29 Cu Copper	30 Zn Zinc	28 Ni Nickel	27 Co Cobalt	PGE PGE	79 Au Gold	47 Ag Silver

Orion Minerals

FUTURE METALS FOR A NEW ERA OF DEMAND

Accelerating Towards Production

Errol Smart / Managing Director and CEO

Presentation / August 2023

ASX: ORN | JSE: ORN

www.orionminerals.com.au

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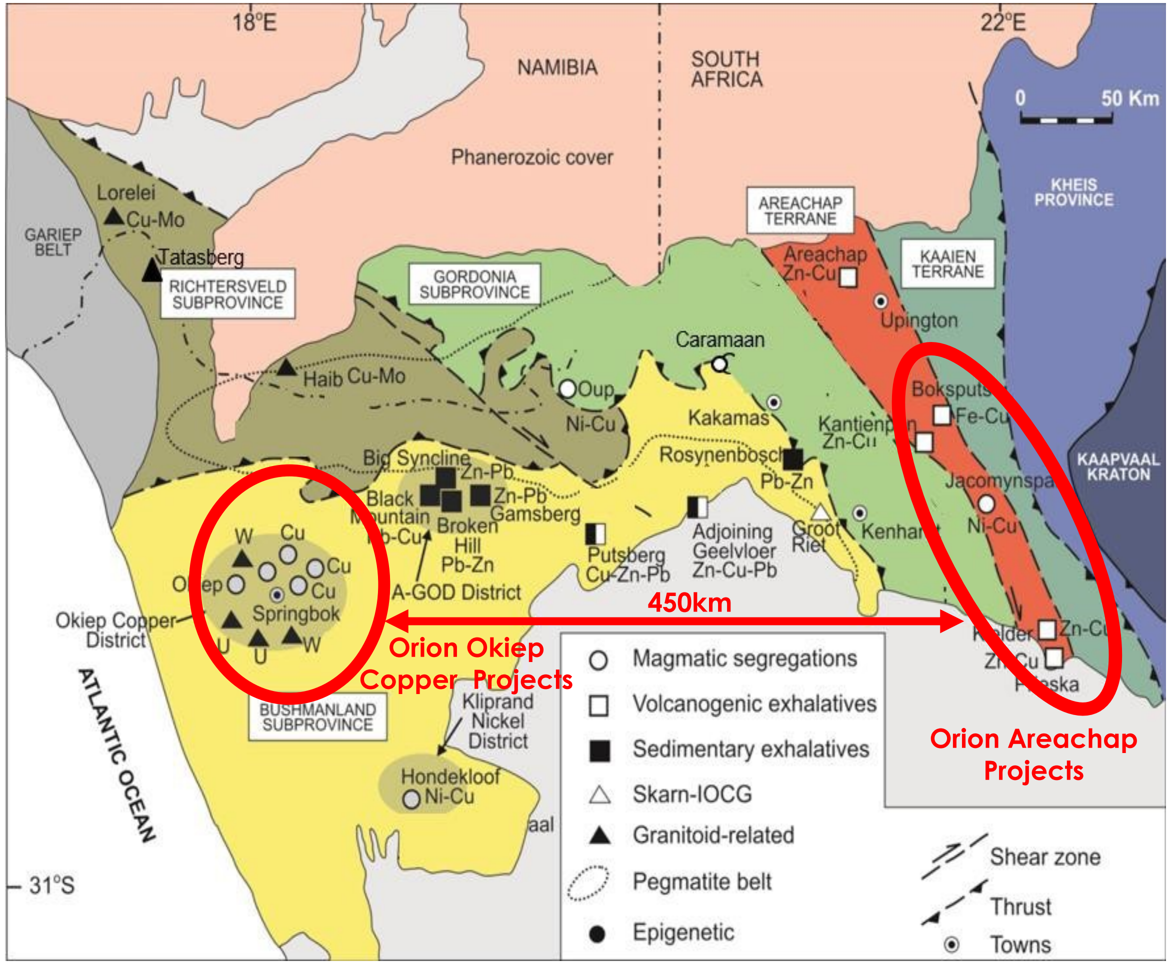
FOCUS ON TWO HIGHLY PROSPECTIVE SOUTH AFRICAN BASE METAL DISTRICTS

Orion Minerals

BROWNFIELDS SUCCESS BEING FOLLOWED BY GREENFIELDS EXPLORATION



Refer ASX/JSE releases 2 February 2021 and 2 August 2021

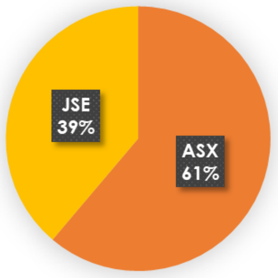
COMPANY SNAPSHOT

Orion Minerals

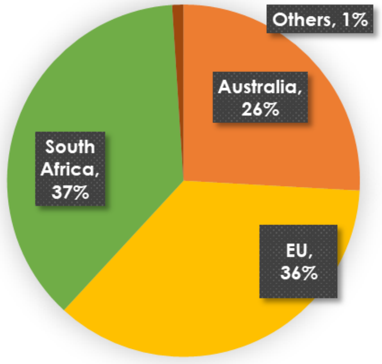
Capital Structure Summary	Current
Shares on issue [1]	5,647M
Options on issue	3.8B
Cash on hand [2]	AUD7.6M
IDC Shareholder Loan [3]	AUD2.8M
Market capitalisation (AUD2.2cps) [4]	**AUD124M**

Significant Shareholders	Share Issue %
Tembo Capital (EU/Netherlands)	19.2
Delphi Group (EU/Germany)	13.4
Clover Alloys (SA) (South Africa)	7.9
Other Orion Directors (South Africa & Australia)	6.5
Total	**46.9**

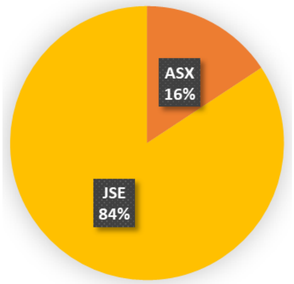
Shares held by Stock Exchange



Shares held by Jurisdiction



Volume Traded by Register



Board of Directors	Senior Management
Denis Waddell, Chairman	Peet van Coller, CFO
Errol Smart, MD & CEO	Martin Bouwmeester, Company Secretary
Tom Borman, NED	Marcus Birch, Executive: Sustainability and Business Support
Mark Palmer, NED	Nelson Mosiapoa, Group Corporate Social Responsibility Advisor
Godfrey Gomwe, NED	
Philip Kotze, NED	

1. Fully paid ordinary Orion shares (**Shares**) on issue at 2 Aug'23.
2. Cash on hand at 30 Jun'23. In Jul'23 Orion issued first drawdown notices for pre-development funding at Prieska Copper-Zinc Mine Project to the Industrial Development Corporation of South Africa Limited (**IDC**) and Triple Flag. Initial drawdown of ~A$13.8M was called in Jul'23 (refer ASX/JSE release 17 Jul'23).
3. Refer to Orion's Jun'23 Quarterly Reports for information on the agreement for pre-development funding at the Okiep Copper Project entered into with the IDC. Balance shown as at 30 Jun'23.
4. Volume weighted average price (5 day) at 2 Aug'23 of ORN Shares trading on the ASX and JSE.

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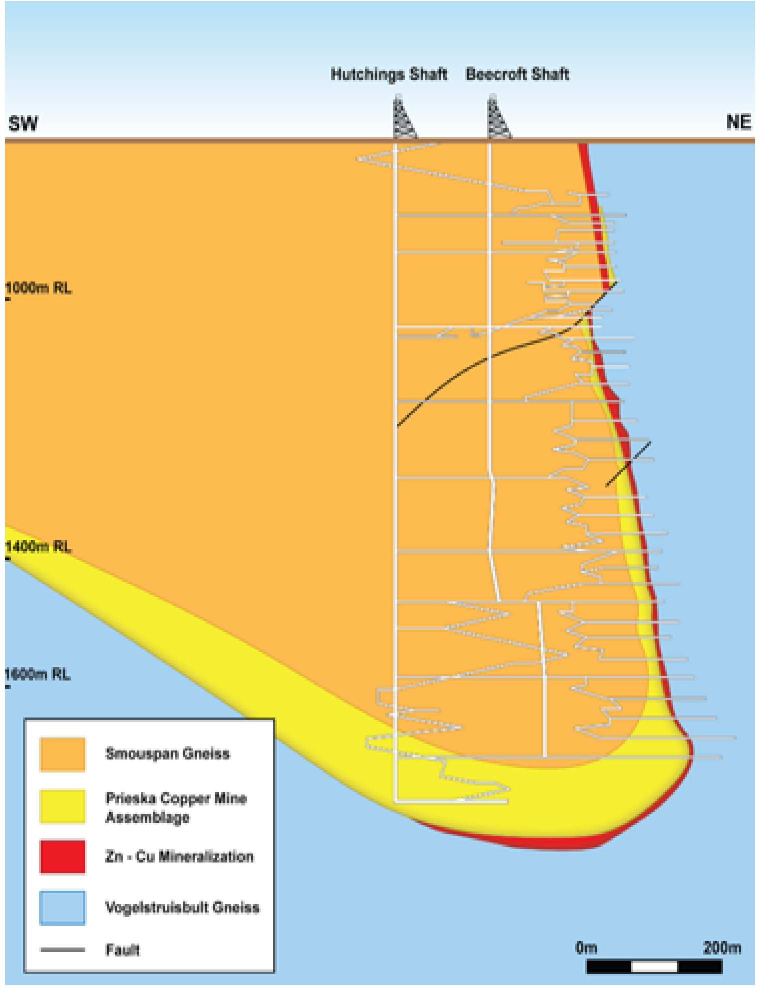
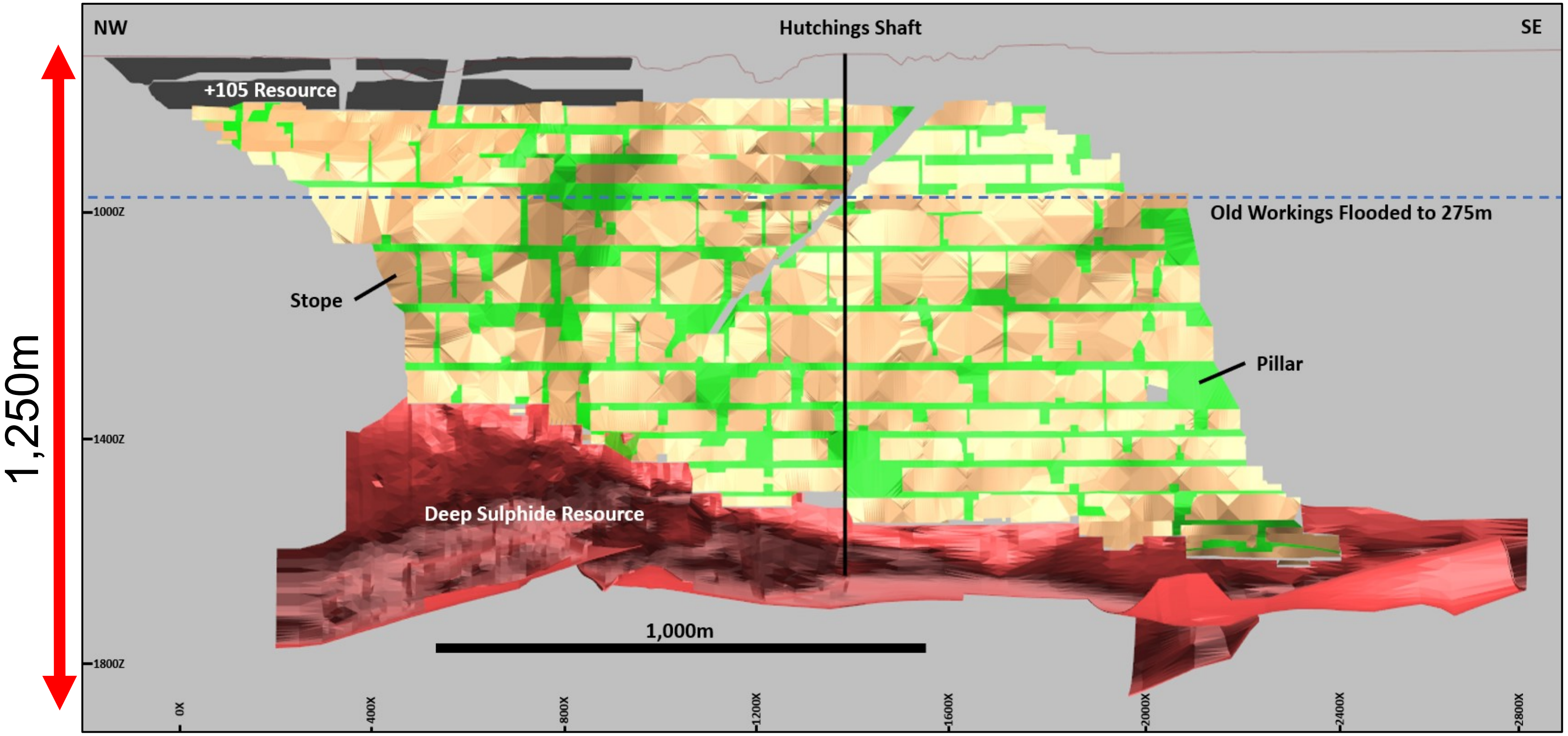
PRIESKA COPPER ZINC MINE (PCZM)

PCZM – CROSS & LONG SECTIONS

Orion Minerals





31Mt @ 1.2% Cu, 3.6% Zn

2.6km

Refer ASX/JSE releases 15 January 2019 and 25 July 2023

PRIESKA (PCZM) COPPER ZINC PROJECT (70% OWNED)

Orion Minerals

The orebody

- Globally significant VMS Resource: 31Mt @ 1.2% Cu, 3.6% Zn
- Increased Mineral Reserve: 14.5Mt @ 1.1% Cu and 3.2% Zn

Foundation phase as per BFS-20 outcomes

- Initial 12-year, 2.4Mtpa operation, targeting 22ktpa Cu and 70ktpa Zn
- Life-of-mine production 226kt Cu and 680kt Zn
- Strong operating margins and financials
- Pre-tax free cash flow AUD1.6bn (post-tax AUD1.2bn)
- Pre-tax NPV8% AUD779m (post-tax AUD552m)
- Payback period of 2.4 years from first production
- All-in sustaining margin of 47%
- Peak Funding requirement AUD413m

Fully permitted

- Mining Right granted to PCZM in September 2019
- Mining Right granted to Vardocube in August 2020
- Environmental Financial Provision in place fully capitalised
- Environmental approval notices received for both PCZM and Vardocube
- Water Use Licence granted in August 2020

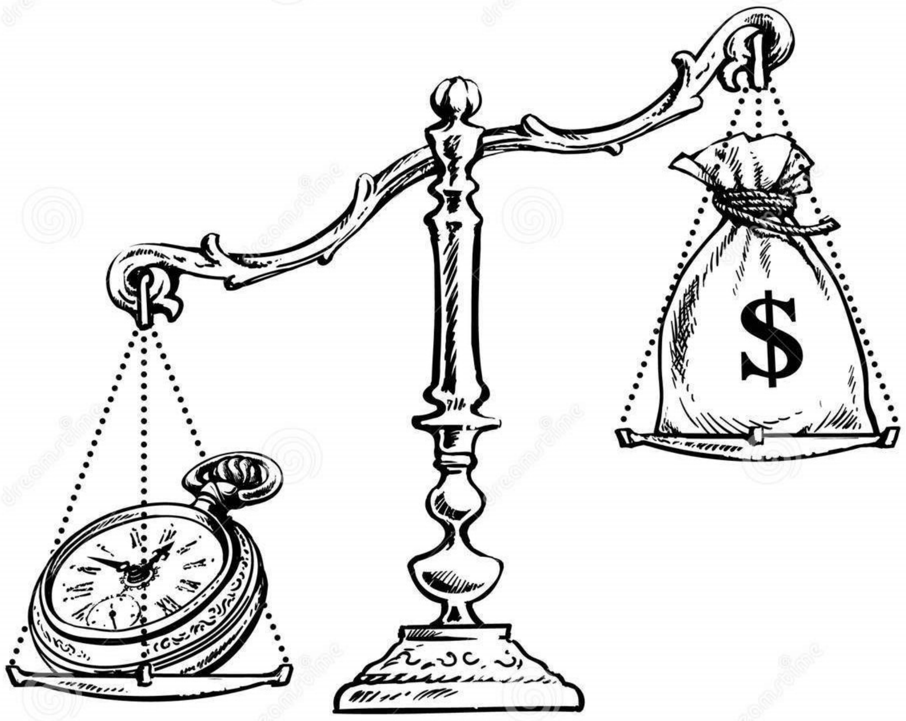
"Our strategy to bring the Prieska Copper-Zinc Mine back into production is now rapidly growing momentum, with the completion of the updated Mineral Resource for the near-surface, +105 Resource Block, outlining a very attractive early mining opportunity at this fully permitted mine." – Orion Minerals MD Errol Smart

Refer ASX/JSE releases 8 July 2019, 3 September 2019, 9 March 2020, 26 May 2020, 6 August 2020, 17 August 2020 and 25 July 2023

KEY CHALLENGES FOR ORION WITH PCZM BFS-20

Orion Minerals

- High capital, long lead-time project
  - Can we bring forward production and reduce funding?
- Skills / Development Team?
  - Orion is proven as an explorer and study team – but where are the mining team and experience?
- Dewatering
  - What are alternatives to reduce cost?
- Sources of Finance (for a first-time developer)?



These pressing questions are now largely answered

REVISED PROJECT DEVELOPMENT STRATEGY
PROJECT ’23 – *STARTING SMALL TO GROW BIG*

Orion Minerals

- **STRATEGY**
  - Address perceived high-risk elements of plan to reduce cost of funding
  - Prove up and implement a low peak funding business plan
  - Investigate opportunity for early production
  - Retain ability to rapidly scale-up to full scale project (subject to funding availability)
  - Maintain community, regulatory and stakeholder relations

- **EARLY DEWATERING**
  - Immediately start with phased, reduced rate, early dewatering – (before project is fully-funded)

- **EARLY MINING AND CASH FLOWS**
  - Prove up early mining concepts by trial mining and processing
  - Target ore sources above water level to provide early concentrate production (cash flows)
  - Included Remnant (historical) Pillars in mining plans
  - Harvest the Deeps deposit (BFS-20 Plan) as an expansion phase

TOTAL FUNDING SECURED TO ADVANCE PRIESKA

• IDC Convertible Instrument (ZAR 250m)	AUD 20 million
• Triple Flag (Early Funding)	AUD 10 million
• Triple Flag Au-Ag Stream (USD 80m)	AUD 117 million
Total PCZM Ringfenced Finance*	**AUD 147 million**

Orion Equity Raise Completed	AUD 13 million
"In the Money" Options	AUD 60 million
Anticipated Total ORN Funding Available	**AUD 73 million**

* Initial drawdown of ~AUD13.8 million - July 2023 from IDC and Triple Flag Early Funding agreements.

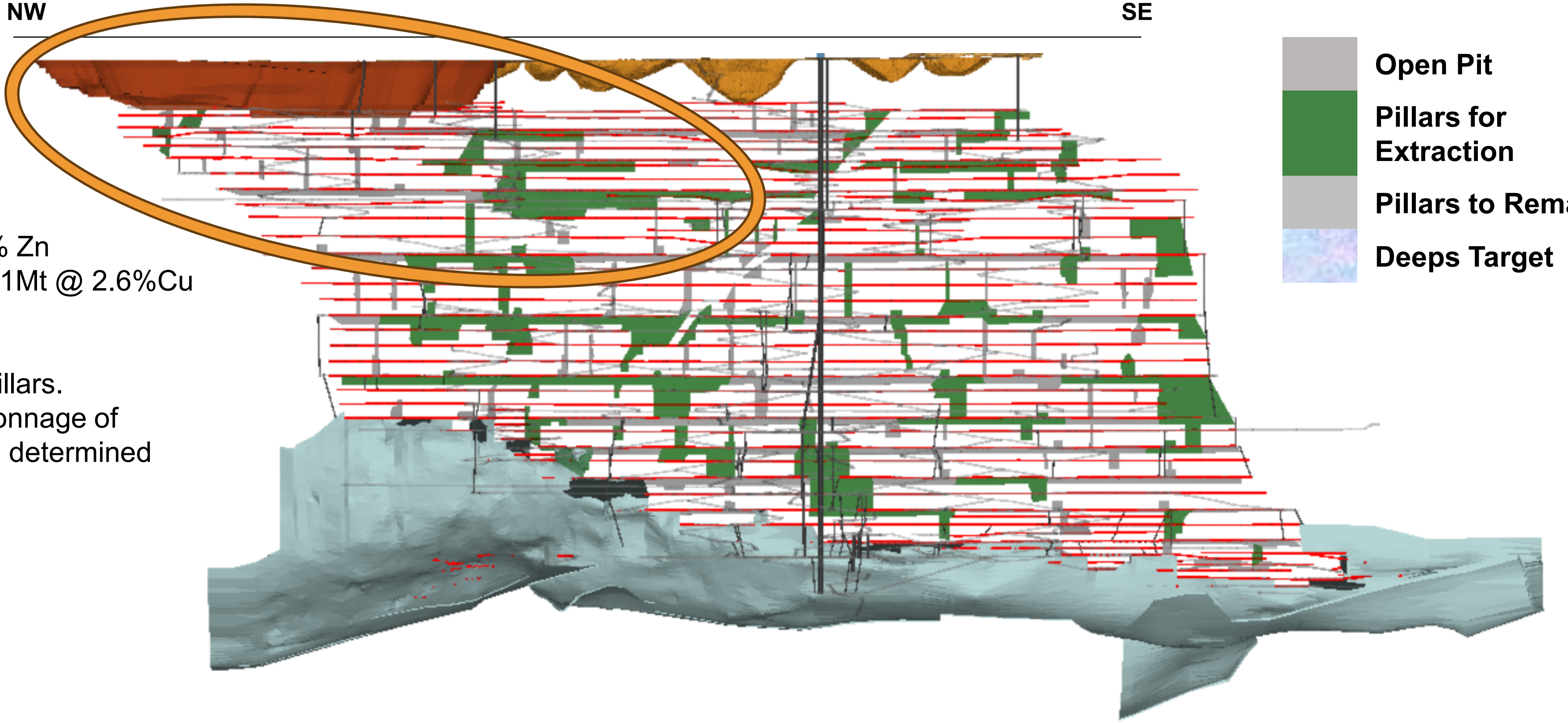
Refer June 2023 Quarterly Reports

SHALLOW MINERAL RESOURCES – EARLY MINING TARGETS

Orion Minerals

- Shallow Mining Plan aims to target mining from the open pit, remnant pillars, while dewatering underway
- Feasibility studies due for completion late 2023
- Stream Finance and early funding initial drawdown completed (~A$13.8M), providing funding to advance Early Production Strategy

Focus Area Early Mining

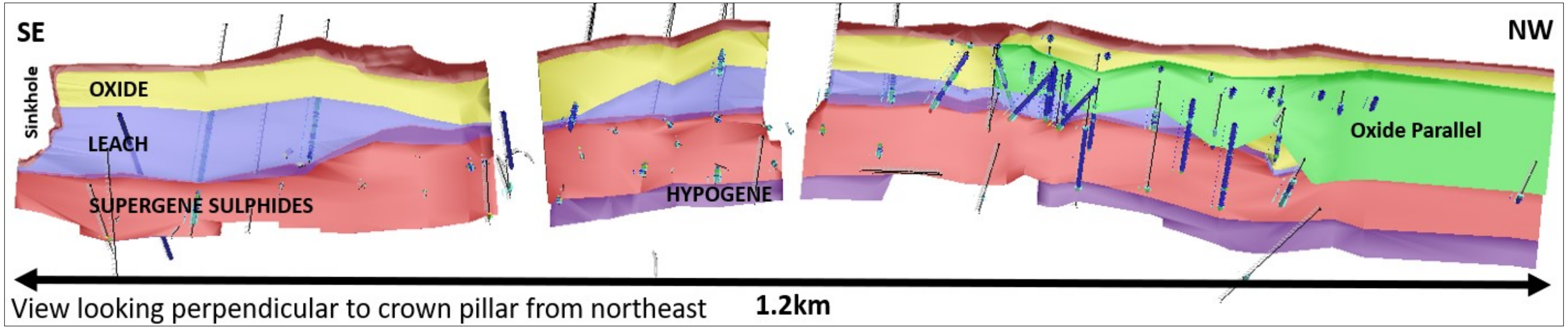


Open Pit
Pillars for Extraction
Pillars to Remain
Deeps Target

+105m Tonnage
- 2.3Mt @ 1.7% Cu, 1.6% Zn
- Supergene Sulphide: 1.1Mt @ 2.6%Cu

Pillar Tonnage (to 957L)
- 8.5Mt of geotechnical pillars.
- Contained grade and tonnage of extractable pillars being determined

+105m BLOCK - EARLY MINING TARGET



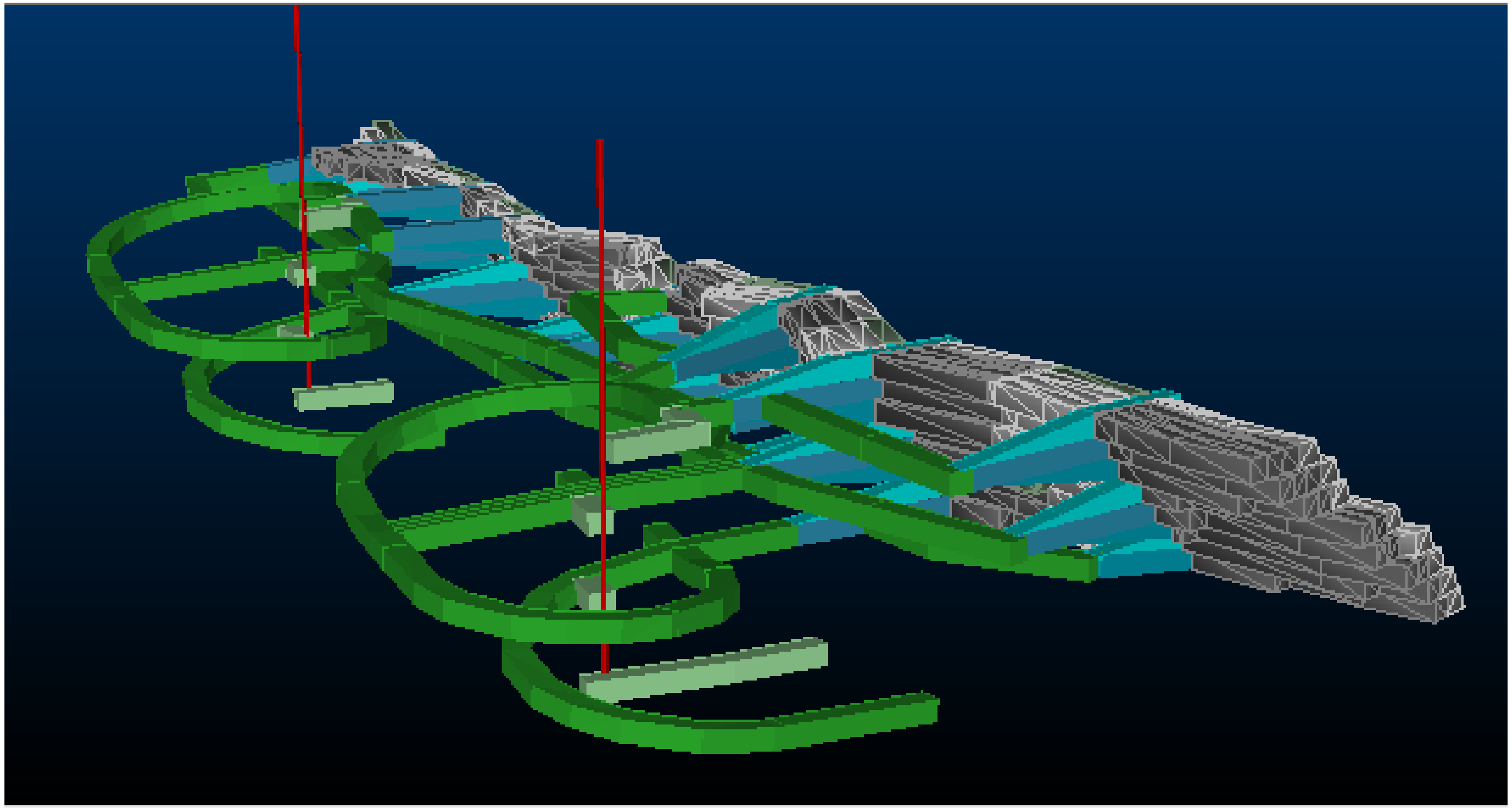
Classification	Mineralised Zone	Tonnes	Cu (tonnes)	Cu (%)	Zn (tonnes)	Zn (%)
Indicated	HW Oxide	200,000	1,000	0.48	2,000	0.90
	Oxide	490,000	4,000	0.81	4,000	0.73
	Supergene Sulphide	1,100,000	28,000	2.58	22,000	2.06
	Hypogene	120,000	1,000	1.23	4,000	3.78
	Total	**1,900,000**	**34,000**	**1.82**	**32,000**	**1.70**
Inferred	HW Oxide	30,000	100	0.4	300	1.0
	Oxide	300,000	3,000	1.0	2,000	0.8
	Supergene Sulphide	60,000	1,000	1.4	300	0.6
	Hypogene	20,000	100	0.8	100	0.4
	Total	**400,000**	**4,000**	**1.0**	**3,000**	**0.8**
+105m Level Mineral Resource Total		**2,300,000**	**38,000**	**1.7**	**35,000**	**1.6**

Note: +105m Level Mineral Resource bottom cut-off = 0.3% Cu.
Tonnes are rounded to second significant figure, which may result in rounding errors.

Refer ASX/JSE release 25 July 2023

+105m UNDERGROUND MINING LAYOUT

Orion Minerals

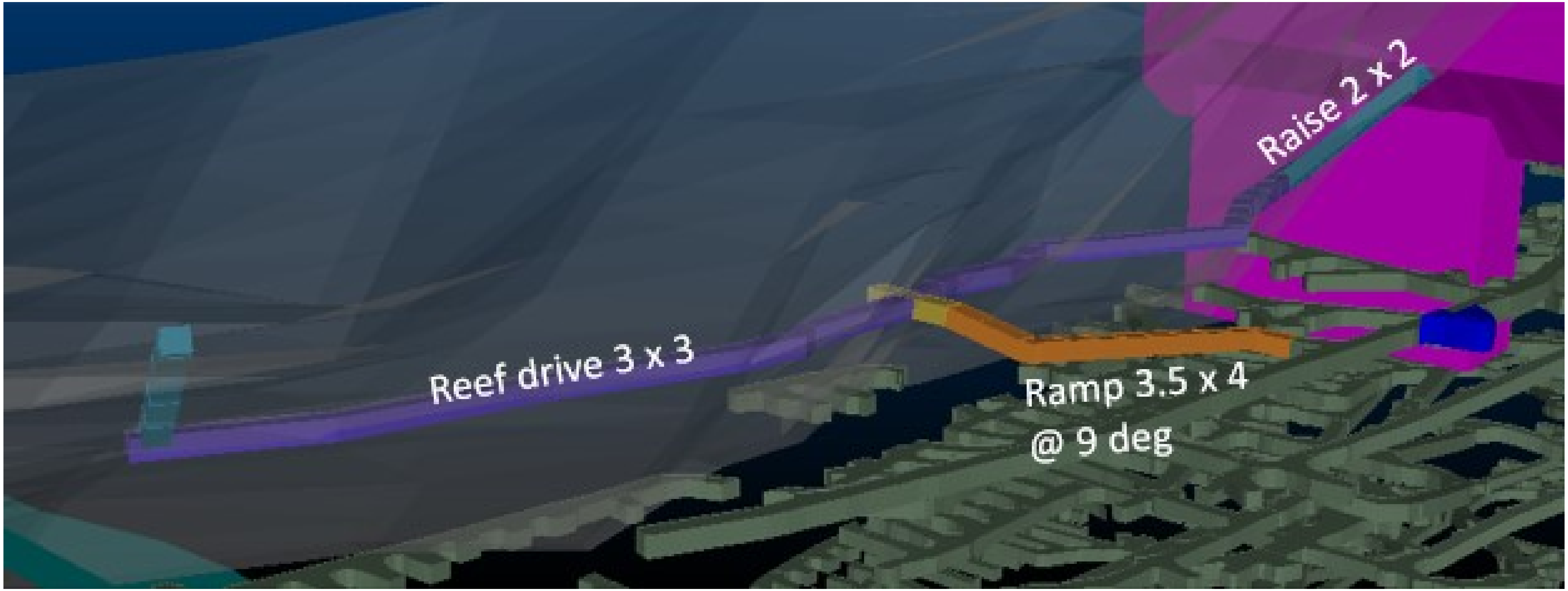


Conceptual Layout of +105 Resource Drift & Fill Mining

Refer ASX/JSE release 25 July 2023

+105m TRIAL MINING

Orion Minerals



Refer ASX/JSE release 25 July 2023

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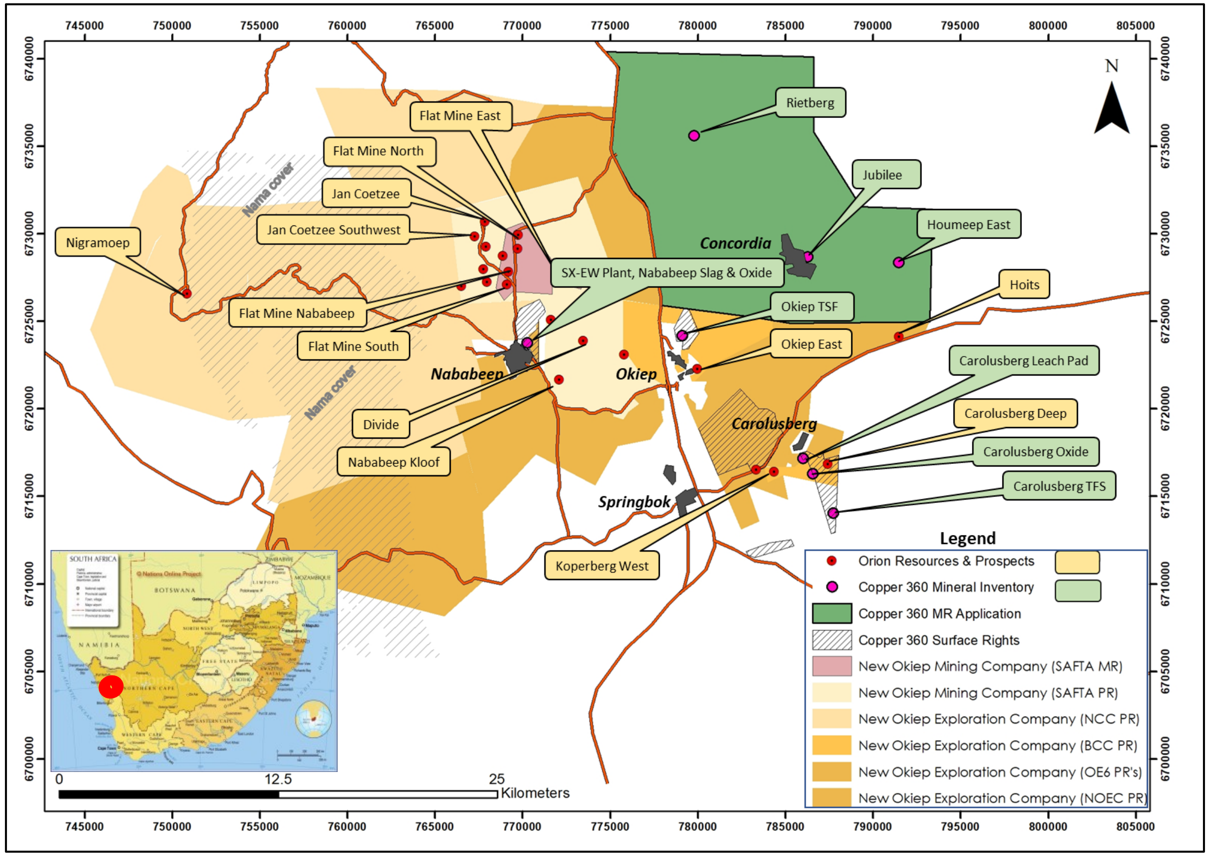
OCP Projects

OKIEP COPPER PROJECT (OCP) (56%-100% OWNERSHIP)

Orion Minerals

- **Exercised option** to acquire and applying for additional prospecting rights in the Okiep Copper Complex (OCC):
  - Historical production of +2Mt of copper
  - Non-JORC resource ex-Goldfields of 52Mt @ 1.3%
  - **JORC Mineral Resource of 11.5Mt at 1.4% Cu, containing 159,000 tonnes Cu**
  - Tremendous exploration upside
- Promises outstanding operational synergies with Orion's Prieska Copper-Zinc Project, located 450km east of OCC

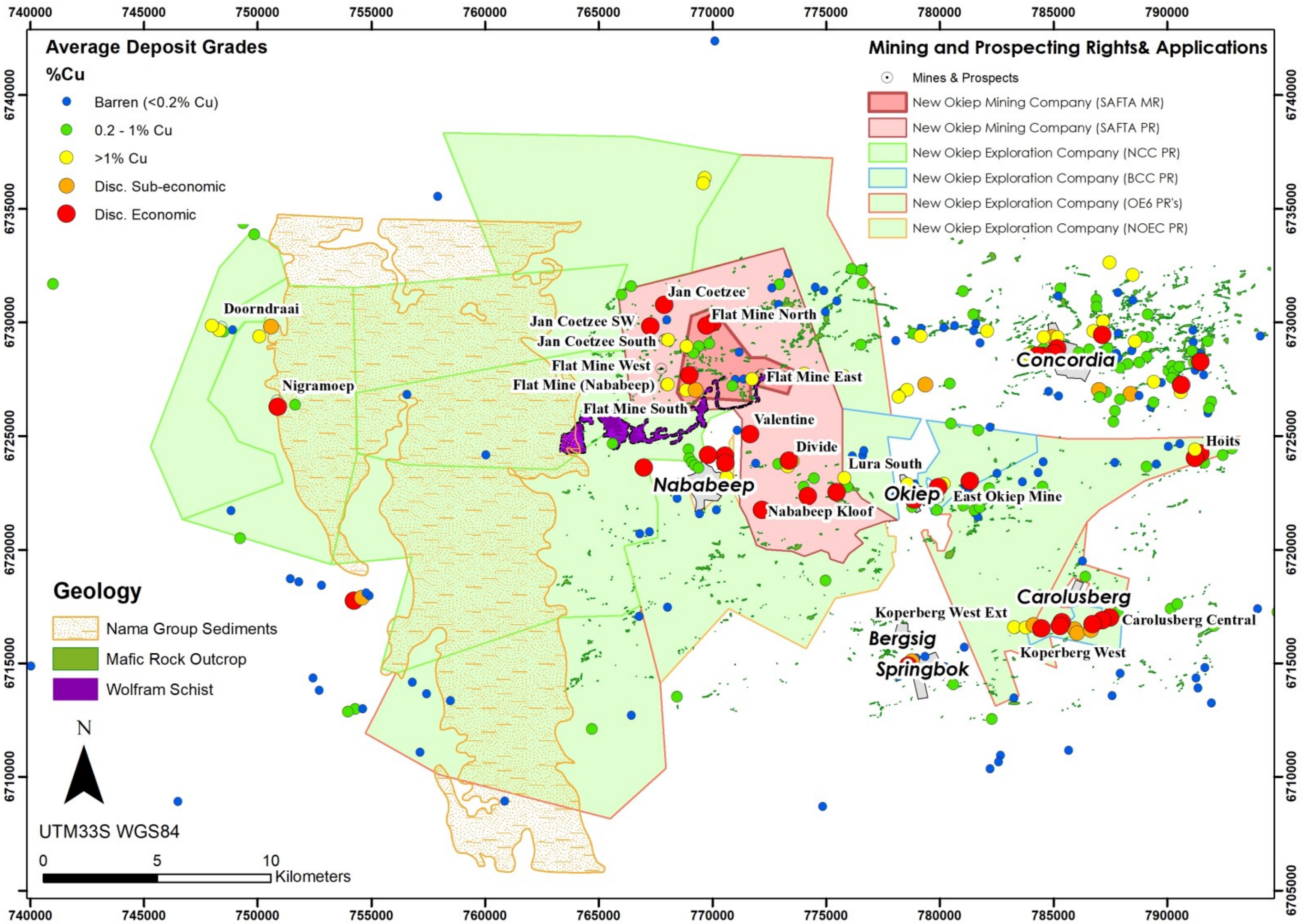
Significant opportunity for Orion to develop a second base metal production hub alongside Prieska



Refer ASX/JSE releases 2 August 2021, September 2021 Quarterly report and Annual Report to Shareholders 2022

OCP HISTORICAL DISCOVERIES AND MINES

Orion Minerals



- Mineralised intrusive bodies intrude structures aligned in east-west trending structural corridors
- 25% of mineralised corridors hidden under thin surface cover
- Modern geophysics expected to assist in detecting mineralisation underneath the thin cover
- Orion has now proved the existence of a Ni rich sulphide mineralisation phase, not previously targeted

OCC

HISTORICAL OWNERSHIP CHANGES COINCIDED WITH Cu PRICE LOWS

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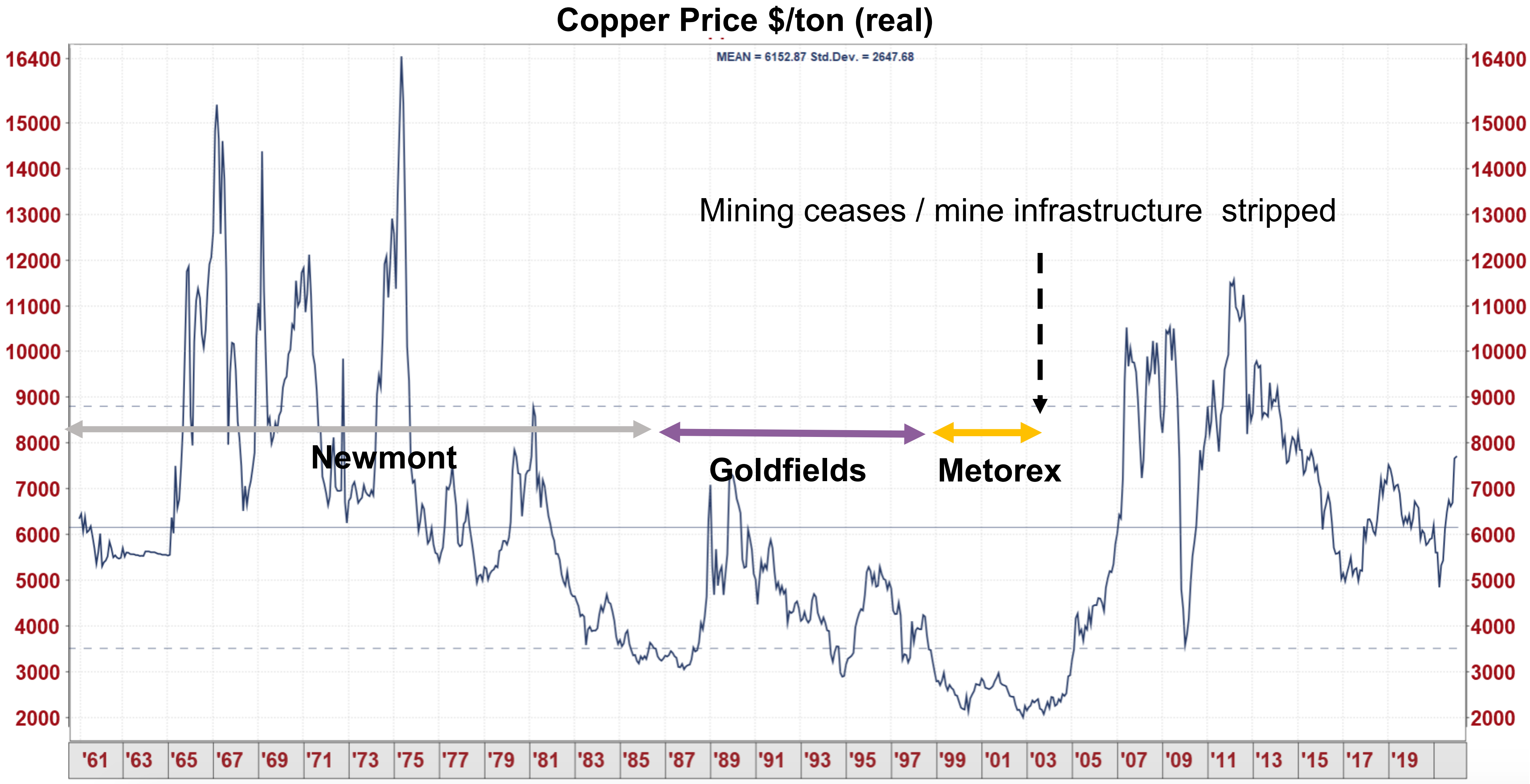


Source: Peter Major Mergence Capital

NOM – FLAT MINES 2021 SCOPING STUDY INDICATED ROBUST ECONOMICS FOR INITIAL "PILOT" MINING

Orion Minerals

- Industrial Development Corporation (IDC) to be our project partners
- Foundation phase is modelled for 12 years
  - Concurrent exploration targeting mine expansion
- Scoping Study indicates potential for robust pilot-phase mine:
  - Production for the pilot phase of 9Mt at 1.29% Cu producing 102kt of copper in saleable concentrates
  - First production possible within 16 months of the start of construction
- **Capital of AUD58M (including 15% contingency)**
- **All-in-sustaining costs of US$4,478/t (US$2.03/lb) of copper sold**
- **NPV$_{10}$ (post tax) of AUD114M (at US$7,593/ton Cu)**
- **All-in-sustaining margin of 40%**
- Average annual undiscounted free cash flows of AUD32M post-tax
- Break-even grade of 0.8% Cu for both un-optimised open pit and underground mining operations

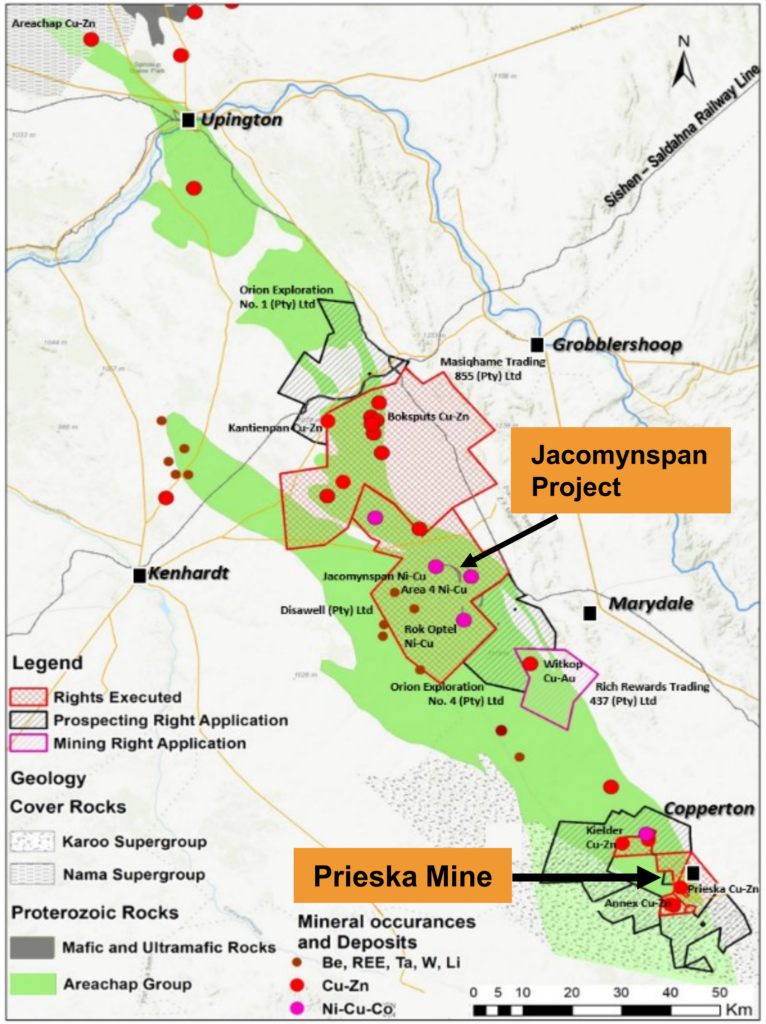
Refer ASX/JSE release 3 May 2021

JMP Project

ENORMOUS EXPLORATION UPSIDE

AREACHAP – AN UNDER-EXPLORED BELT WITH HIGH METAL ENDOWMENT

Orion Minerals

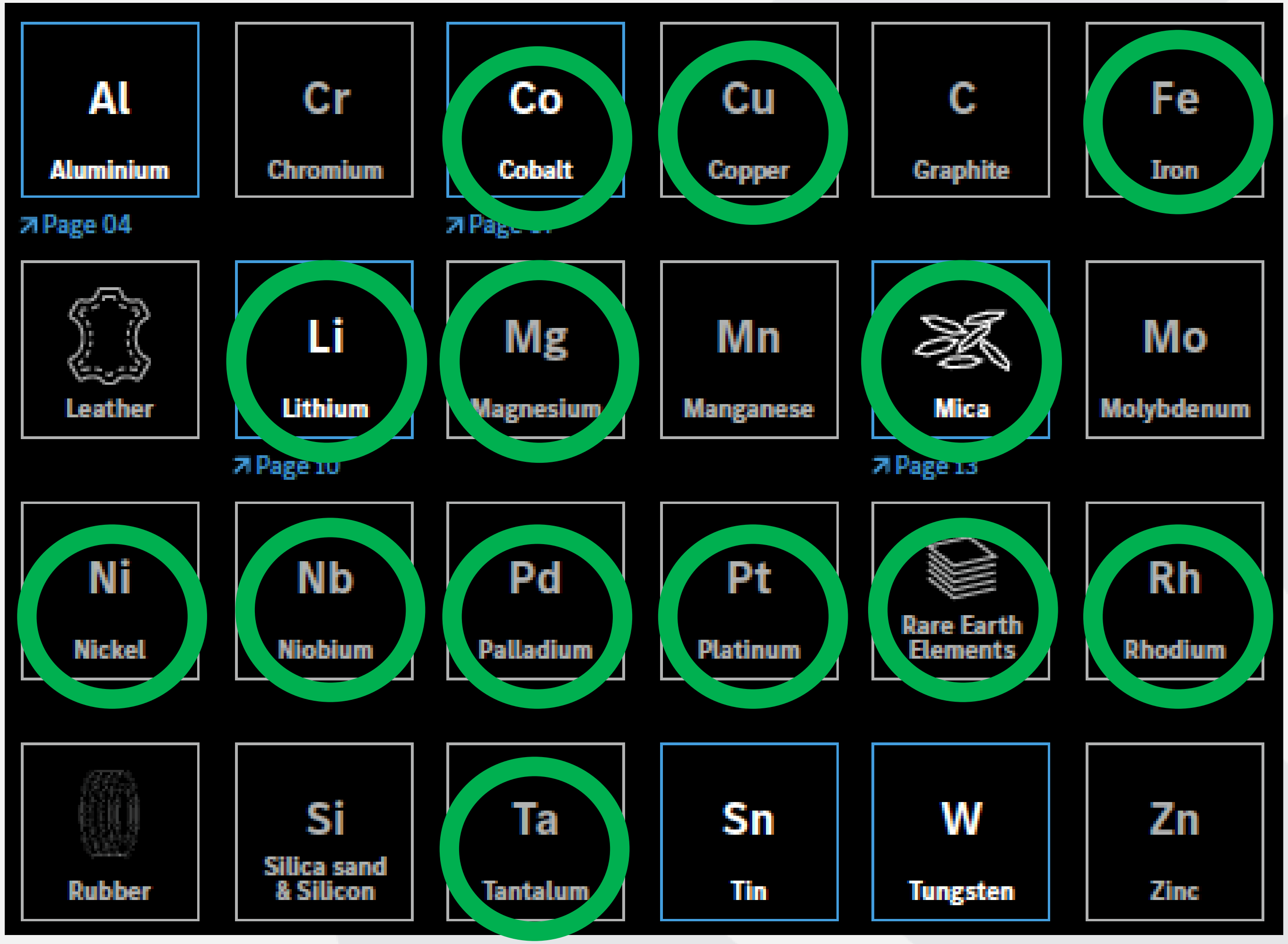


Multiple Cu-Zn VMS and Ni-Cu-Co intrusive targets within Orion's mineral rights

- Jacomynspan – Mining Right with potential for sulphide Ni-Cu-PGE-Au open pit & shallow underground mining
- Several high grade Cu-Au targets with historical and recent drill intersections
- Several Li, Be, REE, Mica occurrences & old diggings to be investigated

RAW MATERIALS CRITICAL TO ELECTRIC VEHICLE PRODUCTION

STRATEGA METALS



Extracted from: Mercedes-Benz | Raw Materials Report July 2022

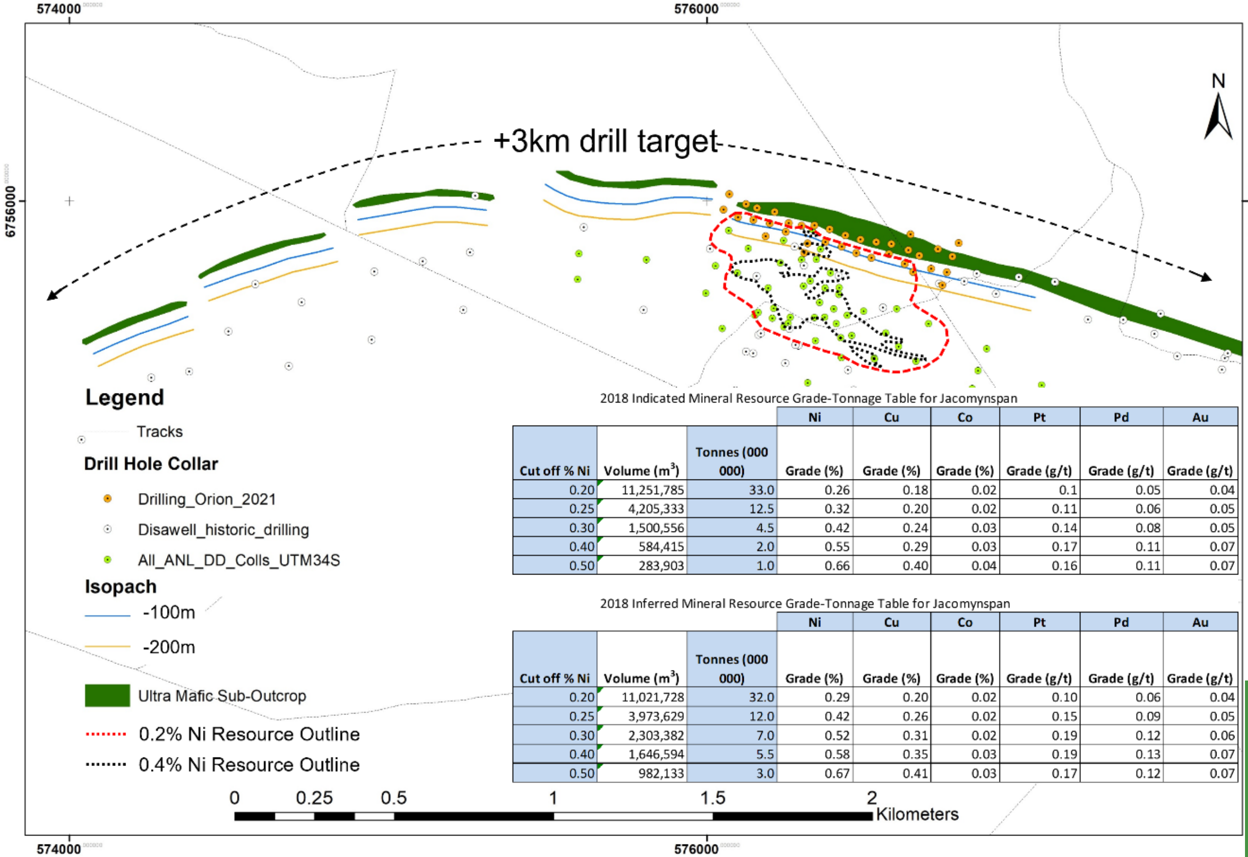
The Jacomynspan (JMP) Mining Right Area has mineral deposits that can potentially supply **13 metals and materials of the 24** that are critical to battery electric vehicle production, cleaner combustion & energy transition.

JACOMYNSPAN (OWNERSHIP 50% ORN : 37% AFRICAN NICKEL)

POTENTIAL TO BE A SIGNIFICANT FUTURE METALS PRODUCER

Orion Minerals

Executed Mining Right over Ni-Cu-Co-PGE+Au Intrusive Complex

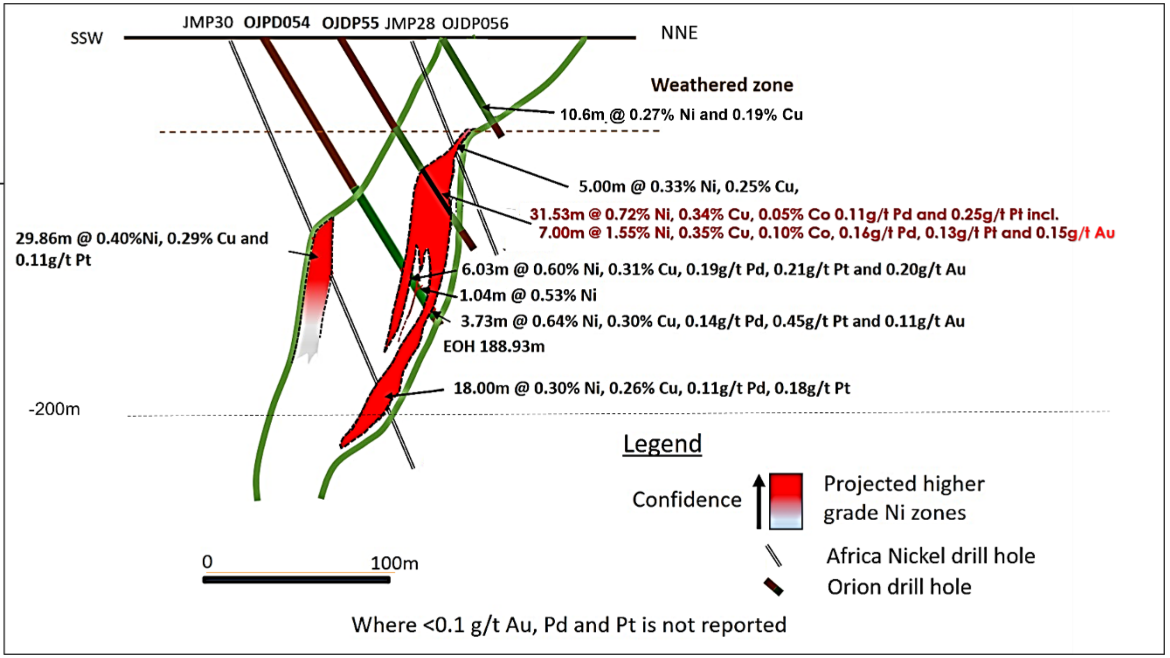


2018 Indicated Mineral Resource Grade-Tonnage Table for Jacomynspan

			Ni	Cu	Co	Pt	Pd	Au
Cut off % Ni	Volume (m^3)	Tonnes (000 000)	Grade (%)	Grade (%)	Grade (%)	Grade (g/t)	Grade (g/t)	Grade (g/t)
0.20	11,251,785	33.0	0.26	0.18	0.02	0.1	0.05	0.04
0.25	4,205,333	12.5	0.32	0.20	0.02	0.11	0.06	0.05
0.30	1,500,556	4.5	0.42	0.24	0.03	0.14	0.08	0.05
0.40	584,415	2.0	0.55	0.29	0.03	0.17	0.11	0.07
0.50	283,903	1.0	0.66	0.40	0.04	0.16	0.11	0.07

2018 Inferred Mineral Resource Grade-Tonnage Table for Jacomynspan

			Ni	Cu	Co	Pt	Pd	Au
Cut off % Ni	Volume (m^3)	Tonnes (000 000)	Grade (%)	Grade (%)	Grade (%)	Grade (g/t)	Grade (g/t)	Grade (g/t)
0.20	11,021,728	32.0	0.29	0.20	0.02	0.10	0.06	0.04
0.25	3,973,629	12.0	0.42	0.26	0.02	0.15	0.09	0.05
0.30	2,303,382	7.0	0.52	0.31	0.02	0.19	0.12	0.06
0.40	1,646,594	5.5	0.58	0.35	0.03	0.19	0.13	0.07
0.50	982,133	3.0	0.67	0.41	0.03	0.17	0.12	0.07



Investigating innovative proprietary technology to recover Battery Metals and high-value Battery Precursor Products – a value game changer

Refer ASX/JSE release 3 March 2018

COMBINING PROVEN CHLORO AND CARBONYL METAL VAPOUR PROCESS TECHNOLOGIES "MVT" TO PRODUCE CRITICAL METAL PRODUCTS

Tronox – A super scale user of Chloro - MVT


United Kingdom

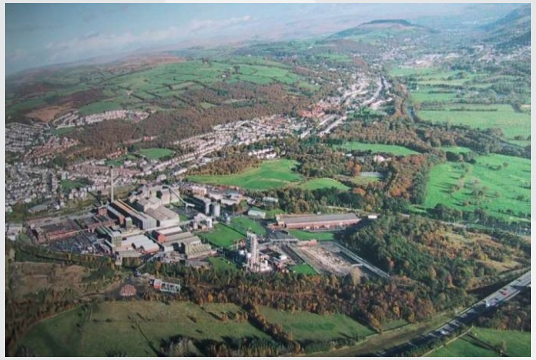

Netherlands


Australia


Saudi Arabia


Germany


Copper Cliff, Canada


Clydach, Wales

Vale is the worldwide leader in Carbonyl - MVT

Source: Stratega Metals

STRATEGA – TCM MVT SOLUTION*

- Treating higher metallurgical recovery – lower grade concentrates (Maximises value extraction of ore deposit)
  - Enables **>90% metal recovery to** concentrate
- Recovery of **>95% of all metals from sulphide concentrates with premium sales value as precursor product**
- Producing high value – clean, green next generation metal powder products

  - Low capex intensity
  - Low opex intensity
  - Low net energy requirement (co-generating electricity)
  - Reagents are generated / regenerated on site and recycled
  - Low/no water consumed
  - Low /no liquid or gas emissions
  - Dry solid waste is inert can be used for production of bricks/tiles/ceramics

POTENTIAL TO MORE THAN DOUBLE REVENUE PER TON ORE MINED – MODERATE INCREMENTAL COST!

* Technical & Commercial claims by Stratega and TCM are currently subject of test.work due-diligence

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