



**SARYTOGAN**  
GRAPHITE

# AWAKENING THE KAZAKH GIANT

6 JUNE 2023

INVESTOR PRESENTATION

AMEC PERTH







Giant and exceptionally high-grade Inferred Mineral Resource of 229 Mt @ 28.9% TGC<sup>1</sup>.



Premium sizing supports battery metals product strategy.



Met test work scaling up after breakthrough 99.87% purity result<sup>2</sup>.

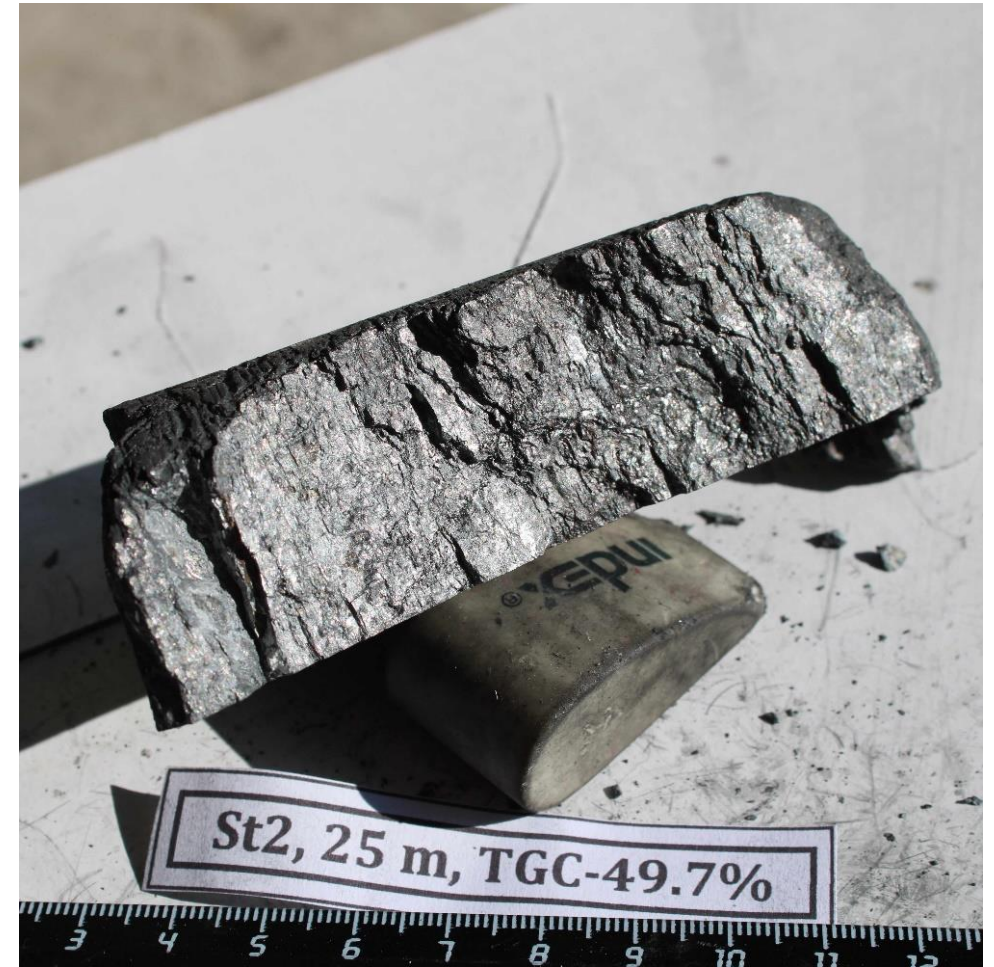


Kazakhstan is an established mining jurisdiction ideally located between the largest battery manufacturers in Europe and China.



Established in-country team progressing exploration and approvals.

2023 work program highlights:



High grade sample from the Sarytogan Graphite Project



## Mining in Kazakhstan

- Similar semi-arid land area to West. Aust.
- Mining code based on West. Aust.
- 40% of global uranium supply<sup>1</sup>
- 12<sup>th</sup> in global mining value<sup>1</sup>
- 13<sup>th</sup> largest oil producer<sup>1</sup>

Corporate income tax: 20%; mineral royalty: 3.5%;  
other taxes: 1.5%

Geopolitical alternative to China who dominates  
graphite mining (64%) and anode manufacture  
(89%)<sup>2</sup>.

Affordable containerized rail to Europe and China.



# Regional Infrastructure Advantages



170km by highway to the large industrial city of Karaganda.



6km from bitumen road to project.



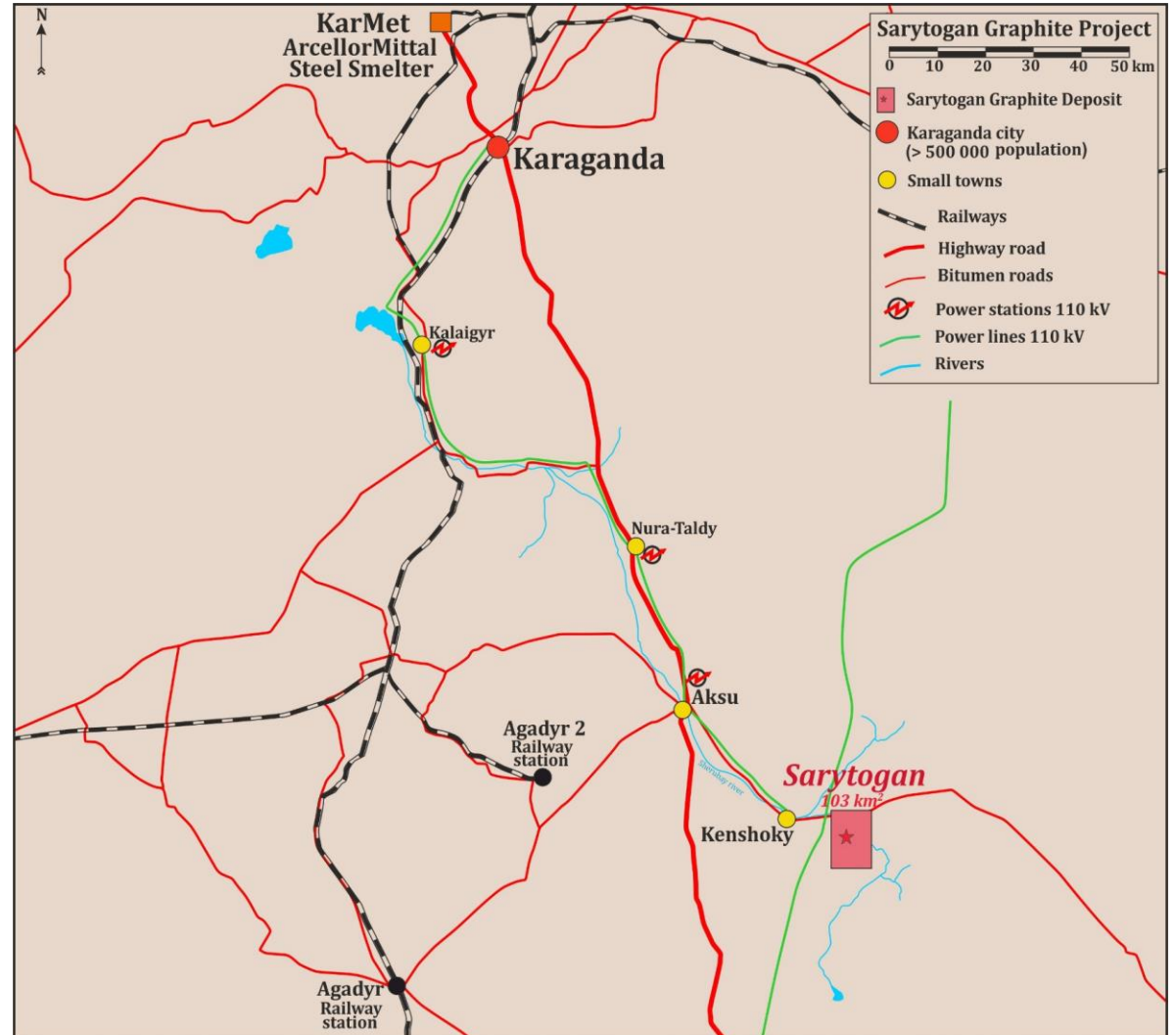
68km from nearest railway station.



2km from high-voltage power lines.



Sufficient water supply available.



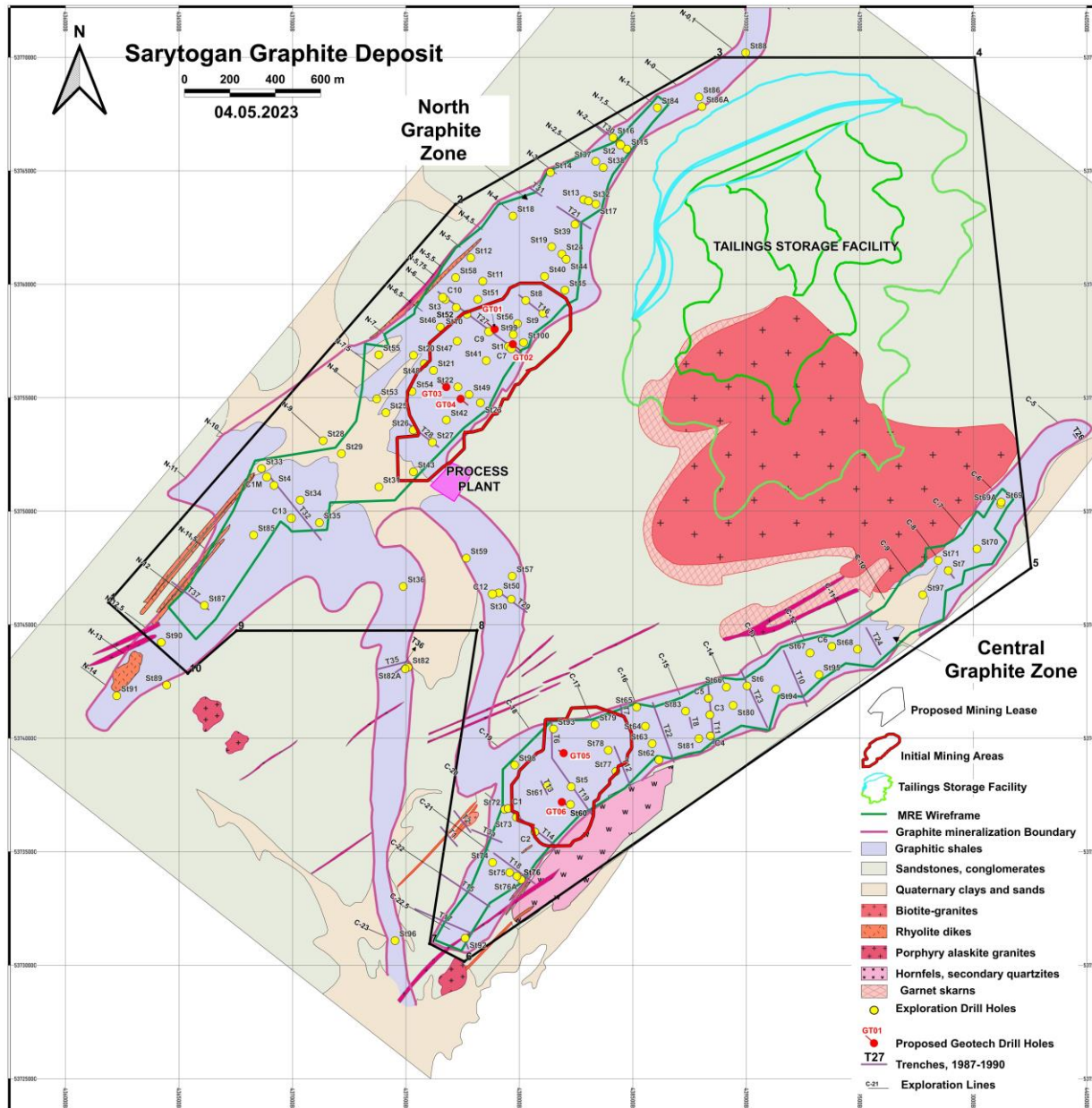


# High-Grade Graphite from Surface = Mining Economic Advantage





# Mineral Resource and Preliminary Mine Layout

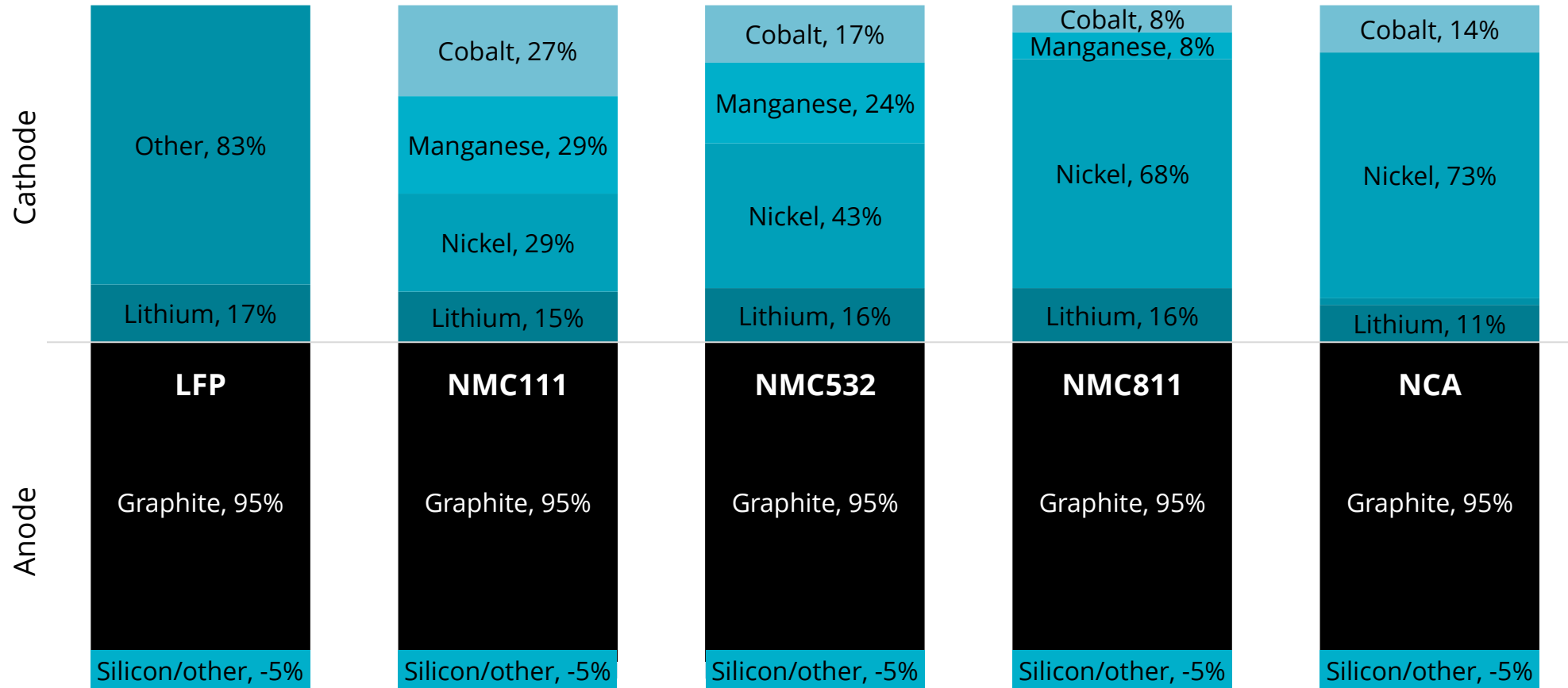


Zone (>15% TGC)	JORC <sup>1</sup> Classification	In-Situ Tonnage (Mt)	Total Graphitic Carbon (TGC %)	Contained Graphite (Mt)
North	Indicated	87	29.1	25
	Inferred	81	29.6	24
	Total	168	29.3	49
Central	Indicated	39	28.1	11
	Inferred	21	26.9	6
	Total	60	27.7	17
Total	Indicated	126	28.8	36
	Inferred	103	29.1	30
	Total	229	28.9	66

- Graphitic shales enriched by contact metamorphism from intrusion of granitic dome
- Mineral Resource is vast; project size will be determined by the market, not the resource
- Geotech and hydro drilling is underway

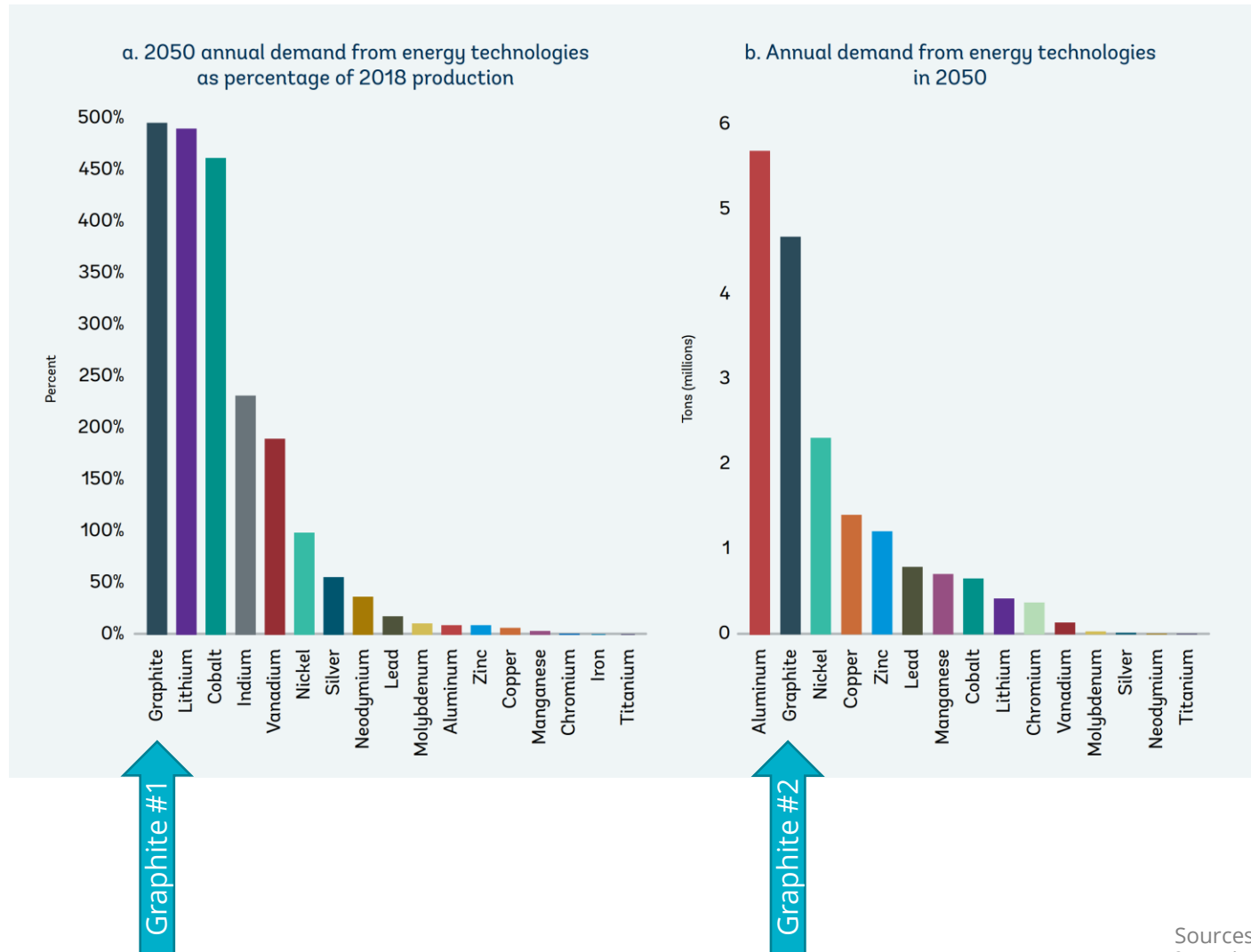
<sup>1</sup>Refer: ASX announcement 27/3/2023

# Graphite is the major raw material in all EV battery types



*"Our cells should be called Nickel-**Graphite**, because primarily the cathode is nickel, and the anode side is **graphite** with silicon oxide" - Elon Musk, CEO Tesla Motors*

# Energy Technologies Require a Graphite Supply Response



- Natural graphite has a lower CO<sub>2</sub> footprint than synthetic and will grow from 40% to 60% of the anode blend.
- Total natural graphite demand to increase 650% from 1.1Mt in 2022 to 7.2Mt in 2035<sup>2</sup>
- ...requiring 97 new mines at an average size of 56ktpa<sup>2</sup>.
- Given Sarytogan's sheer scale, how many mines could be built at Sarytogan?

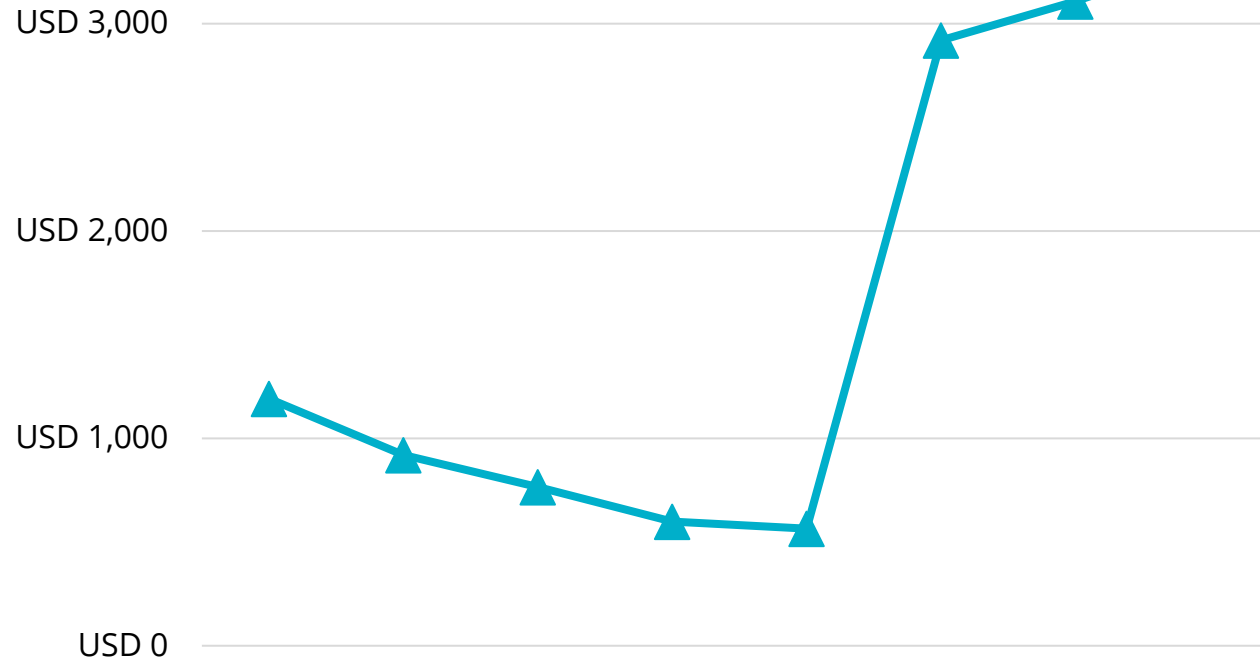
Sources: <sup>1</sup>World Bank "Minerals for Climate Action";

<sup>2</sup>Benchmark Mineral Intelligence Infographic "How many mines do we need?"



# Battery Anode Product Strategy Driven By Prices

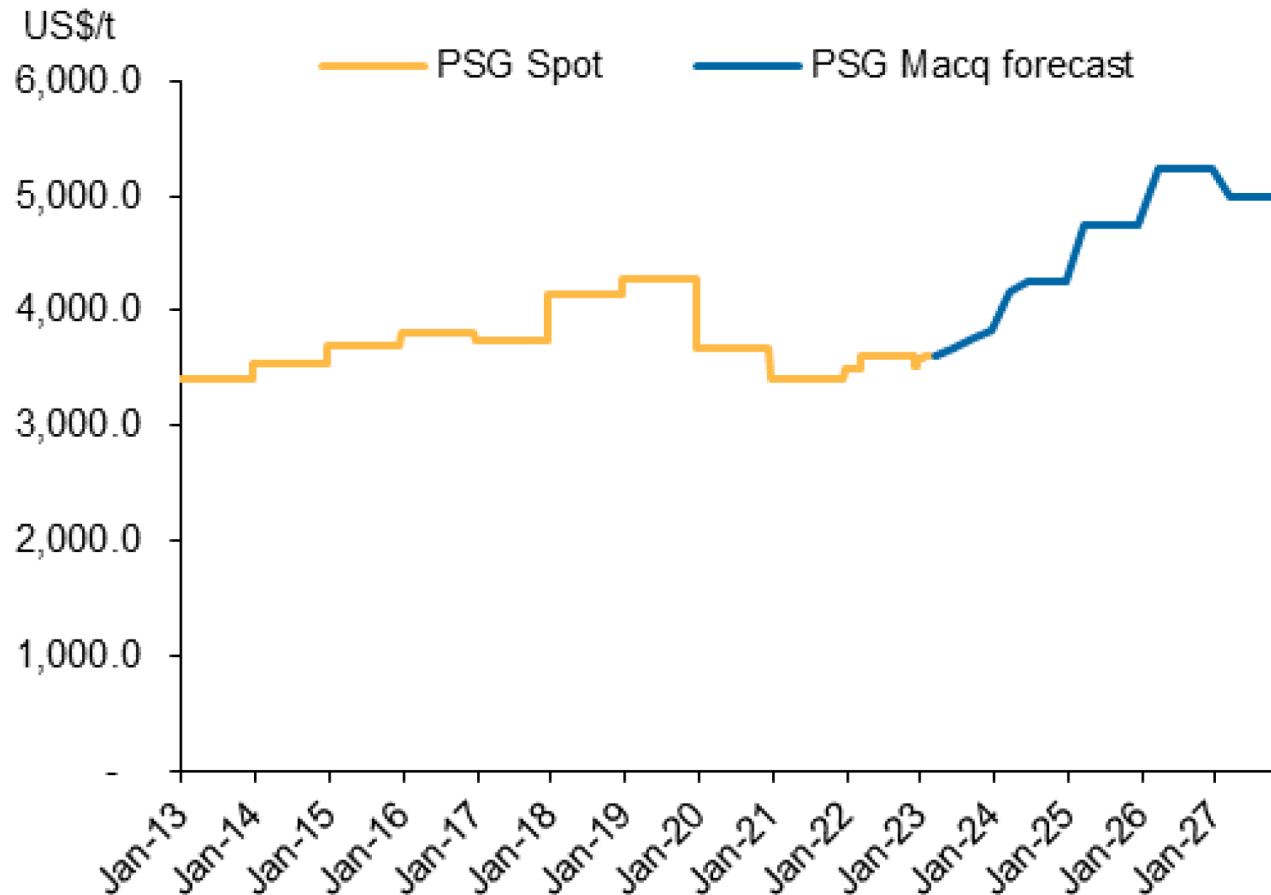
## Graphite Product Prices



	Traditional Uses					Battery Anodes		
Product	Coarse	Medium	Fine			Uncoated Spherical (USpG)		
Size (µm)	< 180	< 150	< 75	< 75	< 75	20	15	10
TC (%)	94	94	94	90	80	99.95	99.95	99.95
SGA			✓	✓	✓	→		

- Traditional industrial uses requires coarse flake graphite (e.g. refractory uses, brake linings, lubricants etc)
- Li-ion batteries will drive natural graphite demand from 1Mt to 4Mtpa by 2030<sup>1</sup>
- Li-ion batteries require ultra-fine high-purity spherical graphite
- Sarytogan has met specification for fine graphite and is targeting future battery anode material

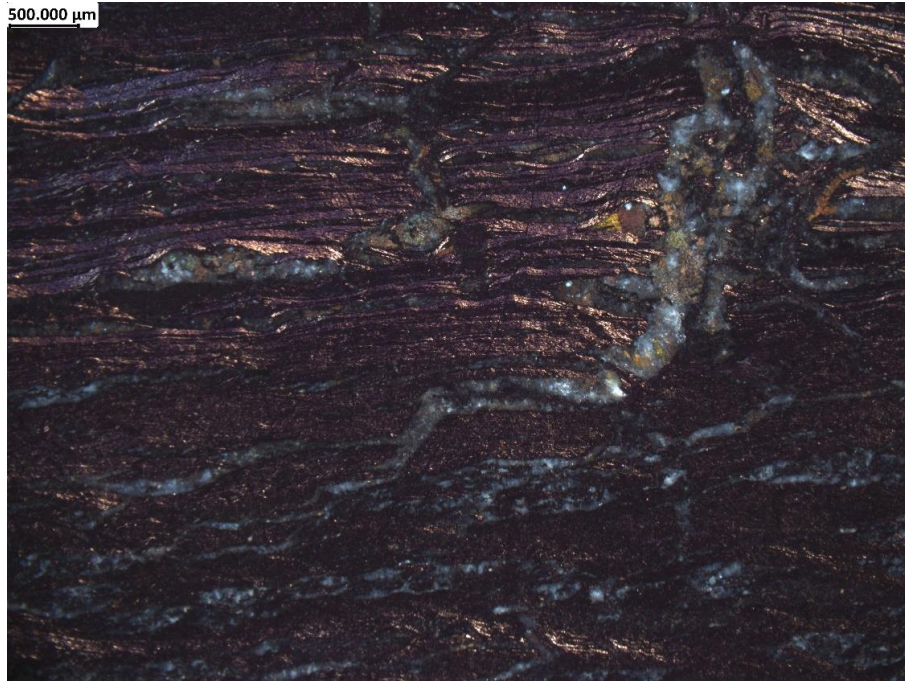
## Purified Spherical Graphite historical and forecasts



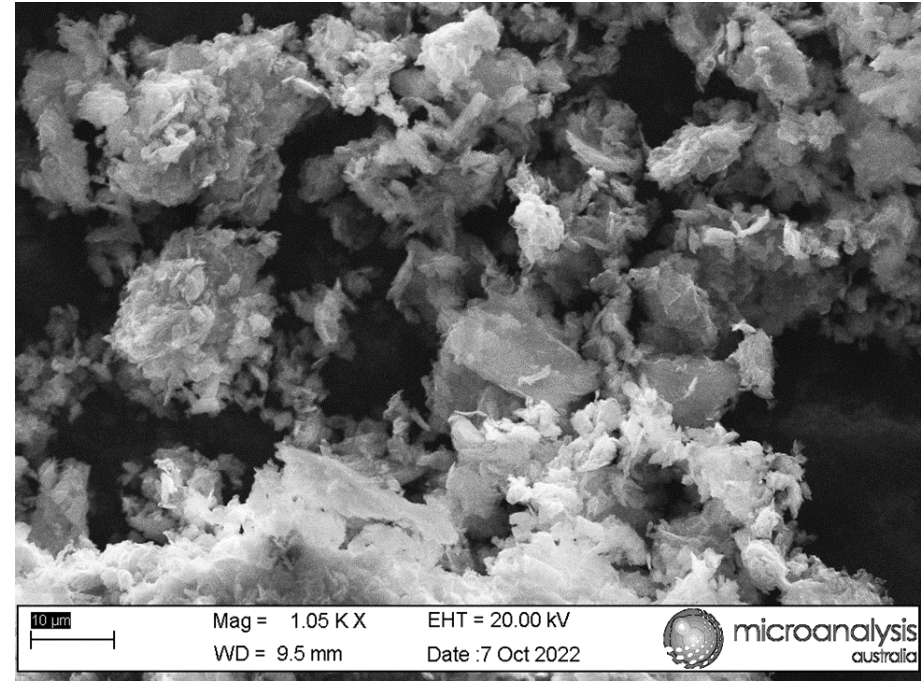
### Macquarie Bank Forecast:

- Battery graphite demand growth 27% CAGR
- Market deficit from 2025
- PSG price of up to US\$5,000/t in 2030





In-Situ Mineralisation





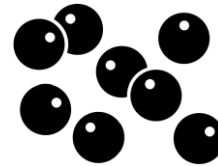



After Grinding and Flotation

Coarse ribbons of graphite in a matrix of micro-crystalline graphite  
amenable to fine grinding for mineral liberation and premium sizing

Thin section photomicrograph of St-11-44 (21\_1310\_44) in reflected light (XPL, 2.5x objective). 4.5 mm golden graphite ribbons defining foliation fabric as ribbons parallel to quartz folia.

Scanning Electron Microscope (SEM) image of Sarytogan Graphite after grinding, flotation, caustic roasting and leaching with weak sulphuric acid. Ultra-fine micro-crystalline graphite from 2-12 μm evident.

Mining	Grinding & Flotation	Gravity Separation	Alkaline Roasting	Spheroidization	Acid Purification
					
229Mt @ 28.9% TGC <sup>1</sup>	84% TGC <sup>2</sup>	Titanium Removal Q3	99.7% TGC <sup>2</sup>	Milling & Shaping	99.87% TGC <sup>2</sup>
Targeted Products	Micronized >80% C		Micronized >99% C		Spheroidized >99.95% C
Uses	Traditional Uses: Refractories, Engineered Products, Lubricants, Polymers, Plastics, Rubber, Steel, Foundry				Battery Anodes

Above is base-case alkali-acid flowsheet  
 PFS will also consider alternative thermal flowsheet under development



# Test Work Scaling Up for Battery Samples



Bulk grinding

60kg Germany

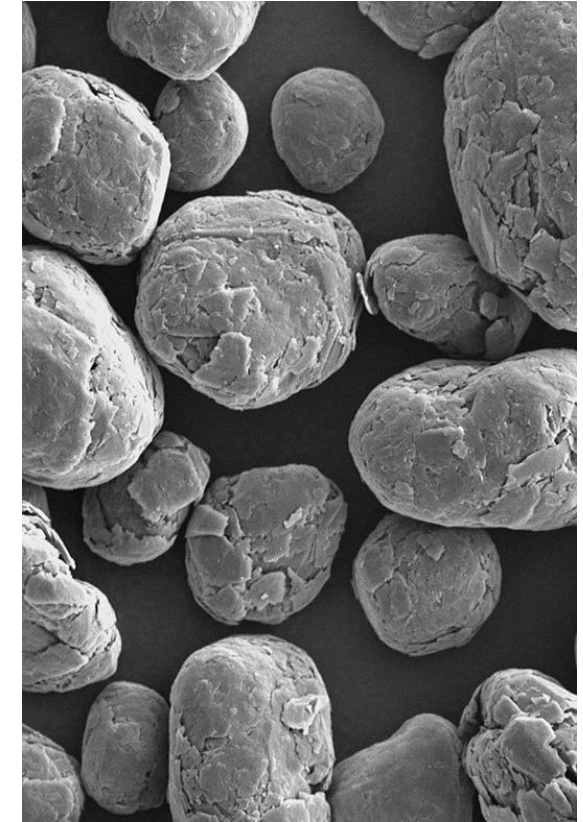
60kg Australia



Bulk flotation

25kg Germany

25kg Australia



Spheroidized graphite (example)

5kg Germany

Q3 2023



# Kenesar Graphite Exploration Project



EM survey underway at brand new 309km<sup>2</sup> tenement in northern Kazakhstan



Milestone	2022	Mar 23	Jun 23	Sep 23	Dec 23	2024
Drilling – 3,000m HQ DD	✓					
Mineral Resource upgrade		✓				
Land access agreement for mining			✓			
Geotech and hydro drilling						
Bulk flotation concentrate production						
Spheroidization tests						
Battery performance tests						
Pre-feasibility study						
Mining lease application						
Marketing discussions						
Kenesar exploration						



## CONTACT

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## Capital Structure

Shares on Issue (Undiluted)	147.7M
Escrowed Shares (until July 2024)	48%
Director Interests	36%
Options (25c expiry 30/11/2024)	42.7M
Options (49.5c expiry 14/4/2026)	1.5M
Performance Shares and Perf. Rights	20.1M
Market Capitalisation – Undiluted at 27c	\$39.9M
Cash – April 2023	\$8.9M



**Stephen Penrose** *Non-Executive Chairman, LLB, J.D.,*

Lawyer and Managing Partner of Tottle Partners, specialising in corporate and commercial litigation.



**Sean Gregory** *Managing Director, B.Sc.(Hons), MBA*

Geologist and Mining Executive with more than 20 years' experience in minerals exploration, development and mining in iron ore, lithium, cobalt, nickel, and gold in Western Australia and abroad.



**Dr. Waldemar Mueller** *Technical Director, PhD, M.AusIMM*

Geologist with more than 40 years' experience in exploration and valuation of mineral resources. He has held leadership positions German, Canadian and Australian companies working on projects in Brazil, Kyrgyzstan, Georgia & Kazakhstan.



**Brendan Borg** *Non-Executive Director, B.Sc., MSc, M.AusIMM*

Geologist, Hydrogeologist and Environmental Scientist specialising in the battery materials sector with more than 20 years' experience in exploration development and mining.



**Ian Hobson** *Company Secretary, B.Bus, FCA, Grad. Dip. (Cor. Gov.)*

Fellow Chartered Accountant and Chartered Secretary with more than 30 years' experience in the areas of corporate finance, governance, corporate accounting, company secretarial and restructuring advice.



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The information in this report that relates to JORC estimates of Mineral Resources was first published on the ASX on 27/3/23. The information relating to Exploration Results was first reported in ASX Announcements dated 14/7/22, 15/8/22, 19/9/22, 12/10/22, 8/11/22, 6/12/22, 16/1/23, 29/3/23 and 6/6/23. These reports are available at [www.asx.com.au](http://www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcements.