

Prieska BFS Update: A Low-Cost Base Metals Mine In Waiting

Plus, near-term exposure to high-impact nickel exploration in Western Australia's Fraser Range

Errol Smart, Managing Director and CEO | Investor Presentation – May 2020



Orion Minerals

ASX/JSE: ORN

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Orion Minerals

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ORION MINERALS INVESTMENT SNAPSHOT



- Flagship **Prieska Copper-Zinc Project** – Northern Cape Province, South Africa
- **Updated BFS** completed following successful optimisation & value engineering
- Substantial increase in **production, mine life** and **cash flow** achieved:
 - **43% increase** in cash flow to **A\$1.6B**
 - **36% increase** in NPV_{8%} to **A\$779M**
- One of the few **long-life, development ready** base metal assets globally:
 - **12 year mine life** at **~22ktpa Cu** and **~70ktpa Zn**
- Project **financing** and **strategic partner** discussions well advanced
- Well placed to play key role in **local economic recovery** plan for Northern Cape Region
- Significant exposure to **high-impact exploration** in Fraser Range, WA (IGO-JV)
 - Key Ni-Cu targets **directly along trend** from recent Legend Mining discovery
 - **Air-core** drilling underway ahead planned diamond drilling



ORION MINERALS CORPORATE SUMMARY



- Primary listing on the ASX
- Secondary listing on Main Board of the Johannesburg Stock Exchange

Capital structure summary	
Shares on issue ¹	2,900M
Options on issue	243M
Cash on hand ^{2, 5}	\$1.2M
AASMF Loan ³	\$1.79M
Convertible loan (2.6cps convert, 12% interest, June '20 term) ⁴	\$4.5M
Loan facility (12% interest, Oct '20 term) ⁵	\$1.0M
Market capitalisation (1.9cps (ASX)) ⁶	\$55M

Significant shareholders	%
Tembo Capital	24.0
Wyllie Group	5.5
United Super	5.4
IGO Limited	5.3
Tarney Holdings	3.9
Total ⁷	44.1

1. Fully paid ordinary Orion shares (**Shares**) on issue as at 22 May'20.

2. Cash on hand at 31 Mar'20.

3. Refer to the Company's Interim Financial Report for the period ended 31 Dec'19 for information related to the loan agreement (ZAR14.25M) that Repli Trading No 27 (Pty) Ltd has entered into with Anglo American sefa Mining Fund (**AASMF**). Balance shown as at 31 Mar'20.

4. Orion announced on 25 Jan'19 that it had entered into an unsecured \$3.6M loan facility with Tembo Capital (excluding capitalised interest and fees) (**Convertible Loan**). Under the terms of the Convertible Loan, Tembo Capital may at its election, have the balance of the Convertible Loan settled by the issue of Shares at a deemed issue price of 2.6cps (subject to receipt of shareholder approval). Refer to ASX releases 25 Jan'19 and 24 Jan'20 and the Company's Interim Financial Report for the period ended 31 Dec'19 for additional information. Balance shown as at 31 Mar'20.

5. Orion announced on 14 May'20 that it had entered into an unsecured \$1.0M loan facility with Tembo Capital (**Loan Facility**). Under the terms of the Loan Facility, the loan amount, interest and any amount capitalised under the Loan Facility (**Outstanding Amount**) will be automatically set off against the amount to be paid by Tembo Capital for the issue and allotment of Shares to Tembo Capital under any capital raising undertaken by Orion on or before 31 Oct'20 (**Subscription Amount**) (subject to Tembo Capital Board approval and any shareholder and regulatory approvals required to permit Tembo Capital to participate in any capital raising). If Orion does not undertake a capital raising by 31 Oct'20, Tembo Capital may elect to receive Shares in repayment of the Outstanding Amount, at an issue price of the 10 trading day ASX VWAP of the Shares, prior to the date that Tembo Capital issues a conversion notice to Orion (subject to shareholder and regulatory approvals). Refer to ASX release 14 May'20 for additional information.

6. Closing price of ORN Shares on the ASX on 22 May'20. Closing price of ORN Shares on the JSE on 22 May'20 was ZAR0.20.

7. As at 22 May'20.

PRIESKA NEAR-TERM, LOW-COST BASE METALS MINE

THE OREBODY

- Globally significant VMS Resource: **30.49Mt @ 1.2% Cu, 3.7% Zn**
- Increased Mineral Reserve: **14.5Mt @ 1.1% Cu and 3.2% Zn**

FOUNDATION PHASE (INCREASED TO 12 YEARS) BFS-20 OUTCOMES

- Initial 12-year, 2.4Mtpa operation (↑2 years), targeting 22ktpa Cu and 70ktpa Zn
 - Life-of-mine production 226kt Cu (↑20%) and 680kt Zn (↑17%)
- Strong operating margins and financials
 - **43% increase** in pre-tax free cash flow to **A\$1.6bn** (post-tax A\$1.2bn)
 - **36% increase** in pre-tax NPV_{8%} to **A\$779m** (post-tax A\$552m)
 - Payback period **reduced by 5 months** to 2.4 years from first production
 - All-in sustaining **margin increased to 47%**
 - Peak Funding **increased by 9% to A\$413m**

PERMITTING

- Mining Right for initial 24 years (renewable) granted to Repli in August 2019
- Environmental Financial Provision in place fully capitalised
- Environmental approval notice received for Vardocube (Mining Right imminent)
- Water Right Imminent



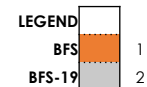
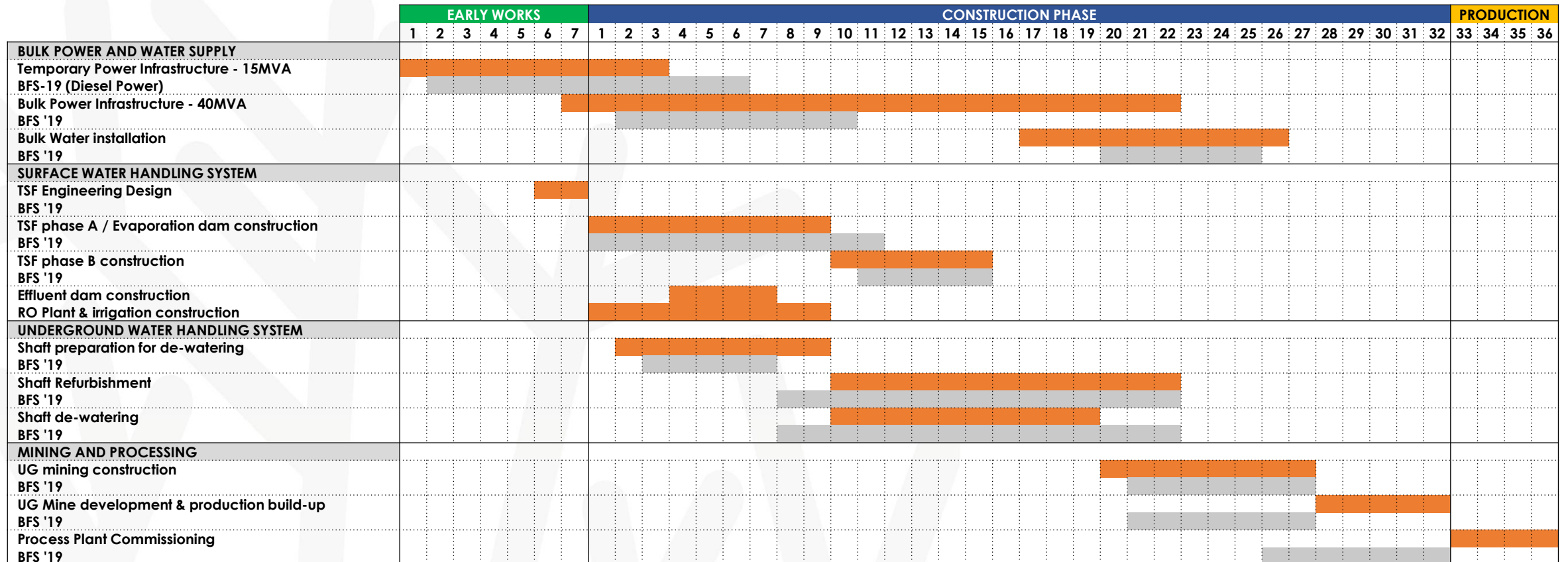
"The completion of the updated BFS marks another huge step towards the development of a modern, state-of-the-art base metals mine at Prieska, which is ideally placed to become the standard bearer for a new generation of world-class mines in South Africa." – Orion Minerals MD Errol Smart

BROWNFIELDS SITE 21ST CENTURY DESIGN



Improved economics, operational efficiencies and enhanced sustainability credentials are amongst the many significant benefits to be delivered from optimisation and engineering as part of the updated Prieksa BFS-20.

PATHWAY TARGETING 2024 PRODUCTION



CONTINUING OPTIMISATION DELIVERING ENHANCED VALUE

Engineering and detailed costing at BFS accuracy (15%) completed May 2020

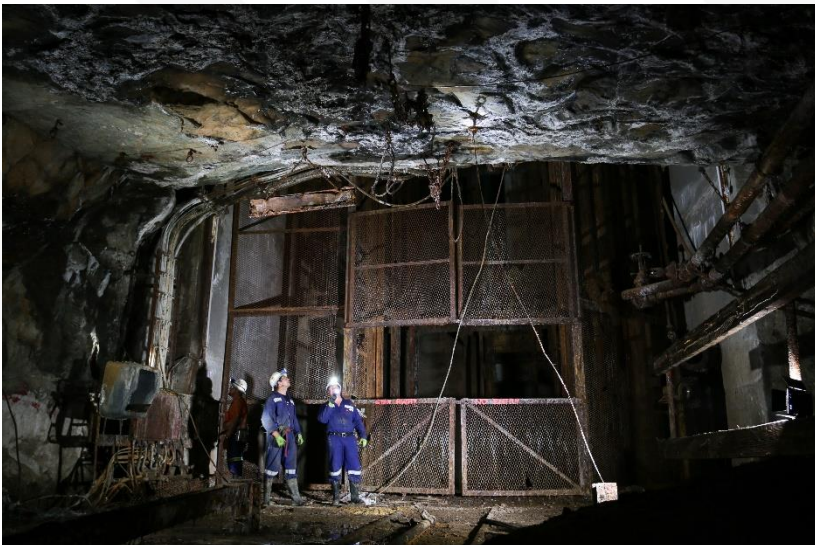
- **Metallurgical plant design**
 - Now includes SAG milling
 - Removes secondary crushing, screening & rock conveyors
 - Capital & OPEX savings achieved
- **De-watering to include water treatment**
 - Allows alternative uses
 - Allows accelerated dewatering – earlier production
 - Improves water security & environmental management
- **“Mine-to-Market”**
 - Optimises development workstreams, scheduling and cash-flow



LOW-COST HIGH-MARGIN OPERATION

Contributors to Low OPEX:

- Brownfields, infrastructure-rich site
- Favourable rock & environmental conditions
- Large scale, simple continuous orebody
- Modern, efficient, mechanised bulk mining
- Simple metallurgy



Project Cost Metrics	Unit	Value	Unit	Value
Average cash operating unit cost (C1)	ZAR/t	807	AUD/t	73
All-in-sustaining cost per unit ROM t	ZAR/t	972	AUD/t	88
All-in-sustaining cost per unit Cu eq t sold	USD/t Cu	3,531	AUD/t Cu	5,779
All-in-sustaining cost per unit Zn eq t sold	USD/t Zn	828	AUD/t Zn	1,355
Price received (net of NSR) - Cu	USD/t Cu	6,604	AUD/t Cu	10,807
Price received (net of NSR) - Zn	USD/t Zn	1,588	AUD/t Zn	2,599
All-in-sustaining margin	%	47%	%	47%
Operating breakeven grade (Cu eq)	%	1.0%	%	1.0%

Method used to determine Cu Equivalent Zn grades:

$$1\% \text{ Zn} = \frac{(\text{Zn price} \times \text{Zn NSR}) \times (\text{Zn plant recovery})}{(\text{Cu price} \times \text{Cu NSR}) \times (\text{Cu plant recovery})} = \frac{(2,337 \times 67.8\%) \times (81.9\%)}{(6,680 \times 99.4\%) \times (83.9\%)} = 0.233\% \text{ Cu}$$

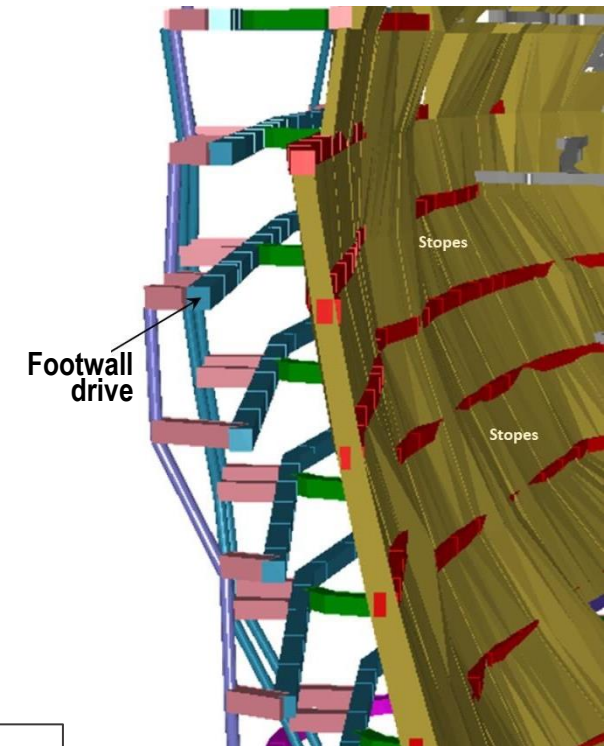
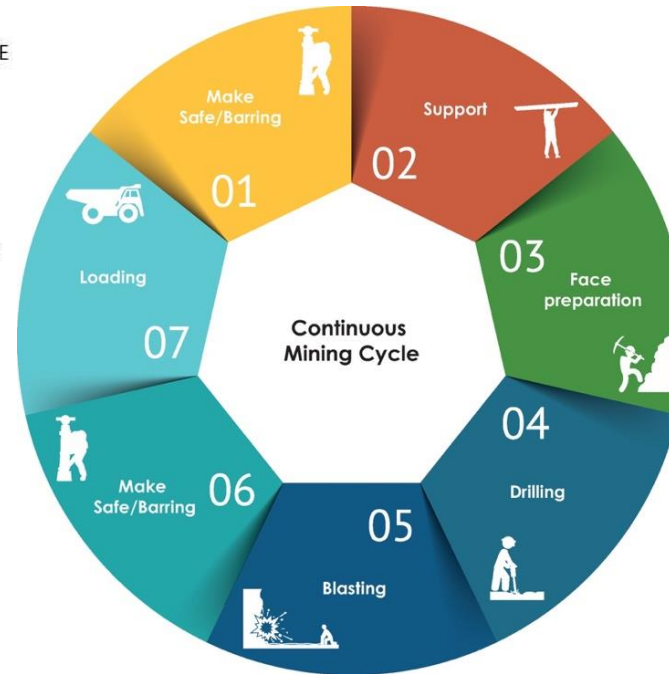
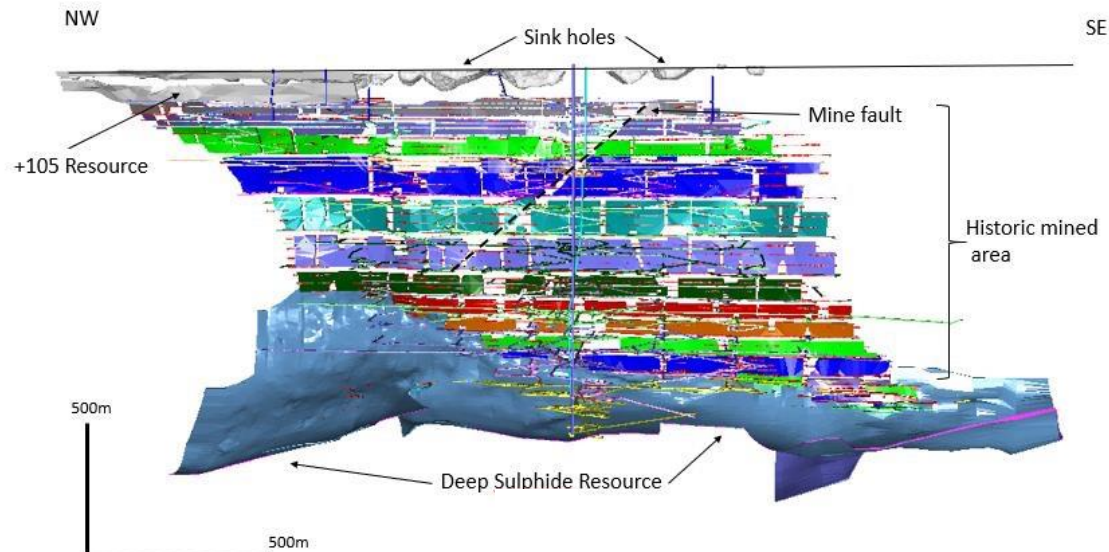
Cu Equivalent grade = Cu grade + 0.23 x Zn grade.

Recovery assumptions are based on metallurgical test-work completed to date at Mintek (South Africa) under the supervision of DRA.

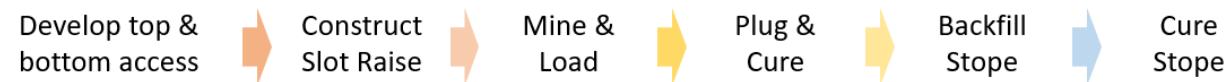
LARGE, SIMPLE OREBODY LOW-COST MINING



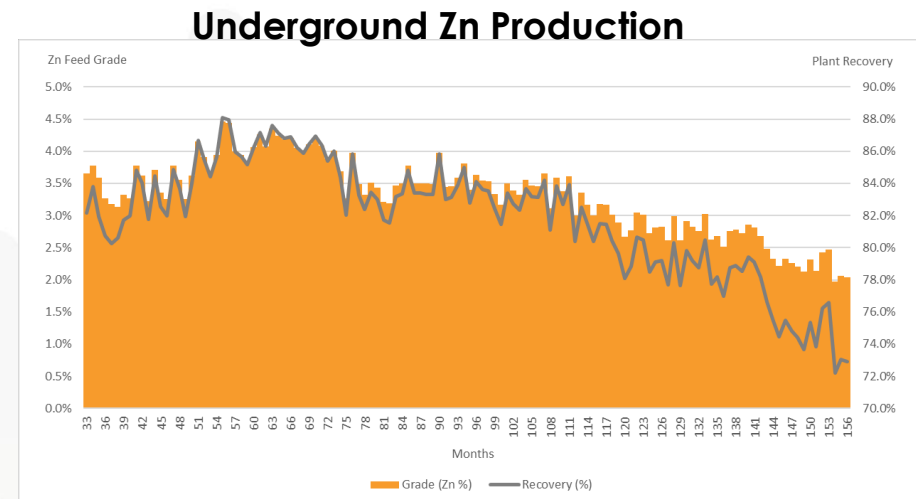
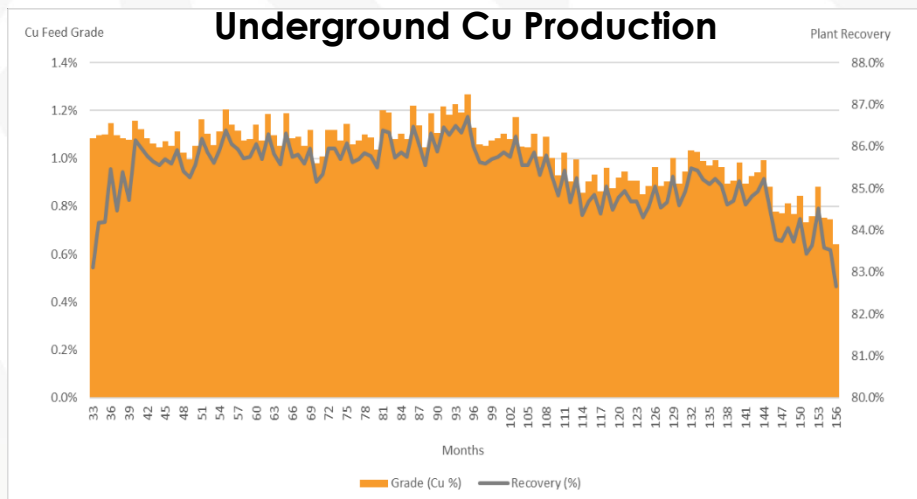
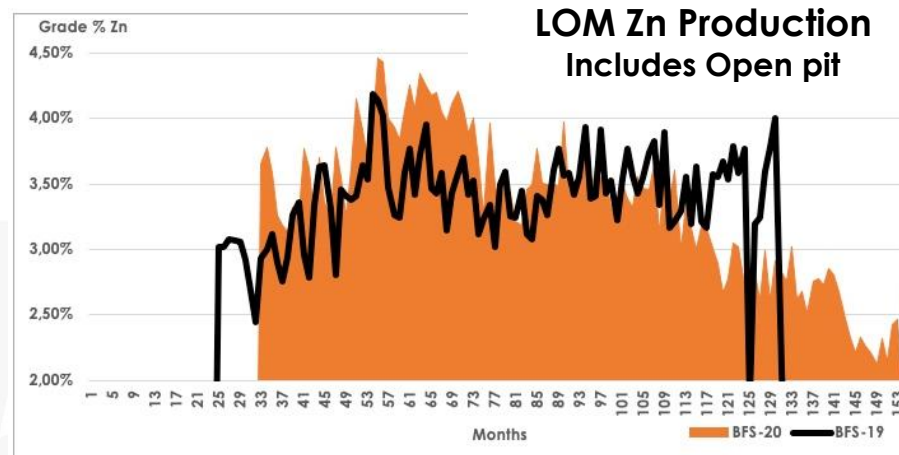
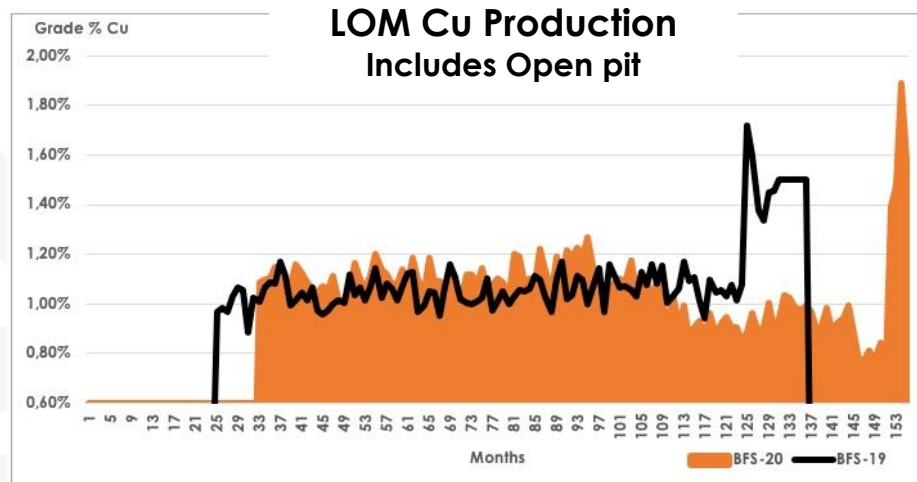
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Longhaul stoping sequence



IMPROVED MINING SCHEDULE “BEST FIRST”



Highest grades with best metallurgical recoveries mined early in the project life

PRIESKA MINE OF THE FUTURE

Implementing a modern operating philosophy (4IR enabled) can contribute to achieving quantum changes in key output parameters that are traditionally slow to improve or have regressed in the local mining industry, including:

- Safety and health improvements
- Improved environmental conditions, reduced pollution and contamination
- Improved energy efficiency and lower energy costs
- Productivity improvements
- Operating cost reductions



Benchmark Globally

Implement Enablers

Be Fast Followers

Always Make Commercial Sense

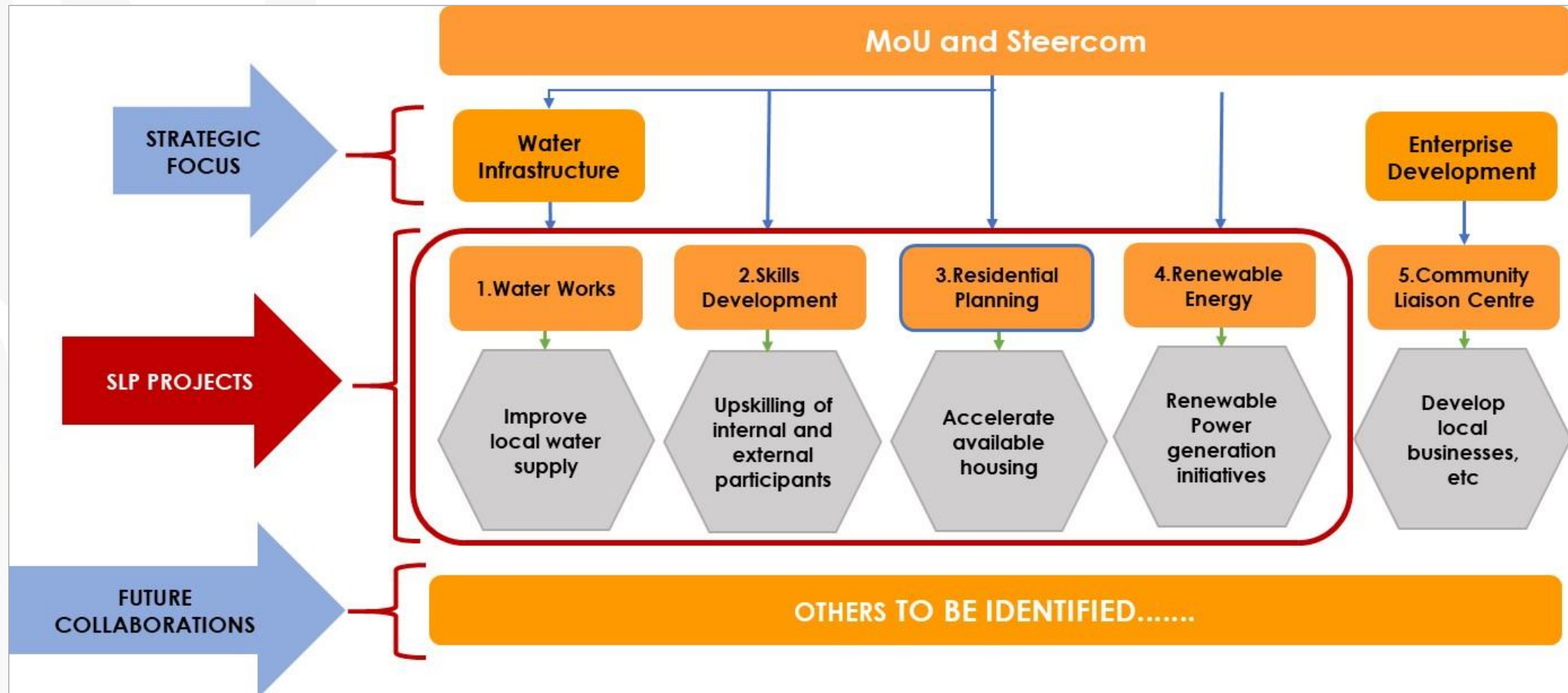
IMPROVED PROJECT ECONOMICS + STRONG ESG

Environmental, Social and Governance (ESG) responsibility embedded in our mine plan

- Investing in district water management/security
 - Benefiting the community
 - Supporting a water management business (enterprise development)
- Focus on low carbon footprint
 - Solar + Wind = 52% renewable energy supply
 - Future integration of battery/hydrogen powered machines
- Ongoing community upliftment
 - Building on a strong foundation already in place
- Plan to operate in compliance with Equator Principles



SOCIAL RESPONSIBILITY LED FRAMEWORK



KEY SOCIAL IMPACTS OF THE PROPOSED PRIESKA MINE

EMPLOYMENT CREATION

- Estimated that 840 people (operational Phase) will be employed
- Empirical multiplier effect potentially creates 2,500 associated jobs

INCREASE IN GROSS DOMESTIC PRODUCT

- District GDP increase expected of 20.3% at optimal mining
- Combined multipliers may increase local economy by 30%
- Local sourcing of select goods and services

CREATE THE POTENTIAL FOR BENEFICIAL MULTIPLIERS

- Mine support services will develop locally
- Increase in residents promoting infrastructure upgrades
- Stimulation of related synergic industries

LOCAL AND BEE ENTERPRISE DEVELOPMENT

- Will create opportunities for local entrepreneurs



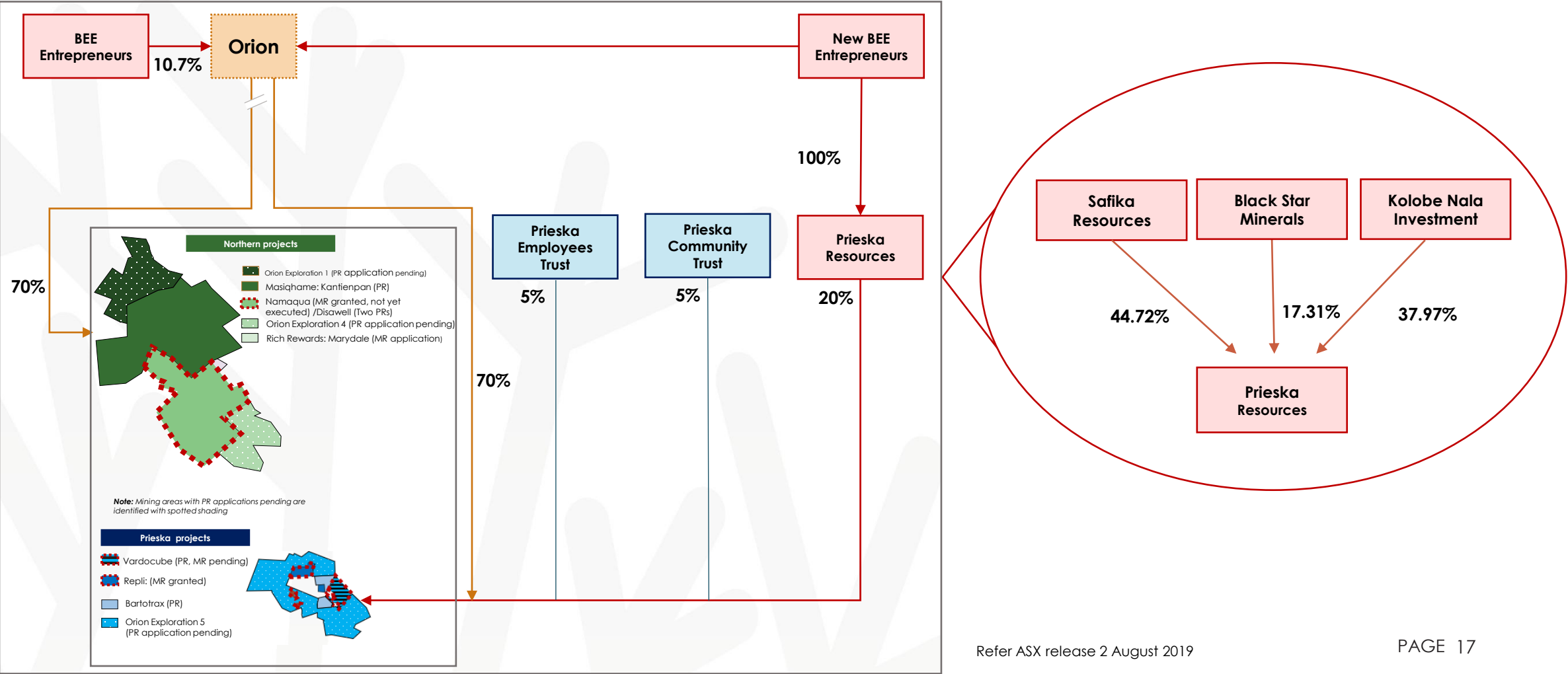
PROJECT SIGNIFICANT TO SOUTH AFRICA

STRONG GOVERNMENT SUPPORT



South African State President **Cyril Ramaphosa**
congratulates Orion Minerals Ltd CEO **Errol Smart** on progress at Prieska
State President's Investment Conference – 6 November 2019

BEE: PROACTIVELY MINING CHARTER COMPLIANT



PROJECT FINANCING OVERVIEW



Majority Senior Secured Project Debt Finance

- Proposals received from seven institutions
 - includes two specialist development finance institutions
- Discussions progressing
- To be finalised post optimisation – revised project cash flow

Subordinated debt and structured financial facilities

- Lease finance
- Supplier finance
- Offtake related finance

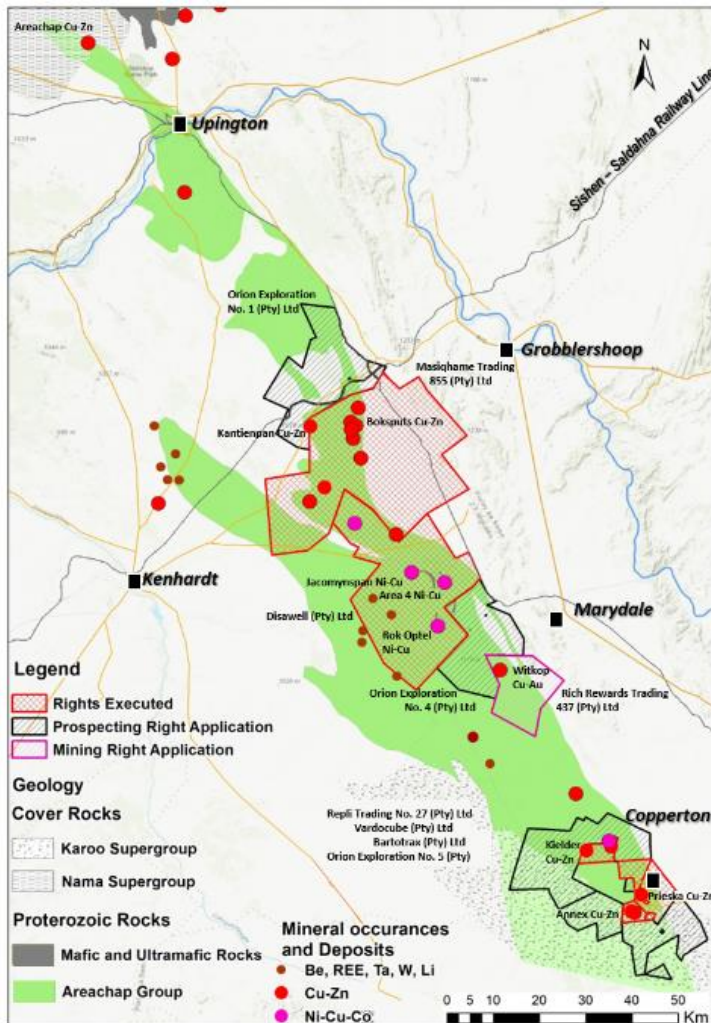
Equity contribution

- Interest from potential strategic partners & off-takers
- Orion 80% : BEE partners 20%

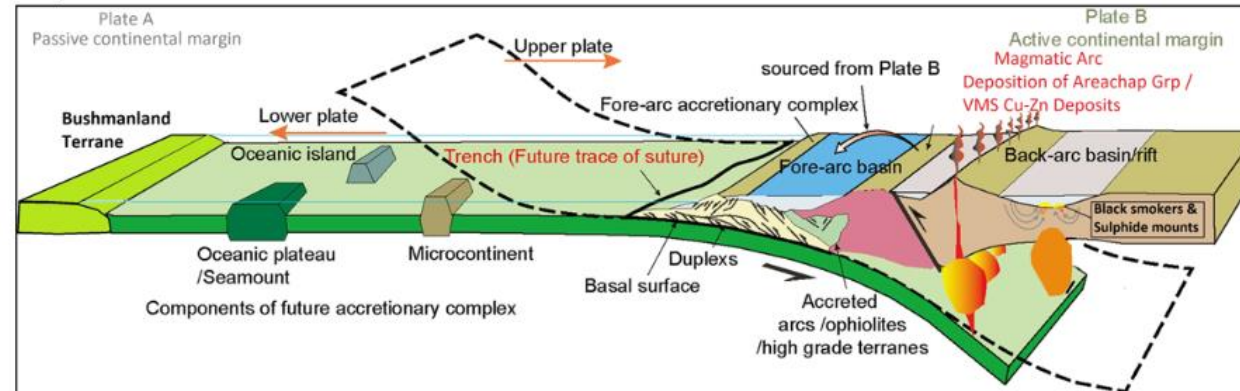
EXPLORATION UPSIDE UNDER-EXPLORED BELT



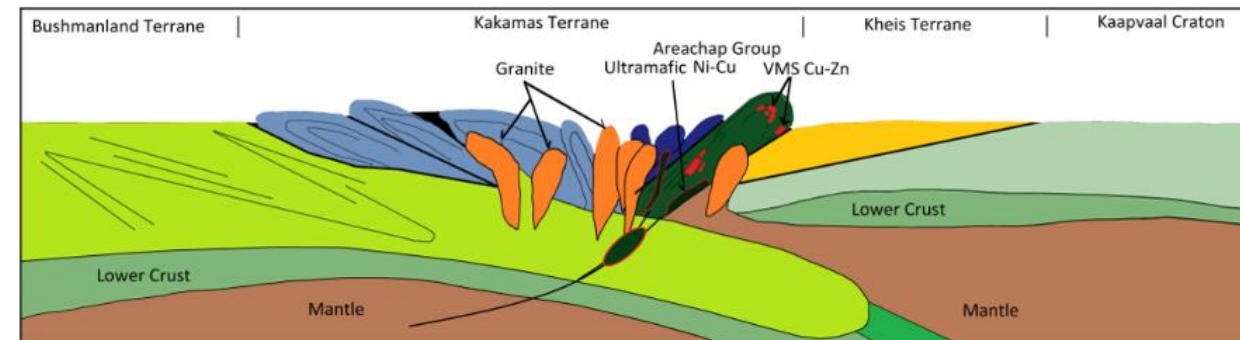
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Depositional Environment

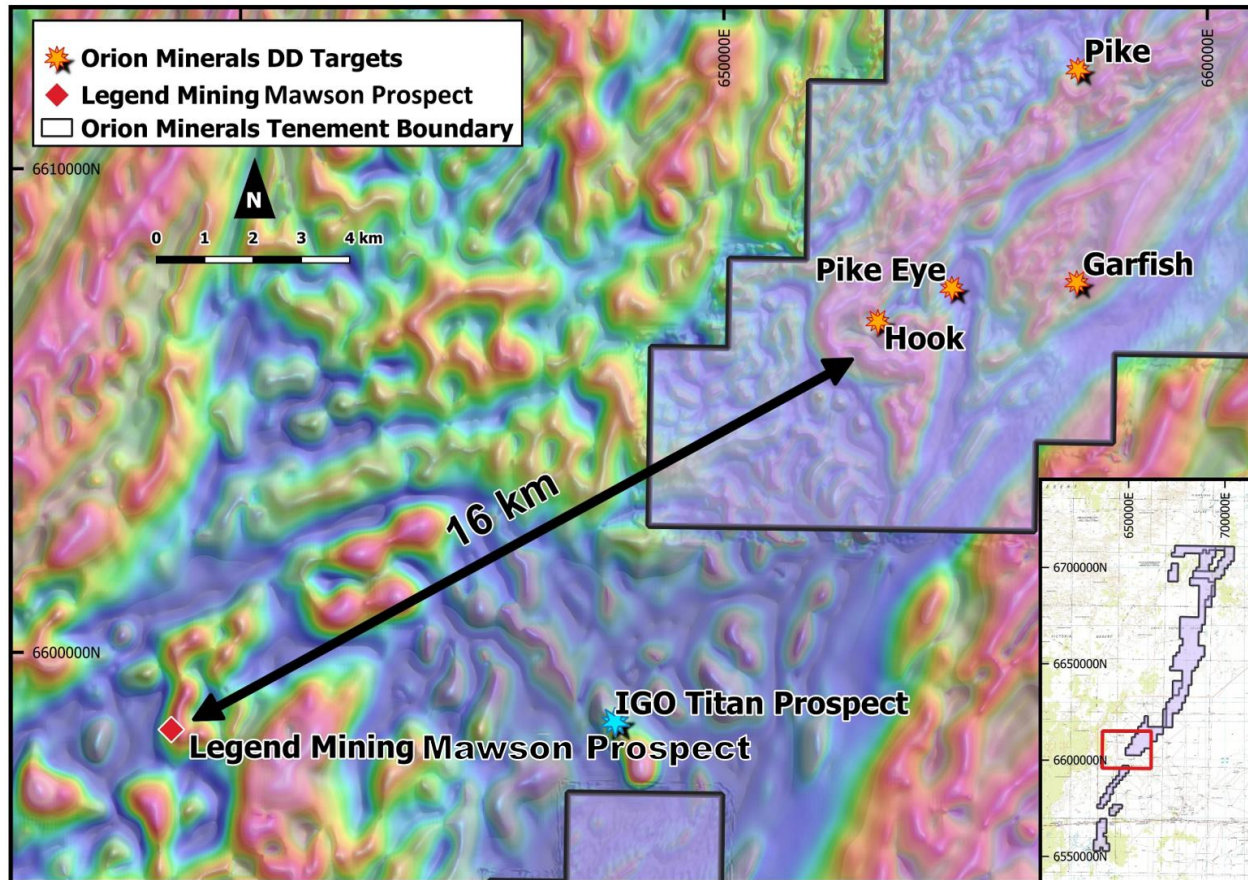


Inter-continental collision and deformation



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

FRASER RANGE IGO:ORN JV



Location of Pike Project (IGO: ORN JV) relative to Legend Mining's recent Mawson Ni-Cu discovery.

Pike Project

- ORN 30% free-carried by IGO through to first pre-feasibility study
- 2019 diamond drilling intersected Ni-Cu sulphides in ultramafic intrusive and same geological features as Mawson
- Significant off-hole conductor to be tested
- Preparing for follow-up diamond drill program
- Air-core drilling underway

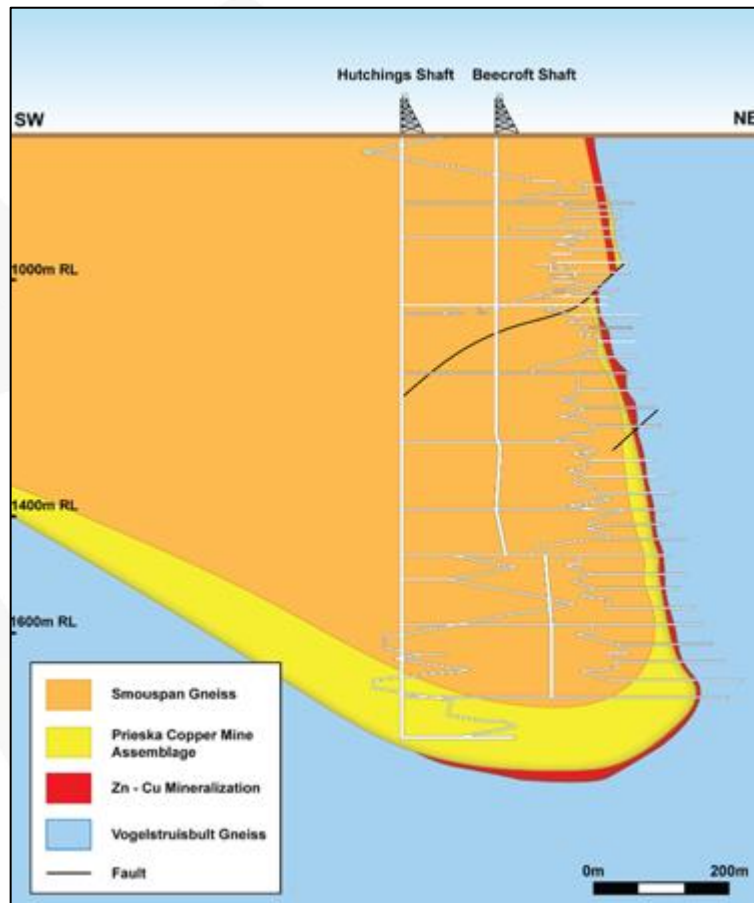
SUMMARY KEY INVESTMENT TAKEAWAYS

- ✓ Advanced, high-quality **base metals asset** – ready for development
- ✓ Outstanding results from updated BFS, improving significantly on BFS-19
- ✓ One of the few **long-life, development-ready** base metal assets globally:
 - ✓ **Strong strategic position** in the South African mining industry with significant competitive advantages
 - ✓ Significant **free-carried exposure** to Ni-Cu exploration in WA:
 - ✓ **High-impact exploration** program underway
 - ✓ **Priority targets** located along strike from recent Ni-Cu discovery

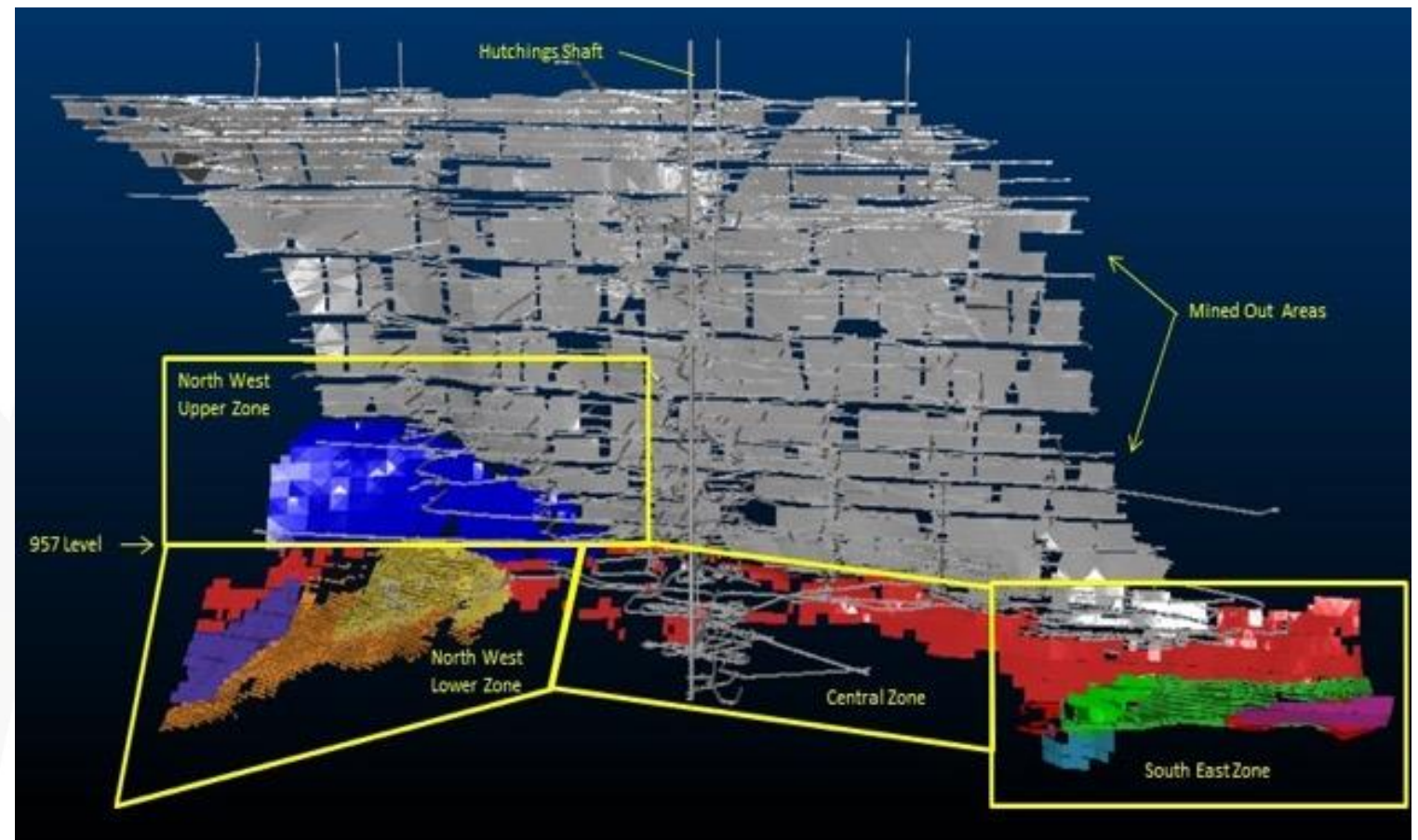
Orion Minerals offers a rare combination of exposure to a world-class development asset in the base metals sector, plus exposure to two province-scale exploration projects in Australia and the Northern Cape Province of South Africa.



APPENDICES



Prieska Mine Cross Section



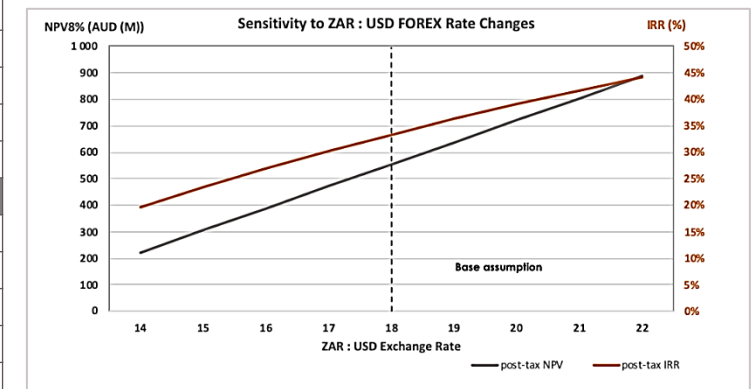
Prieska Mine Long Section

PRIESKA PROJECT BFS 2020 : EXECUTIVE DASHBOARD



Key assumptions and Project Performance Parameters							
Price and FX Assumptions	Unit	Value	Financial Performance	Unit	Value	Unit	Value
Metal price - Cu	USD/t	6,680	NPV (pre-tax) @8% discount rate	ZAR (M)	8,566	AUD (M)	779
Metal price - Zn	USD/t	2,337	NPV (post-tax) @8% discount rate	ZAR (M)	6,069	AUD (M)	552
Exchange rate	ZAR : USD	18 : 1	IRR (pre-tax)	%	39%	%	39%
Exchange rate	ZAR : AUD	11 : 1	IRR (post-tax)	%	33%	%	33%
Exchange rate	AUD : USD	1.64 : 1	Payback from first production	years	2.4	years	2.4
Production metrics	Unit	Value	Undiscounted free cash flow (pre-tax)	ZAR (M)	17,691	AUD (M)	1,619
Life of Mine (Phase 1)	Years	11.5	Peak funding	ZAR (M)	4,542	AUD (M)	413
Treatment plant capacity	Mtpa	2.4	Project Cost Metrics	Unit	Value	Unit	Value
Phase 1 tonnage - ROM	kt	25,250	Average cash operating unit cost (C1)	ZAR/t	807	AUD/t	73
ROM Plant Feed Grade - Cu - U/G (O-Pit)	%	1.0 (1.3)	All-in-sustaining cost per unit ROM t	ZAR/t	972	AUD/t	88
ROM Plant Feed Grade - Zn - U/G (O-Pit)	%	3.3 (2.4)	All-in-sustaining cost per unit Cu eq t sold	USD/t Cu	3,531	AUD/t Cu	5,779
Overall Plant Recovery - Cu	%	83.9%	All-in-sustaining cost per unit Zn eq t sold	USD/t Zn	828	AUD/t Zn	1,355
Overall Plant Recovery - Zn	%	81.9%	Price received (net of NSR) - Cu	USD/t Cu	6,604	AUD/t Cu	10,807
Concentrate tonnage - Cu - U/G (O-Pit)	kt	1,071 (54)	Price received (net of NSR) - Zn	USD/t Zn	1,588	AUD/t Zn	2,599
Concentrate tonnage - Zn - U/G (O-Pit)	kt	1,256 (46)	All-in-sustaining margin	%	47%	%	47%
Concentrate grade UG - Cu - U/G (O-Pit)	%	19.8 (25.5)	Operating breakeven grade (Cu eq)	%	1.0%	%	1.0%
Concentrate grade UG - Zn - U/G (O-Pit)	%	52.9 (35.0)	Project Cashflows	Unit	Value	Unit	Value
NSR as % of metal price - Cu - U/G (O-Pit)	%	99.3 (92.1)	LoM net revenue	ZAR (M)	43,404	AUD (M)	3,946
NSR as % of metal price - Zn - U/G (O-Pit)	%	68.4 (51.3)	LoM operating costs (plus State Royalty)	ZAR (M)	20,082	AUD (M)	1,826
Metal sold (in concentrates) - Cu	tonnes	226,000	Project Start-up Capital Expenditure	ZAR (M)	4,100	AUD (M)	372
Metal sold (in concentrates) - Zn	tonnes	680,000	Sustaining Capital Expenditure	ZAR (M)	1,510	AUD (M)	137
Total Sales as Cu equivalent	tonnes	386,000	Income Tax	ZAR (M)	4,865	AUD (M)	442
Total Sales as Zn equivalent	tonnes	1,644,000	Cash Flow After Tax	ZAR (M)	12,826	AUD (M)	1,166
Level of Accuracy of Financial Model \pm 15%, LoM = Life of Mine, NSR = Net Smelter Return, NPV = Net Present Value, IRR = Internal Rate of Return							
There is a low level of geological confidence associated with Inferred Mineral Resources and therefore there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources so that the Production Target or financial forecast information referred to in this Study will be realised.							

NPV Sensitivity (AUD (M))	% Change	-15%	-10%	-5%	0%	+5%	+10%	+15%	0%
Zn Price USD/lb	0.90	0.95	1.01	1.06	1.11	1.17	1.22	1.06	
Cu Price USD/lb	2.58	2.73	2.88	3.03	3.18	3.33	3.48	3.03	
% Change	ZAR:USD	post-tax NPV (at 8% discount rate)							IRR
-15%	15.30	112	185	257	329	400	471	541	25%
-10%	16.20	176	252	328	403	478	553	629	28%
-5%	17.10	238	319	398	477	557	636	716	31%
0	18.00	301	385	468	552	636	719	804	33%
+5%	18.90	363	451	538	626	714	803	892	36%
+10%	19.80	425	517	609	701	793	887	981	38%
+15%	20.70	487	583	679	775	873	971	1,070	41%



Refer ASX release 26 May 2020

COMPARATIVE SUMMARY CAPEX & OPEX

Operating Costs	BFS-20	BFS-19	Variance	
	AUD/RoM †	AUD/RoM †	AUD/RoM †	%
Mining	38	48	-11	-22%
Processing	15	16	-1	-8%
Surface & Indirects	6	7	-1	-15%
Concentrate Transport Charges	11	9	1	12%
Corporate Costs	1	1	0	-13%
Off-mine Costs	1	2	-1	-38%
Royalties (Government)	7	6	1	13%
SIB Capex	5	4	1	36%
Operationalised Infrastructure	5	0	5	0%
Total	88	94	-6	-6%

Project Capex Grouped Elements	BFS-20	BF-19	Variance	
	AUD (millions)	AUD (millions)	AUD (millions)	%Var
Power and Water Supply	0	9	-9	-100%
Tailings Storage Facility	0	33	-33	-100%
Shaft Refurbishment and Equipping	37	39	-2	-4%
Mine Dewatering	30	32	-2	-5%
Surface Infrastructure	35	47	-12	-25%
Underground Infrastructure	49	48	2	3%
Mining Fleet	50	0	50	0%
Processing Plant	91	108	-17	-16%
Project Management and Site Services	46	48	-2	-5%
Subtotal	339	363	-25	-7%
Contingency @ 10%	34	36	-2	-7%
Total Start-up Capex	373	400	-27	-7%

Establishment Expenditure Grouped Elements	BFS-20	BFS-19	Variance	
	AUD (millions)	AUD (millions)	AUD (millions)	% Var
Power and Water Supply	8	9	-1	-8%
Tailings Storage Facility	47	33	14	44%
Shaft Refurbishment and Equipping	37	39	-2	-4%
Mine Dewatering	48	32	17	53%
Surface Infrastructure	44	47	-4	-8%
Underground Infrastructure	49	48	2	3%
Mining Fleet	50	39	12	30%
Processing Plant	91	108	-17	-16%
Project Management and Site Services	46	48	-2	-5%
Subtotal	421	402	19	5%
Contingency @ 10%	42	40	2	5%
Total Establishment Expenditure	463	442	21	5%

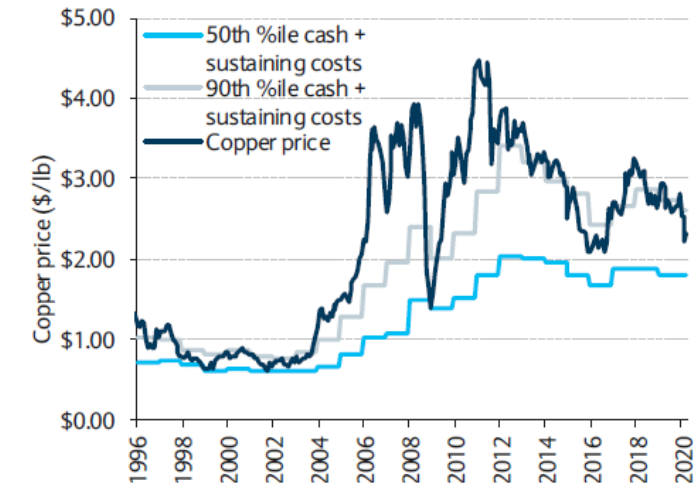
COPPER MARKET: BRUISED BY COVID-19, BUT PRIMED FOR THE REBOUND



- Significant COVID-induced price downturn in CY2020 – mines shut as commodity prices slide down the global cost curve, further closures likely
- Limited investment in new supply, with very few projects set to come on-stream over the next 5 years
- Growing degree of difficulty – declining copper grades, more complex ore bodies, increasing depths
- Strong justification for new projects with an attractive grade and OPEX profile on the global cost curve... like Prieska!
- While the short-term outlook is challenging, the forecast recovery in global copper demand is expected mid-way through the decade on the back of the global green energy transition

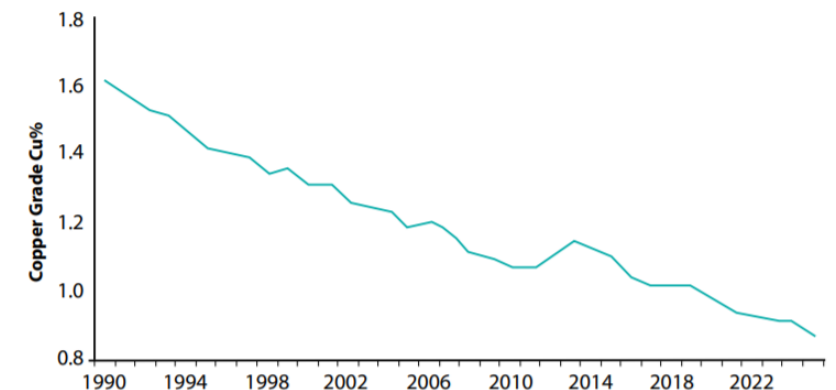
The global copper recovery expected to coincide with the targeted commencement of copper-zinc production at Prieska in 2024

Copper versus cost curve over time – nominal terms



Source: Wood Mackenzie, Barclays Research

Industry Head Grade Trends (Weighted Paid Copper) Source: Brook Hunt

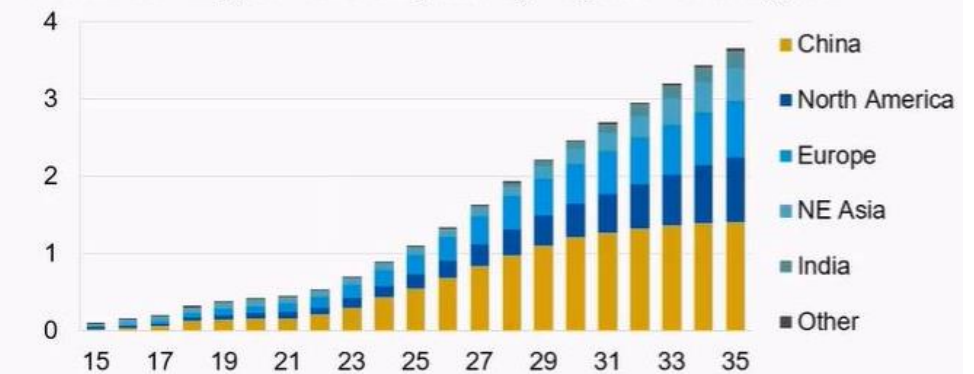


COPPER MARKET:

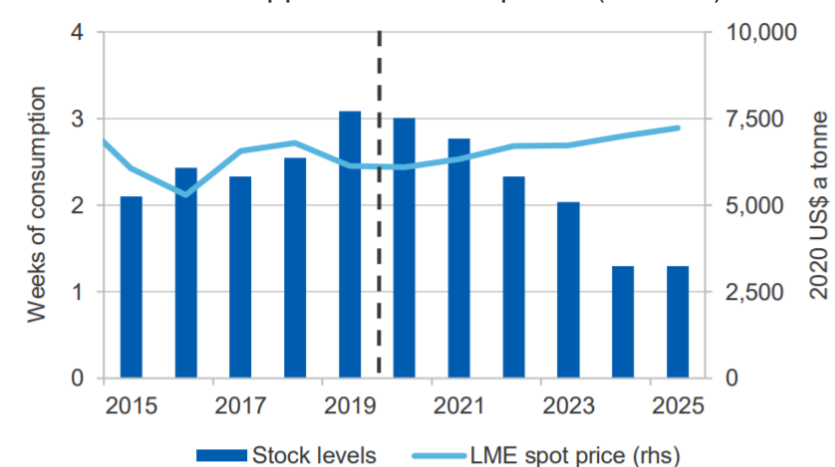
FUTURE GROWTH UNDERPINNED BY GREEN ENERGY

- Electric vehicles (EV) use around 80kg of copper, compared to around 22kg in internal combustion engines (ABARE)
- Global copper demand from EVs expected to rise from 417,000t in 2020 to 1.1Mt in 2025 and almost 2.5Mt in 2030 (CRU)
- Significant growth in copper usage for EV infrastructure requirements – grid upgrades, battery storage, chargers
- Copper is also a key material required for wind power and solar power generation, transmission and storage

World EV copper consumption by region / country, Mt



Outlook for copper stocks and prices (ABARE)

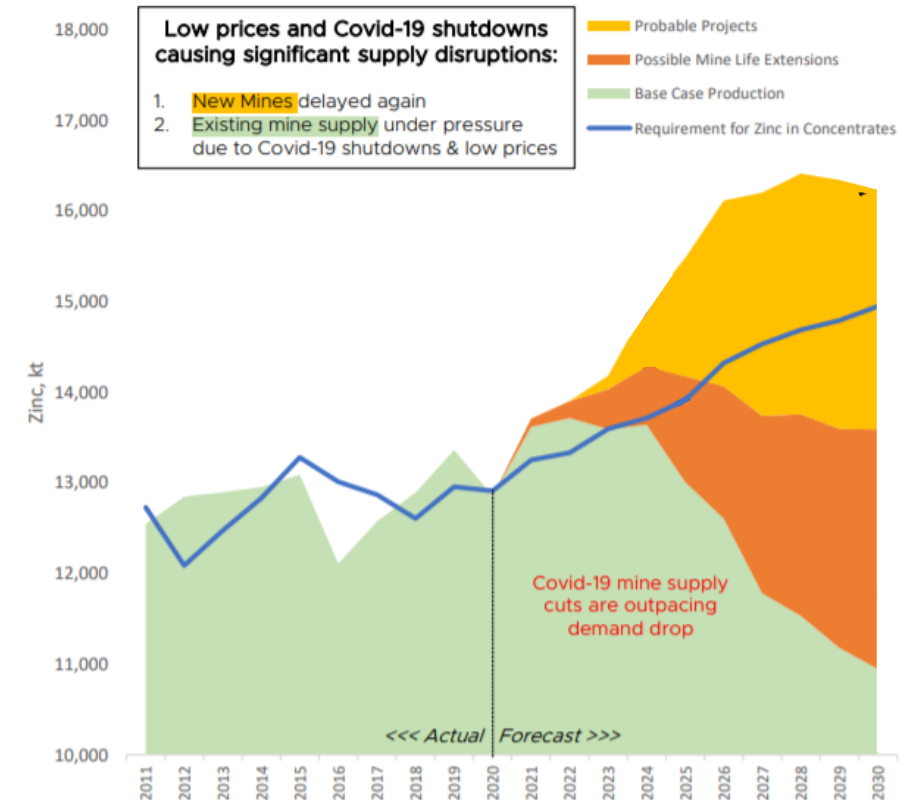


ZINC MARKET:

HUGE SUPPLY DISRUPTION, LOOMING DEFICIT

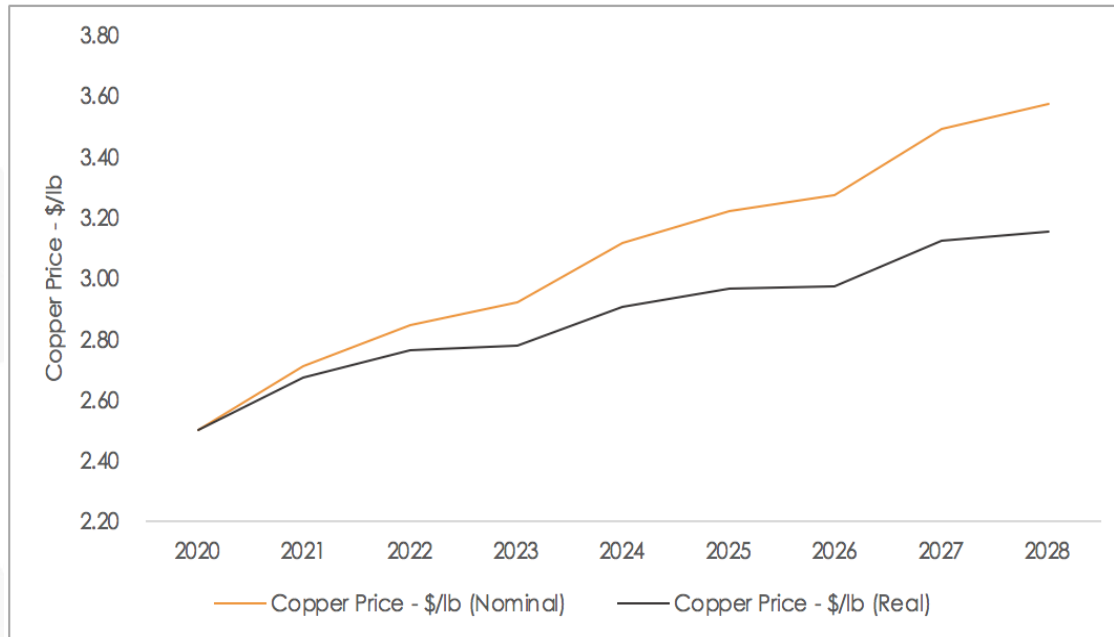


- Zinc has also moved deep into the cost curve - large proportion of current Ore Reserves (operating mines) are uneconomic
- Major supply cuts to current operations and lack of investment in new supply – market will inevitably tighten
- Zinc expected to benefit in short-term from resumption of blast furnaces as COVID-19 lockdowns end
- Highly leveraged to global post-COVID stimulus measures – 66% of zinc production used for construction and infrastructure
- Compelling emerging potential for zinc-bromine based batteries as an alternative to lithium ion batteries - particularly in the energy storage space
- 2021 – 2030 global demand forecast to grow by 1.5% pa – equivalent to an additional 200,000tpa of zinc metal production



Source: Wood Mackenzie 2020,
Extracted from New Century Resources' May 2020 Investor Presentation

METAL PRICE OUTLOOK S&P GLOBAL (APRIL 2020)



Source: S&P Global April 2020



Source: S&P Global April 2020

The charts above show the metal price forecasts in real and nominal terms. The real values were obtained by dividing S&P Global's April 2020 nominal price forecast by their cumulative U.S. CPI forecasts. An increasing price trend is expected in both real and nominal terms due to the influencing factors mentioned above

PRIESKA MINERAL RESOURCE

Combined Prieska Project Mineral Resource for Repli + Vardocube Tenements (Effective Date: 11 January 2019)

Mineral Resource	Classification	Tonnes	Cu (metal tonnes)	Cu (%)	Zn (metal tonnes)	Zn (%)
Deep Sulphide Resource	Indicated	18,507,000	217,000	1.17	667,000	3.60
	Inferred	10,219,000	117,000	1.1	417,000	4.1
+ 105m Level Resource	Indicated	624,000	10,000	1.54	19,000	3.05
	Inferred	1,138,000	17,000	1.4	16,000	1.4
Total	Indicated	19,131,000	227,000	1.18	686,000	3.59
	Inferred	11,357,000	134,000	1.2	433,000	3.8
Grand Total		30,488,000	361,000	1.2	1,119,000	3.7

Deep Sulphide Resource bottom cut-off = 4% Equivalent Zn; +105m Level Mineral Resource bottom cut-off = 0.3% Cu. Mineral Resources stated at zero % cut-off. Tonnes are rounded to thousands, which may result in rounding errors.

The Mineral Resources are inclusive of Ore Reserves.

Mineral Resource reported in ASX release of 15 January 2019: "Prieska Total Resource Exceeds 30Mt @ 3.7% Zn and 1.2% Cu Following Updated Open Pit Resource" available to the public on www.orionminerals.com.au/investors/asx-jse-announcements. Competent Person Orion's exploration: Mr. Errol Smart. Competent Person: Orion's Mineral Resource: Mr. Sean Duggan. Orion confirms it is not aware of any new information or data that materially affects the information included above. For the Mineral Resources, the company confirms that all material assumptions and technical parameters underpinning the estimates in the ASX release of 15 January 2019 continue to apply and have not materially changed. Orion confirms that the form and context in which the Competent Person's findings are presented here have not materially changed.

PRIESKA ORE RESERVE

Prieska Project Ore Reserves Estimate (Effective Date: 30 April 2020)								
Deposit	Ore Reserve Classification	Tonnage (Mt)	Cu		Zn		Cu Equivalent	
			Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)
Deep Sulphide	Probable	14.0	146	1.0	446	3.2	248	1.8
+ 105 Supergene	Probable	0.5	7	1.5	16	3.3	11	2.3
Total	Probable	14.5	153	1.1	462	3.2	259	1.8

Project Ore Reserves calculated using financial assumptions and modifying factors stated in the BFS-20. Tonnes are rounded to thousands, which may result in rounding errors.

Method used to determine Cu equivalent Zn grades:

Underground Cu Equivalent Calculation

$$1\% \text{ Zn} = \frac{(\text{Zn price} \times \text{Zn NSR}) \times (\text{Zn plant recovery})}{(\text{Cu price} \times \text{Cu NSR}) \times (\text{Cu plant recovery})} = \frac{(2,337 \times 68.3\%) \times (81.6\%)}{(6,680 \times 99.3\%) \times (85.5\%)} = 0.23\% \text{ Cu}$$

Therefore Cu Equivalent grade = Cu grade + 0.23 x Zn grade.

Open-pit Cu Equivalent Calculation

$$1\% \text{ Zn} = \frac{(\text{Zn price} \times \text{Zn NSR}) \times (\text{Zn plant recovery})}{(\text{Cu price} \times \text{Cu NSR}) \times (\text{Cu plant recovery})} = \frac{(2,337 \times 52.2\%) \times (75.8\%)}{(6,680 \times 91.9\%) \times (61.7\%)} = 0.17\% \text{ Cu}$$

Therefore Cu Equivalent grade = Cu grade + 0.17 x Zn grade.

Combined Cu Equivalent Calculation

$$1\% \text{ Zn} = \frac{(\text{Zn price} \times \text{Zn NSR}) \times (\text{Zn plant recovery})}{(\text{Cu price} \times \text{Cu NSR}) \times (\text{Cu plant recovery})} = \frac{(2,337 \times 67.8\%) \times (81.4\%)}{(6,680 \times 99.0\%) \times (84.3\%)} = 0.23\% \text{ Cu}$$

Therefore Cu Equivalent grade = Cu grade + 0.23 x Zn grade.

Recovery assumptions are based on metallurgical test-work completed to date at Mintek (South Africa) under the supervision of DRA. Metal price assumptions based on S&P Global commodity long-term forecast (April 2020). NSR calculations by Orion.



Orion Minerals

ASX/JSE: ORN

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