

# Jervois

FINLAND

*A Leading Producer of Cobalt Chemicals and Powders*

SUBSIDIARY OF JERVOIS GLOBAL

Sustainable Cobalt Supply to Battery Industry

9<sup>th</sup> MIRU Battery Summit  
Tokyo / February 27, 2024

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President and Managing Director – Jervois Finland



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# Agenda – 9<sup>th</sup> MIRU Battery Summit



**1. Jervois Global**

**2. Jervois Finland (JFO)**

**3. Jervois Cobalt Refinery Expansion Pipeline Optionality**

# Jervois Global

Portfolio of strategically located critical mineral supply chain assets

## Idaho Cobalt Operations, U.S.



**Largest cobalt resource<sup>1</sup> and only primary cobalt mine in the U.S.**

## Jervois Finland



**Global leader outside of China in downstream cobalt products**

## NiCo Young, Australia



**Prospective nickel and cobalt deposit located in NSW, Australia**

## São Miguel Paulista, Brazil



**Only class 1 nickel and cobalt refinery in Latin America – restart ready**



**Operational enhancements**



**Capital structure initiatives**



**OEM & government validation**



**Asset ownership**

# Agenda – 9<sup>th</sup> MIRU Battery Summit

A circular collage of industrial images including gears, drill bits, and metal shavings, set against a dark blue background.

1. Jervois Global

2. Jervois Finland (JFO)

3. Jervois Cobalt Refinery Expansion Pipeline Optionality

# Jervois Finland: business highlights

1

Unique Position in Downstream Cobalt  
Advanced Materials

2

Attractive Long-Term Dynamics  
in the Cobalt Value Chain

3

World-Class Operating Base at Kokkola, Finland

4

One of the Only Western Sources of  
Sustainable Battery-Grade Sulphate

5

Refinery Expansion Provides Platform for Growth

6

Attractive Financial Profile with Robust Outlook

7

Proven In-Place Leadership and Operating Team



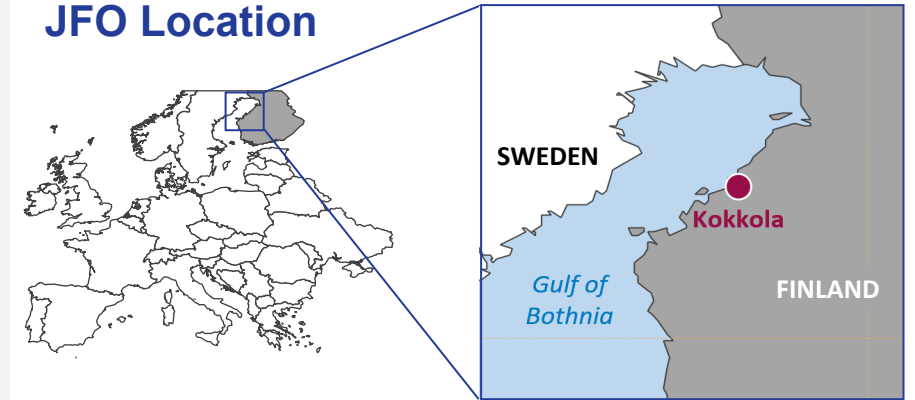
# Global leader in refined cobalt products

Business operates from a shared site with the largest refinery outside China

## Jervois Finland Advanced Cobalt Products Manufacturing Facility

- Long-term capacity sharing agreement with world-class cobalt refinery in Kokkola, Finland; current JFO capacity is 6,250 MT per annum
- Situated in Northern Europe's largest inorganics ecosystem, Kokkola Industrial Park (KIP); a hub hosting key operations of global chemical, materials and industrial companies
- Leading downstream cobalt manufacturing facility with significant expansion footprint
- Coastal location proximate to major inputs (utilities and materials) and logistics
- Long standing market reputation as center of quality, excellence and innovation
- Full suite of production capabilities and onsite R&D / technical support
- Supplies specialized cobalt products across many industries and applications
- Commitment in responsible production and sourcing; established marketing platform and long-term global customer base; recognised as conformant to Responsible Minerals Initiative Downstream Assessment Program
- Long-term contracts with leading suppliers of cobalt hydroxide feed
- Approximately 15-20% of cobalt supply from recycling
- JFO expertise leveraged in U.S. cobalt refinery studies funded by U.S. Department of Defense

## JFO Location



# Long-standing industry leadership and record of innovation

Jervois Finland business history

Business

Ownership

**1968**  
First cobalt production at Kokkola

**1976**  
Fine powder production

**1983**  
High purity chemical products

**1990**  
Major rebuild of cobalt and nickel refining for chemical products

**1996**  
High purity cobalt products for the re-chargeable battery industry introduced

**1991**  
**OM Group** following merger of Outokumpu Oy Co Chemicals Division (Kokkola site) and U.S.-based Mooney Chemicals

**1999**  
Refinery expansion and new SX operations increasing Co refining capacity to ~15,000 mtpa

**2002**  
Co sulphate first sold to battery industry, continual ramp up from there

**2005**  
Spherical morphology extra cobalt fine powder products introduced

**2006**  
Advanced mixed metal precursor for gas-to-liquid catalysts introduced

**2011**  
New furnace technology for fine powders

**2020**  
Responsible Minerals Initiative certification received

**2022**  
Commences FS into refinery expansion

**2023**  
Awarded €12M conditional grant from Business Finland for future refinery expansion costs

**2013**  
**Freeport Cobalt** established following acquisition by Freeport-led joint venture

**2016**  
Freeport divests its interest upstream cobalt mining activities

**2019**  
Sale of refinery & battery precursor business to Umicore SA

**2021**  
Sale of Freeport Cobalt business to Jervois Global

**1968**  
State-owned metals group Outokumpu Oy builds plant



# Strong supply chain credentials for Western market

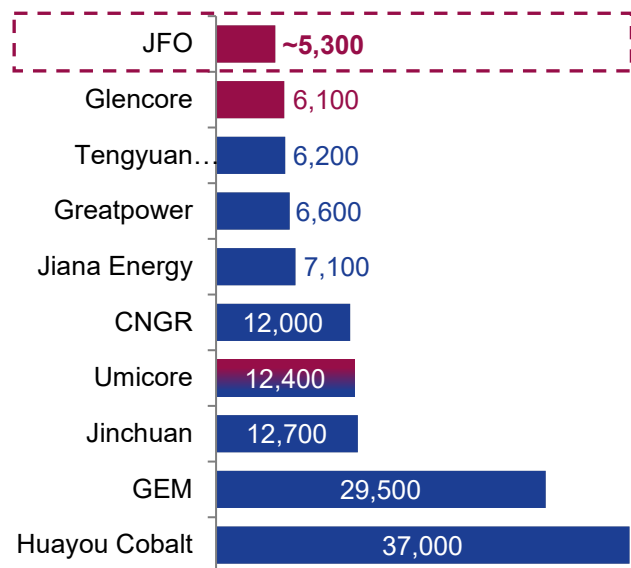
One of few Western sources of responsibly sourced battery-grade sulphate

## Western sulphate supply

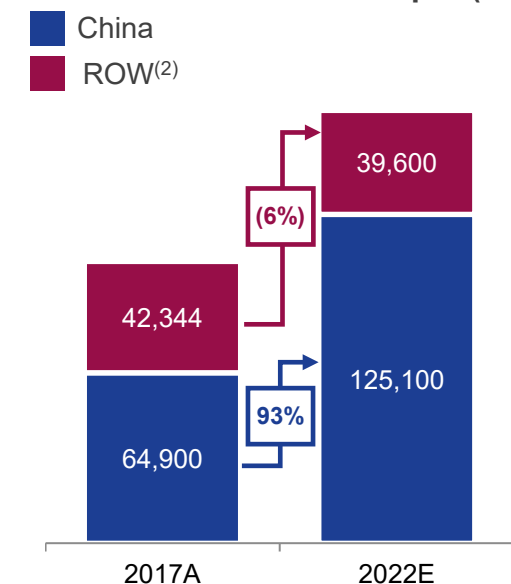
- One of the few suppliers of cobalt sulphate outside China
- Uniquely positioned to capture market share in Western growth sectors (e.g., battery materials)
  - Refinery expansion pipelines in United States and Finland provide platform to increase sulphate production
  - In addition to battery grade sulphate, long history of cathode pre-cursor production starting from late 1990's
- Last 5 years refined cobalt has risen ~2x in China and fallen in the West

## Chinese global market share of refined cobalt output

Top Cobalt Refining Companies (2022, mt)



Global Refined Cobalt Output (mt)



## Sustainability credentials

- The first and only cobalt chemical company globally to be recognised as a conformant downstream facility as determined by the Responsible Minerals Initiative (“RMI”) Downstream Assessment Program
- First received recognition in 2020; status renewed in December 2022 for an additional two years
- Validates alignment of cobalt sourcing and due diligence activities with the guidance of the Organisation for Economic Co-operation and Development (“OECD”)
- Conformance provides JFO customers opportunity to continue the chain of responsibility to their finished product



# Responsible mineral supply chains

## 5-Step Due Diligence Compliance Roadmap

- ✓ Aligned with the OECD Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas

### Based on OECD 5-Step Framework

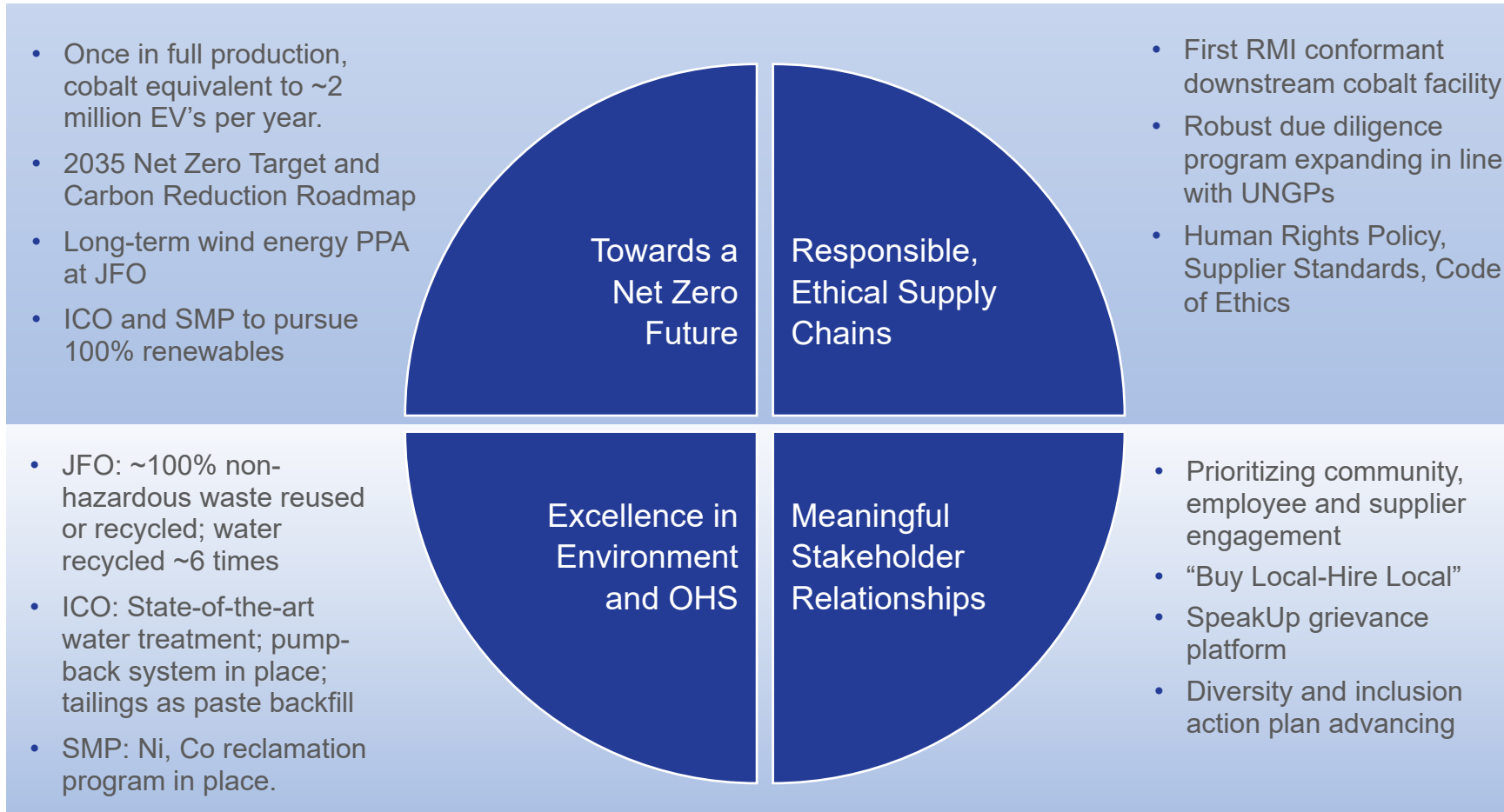
1. **Strong management systems** in place.
2. Identification and assessment of **risk in the supply chain**.
3. Design and implementation of a strategy to **respond to identified risks**.
4. Carrying out **independent third-party audit** of supply chain due diligence at identified points in the supply chain.
5. **Public Report** on Supply Chain Due Diligence.



# Jervois' commitment to positive impacts on people and planet

Good governance underpins continuous improvement on all fronts

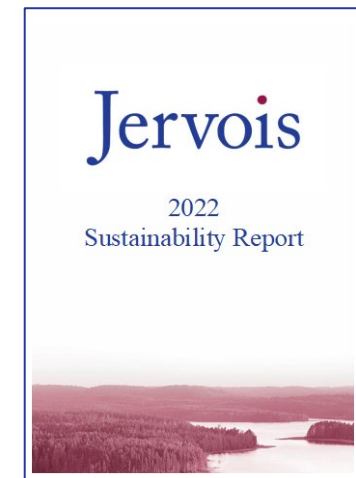
## ESG Highlights



## Leveraging our Memberships and Affiliations



## Annual Sustainability Report



# Sustainability Assessment

EcoVadis gold medal

## Gold Medal

- Jervois participated EcoVadis Sustainability Assessment in 2023
- EcoVadis assessment includes sustainability criteria across:
  - Environment
  - Labor & Human Rights
  - Ethics
  - Sustainable Procurement
- JFO awarded Gold Medal (score **77/100**) (1 point from platinum)
- **Places JFO within top 2% of evaluated companies globally**



# Sustainability cornerstones

Roadmap to achieving carbon neutrality by 2035

## Carbon Reduction Roadmap

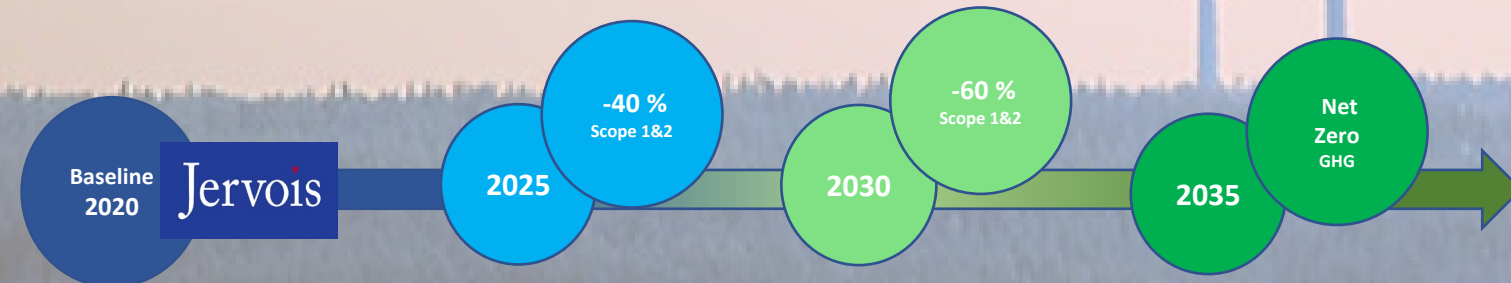
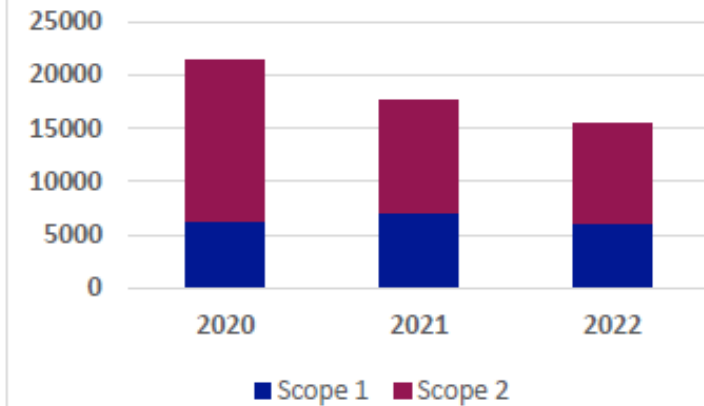
- Significant targets set for 2025, 2030 and 2035
  - CO<sub>2</sub> reduction 40% by 2025 (vs. 2020 level)
  - Carbon neutral by 2035

## How can we achieve lower emissions?

- Energy efficiency programme (active since 2002)
- Process optimisation and efficiency
- New equipment and technology
- Green electricity

- ✓ Scope 1 and 2 emissions below industry average
- ✓ Exceeded 2022 Energy saving targets by >130%
- ✓ On track to achieve CO<sub>2</sub> reduction 40% by 2025 (vs. 2020 level)

Total CO<sub>2</sub> Emissions at Jervois Finland



# Product portfolio

Broad range of products across cobalt oxides, salts, and fine powders

Product Family		End Use Market Applications							
		Hardmetal	Diamond tools	Catalyst	Electronics	Animal feed	Carboxylates	Pigments, glass & ceramics	Battery
Fine Powders	Co Fine Powder	✓	✓						✓
	Co Hydroxide			✓			✓	✓	✓
Cobalt Chemicals	Co Carbonate			✓		✓			
	Co Sulphate					✓			✓
	Co Acetate			✓		✓			
	Co Oxide				✓			✓	✓

Powder Metallurgy
  Chemicals, Catalysts and Ceramics
  Battery
  Segment of focus for expansion

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# Jervois USA: new United States (“U.S.”) cobalt refinery

U.S. government has implemented profound measures of support to induce domestic capacity

## U.S. cobalt refinery BFS

- Phase I – 6,000 mtpa cobalt refinery / Phase II – up to 10,000 mtpa
- Refinery will produce cobalt sulphate, for use in electric vehicles (“EVs”)
- Expected to provide cobalt materials for around 1.2 million EVs per year
- Leverages Jervois Finland technical expertise in advanced cobalt materials; 50+ years of providing high quality cobalt products for industrial use
- Applies Jervois’ leading ESG practice including recycling (~20% refinery feed)
- AFRY USA LLC undertaking Basic Engineering and BFS, leveraging previous work at Jervois Finland
- Flowsheet design and testwork already complete based on Jervois Finland
- Final short-list locations in Pennsylvania and Louisiana
- Environmental permitting to advance shortly, tenders being sought
- Expected to provide good paying jobs in both construction and operation
- Jervois is receiving escalating inbound interest from OEM (automaker) customers and their supply chains; OEM projected orderbooks expand rapidly from 2025 onwards
- Inflation Reduction Act 2022 (“IRA”) restrictions on Foreign Entities of Control (“FEOC”) having a significant impact on level of customer enquiries – Chinese refinery conversion off limits in order to access IRA EV consumer credit

## U.S. government support

- Cobalt is a critical mineral as declared by the U.S. Government due to its aerospace, defense and energy transition applications
- Jervois USA cobalt refinery BFS is fully refundable by the U.S. DoD Defense Production Act (“DPA”) Title III US\$15 million grant award
- The award is under the Manufacturing Capability Expansion and Investment Prioritization office of Industrial Base Policy using U.S. DPA Title III authorities
- Application underway for U.S. Department of Energy Loan Program Office Advanced Technology Vehicle Manufacturing program
- IRA incentives designed to advance development of the U.S. domestic critical minerals supply chain; key elements currently being finalised
- Jervois actively reviewing with U.S. government opportunities to vertically integrate the ICO mine in Idaho with this new U.S. cobalt refinery
- Bipartisan legislative proposal by the U.S. Congress’ Select Committee on the Strategic Competition Between the U.S. and the Chinese Communist Party to create a cobalt reserve or price floor to sustain domestic U.S. production



# Jervois Finland: Cobalt Refinery Expansion

Emerging EU policy to create expansion pipeline optionality in the medium term as EV demand grows

## Finland cobalt refinery expansion

- Jervois Finland expansion plans target increasing refining capacity from 6,250 mtpa to 12,250 mtpa cobalt, with additional volume 100% under Jervois' control
- Leverages existing overhead and 50+ years of expertise in cobalt production
- Location available in Kokkola Industrial Park (KIP) area; agreement executed for expansion site proximate to existing operations
- Existing available end-product manufacturing capacity of 11,000 mtpa already exists to meet the expanded refining volume in legacy products
- Expansion volumes focus on sulphate product to meet robust Western market EV demand
- Uplift in refining capacity to be supported by higher proportion of recycled feedstock
- Potential to optimise refinery design to further enhance market leading cobalt yields
- Operating costs to leverage brownfield site – globally competitive costs

## Market growth and dynamic

- Flexibility / capability to adapt to end-user demands
- Low-risk project in established industrial region with strong focus on ESG outcomes
- EV battery materials expected to grow at CAGR of >10%. Regional supply chains developing in EU and Americas
- Responsible feed sourcing and a fully traceable supply chain that complies with OECD guidelines

## €12m grant for Finland cobalt refinery expansion

- Conditional €12m grant from the Finnish government to partially fund expansion of JFO's cobalt refining capacity
- Grant is expected to reimburse costs associated with:
  - Completion of a bankable feasibility study; and
  - Future construction of the cobalt refinery expansion
- Grant recognises JFO's innovations that improve environmental protection and its ESG leadership in the cobalt industry

## KIP refinery



# JERVOIS INVESTMENT HIGHLIGHTS

EV batteries require nickel and cobalt

Nickel and cobalt are critical minerals

Jervois assets are strategically important

Jervois portfolio is diversified

Jervois management is highly experienced

Cash generation and portfolio flexibility

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