

# Black Rock Mining Mahenge Graphite Mine

## Simply Better Graphite: Investor Update

Shaws Graphite Day

October 2023



**BLACK ROCK**  
MINING LIMITED



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## Competent Person(s) Statement

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

Various statements in this presentation constitute statements relating to intentions, future acts and events. Such statements are generally classified as "forward looking statements" and involve known and unknown risks, uncertainties and other important factors that could cause those future acts, events and circumstances to differ materially from what is presented or implicitly portrayed herein. Words such as "anticipates", "expects", "intends", "plans", "believes", "seeks", "estimates" and similar expressions are intended to identify forward-looking statements. Black Rock cautions shareholders and prospective shareholders not to place undue reliance on these forward looking statements, which reflect the view of Black Rock only as of the date of this presentation. The forward looking statements made in this presentation relate only to events as of the date on which the statements are made.



# 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)
- Forecast first quartile costs due to hydro-dominated grid
- Very low carbon-footprint products (decarbonisation)

### Backed by largest ex-China anode producer POSCO:

- Strategic Alliance: BKT's major shareholder at 12%
- Cornerstone offtake partner (3 offtake agreements)<sup>1</sup>
- Providing up to US\$50m in development funding<sup>1</sup>
- Exploring other opportunities to collaborate

### All key Govt agreements and permits in place

### Debt process well advanced

- Promising progress during the Sept quarter 2023
- Aiming for credit-approved Term Sheets near term

### Substantial upside potential if BKT team can execute:

- Mahenge NPV<sub>10</sub> US\$1.4bn (A\$2.1bn)<sup>2</sup>

<sup>1</sup>Slide 21 provides more details of Black Rock's Strategic Alliance with POSCO

<sup>2</sup>Project metrics updated October 2022. NPV post-tax, post Govt 16% free carry. More detail on Slide 9.

## Capital structure

ASX ticker	<b>BKT</b>
Share price (26 Oct 2023)	\$0.11
Shares on issue	1,097.1 M
Options and performance rights	58.2 M
Market capitalisation (undiluted) (@\$0.11)	A\$121 M
Cash (30 June 2023)	A\$11.7 M
Debt (30 June 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.



**Ian 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



**Stuart 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. Stuart 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 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.



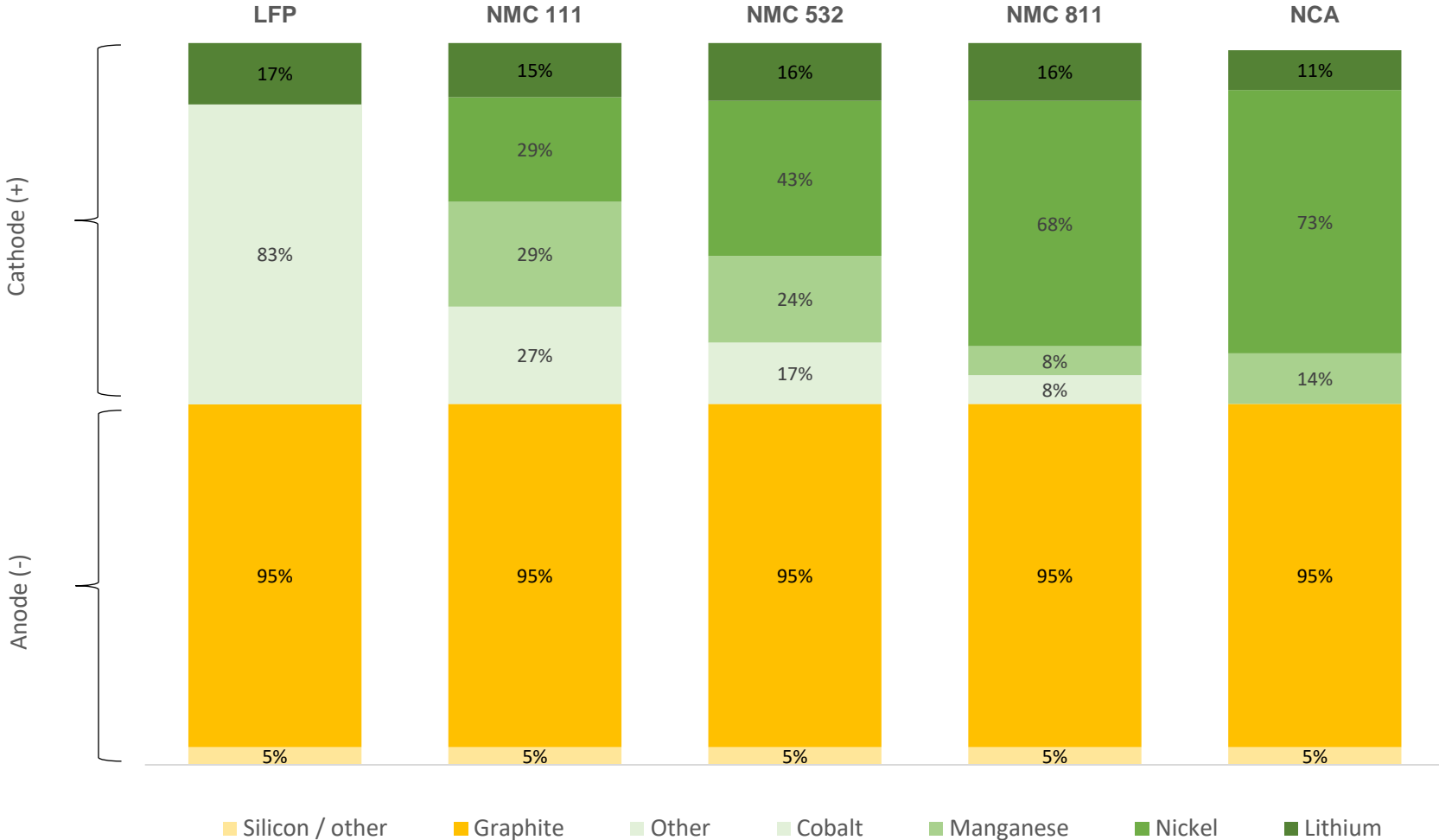
**Rae Wyatt**, GM People, Culture & Sustainability: Experienced HR professional with 15 years experience in the resources industry, specialising in project development and stakeholder engagement with communities. Ms Wyatt has most recently held senior roles at Clean TeQ (Sunrise Metals), Gold Road and 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



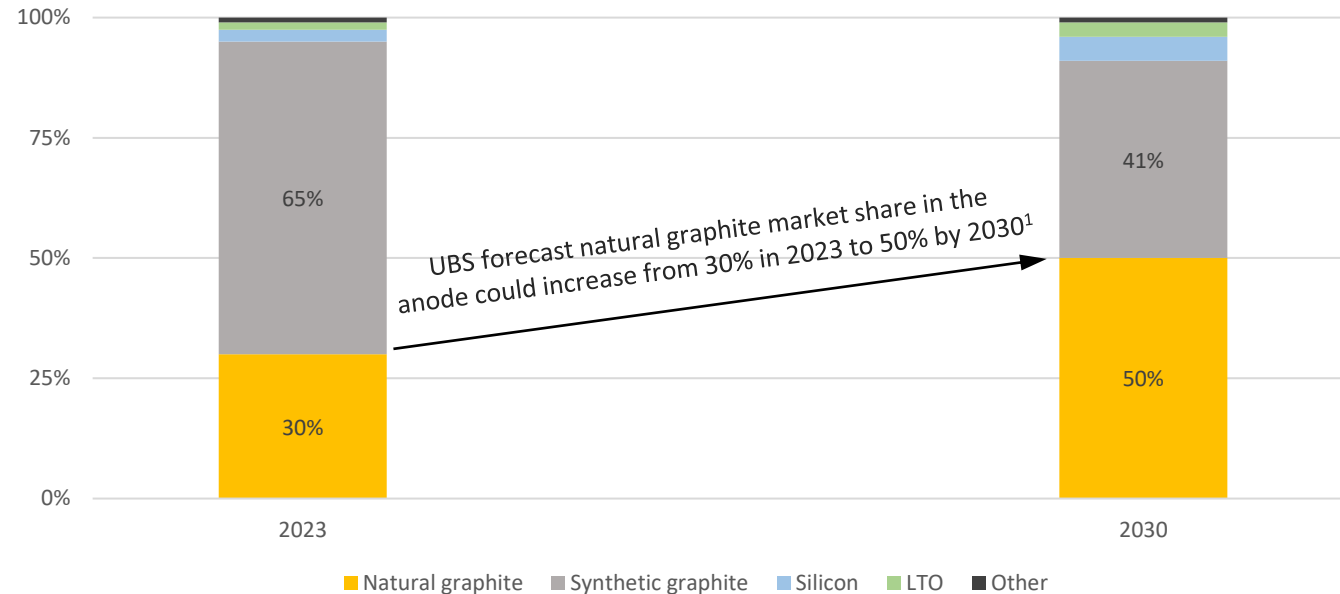
Source: Pallinghurst-Traxys battery analysis. %s represent the proportions of cathode and anode in each battery respectively. NCA batteries contain 2% aluminium (not shown)



# More natural graphite in batteries

The use of natural graphite in batteries has potential to grow from 30% of the anode to 50% by 2030

## Growing importance of natural graphite in batteries



In late Sept 2023, UBS published a research report on natural graphite<sup>1</sup>:

- Natural graphite looks to be preferred in low-cost lower-carbon profile LFP batteries
- Natural graphite market share in the anode could increase from 30% today to 50% by 2030
- Forecasting a 6x growth in natural graphite demand by 2030 to 6.3mt

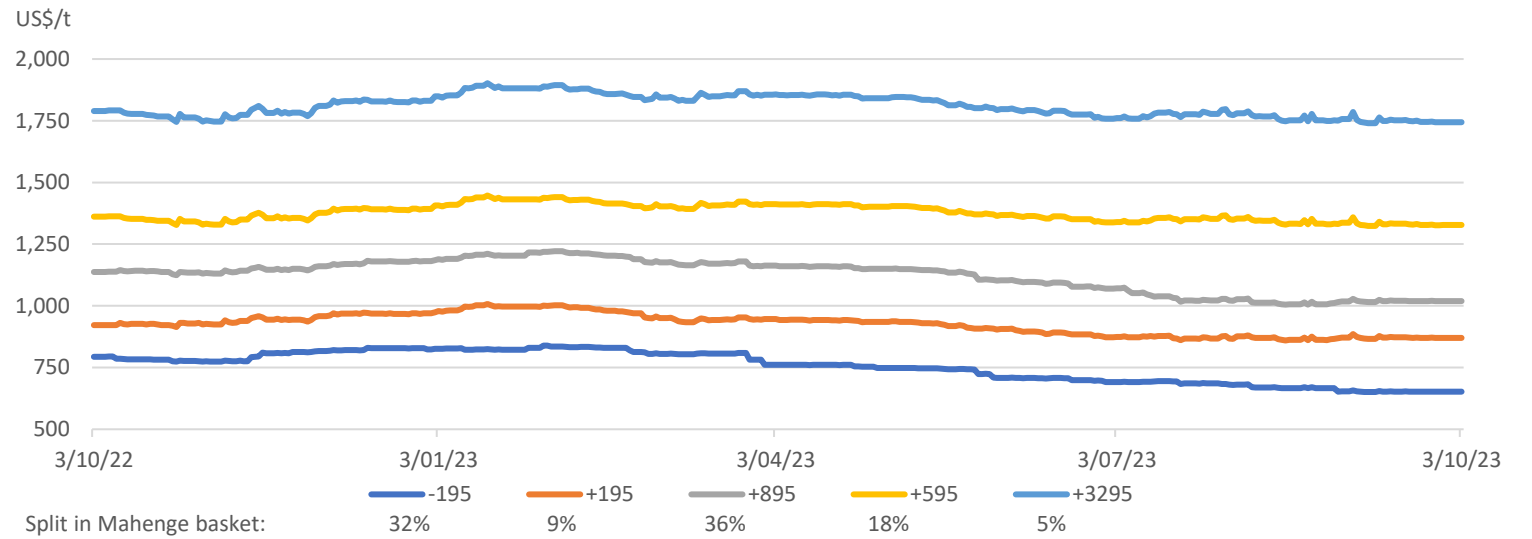
This forecast would require ~5mt of new natural graphite supply by 2030 or around 14 new mines the size of Syrah's Balama mine (based on a nameplate capacity of ~350ktpa)<sup>2</sup>.

Given the significant barriers to entry for new natural graphite supply, Black Rock believes this scenario would likely lead to substantial supply deficits and much higher graphite prices.

# Latest graphite prices

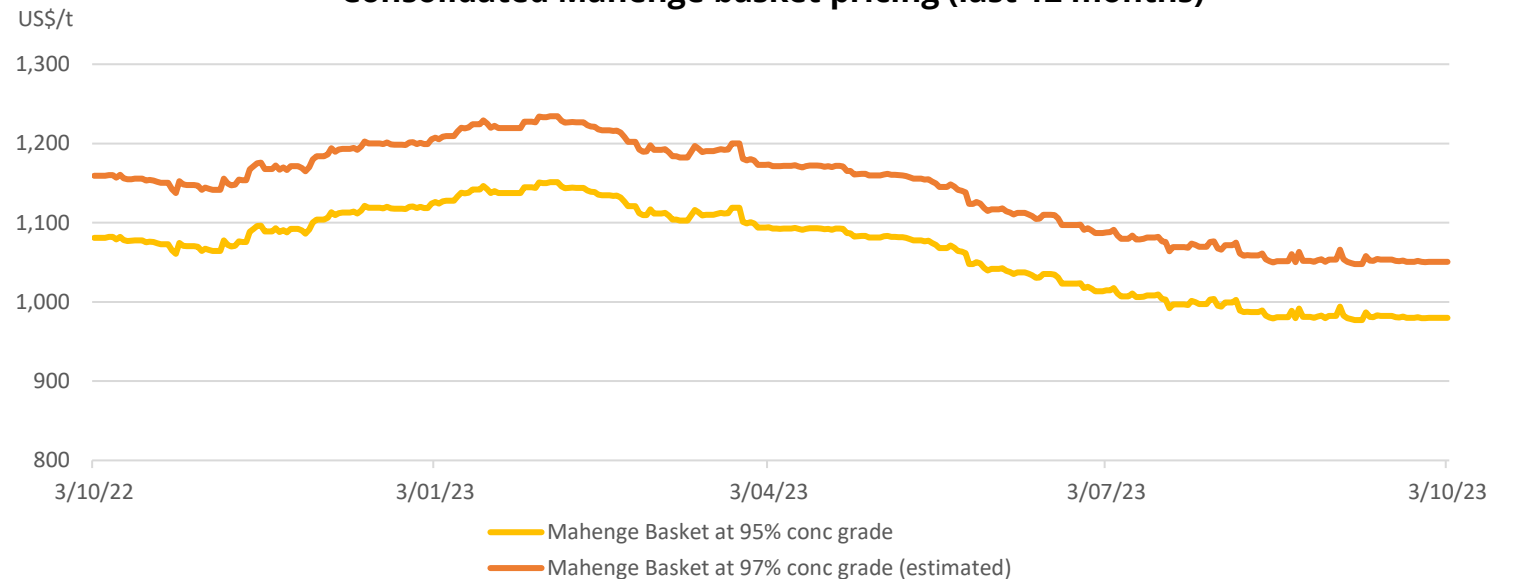
Current graphite prices support healthy potential margins at Mahenge given forecast AISC of US\$518/t

Graphite pricing by Mahenge product (last 12 months)



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

Consolidated Mahenge basket pricing (last 12 months)



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

**BKT sensitivity: 10% increase in basket price = 20% increase in unlevered NPV**





# 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.



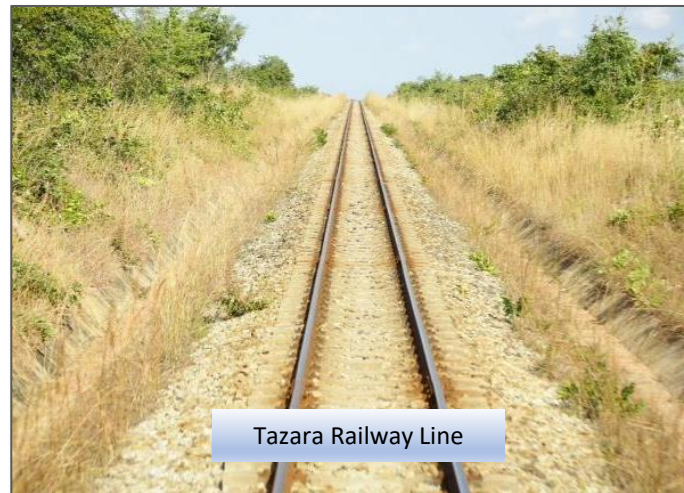
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# Why Mahenge?

Unique competitive advantages driven by geology and substantial existing infrastructure



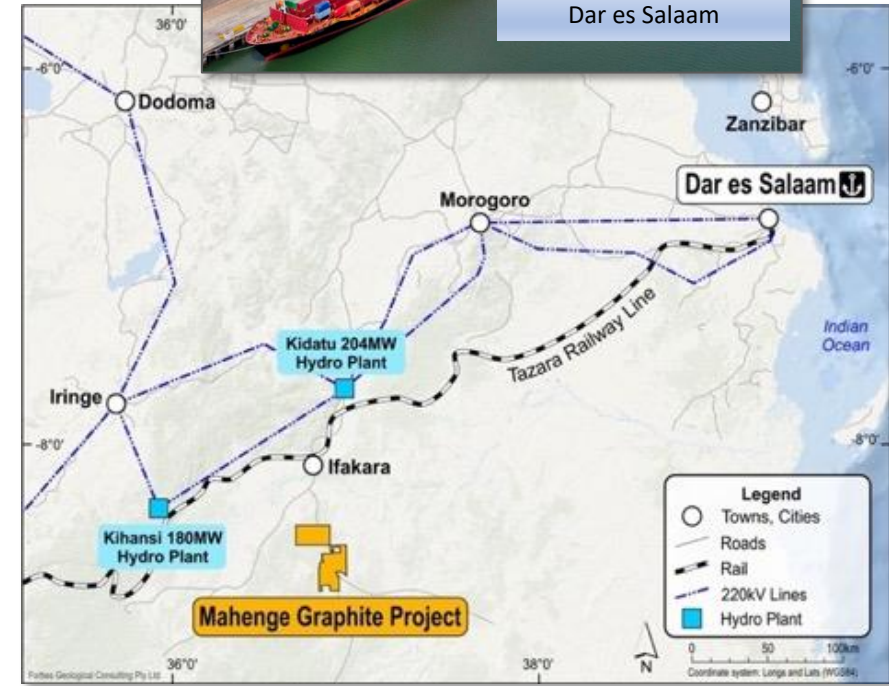
Julius Nyerere Hydropower Project (2115MW)



Tazara Railway Line



Large container port in Dar es Salaam



## Geology

- ★ Mahenge's 69.6mt Reserve makes it the 2nd largest graphite Reserve in the world
- ★ Low deleterious impurities and favourable metallurgy means that Mahenge is able to produce up to 99% TGC concentrate purity, solely with conventional flotation processing

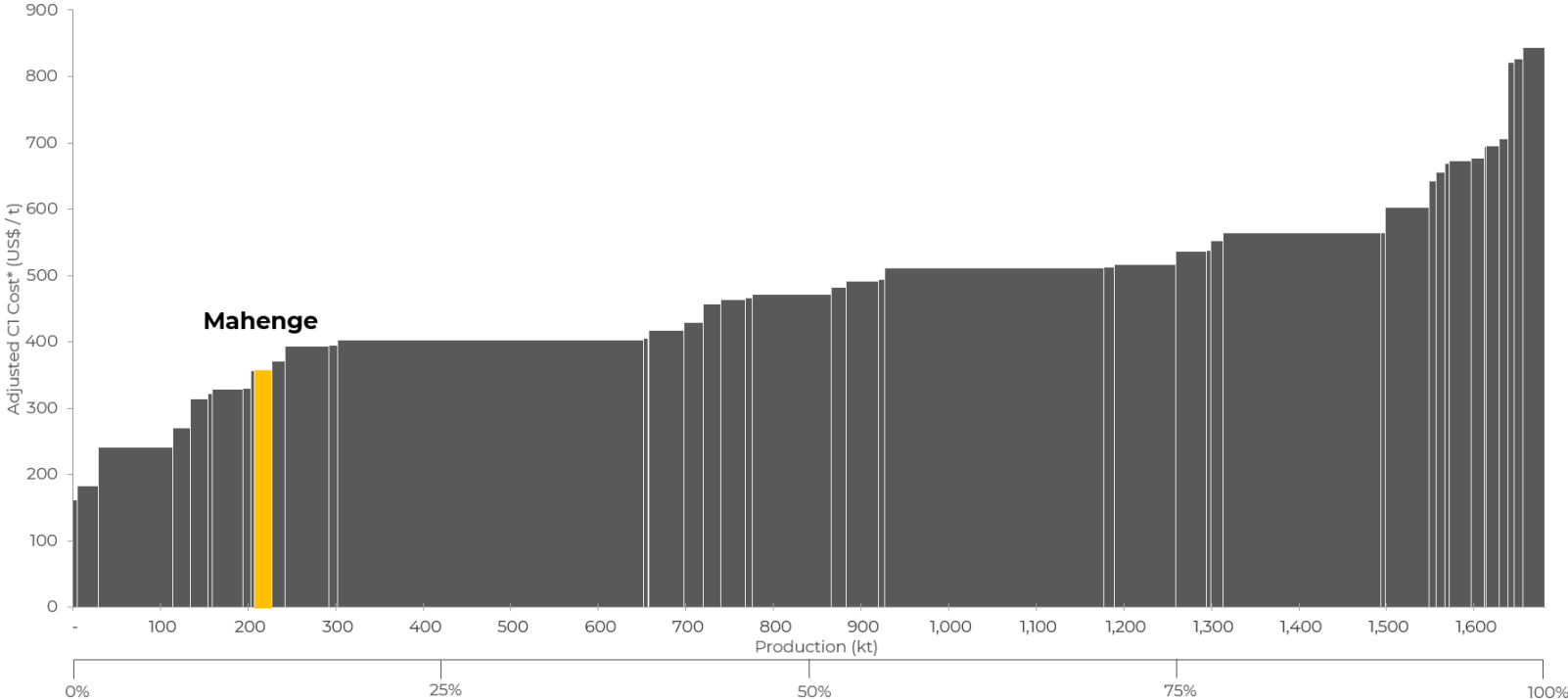
## Substantial existing infrastructure

- ★ Access to key infrastructure, hydro-dominated cheap grid power, rail, airstrip, water and tailings disposal (dry stack)
- ★ Logistics advantages with processing through Dar es Salaam high volume container port

# Forecast first quartile costs

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.





# ESG focused ecosystem

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



### Mahenge Graphite Deposit

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



### Hydro Electric Power

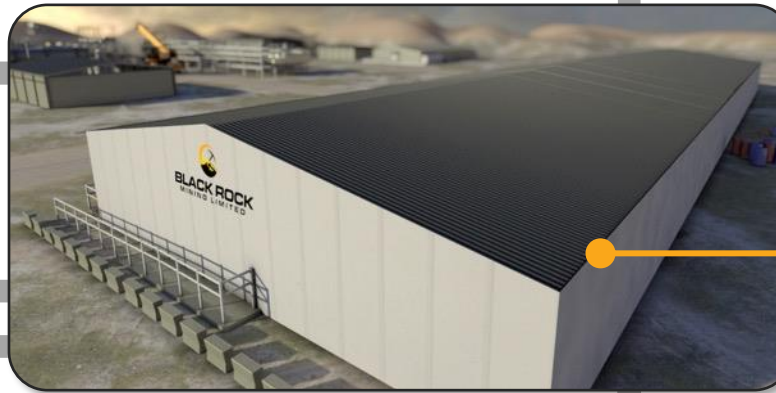
- Low carbon power supply, and transport footprint



### Permitted



### Robust Compliance



### Dry Tailings

- Reduced footprint
- Eliminates risk of tailings dam failure
- Does not compete with local communities for water

### Simple Processing

- Three stage polishing
- No wet screen
- Low energy



Battery

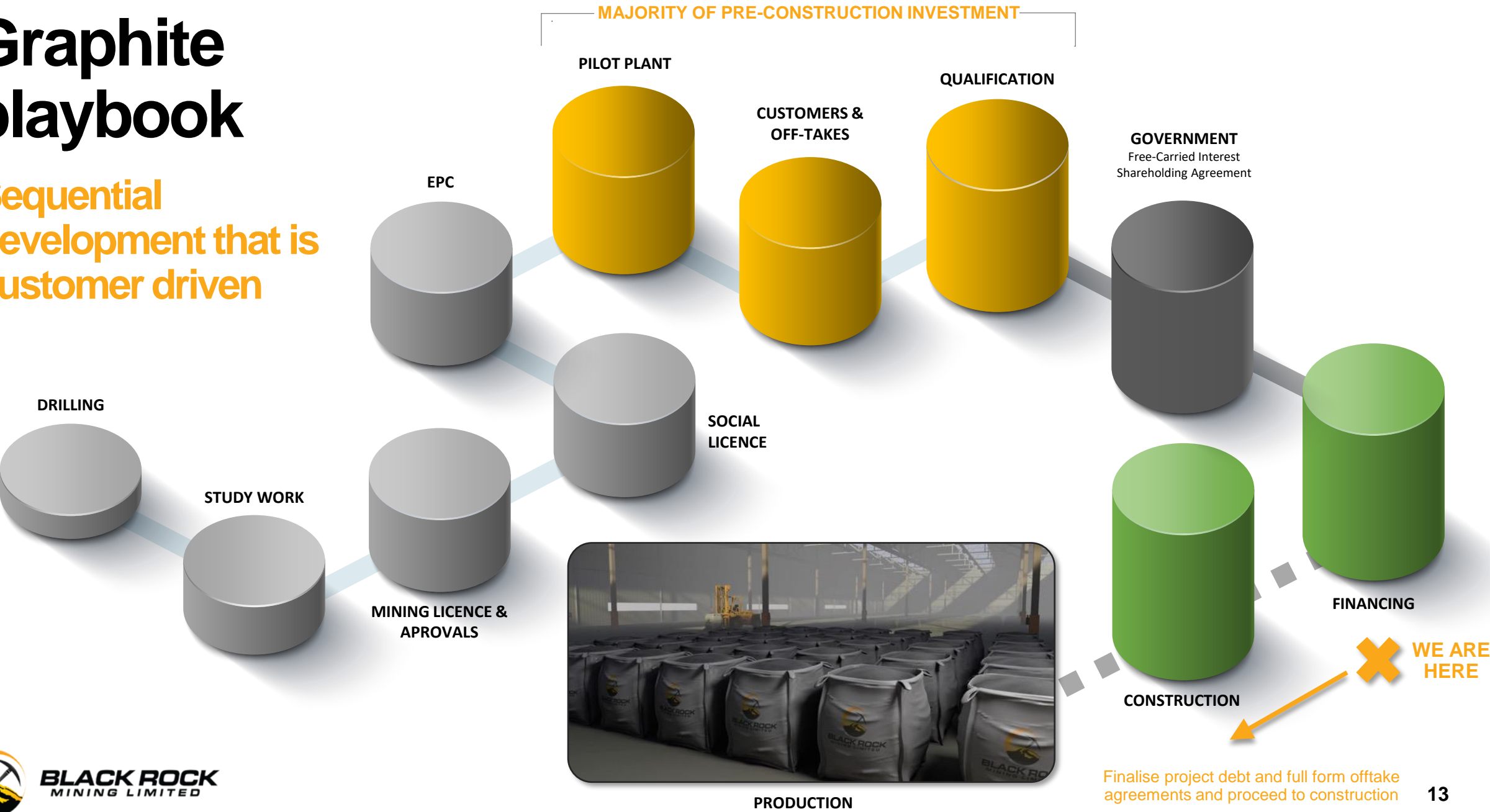
Large Flake

Customer Markets



# Graphite playbook

Sequential  
development that is  
customer driven

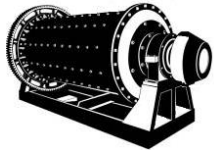
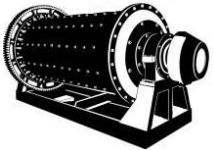
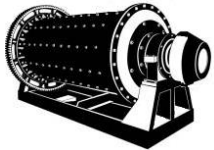
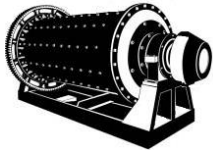


# Development timetable

Aiming to have debt finance in place for Module 1 soon.

Early works expected to commence near term

- Debt process well advanced, aiming for Term Sheets near term
- 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 CY25

Module 1 1mtpa	Module 2 1mtpa	Module 3 1mtpa	Module 4 1mtpa
			
Capex US\$182m <sup>1</sup> Production 89ktpa+	Capex US\$107m <sup>1</sup> Production 85ktpa+	Capex US\$117m <sup>1</sup> Production 85ktpa+	Capex US\$104m <sup>1</sup> Production 85ktpa+



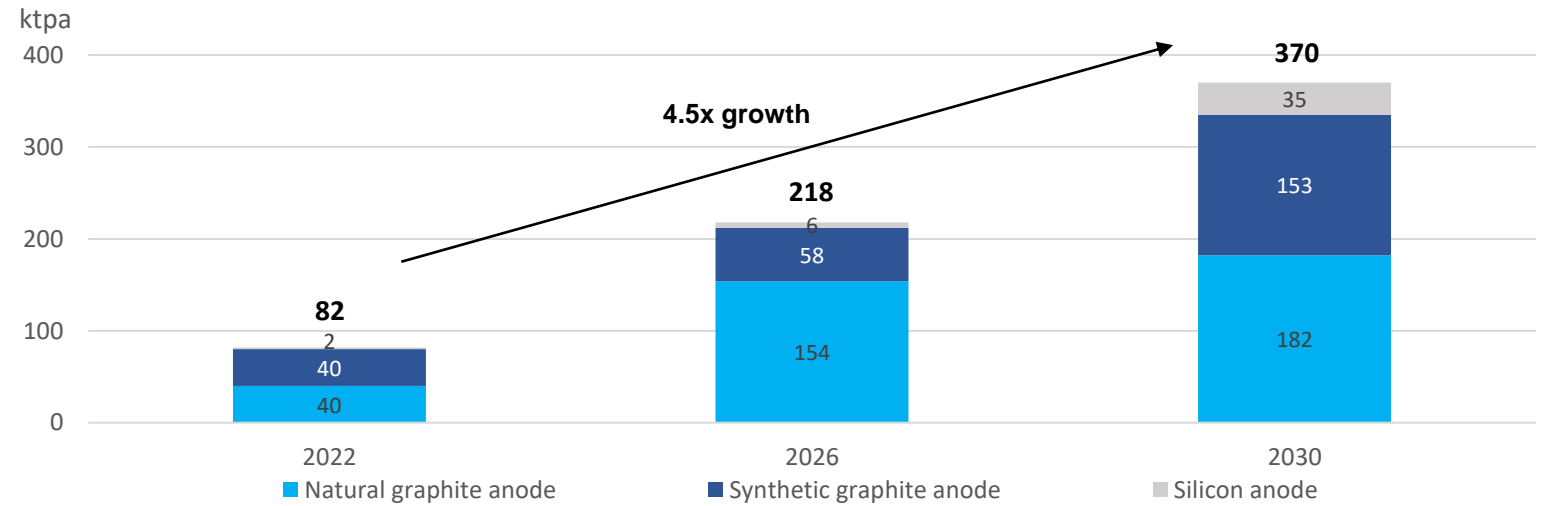
# POSCO's anode growth plans

In 2022, POSCO was the largest anode producer outside China

POSCO plans to spend US\$93bn on growth projects by 2030<sup>1</sup>

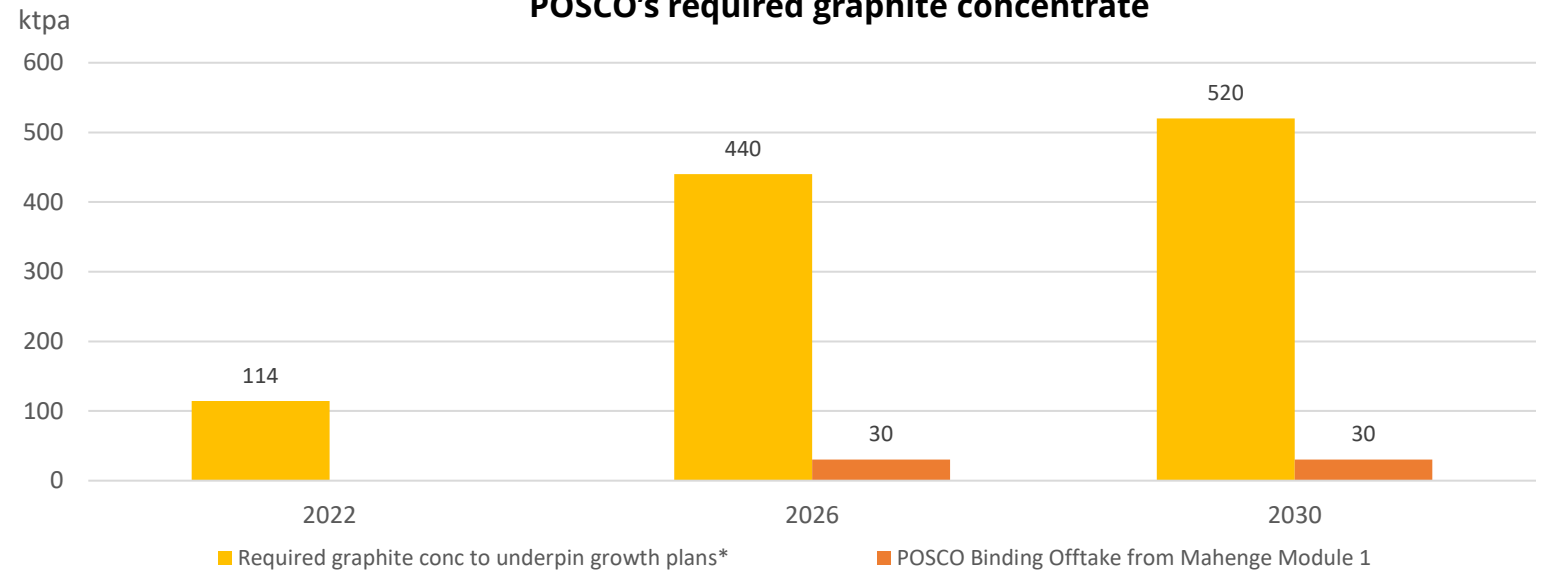
46% of POSCO's capex spend in 2023-2025 is on LiB Materials<sup>2</sup>

POSCO's anode growth plans



Source: POSCO Holdings Battery Materials Business Value Day Presentation, 11 July 2023, Slide 43.

POSCO's required graphite concentrate



\*Based on the typical industry yield to SPG in China of 35%

<sup>1</sup>Source: <https://www.reuters.com/markets/commodities/south-koreas-posco-plans-93-bln-investment-by-2030-2023-07-03> (3 July 2023)

<sup>2</sup>Source: POSCO Holdings Battery Materials Business Value Day Presentation, 11 July 2023, Slide 5. In 2023-2025, POSCO's LiB Materials Business has the largest share of group capital expenditure for the first time at 46.2% (Steel 38.9%, Eco-friendly infrastructure 14.9%)

# Strong near term news flow

Black Rock is well advanced on several key de-risking milestones, expected near term

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:
  - Aiming for credit-approved Term Sheets near term
  - Mandate debt lead arrangers
  - Announce offtake with more blue-chip customers
- Other potential financing milestones:
  - Confirm POSCO approval to invest up to US\$40m in BKT<sup>2</sup>
  - 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



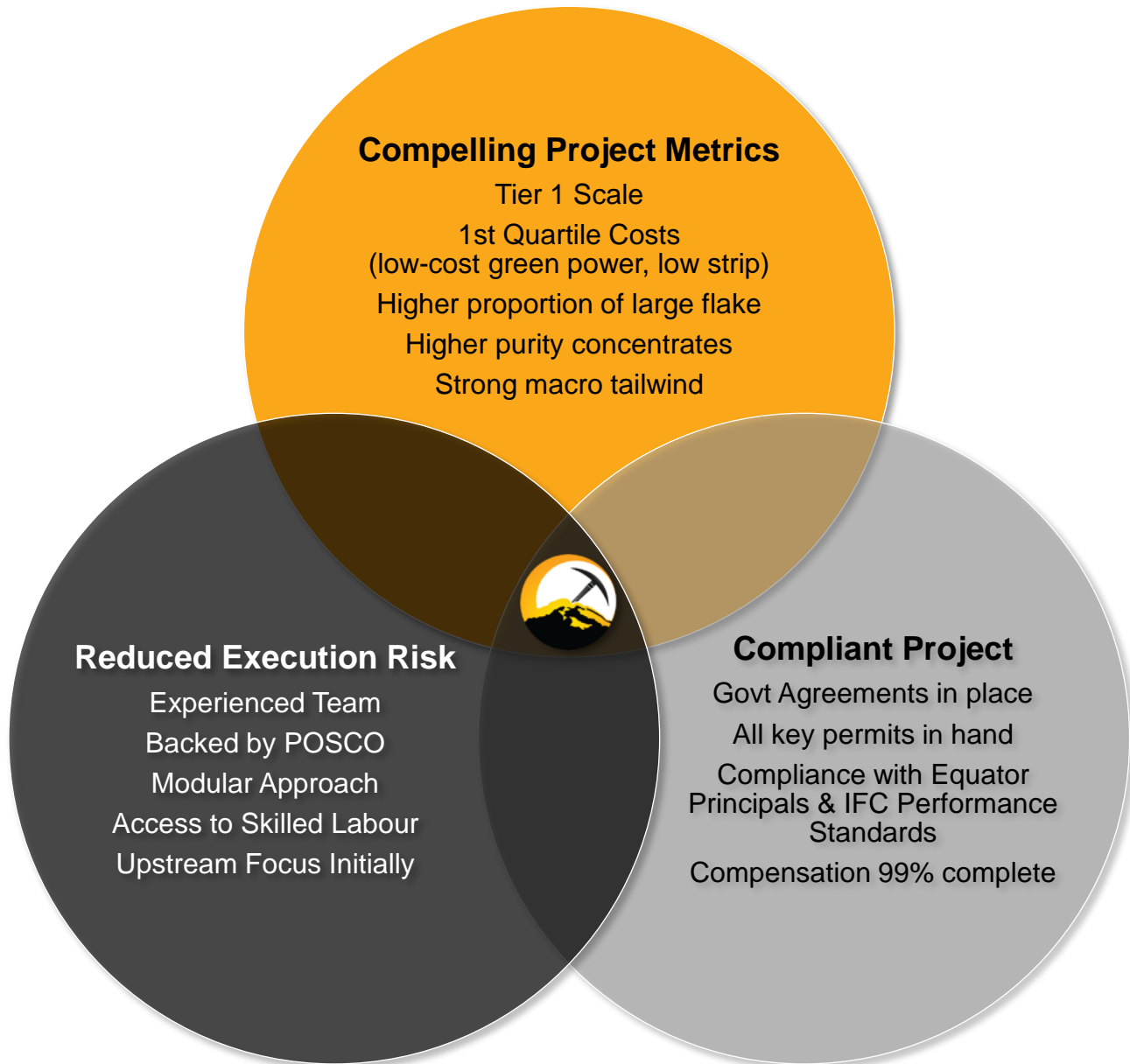
<sup>1</sup>POSCO has a right to appoint a BKT director if it maintains an equity stake in Black Rock of >10% (currently 11.5%).

<sup>2</sup>Non-binding MOU signed with POSCO in Sept 2023 for the LOM rights to the fines for Module 2 for an investment in BKT of up to US\$40m or 19.9% (whichever is lower).

<sup>3</sup>Interest received from industry participants, OEMs, mining companies, mining private equity funds and sovereign wealth funds. Macquarie mandated to run process.

# BKT ready to deliver

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





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# Appendix



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# Strategic Alliance with POSCO

Black Rock has a strong and growing relationship with POSCO

- POSCO is Black Rock's major shareholder with a stake of 11.5%
- POSCO is Black Rock's cornerstone offtake partner:
  - Module 1:
    - Binding life-of-mine offtake agreement for fines<sup>1</sup> (32% of volume)
    - MOU for 6ktpa of large flake<sup>2</sup> (7% of volume)
  - Module 2:
    - MOU for fines offtake<sup>3</sup>
- POSCO is providing development finance for Module 1:
  - Binding US\$10m prepayment<sup>1</sup>
  - MOU for US\$40m investment in BKT or 19.99% (whichever is lower)<sup>3</sup>
- Exploring other opportunities to collaborate:
  - MOU to explore other opportunities to develop an IRA-compliant anode supply chain<sup>3</sup>

<sup>1</sup>Source: <https://blackrockmining.com.au/wp-content/uploads/BindingOfftakeAndUS10MPrepaymentAgreementsWithPOSCO29May23.pdf>

<sup>2</sup>Source: <https://blackrockmining.com.au/wp-content/uploads/BlackRockExpandsOfftakePartnershipWithPOSCO23May23.pdf>

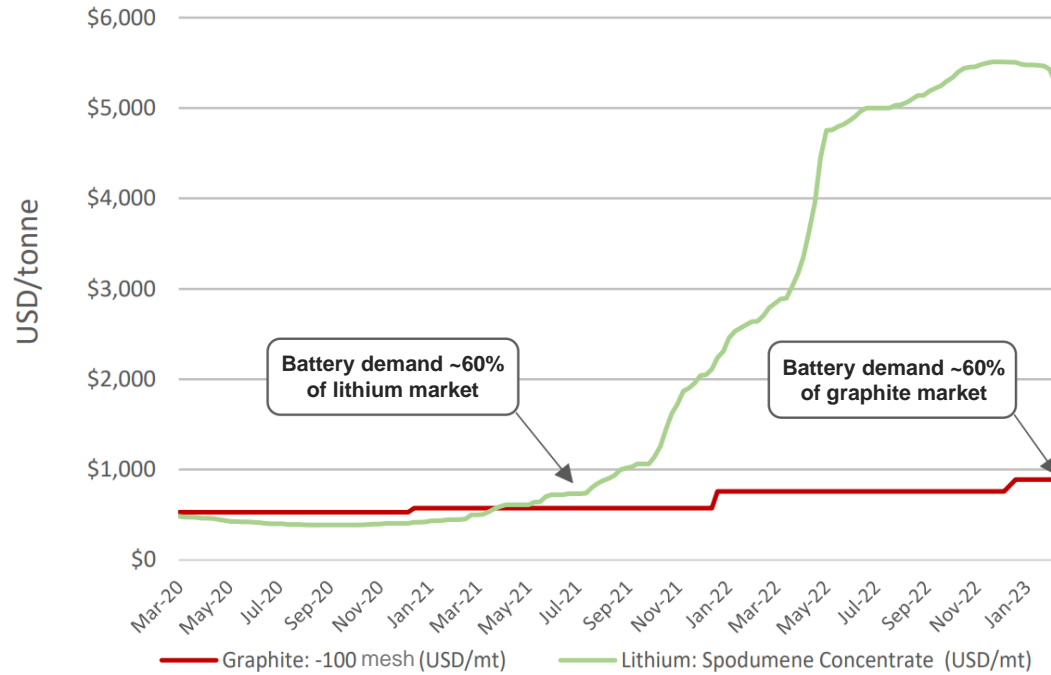
<sup>3</sup>Source: <https://blackrockmining.com.au/wp-content/uploads/BlackRockSignsMOUWithPOSCOFORMahengeModuleTwoOfftakeForBKTInvestmentOfUpToUSFortyMillionDollars04Sep23.pdf>



# 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?



	2019	2020	2021	2022	2023(f)	
Lithium	Battery % of total market	47%	55%	65%	70%	~80%
	Market Size	361kt	483kt	586kt	699kt	803kt
Graphite	Battery % of total market	26%	32%	43%	55%	~63%
	Market Size	754kt	802kt	990kt	1,261kt	1,575kt

■ Batteries ■ Non-Batteries

**Jan 2019**  
Syrah commissions ~350ktpa Balama graphite mine in ~750ktpa market

**2021**  
Battery demand accounts for ~60% of the lithium market

**2023**  
Battery demand accounts for ~60% of the graphite market



# 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>

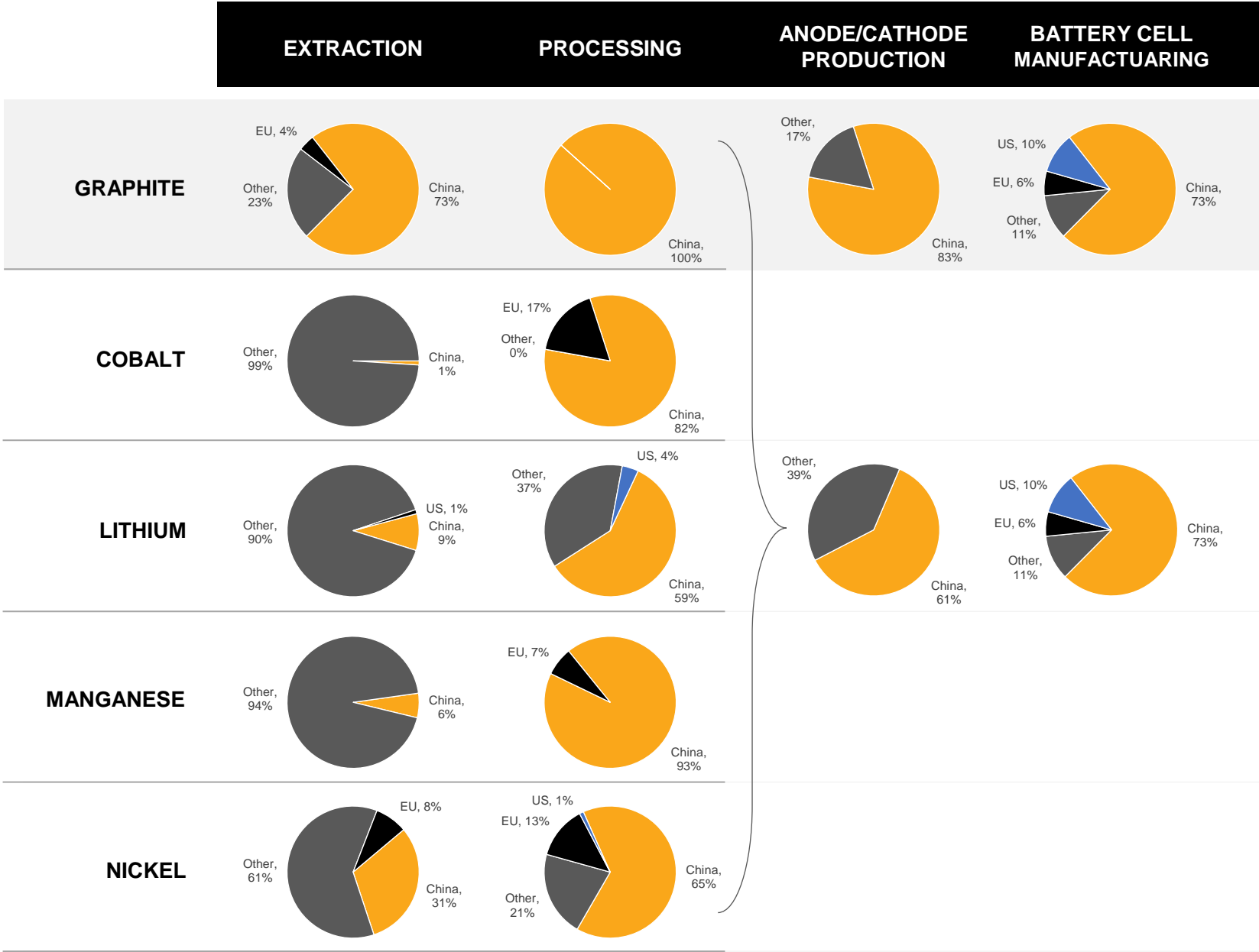
<sup>2</sup>Source: <https://www.reuters.com/business/energy/equinor-shell-exxon-agree-lng-project-with-tanzania-2023-05-19/>

<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/>

# Li-ion battery raw materials supply chain by country

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

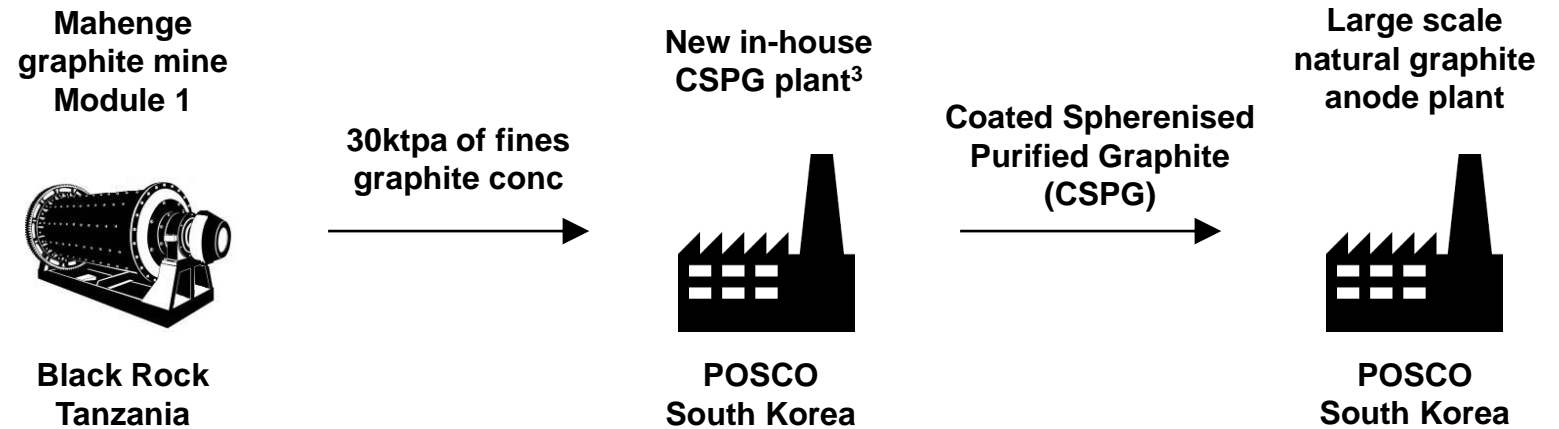


# Working towards an IRA-compliant supply chain

Black Rock is collaborating with POSCO to establish a new anode supply chain

The Inflation Reduction Act (IRA)<sup>1</sup> in the US provides a Clean Vehicle Credit under Section 30D<sup>2</sup> for qualifying vehicles for up to US\$7,500 per vehicle

- Starting in 2024, qualifying vehicles cannot have battery components manufactured or assembled by a foreign entity of concern
- Starting in 2025, qualifying vehicles' batteries cannot contain critical minerals extracted, processed, or recycled by a foreign entity of concern



<sup>1</sup>Source: <https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf> (Jan 2023, Version 2)

<sup>2</sup>Source: <https://www.federalregister.gov/documents/2023/04/17/2023-06822/section-30d-new-clean-vehicle-credit> (17 April 2023)

<sup>3</sup>Source: POSCO Holdings Battery Materials Business Value Day Presentation, Slide 41. POSCO has committed to building its own SPG capacity in-house. Video available here: <https://youtu.be/GFwivqfKXhU>

# 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**

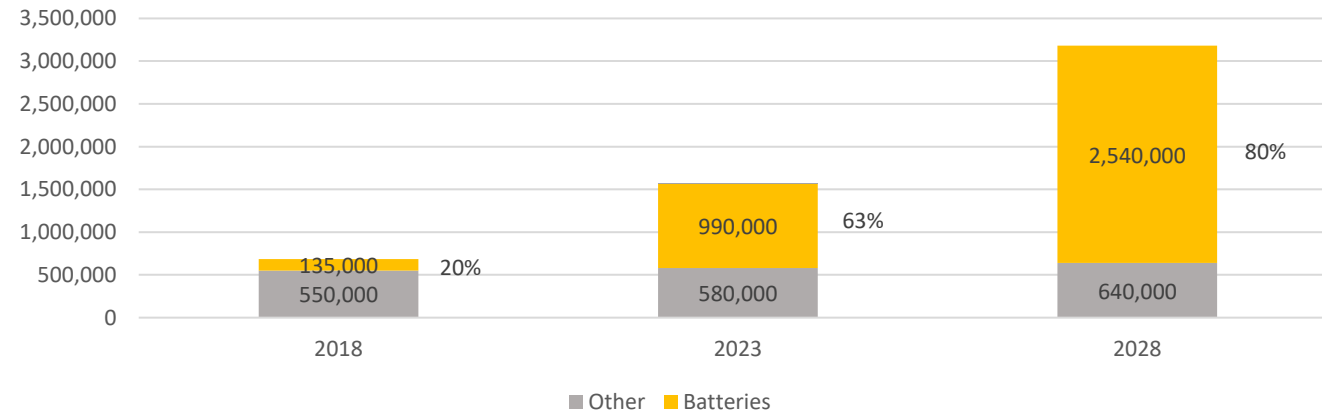
Flame Retardants

Gaskets & Seals

Expandable Graphite

Fuel Cells

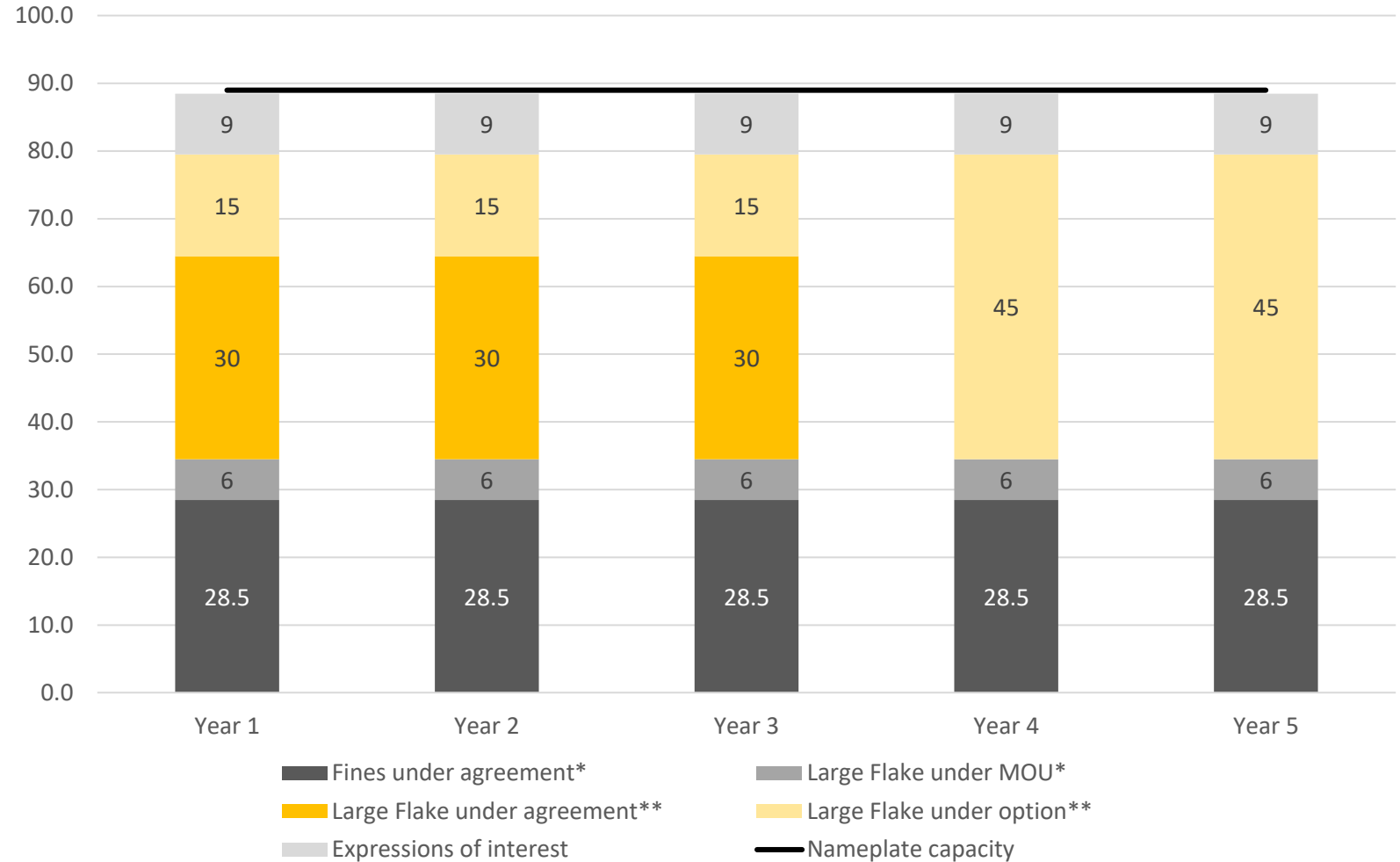
**Natural graphite: Growing importance of battery demand**



# Offtake agreements

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

Mahenge Offtake for Module 1 (89ktpa)



\*With POSCO. \*\* With Muhui International Trade (formerly known as Taihe Soar) & New Materials