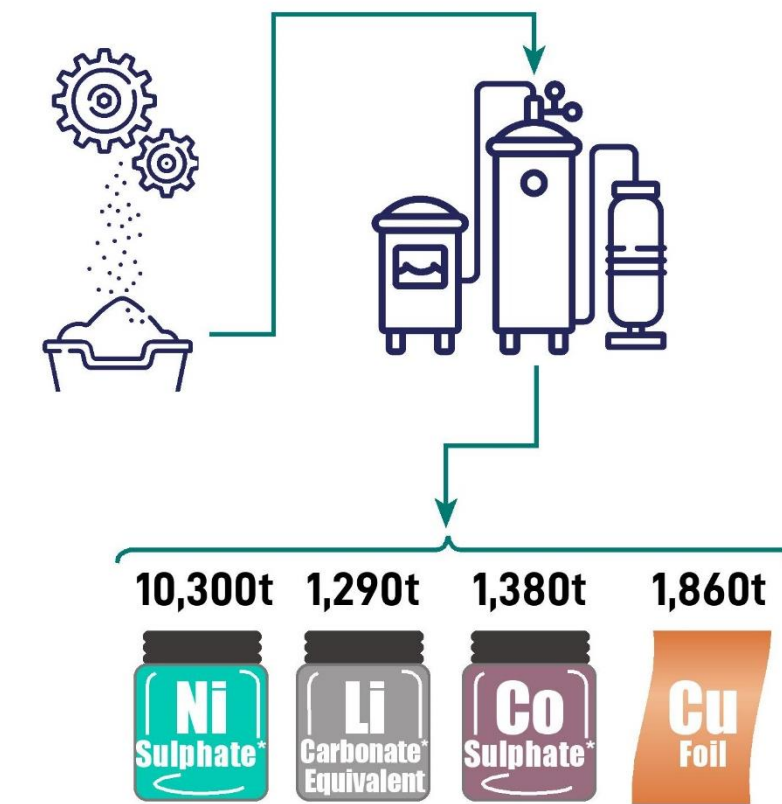
Source: Benchmark Mineral Intelligence

Typical BEV Battery Composition Using NCM 811 Chemistry



\* Lithium Carbonate Equivalent

Annual Primobius Production @ 50 Tonnes per Day of Battery Cells



\* $\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$ ,  $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ ,  $\text{Li}_2\text{CO}_3$

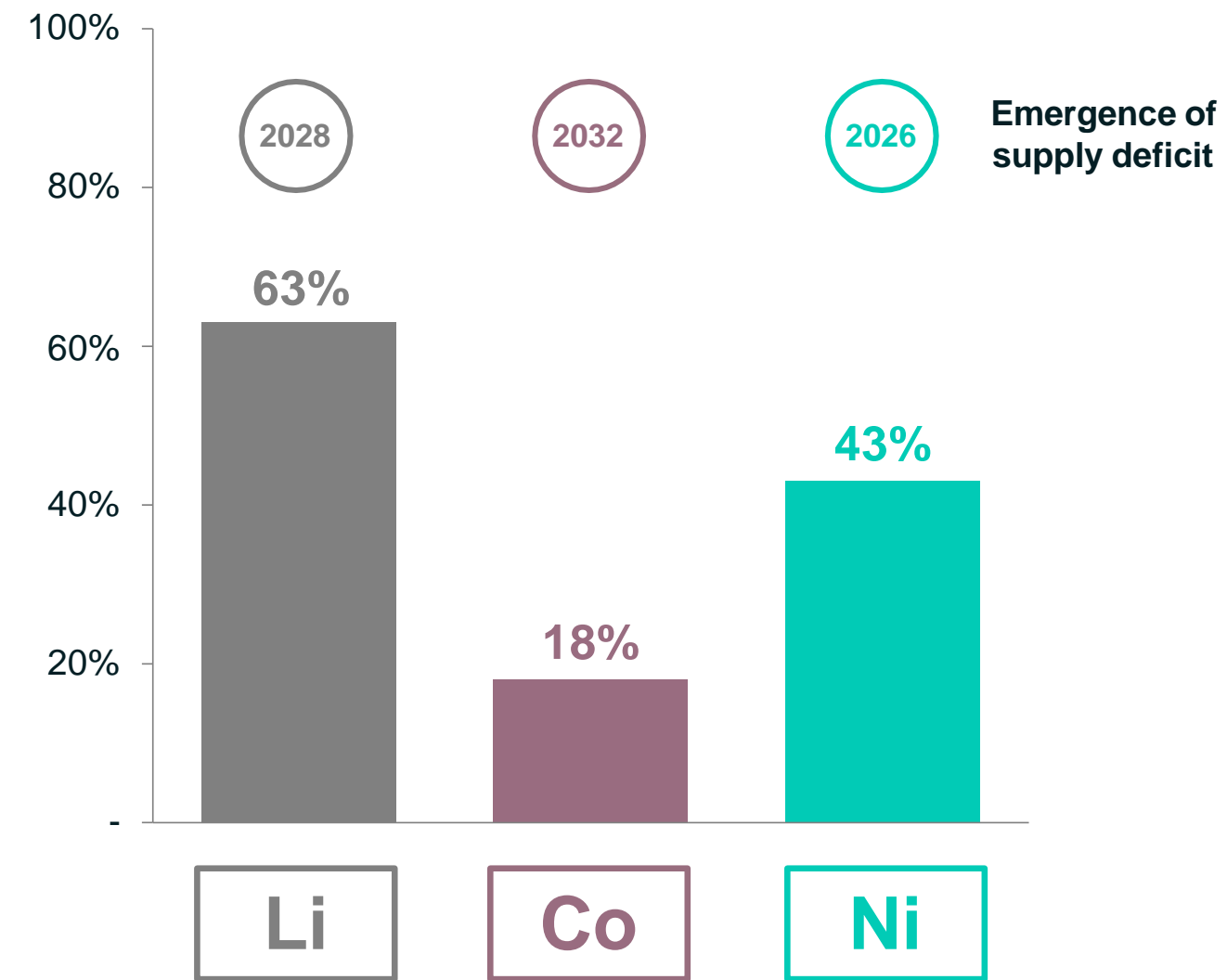
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# Recycling = secure, resilient raw material supply chains

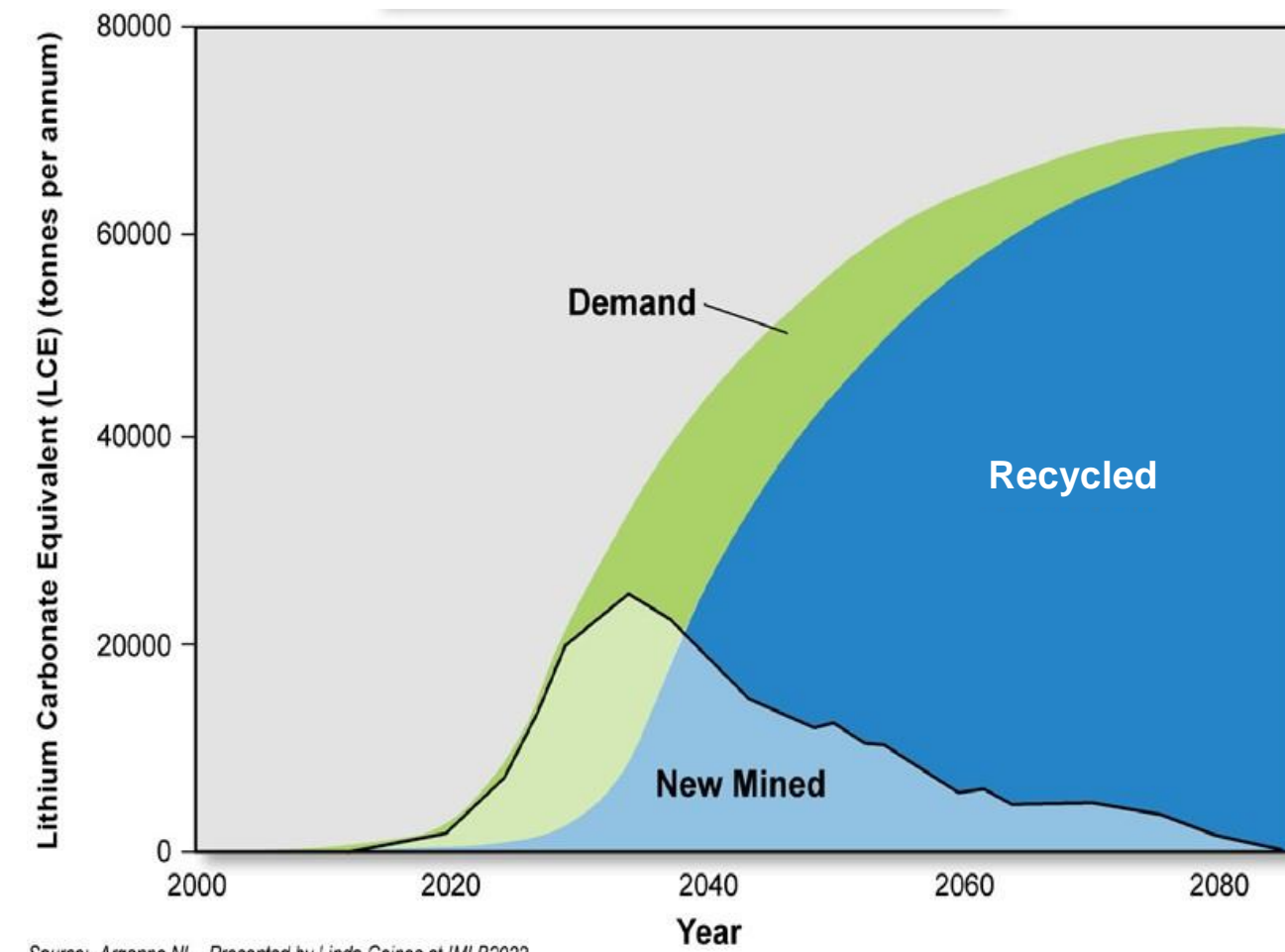
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Supply Deficits for Key Recovered Material (% of Demand 2040)



Source: Wood Mackenzie

By 2040, Recycled LCE will be the main source of Lithium



Source: Argonne NL - Presented by Linda Gaines at IMLB2022

Source: Argonne NL - Presented by Linda Gaines at IMLB2022.



# Recycling = greenest raw materials

OUR PROCESSING TECHNOLOGY REDUCES THE CO2 FOOTPRINT BY >80% VS MINED RAW MATERIALS

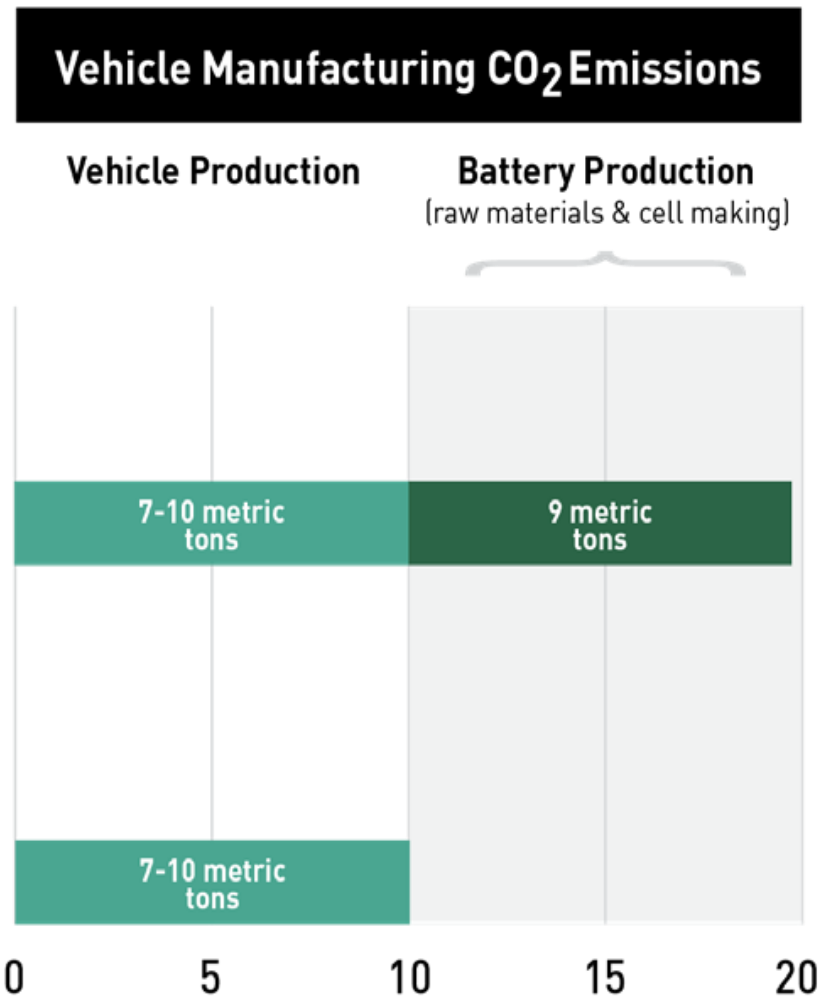
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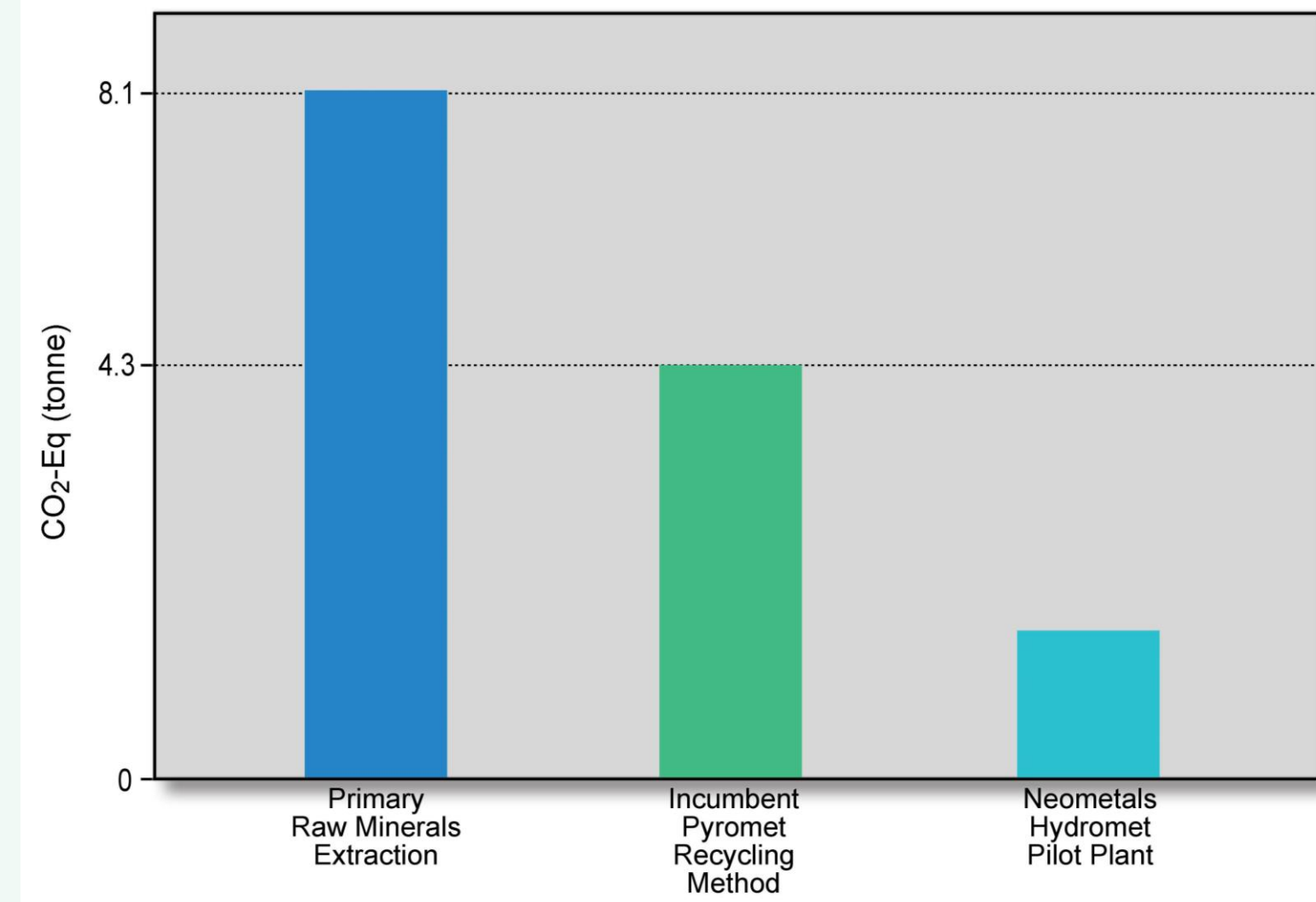
⚡ Electric car



💧 Internal combustion engine car



Raw Material CO<sub>2</sub> Savings - Traditional Mining vs Battery Recycling



Source : Duesenfeld (Primary Raw Materials and Pyromet Recycling) Neometals (Pilot Plant LCA 2020)

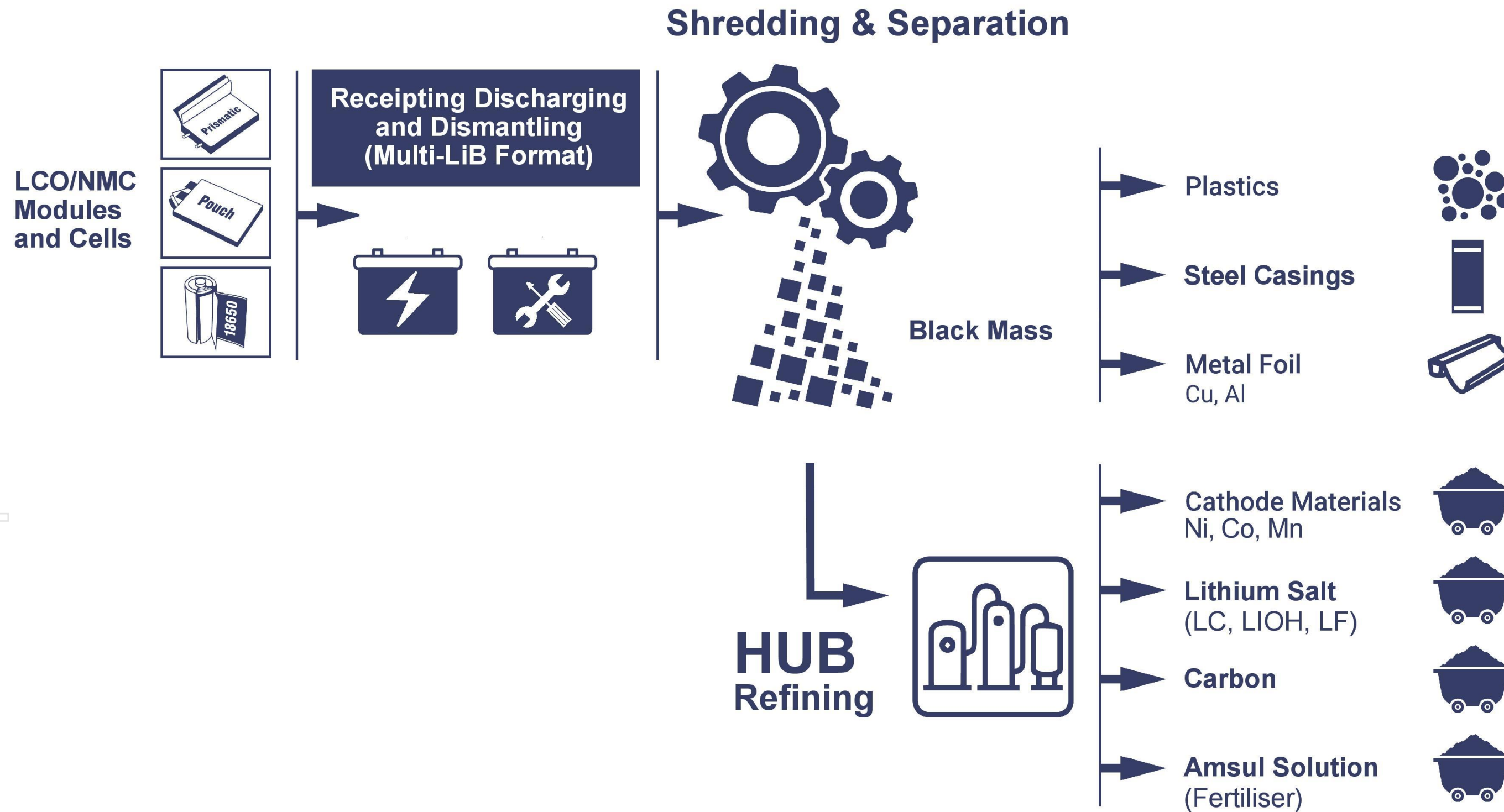
Source: Duesenfeld



# Our patent-pending recycling solution

1. PRIMOBIUS' FULLY CERTIFIED DISPOSAL SERVICE IN HILCHENBACH, GERMANY SERVICES ALL OEM SUPPLY CHAINS
2. PRIMOBIUS' AWARD-WINNING TECHNOLOGY WILL DELIVER BATTERY MATERIALS WITH LOWEST CARBON FOOTPRINT

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# Primobius equipment solutions backed by SMS group

SMS IS A 140 YEAR-OLD LEADING GERMAN PLANT BUILDER, 14,500 EMPLOYEES IN 95 SITES AROUND THE WORLD, PRODUCTION FACILITIES IN EUROPE, NORTH AMERICAN, INDIA AND CHINA

**Primobius**

Battery recycling without limits

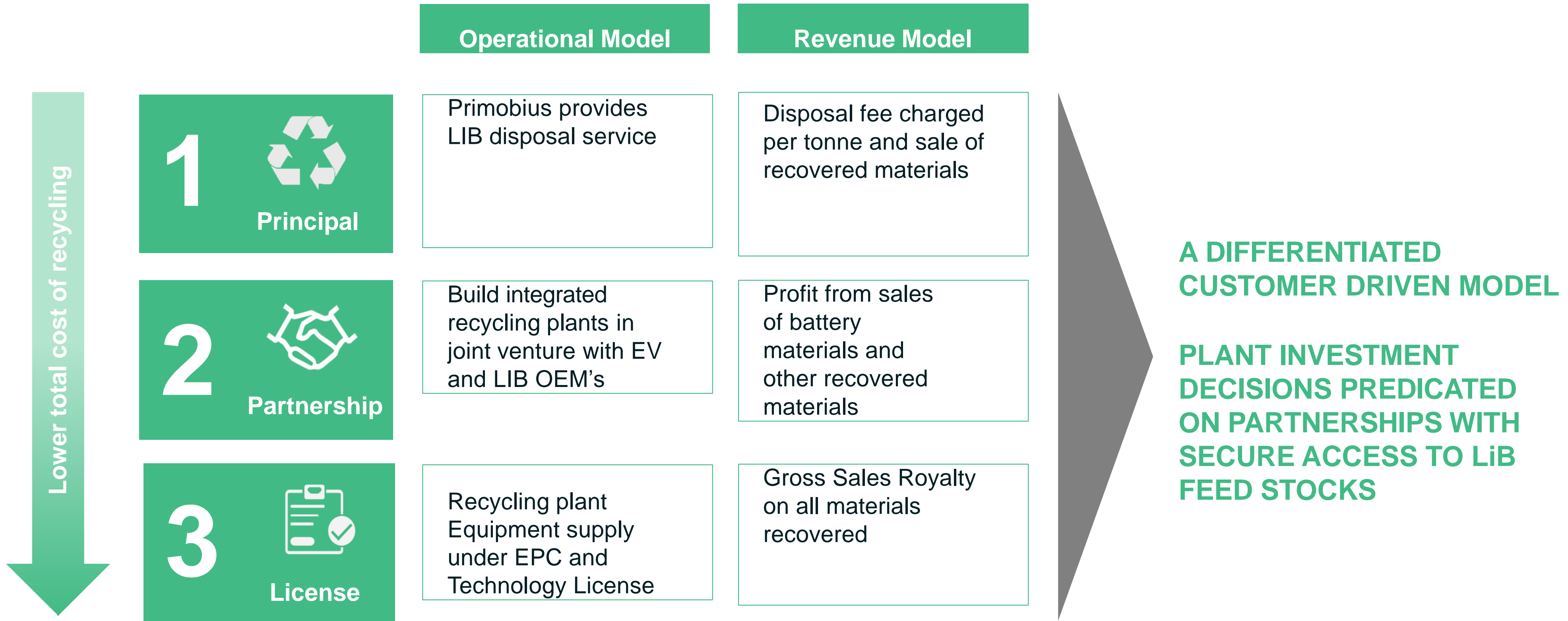
**SMS**  **group**





# Our flexible business models deliver lowest total cost of recycling

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# Commercial Pipeline\*

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**Primobius**  
Battery recycling without limits

**Capacity:** 10tpd Spoke  
**Plant type:** Shredding  
**Products:** Black Mass  
**Business Model:** Principal

**STELCO**  
The Steel Company of Canada

**Capacity:** 50tpd Integrated  
**Plant type:** Shredding/Refining  
**Products:** Black Mass and BGMS<sup>(1)</sup>  
**Business Model:** License & JV Option



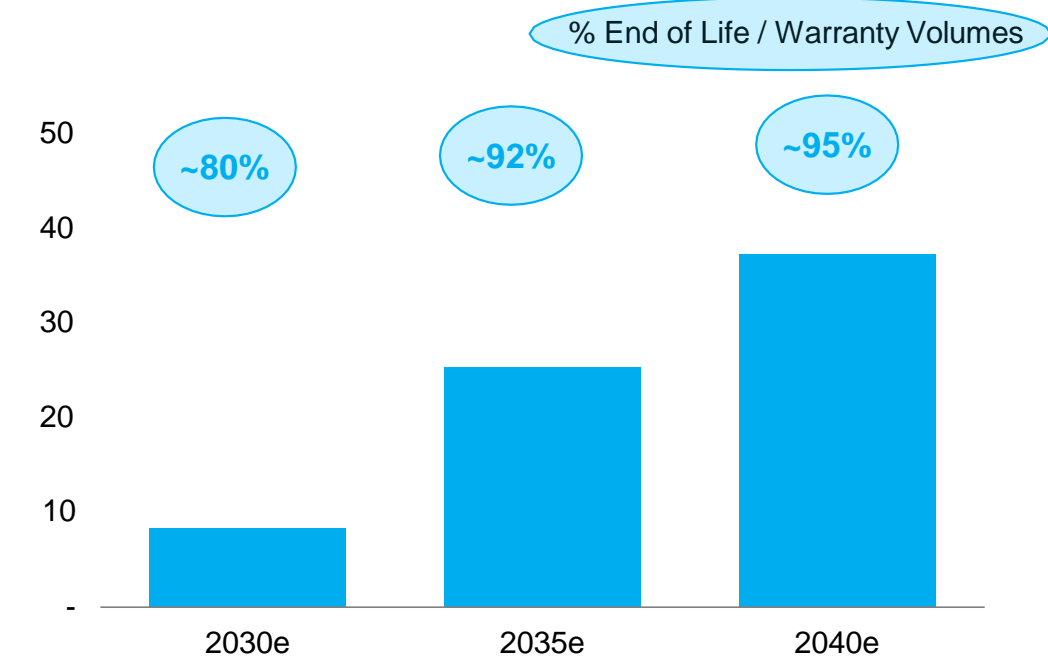
**Capacity:** 10tpd Integrated  
**Plant type:** Shredding/Refining  
**Products:** Black Mass and BGMS<sup>(1)</sup>  
**Business Model:** Limited Royalty-Free R&D License

**Primobius**  
Battery recycling without limits

**"Greenfields"**

**Capacity:** 50tpd Integrated  
**Plant type:** Shredding/Refining  
**Products:** Black Mass and BGMS<sup>(1)</sup>  
**Business Model:** Principal / JV

Total Addressable Market (US\$bn)



**Economies of scale and access to feed key to the success of LiB battery recyclers scale-up**

Source: RBCe. NCM battery recycling North America and Europe.

\*Subject to Customer, Primobius and Neometals Board Approvals

1. BGMS = Battery Grade Metal Sulphates

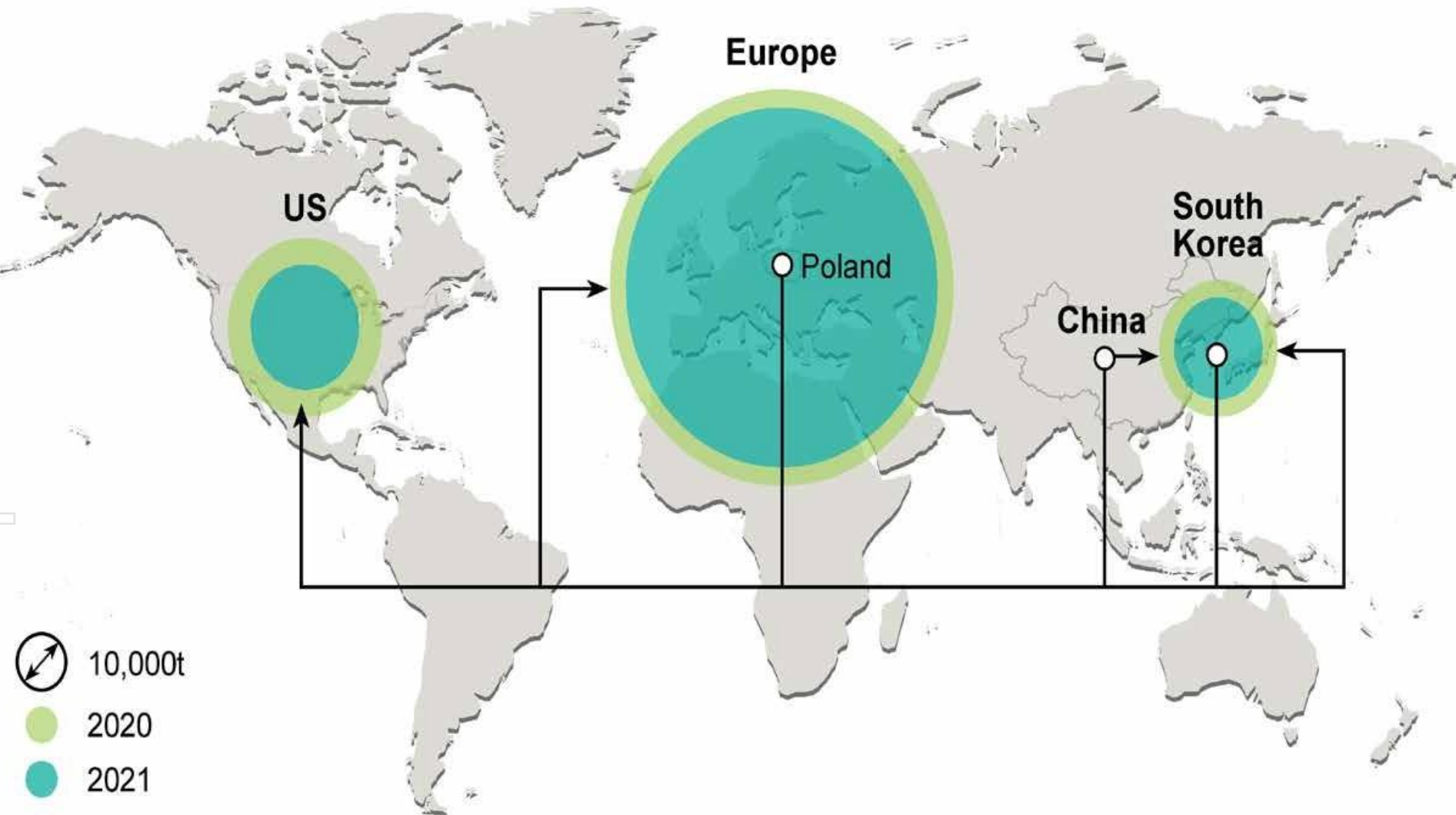




# Hilchenbach Spoke – establishing market share in EU

RAMPING UP TO LICENCED CAPACITY <10tpd IN SEPQ 2023, SECURED BASELOAD FEED FORCY 2023 FROM GERMAN OEM SUPPLY CHAIN

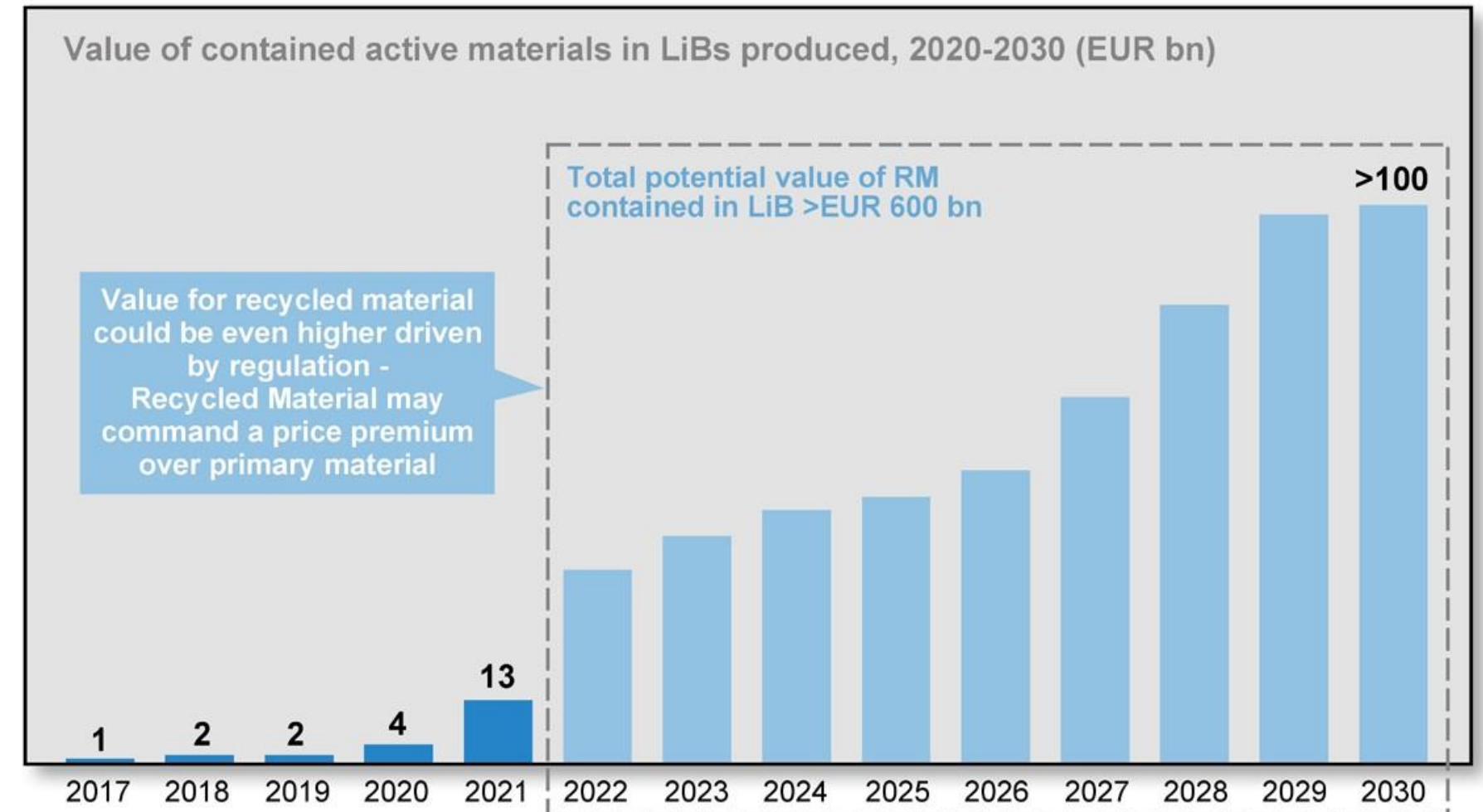
## Key Lithium-Ion Battery Trade Flows, 1H21 & 1H22



Source: Argus Media Sept. 2022

## Recycling Will Become a Significant Profit Pool

Batteries produced in the last 5 years contain Recycled Material in excess of EUR 20 bn & could exceed EUR 600 bn until 2030



Note: Only battery production since 2017 considered, 2022 average spot market prices limited to Li, Ni, Co, Mn

Source: Roland Berger Intergrated LiB Demand and Supply Model

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# Partnership with Mercedes-Benz Cont'd

## COOPERATION AGREEMENT WITH MERCEDES-BENZ (LICULAR GMBH)\*



- One of the leading premium global automotive players having produced 2.3 million vehicles in 2021
- Targeting 100% of car sales to be EVs by 2030 requiring 200GWh of battery cell production capacity
- Eight new cell factories planned globally including with one in the U.S. and four in Europe



~3.5%  
of Global  
Vehicle Sales



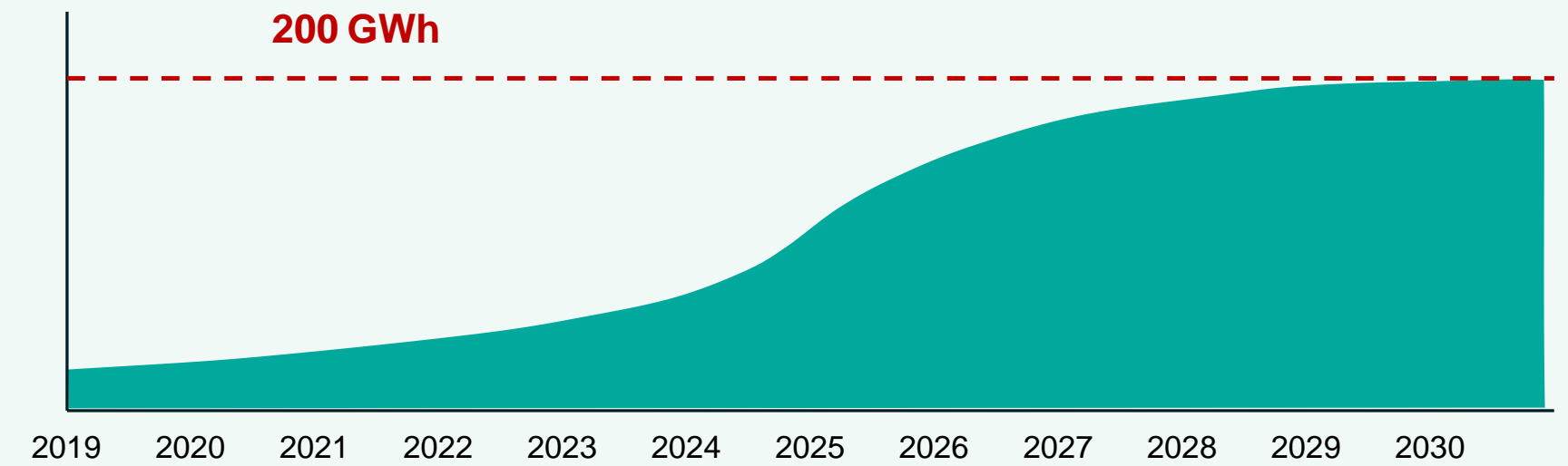
~5.4%  
of EU Car  
Sales



### Partnership

- Cooperation agreement between Mercedes-Benz recycling subsidiary and Primobius
- Cooperation agreement follows partnership for designing and constructing a 2,500tpa Recycling Plant located in Kuppenheim, Germany
- Long-term collaboration to recycle next generation cell formats and chemistries
- Strong validation of the Primobius technology

## MERCEDES-BENZ TARGET CELL PRODUCTION\*\*



### Key Illustrative Assumptions

- ~10 year battery life
- ~4.5MWh to tonne of battery

## POTENTIAL MERCEDES-BENZ EOL LIB RECYCLING REQUIREMENTS BY 2040



900ktpa of  
batteries

Potential EOL recycling requirement by 2040 with additional volumes potentially available from production scrap



~50 x 50tpd OR  
5 x 500tpd Plants

Required to process\*

\*Based on Neometals assumptions.

\*For further information, refer to ASX release dated 13 May 2022 – "Primobius executes Co-operation Agreement with Mercedes Benz"

\*\*Source: Mercedes-Benz Strategy Update: electric drive, July 2021



# Partnership with Stelco

## TECHNOLOGY LICENSE AND JV OPTION (≤50%) WITH STELCO IN NORTH AMERICA\*



Partnership

### in North America

- Recycling venture to offer a holistic end-of-life vehicle recycling solution in North America with the ability to secure large feedstock volumes
- Stelco will be responsible for supply of LiB feedstock and the securing of sites for plants
- Exclusively licensed to Stelco in North America except right to recycle for German OEMs has been retained
- Primobius has an option to acquire 25–50% of the equity in Stelco’s recycling SPV
- Non election would lead to a 10% royalty on gross revenue earned from the use of the technology<sup>(1)</sup>

## STELCO IS POSITIONED TO BE A LEADER IN THE ELECTRIC VEHICLE CIRCULAR ECONOMY

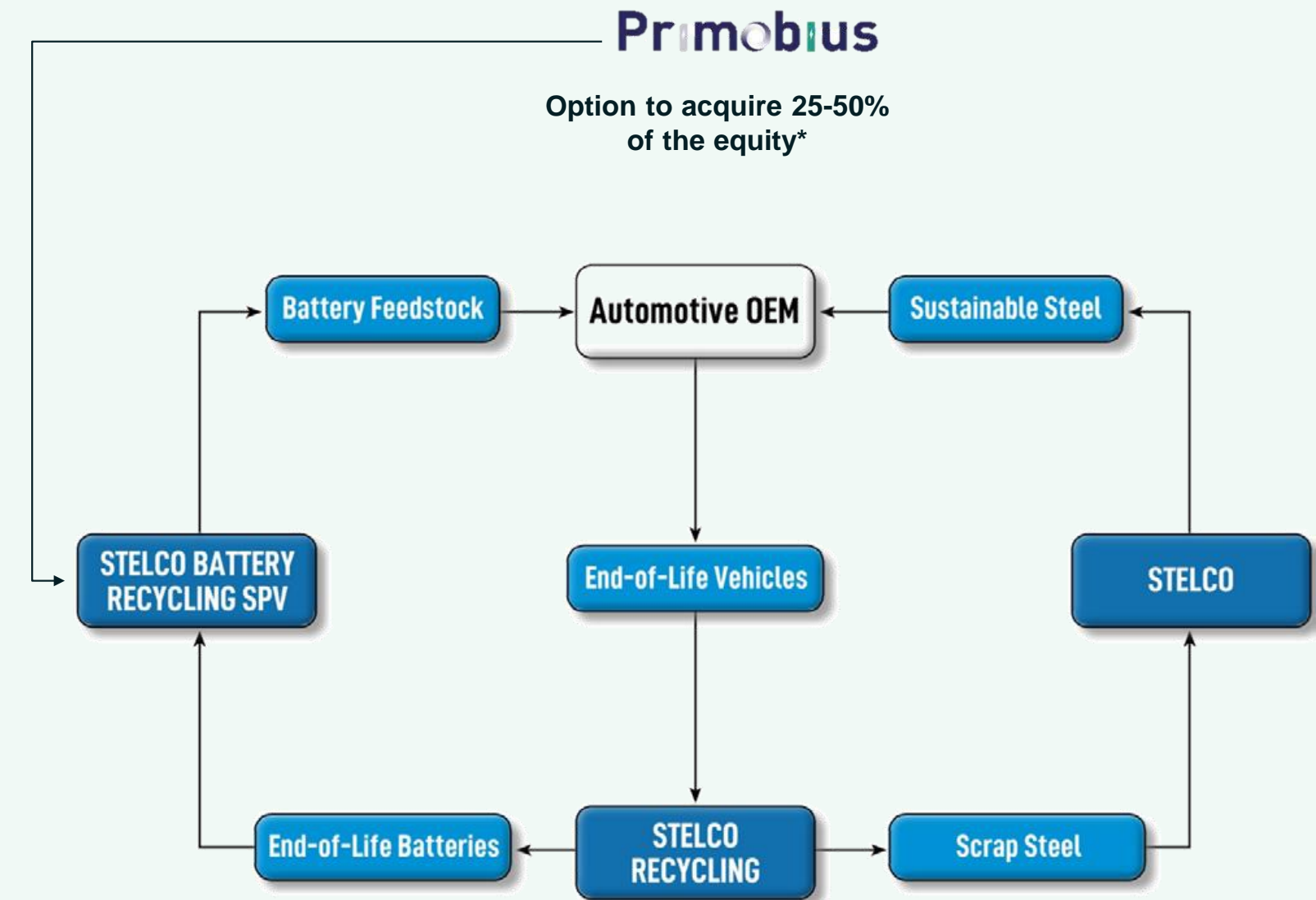


Diagram showing relationship between Stelco and the Electric Vehicle (Automotive OEM) value chain

\*For full details refer to Neometals ASX release dated 31 December 2021 titled "Primobius to Enter North America with Stelco for Recycling of Electric Vehicle Batteries"

(1) Scope for reductions in the royalty rate depending on IRRs generated, and a minimum royalty fee in cases of stalled recycling production.

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# Primobius Greenfields Integrated Refinery - Germany

## EVALUATION OF A FUTURE INTEGRATED OPERATION IN GERMANY

- Staged Engineering and Cost Study (“ECS”) will deliver Operating & Capital Costs for a 50 tpd (~20,000 tpa) integrated operation covering:
  - Inbound LIB storage
  - Discharging and Disassembly of modules
  - Shredding and Separation
  - Hydrometallurgical Refinery
- The Spoke and Hub are Primobius’ products which it can deploy under different business models
- Provides template for potential customers to integrate and re-estimate, tailored to their sites
- Kaiserslautern is a potential site in an existing industrial estate

### New “Gigafactories” Being Built in Germany

**1. Tesla**  
Grünheide,  
up to 250 GWh

**5. CATL**  
Erfurt, 14 GWh  
from 2022, later  
up to 24 GWh

**2. Microvast**  
Ludwigsfelde,  
up to 6 GWh

**6. SVOLT**  
Überherrn, 6 GWh  
by 2023, later  
up to 24 GWh

**3. Farasis**  
Ludwigsfelde,  
8-10 GWh from  
2022, later  
up to 16 GWh

**7. ACC**  
Kaiserslautern,  
from 2023, gradual  
commissioning of  
individual units, up  
to a total of 24 GWh

**4. VW & Northolt**  
Salzgitter,  
up to 24 GWh  
from 2024



Source: en:former

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# Robust Economics Across Key Battery Chemistries

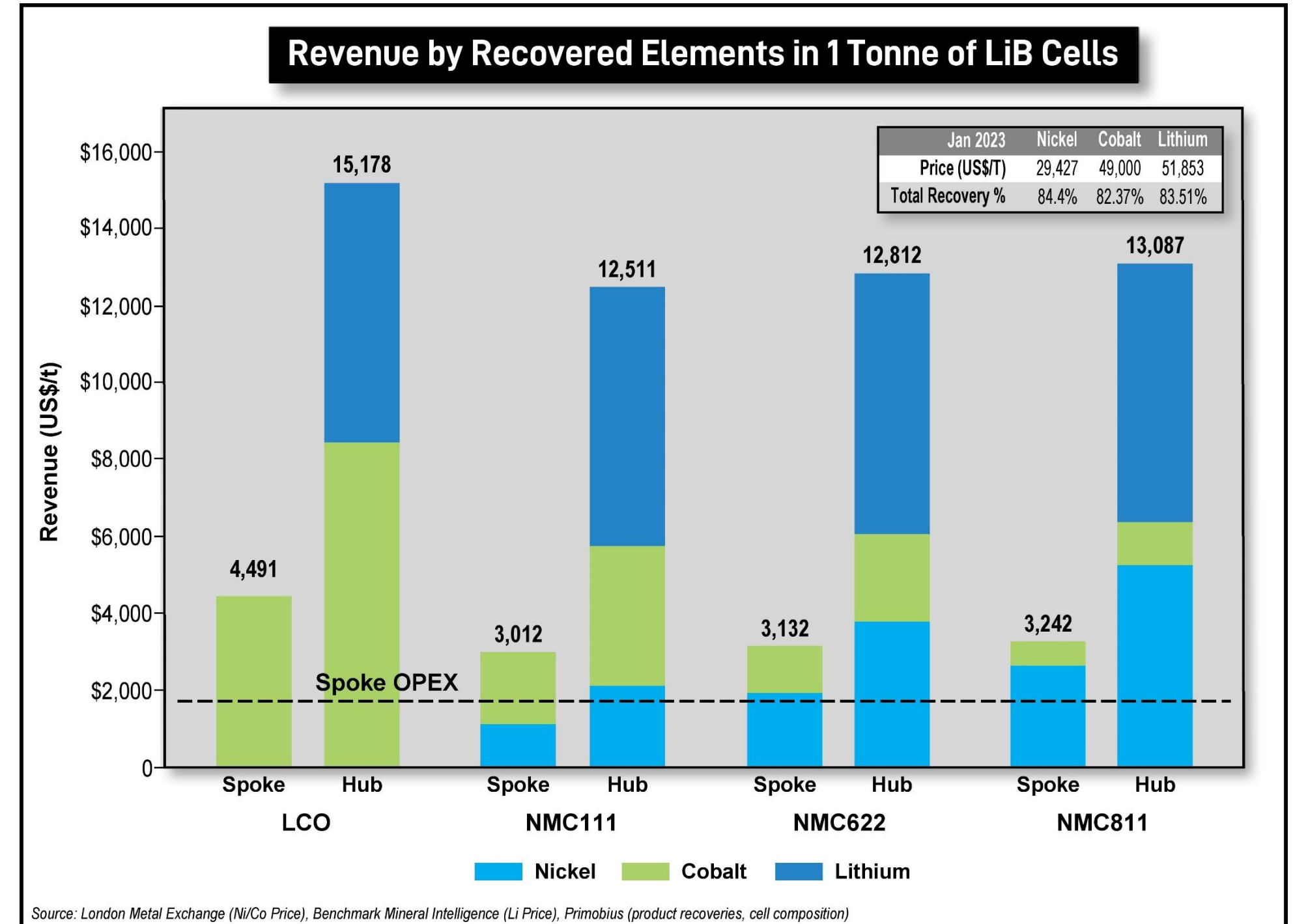
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- Disclosed capital costs include land, plant, buildings, plant and equipment, installation, infrastructure, pre-production, EPC costs and contingency
- New design includes Europe's first integrated module discharge and disassembly operation – provides futureproof flexibility to handle any mix of production scrap, warranty return or EOL arising's
- Hub Engineering Cost Study Results expected JunQ 2023

Primobius Spoke ECS Outputs	
Annual Throughput (Feed)	21 ktpa
Annual Production (Black Mass)	7,130 tpa
Operating Cost per tonne of feed	US\$1,400/t <sup>(1)</sup>
Capital Costs (incl 20% contingency)	US\$104m

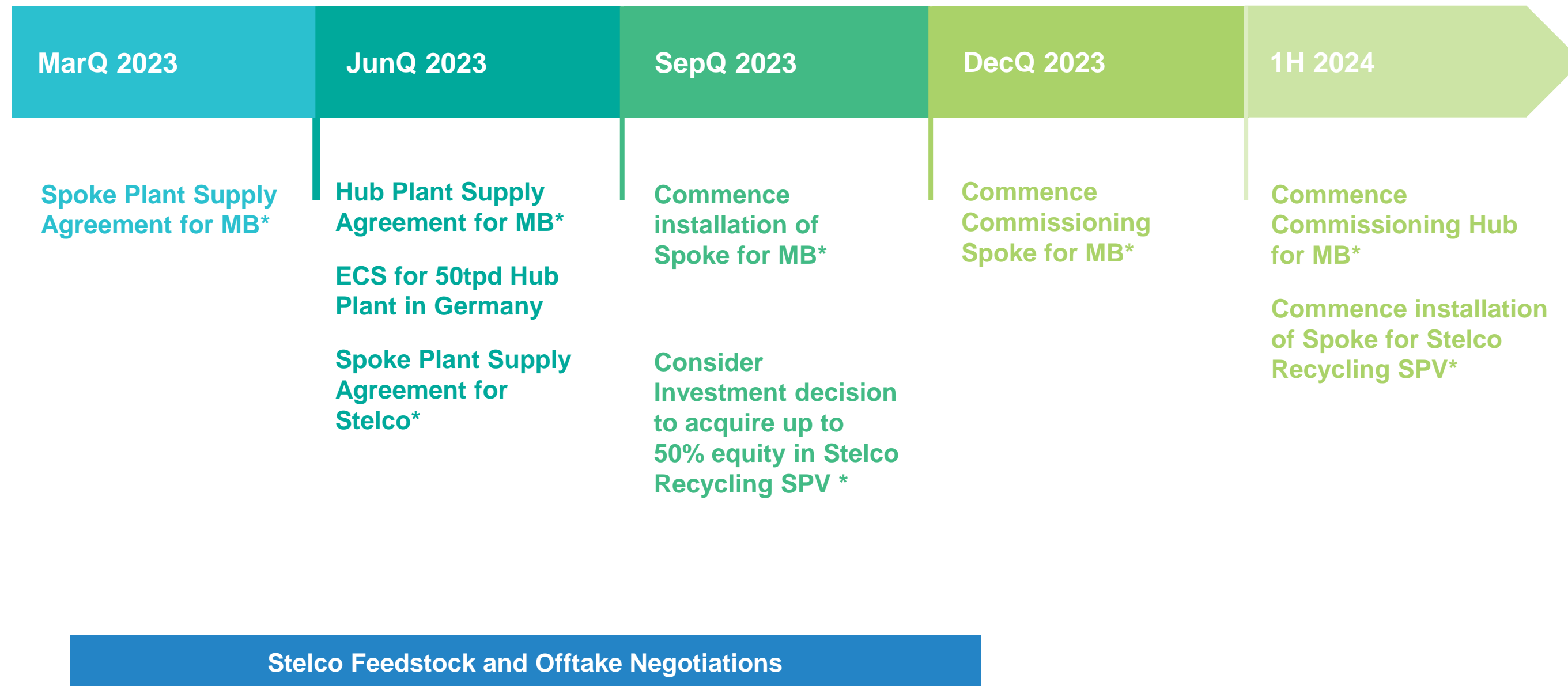
\*For further information, refer to ASX release dated 13 September 2022 – “Primobius – 50tpd Spoke Engineering Cost Study Results” and the assumptions set out therein.

1. Assumes 1:1 USD:Euro FX





# Indicative Timeline – LiB Recycling

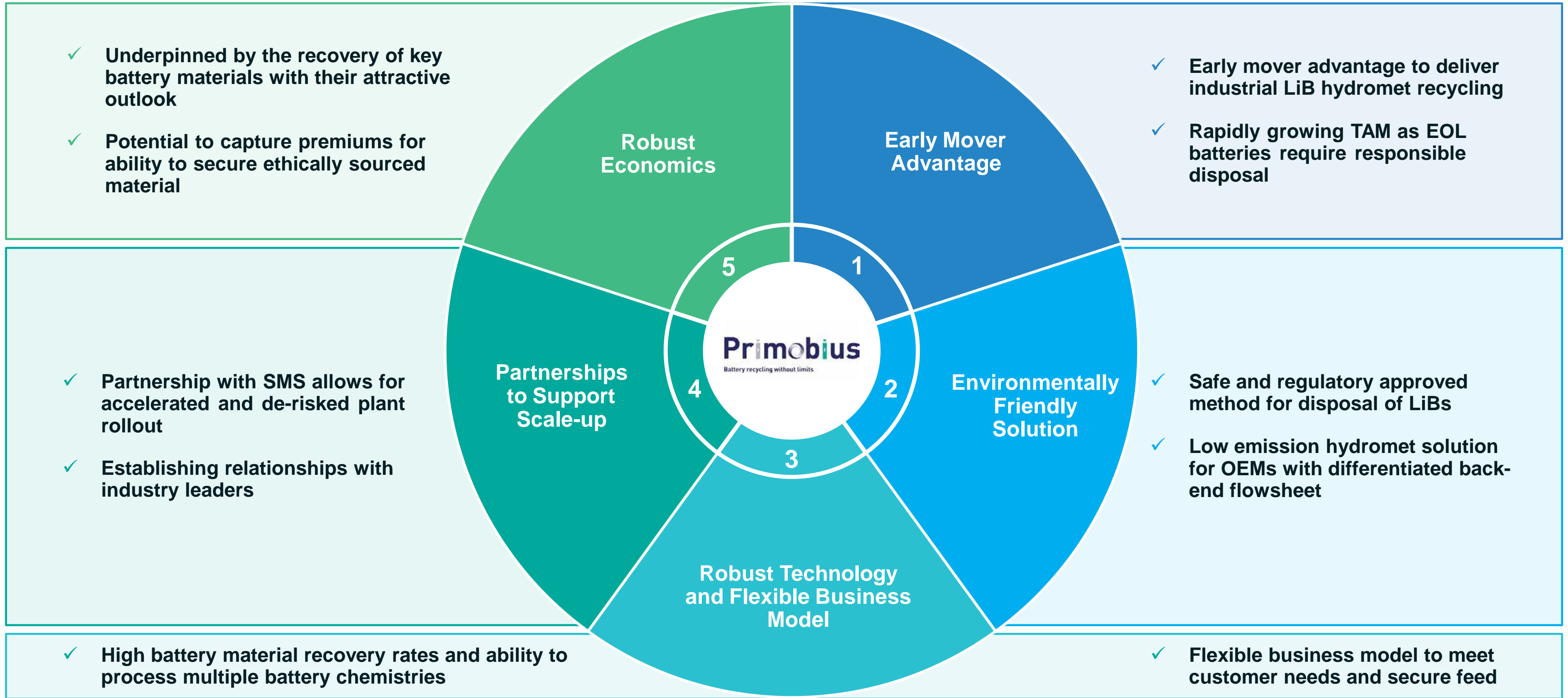


\*Subject to Customer Award/Primobius and Neometals Approvals

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# Unique Positioning for Rapid Growth



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# Company Highlights

Neometals is an attractive investment at the forefront of the low carbon production of battery materials via recycling



Growing portfolio of **ESG-aligned, sustainable** battery materials businesses with near-term decision points



Proprietary green processing technologies underpin low-cost, low-carbon product



Clear **strategy** to commercialise with proven partnering business model



**Strong balance sheet**, fully funded to key investment decisions



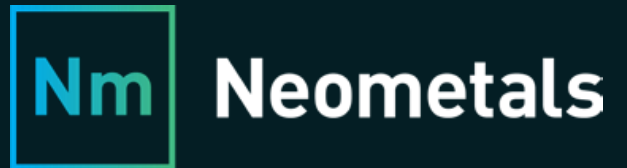
Strong team with **track record** and commitment to **green circular economy** principles



Strong organic **growth** potential (size and scale) from pipeline of opportunities to deploy as principal, partner or technology licensor – whatever customer needs



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**Thank you.**

[neometals.com.au](https://neometals.com.au)

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# Sustainability



Neometals is committed to optimising finite resources with circular practices to benefit society and the environment for a sustainable future

- Focus on production of sustainable battery materials - reducing reliance on new mined materials.
- Commercialising internationally recognised award-winning sustainable processing technologies
- Transparent sustainability reporting to GRI, SASB, TCFD
- Neometals' 3<sup>rd</sup> annual sustainability report released in September 2022

