# Black Rock Mining Mahenge Graphite Mine

**Simply Better Graphite: Investor Update** 

Shaw and Partners Graphite Conference June 2023



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The information in this report that relates to estimates of Mineral Resources and Ore Reserves has been extracted from the Company's ASX announcement released on 3 February 2022 titled "BKT Confirms 25% increase in Measured Resources." The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement, and that all material assumptions and technical parameters underpinning the estimates of Mineral Resources or Ore Reserves in the original market announcement continue to apply and have not materially changed.

### **Production Target**

The information in this report that relates to a production target, or forecast financial information derived from a production target has been extracted from the Company's ASX announcement released on 10 October 2022 titled "Black Rock Completes FEED and eDFS Update". The Company confirms that all material assumptions underpinning the production target, or forecast financial information derived from the production target, in the original announcement continue to apply and have not materially changed.

### Forward Looking Statements

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# Black Rock and the Mahenge Graphite Mine

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# Black Rock at a glance

# Premium graphite player

# **Developing the Mahenge graphite project in Tanzania**:

- Tier 1 scale (2<sup>nd</sup> largest reserve globally)
- First quartile costs due to hydro-dominated grid power
- Very low carbon-footprint products (decarbonisation)

# Backed by largest ex-China anode producer POSCO:

- Strategic Alliance: BKT's major shareholder
- LOM offtake partner for fines for Module 1
- Providing US\$10m prepay (payment to come)
- Provides customer validation (after years of testing)

# All key Govt agreements and permits in place

# **Debt process well advanced**

- Potential to mandate first debt lead arranger shortly
- Aiming for credit-approved Term Sheets in Q2 CY23

# Substantial upside potential if BKT team can execute:

- Mahenge NPV<sub>10</sub> US\$1.4bn (A\$2.1bn)<sup>1</sup>
- Substantial graphite deficits predicted near-term

# **Capital structure**

ASX ticker	ВКТ
Share price (19 June 2023)	\$0.11
Shares on issue	1,074.9 M
Options and performance rights	86.0 M
Market capitalisation (undiluted) (@\$0.11c)	A\$118 M
Cash <sup>2</sup> (31 Mar 2023)	A\$7.6 M
Debt (31 Mar 2023)	Nil

# Major shareholders

POSCO Group	12%
Copulos Group	11%



# **Black Rock team**

# **Board of Directors**



**Richard Crookes**, Non-exec Chairman: Geologist with over 30 years executive experience in the resources and finance industries; raised capital and financed a number of projects globally, including across Africa. Previous roles include Investment Director at Mining PE Fund EMR Capital, Executive Director in Macquarie's Metals & Energy Capital and Chief Geologist / Mining Manager at Ernest Henry Mining.



John de Vries, MD & CEO: Mining Engineer with over 35 years experience in mine development and operations; professional experience spans Africa, the Pacific, the former Soviet Union, North and South America and Australia. Previously General Manager Technical Services with St Barbara, integral in the 2014 turnaround; earlier operational management roles at BHP Nickel West, Orica Mining Services and Western Mining Corp.



lan Murray, Non-exec Director: Finance Executive with over 20 years corporate experience in the publicly listed resources sector; led highly successful project developments, major acquisitions, company restructures and stock exchange listings. Previous roles include CEO of Gold Road Resources, CEO and CFO of DRDGold Ltd, Director of Rand Refinery Ltd and GoldMoney.com, and senior positions at KPMG, PwC and Bioclones.

# Management



**Steuart McIntyre**, GM Corporate Development: Mining analyst with over 15 years experience. Previous roles include sell-side mining analyst for Royal Bank of Canada and Blue Ocean Equities and associate at Cutfield Freeman, a mining-focused corporate finance boutique in London. Steuart has degrees in Civil Engineering and Commerce from the University of Sydney and a diploma of corporate finance from the London Business School.



**Daniel Pantany**, GM Engineering & Technical: Civil Engineer with over 22 years experience in mining project development in Africa and Australia across a broad range of broad range of project delivery roles including EPCM, EP, and lump sum EPC contracts. His most recent position was with CPC Engineering including secondment as Project Engineering Manager for Syrah's Balama project. BKT's Study Manager for Mahenge since 2018.



**Paul Sims**, CFO: A highly credentialled finance resources executive with over 25 years of executive experience in the resources industry, spanning both commercial and financial roles at BHP, Western Mining Corp, Minara Resources and Karara Mining. Mr Sims has extensive experience in debt finance, project management and cost control. He has a Bachelor of Business degree from Curtin University and is a Fellow of CPA Australia.



**Greg Wheeler,** CCO: An experienced finance and commercial manager who started his career within PwC and spent 10 years with ship manufacturer Austal, where he was responsible for managing the Finance, Accounting, IT and HR functions of the global business. Mr Wheeler then joined global trading and shipping player Wellard during a period of strong growth, including public listing and was responsible for financial systems and processes.



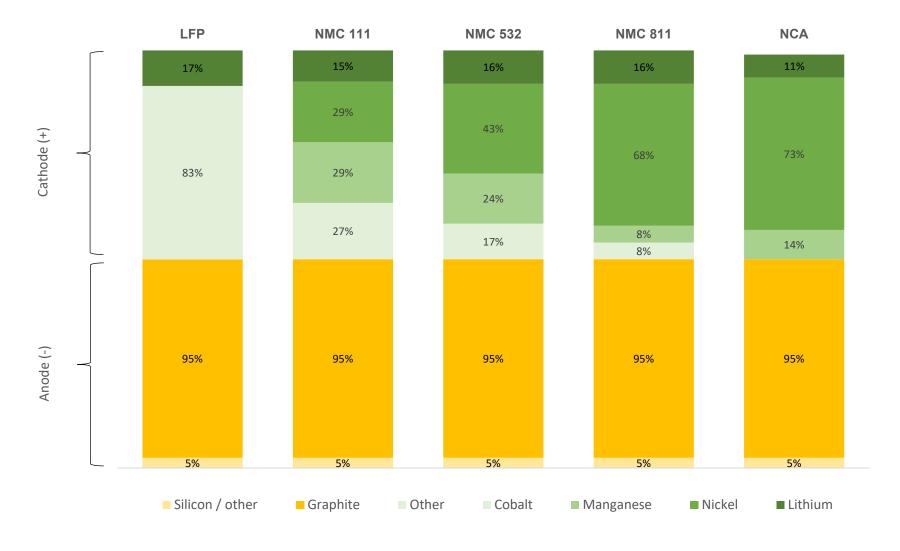
Rae Wyatt, GM People, Culture & Sustainability: Experienced HR professional with 15 years experience in the resources industry, specialising in project development and stakeholder engagement with communities. Ms Wyatt has most recently held senior roles at Clean TeQ (Sunrise Metals), Gold Road and Macmahons. She has a degree in commerce from Curtin University in HR and Industrial Relations and is a graduate of AICD.

# **Graphite in batteries**

There is more graphite in Li-ion batteries by volume than any other material, regardless of battery chemistry.

Li-ion batteries
typically contain
~7-10x more graphite
than lithium

# Graphite is the dominant anode material, regardless of battery chemistry

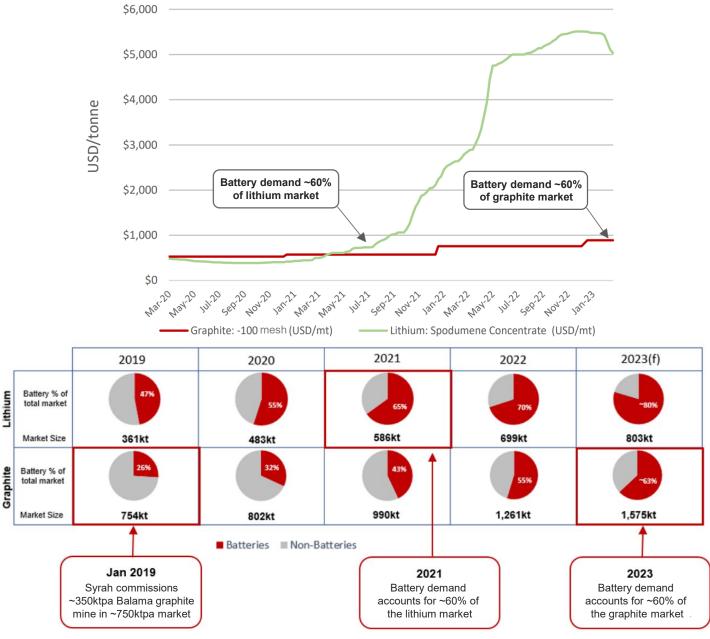




# Battery demand for graphite at a tipping point?

Battery demand for graphite expected to hit ~60% in 2023

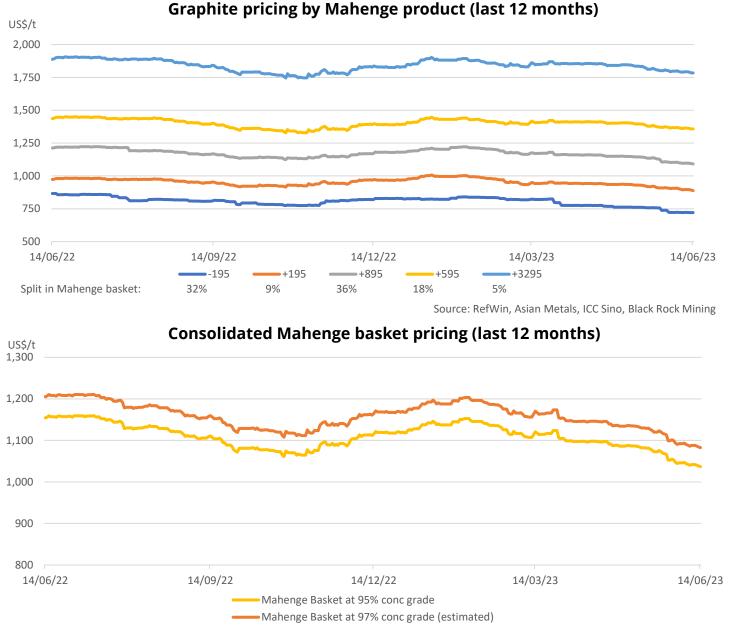
# Could battery demand start to drive graphite pricing from 2023?





# Robust graphite prices

Current graphite prices support healthy potential margins at Mahenge given forecast AISC of US\$518/t





Source: RefWin, Asian Metals, ICC Sino, Black Rock Mining

# Near term outlook for graphite prices

Current graphite prices support healthy potential margins at Mahenge given forecast AISC of US\$518/t

- Graphite fines prices softened ~10% during the March quarter due to China cutting EV subsidies
- However, Mahenge's basket price has only dropped ~7% to US\$1,085/t YTD to 14 June 2023 from US\$1,168/t at 1 Jan 2023<sup>1</sup>
- Fastmarkets expects stronger graphite prices in 2H CY23<sup>2</sup>:
  - Fastmarkets research expects stronger demand and that restocking activity will propel prices higher in the second half of the year.
  - "With demand for graphite from the battery sector forecast to rise by 37% year-on-year in 2023, we expect the current pricing lull to prove temporary. We see demand growth outpacing supply in the second half of 2023,"
  - And the market is expected to tighten further in 2024, with continuing growth in demand exceeding the likely increases in supply.
  - "Deficit conditions will worsen in 2024 with demand for graphite from the battery sector forecast to rise by a further 29%, while delays to new natural graphite projects persist, propelling prices higher through 2024."



# A snapshot of the Mahenge Graphite Project

Simple open pit mine development with outstanding forecast returns<sup>1</sup>

US\$1.4B

NPV<sub>10 nom</sub> post tax, post 16% FC

36%

Post-tax, ungeared IRR

89ktpa

Module 1 production\* (1Mtpa)

**US\$182M** 

Module 1 development capex\*

347ktpa

Steady production (4 x 1Mtpa)

95 – 99%+ TGC purity 59% +80 mesh, 41% -80 Concentrate product

US\$1,709/t

Basket graphite price\*\*\*

US\$518/t

All-In-Sustaining-Cost\*\*

26 years

Initial operating life

<sup>1</sup>See Black Rock ASX release dated 10 October 2022, Black Rock completes FEED and eDFS Update. All technical parameters, including in the estimation of Mineral Resources or Ore Reserves, underpinning the estimates continue to apply and have not materially changed. The estimated Ore Reserves and Mineral Resources underpinning the production and financial forecasts were prepared by Competent Persons in accordance with the requirements in Appendix 5A (JORC Code).

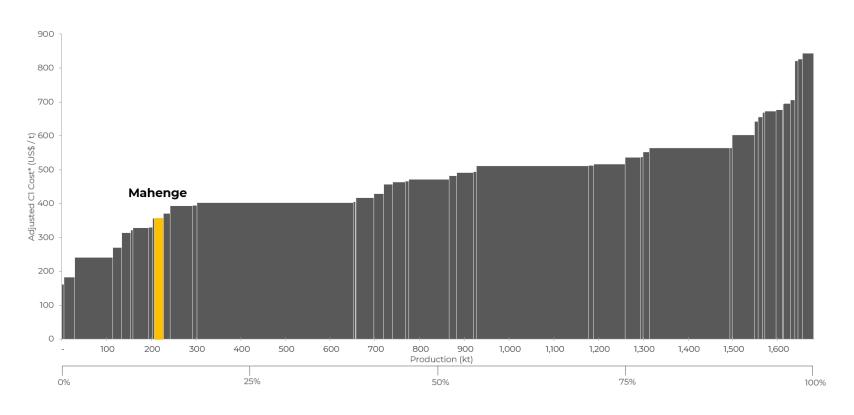
\*Excludes US\$33m to upgrade the power line which the Company is contemplating building on behalf of TANESCO, the Tanzanian Govt power authority. Power costs are likely to be ~US8c/kWh less a meaningful rebate to recoup the costs of the power line. Forecast Capex has been classified as a Class 2 estimate with accuracy of ±10% as defined by AACE. \*\*Average over first 10 years. \*\*\*Expert Consensus based on the average forecast from Benchmark Mineral Intelligence, Fastmarkets and Wood Mackenzie over the first 10 years. See Appendix.



# First quartile on the global cost curve

First quartile assets are higher margin and more robust through the cycle

# 2024 Adjusted C1 Cost Curve\*



Sources: Benchmark Mineral Intelligence Flake Graphite Report Q2 CY22, Black Rock Mining, Company Data

C1 Cash Costs are defined as Cash Costs excluding royalties and sustaining capex.

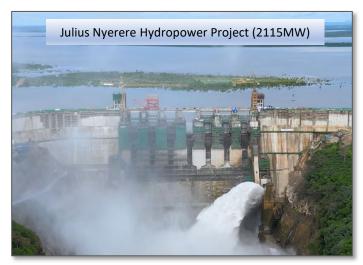
\*C1 Costs adjusted for flake size distribution: Based on forecast pricing for 94-95% in 2024, Mahenge's average price is forecast to be US\$107/t above the peer average due to a higher proportion of large flake. Mahenge's Adjusted C1 Costs of US\$359/t are based on C1 Costs of US\$466/t less the US\$107/t for above average revenue compared to the peer group.

Ignores the benefit of Mahenge's higher purity concentrates of up to 98% which could potentially improve BKT's relative position by up to ~US\$40-60/t per 1% above 95% pricing.



# Why Mahenge?

Unique competitive advantages driven by geology and substantial existing infrastructure







### Geology

- ★ Mahenge's 213mt resource makes it the 4th largest graphite resource in the world¹
- Low deleterious impurities and favourable metallurgy means that Mahenge is able to produce up to 99% TGC concentrate purity, solely with conventional flotation processing

## **Substantial existing infrastructure**

- ★ Access to key infrastructure, Grid Power, Rail, Airstrip, Water and Tailings disposal (dry stack)
- ★ Logistics advantages with processing through Dar es Salaam high volume container port



# **ESG** focused ecosystem

A new greener source of graphite with best practice whole of supply chain strategy











Creating Markets, Creating Opportunities



Environmental and Social Impact



Large Flake

FARU GRAPHITE CORPORATION

**Customer Markets** 

### **Permitted**

Tanzanian

Government



## **Robust Compliance**





### **Mahenge Graphite Deposit**

- High-grade graphite
- Low deleterious elements
- Low strip ratio



### **Hydro Electric Power**

Low carbon power supply, and transport footprint



## **Dry Tailings**

- Reduced footprint
- Eliminates risk of tailings dam failure

Does not compete with local communities for water



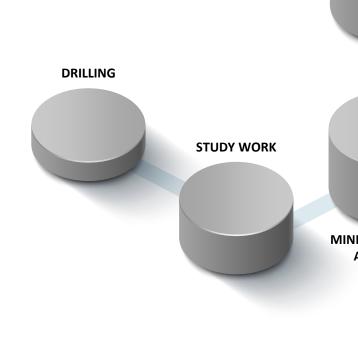
- Three stage polishing
- No wet screen
- Low energy

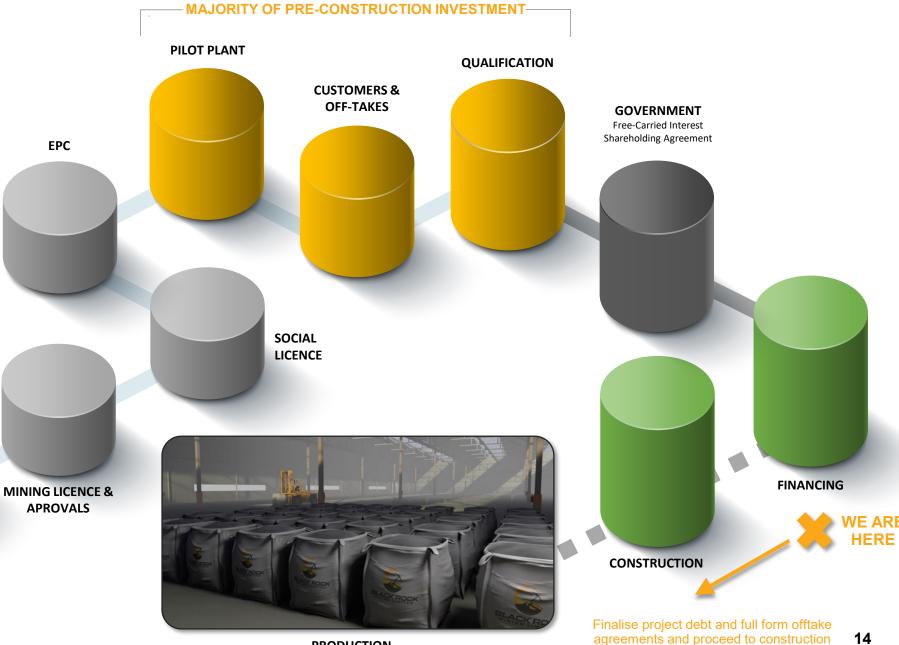




# **Graphite** playbook

**Sequential** development that is customer driven





**PRODUCTION** 



# Development timetable

Aiming to have debt finance in place for Module 1 in the next few months.

Early works expected to commence near term

- Debt process well advanced, aiming for Term Sheets in Q2 CY23
- Black Rock is targeting up to 50% debt via traditional project finance
- Construction period 20 months<sup>1</sup>
- Targeting first production from Module 1 in early CY25

Module 1 1mtpa



Capex US\$182m<sup>1</sup> Production 89ktpa+

Module 2 1mtpa



Capex US\$107m<sup>1</sup> Production 85ktpa+

Module 3 1mtpa



Capex US\$117m<sup>1</sup> Production 85ktpa+

Module 4 1mtpa



Capex US\$104m<sup>1</sup> Production 85ktpa+

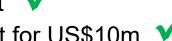


# Strong near term news flow

**Black Rock is well** advanced on a number of important de-risking milestones, expected over the next few months

Black Rock sees a number of potential de-risking milestones due near term:

- Potential POSCO milestones:
  - Signing full-form offtake agreement ✓



- Signing full-form prepay agreement for US\$10m ✓
- Potential for POSCO to take up it's right to a BKT board seat<sup>1</sup>
- Potential debt financing milestones:
  - Mandate debt lead arrangers
  - Aiming for credit-approved Term Sheets by end Q2 CY23
  - Announce offtake with more blue chip customers
- Other potential financing milestones:
  - Sell LOM rights to fines for Module 2<sup>2</sup> (and potentially Modules 3 & 4)
  - Bring in a partner at the project level as a less dilutive option<sup>3</sup>
  - Also assessing other options focused on minimising dilution / maximising value per share



# BKT ready to deliver

The significant Tier 1 scale Mahenge graphite mine into an undersupplied and growing market

## **Compelling Project Metrics**

Tier 1 Scale
1st Quartile Costs
(low-cost green power, low strip)
Higher proportion of large flake
Higher purity concentrates
Strong macro tailwind

## **Reduced Execution Risk**

Experienced Team
Backed by POSCO
Modular Approach
Access to Skilled Labour
Upstream Focus Initially

# **Compliant Project**

Govt Agreements in place
All key permits in hand
Compliance with Equator
Principals & IFC Performance
Standards

Compensation 99% complete





# John de Vries

# **Managing Director and CEO**

T: +61 438 356 590

E: jdv@blackrockmining.com.au

A: Level 1, 1 Walker Avenue West Perth WA 6005

www.blackrockmining.com.au

# **Richard Crookes**

### Chairman

E: richard.crookes@blackrockmining.com.au

# **Steuart McIntyre**

**GM Corporate Development** 

T: +61 413 555 609

E: sm@blackrockmining.com.au

# **Elvis Jurcevic**

**Investor Relations** 

T: +61 408 268 271

E: ej@blackrockmining.com.au





# **Appendix**



# Tanzania: An improving jurisdiction for investment

 Moody's recently upgraded Tanzania to a B2 Positive due to reduced political risk and structural reform agenda<sup>1</sup>



 Equinor/Shell/Exxon Mobil recently struck a deal for the development of an LNG terminal in Tanzania expected to cost tens of billions of dollars<sup>2</sup>

BHP has committed to investing US\$100m in the Kabanga nickel project

 Since Tanzania launched the Development Vision in 2020 to attract investment, the mining sector's contribution to GDP has grown from 3.5% to 9.7%<sup>3</sup>

 Tanzania has now agreed 11 framework agreements with foreign mining companies and is negotiating an additional 5 agreements<sup>4</sup>

<sup>1</sup>Source: https://www.thecitizen.co.tz/tanzania/news/national/moody-s-gives-tanzania-favourable-credit-rating--4206196

<sup>2</sup>Source: <a href="https://www.reuters.com/business/energy/equinor-shell-exxon-agree-lng-project-with-tanzania-2023-05-19/">https://www.reuters.com/business/energy/equinor-shell-exxon-agree-lng-project-with-tanzania-2023-05-19/</a>

<sup>3</sup>Source: https://www.thecitizen.co.tz/tanzania/news/national/how-government-plans-to-boost-mining-s-gdp-contribution-to-10-percent-before-2025—4245214

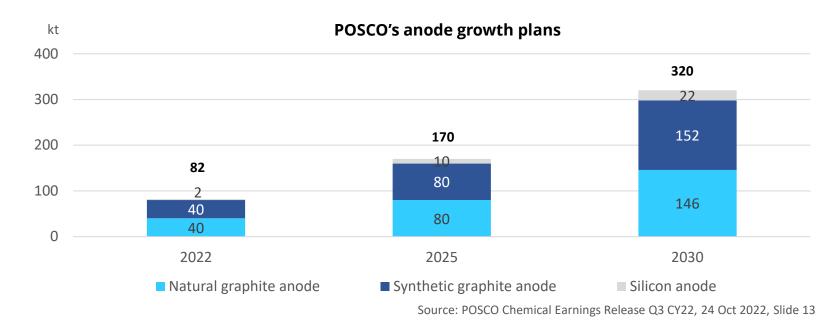
<sup>4</sup>Source: https://dailynews.co.tz/why-mining-investment-forum-crucial-for-tz/

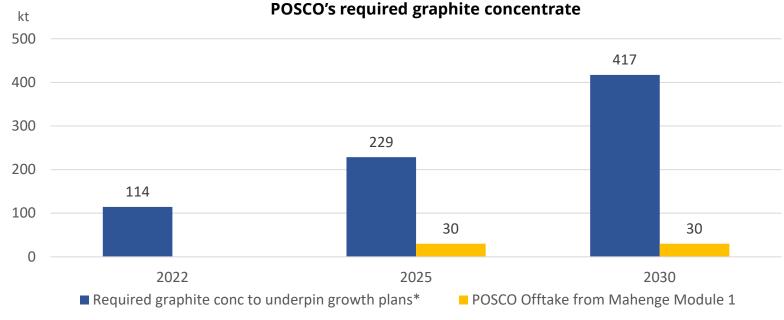


# POSCO's anode growth plans

In 2022, POSCO was the largest anode producer outside China

POSCO plans to grow its anode business by almost 4x by 2030

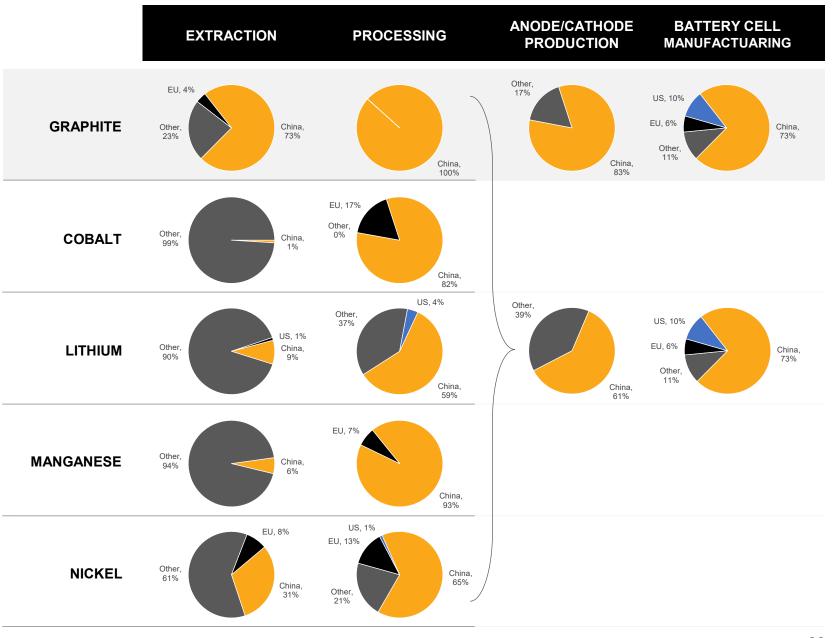






# Li-ion battery raw materials supply chain by country

Graphite supply chain for batteries is more dependant on China than any other material

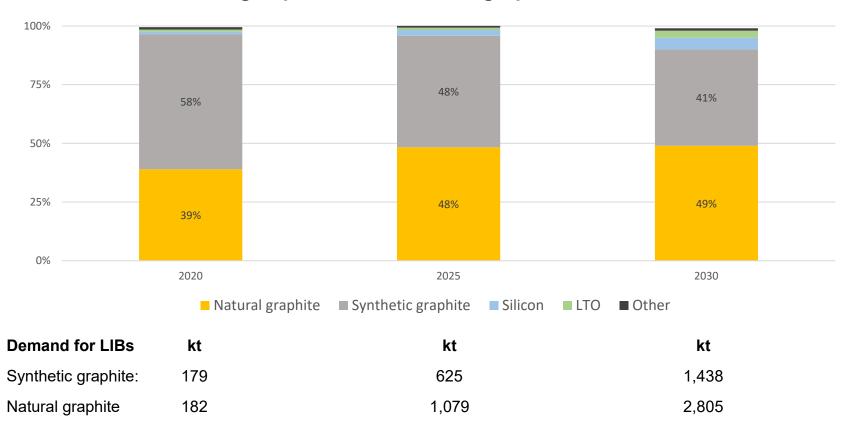




# Natural graphite increasing in batteries

The use of natural graphite in batteries has been growing and is expected to surpass synthetic graphite in 2025.

# Growing importance of natural graphite in batteries



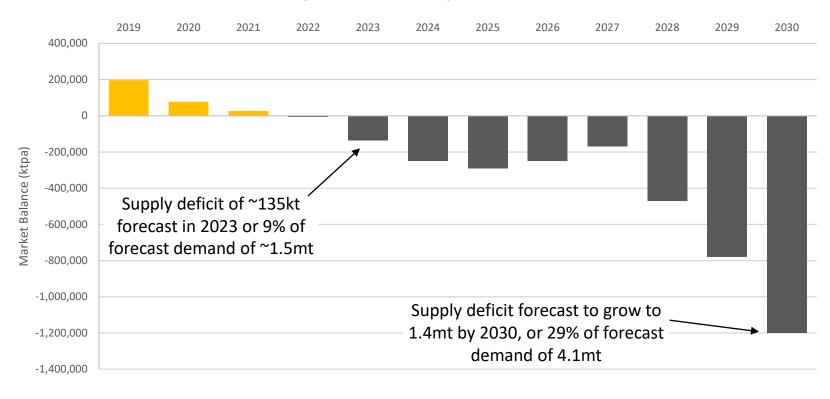
- Natural graphite is less energy intensive to produce, much less expensive and provides greater energy density than synthetic graphite
- Tesla/Panasonic already uses 50/50 natural graphite/synthetic graphite and the "in-development" 4680 battery is expected to comprise 55-60% natural graphite / 40-45% synthetic graphite



# Strong outlook for natural graphite

Benchmark forecasting material natural graphite supply deficit in 2023

# Material natural graphite supply deficits forecast from 2023



# **Strong demand driven by:**

- Strong uptake of electric vehicles and for decarbonisation
- Natural graphite expected to exceed synthetic graphite in batteries by 2025 (vs. historic split of 60/40 SG/NG)
- Another strong demand segment is graphite foils (requires large flake graphite)

# Constrained supply due to:

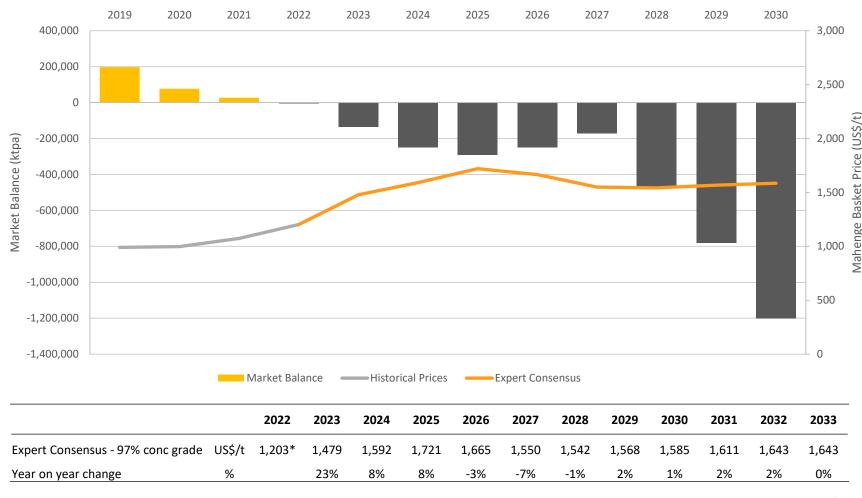
- Qualification requirement can add several years to development of mines
- Project debt tends to be more difficult for graphite developers due to inability to hedge graphite and dominance of China in downstream processing of graphite



# Strong outlook for natural graphite

Expert Consensus pricing appears conservative given the magnitude of the forecast supply deficits

# Material natural graphite supply deficits forecast from 2023



Sources: Public releases, Benchmark Mineral Intelligence, Black Rock Mining, Asian Metals, ICC Sino, RefWin

Note: Expert Consensus comprises average graphite forecast prices provided by Benchmark Mineral Intelligence, Fastmarkets and Wood Mackenzie.

Historic prices for 97% conc have been estimated. \*Estimate based on ~12month average prices to end Sept 2022



# **Graphite** uses

Black Rock has a diversified product mix with 60% exposure to the high margin large flake market

## Price increases with flake size









## **SMALL FLAKE (FINES)**

Lithium-Ion Batteries

Paint & Coatings

Lubricants

Pencils

### LARGE FLAKE

Flame Retardants

Refractories

Aviation

Lithium-Ion Batteries

### **JUMBO FLAKE**

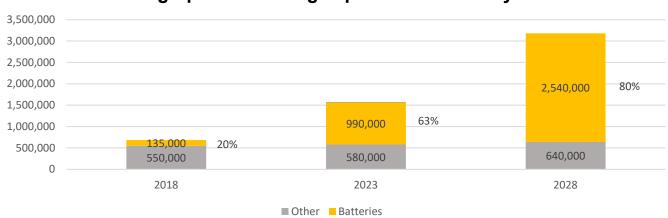
Flame Retardants

Gaskets & Seals

**Expandable Graphite** 

**Fuel Cells** 

# Natural graphite: Growing importance of battery demand





# Offtake agreements

~89% of Mahenge's Module 1 production is under binding offtake, option or MOU

# Mahenge Offtake for Module 1 (89ktpa)

