

**SARYTOGAN**  
GRAPHITE

# DISRUPTING GRAPHITE SUPPLY

JUNE 2024

INVESTOR PRESENTATION

AMEC INVESTOR BRIEFING







Giant and exceptionally high-grade Indicated and Inferred Mineral Resource of **229 Mt @ 28.9% TGC<sup>1</sup>** with low mining costs.



Ultra-High Purity Fines (UHPF) at up to **99.9992% C** “five nines” achieved for advanced industrial uses<sup>3</sup>.



Uncoated Spherical Purified Graphite (USPG) lithium-ion battery performance superior to synthetic graphite<sup>4</sup>.



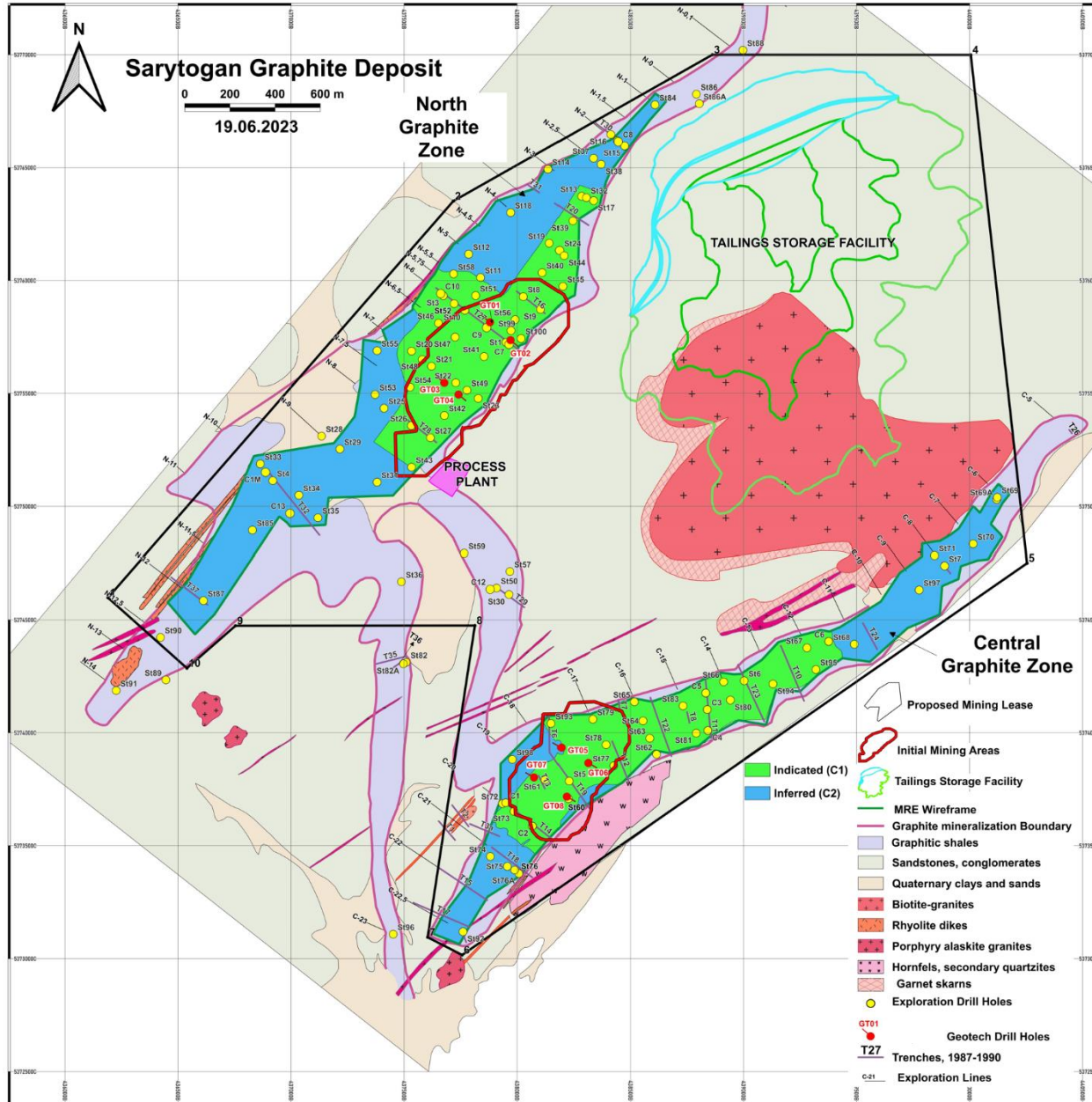
Kazakhstan is an established mining jurisdiction ideally located between the largest battery manufacturers in Europe and China.



Pre-Feasibility Study (PFS) scheduled for completion by Q3 (July-Sept) 2024.



# The Project - Mineral Resource and Preliminary Mine Layout



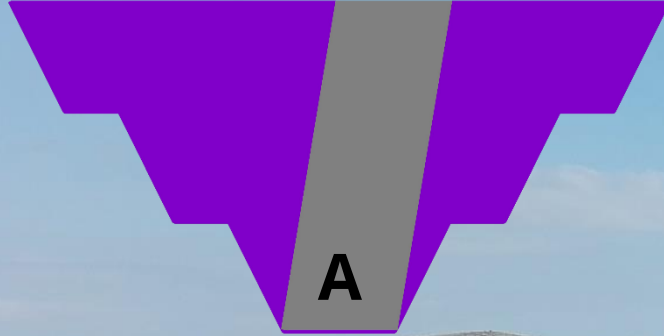
| Zone<br>(>15% TGC) | JORC <sup>1</sup><br>Classification | In-Situ<br>Tonnage<br>(Mt) | Total<br>Graphitic<br>Carbon<br>(TGC %) | Contained<br>Graphite<br>(Mt) |
|--------------------|-------------------------------------|----------------------------|---|-------------------------------|
| North              | 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
- Micro-crystalline graphite sets Sarytogan apart from traditional vein, flake and amorphous.
- Mineral Resource is vast; project size will be determined by the market, not the resource

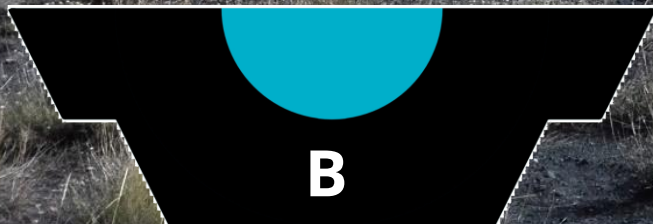
<sup>1</sup>Refer: ASX announcement 27/3/2023



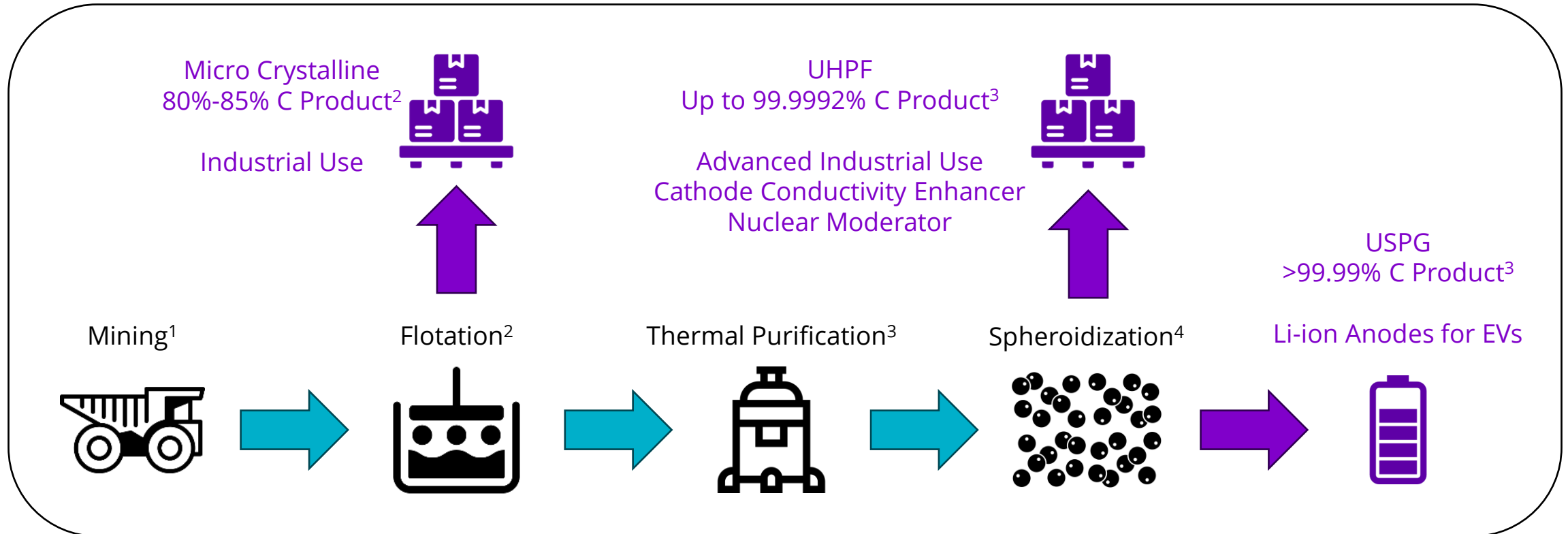
# The Project - Grade is King



| Hypothetical      | Mine A | Mine B |
|-------------------|--------|--------|
| Grade             | 10%    | 30%    |
| Strip Ratio (W:O) | 3:1    | 0.2:1  |
| Process, Product  | same   | same   |
| Mining Costs      | \$ 10X | \$ X   |
| Flotation Costs   | \$ 3Y  | \$ Y   |



This example is hypothetical only and provided to illustrate the effect of grade and strip ratio on mining economics. There are many other factors that influence mining economics. The examples are not intended to represent the Sarytogan Graphite Deposit or any other graphite deposit.

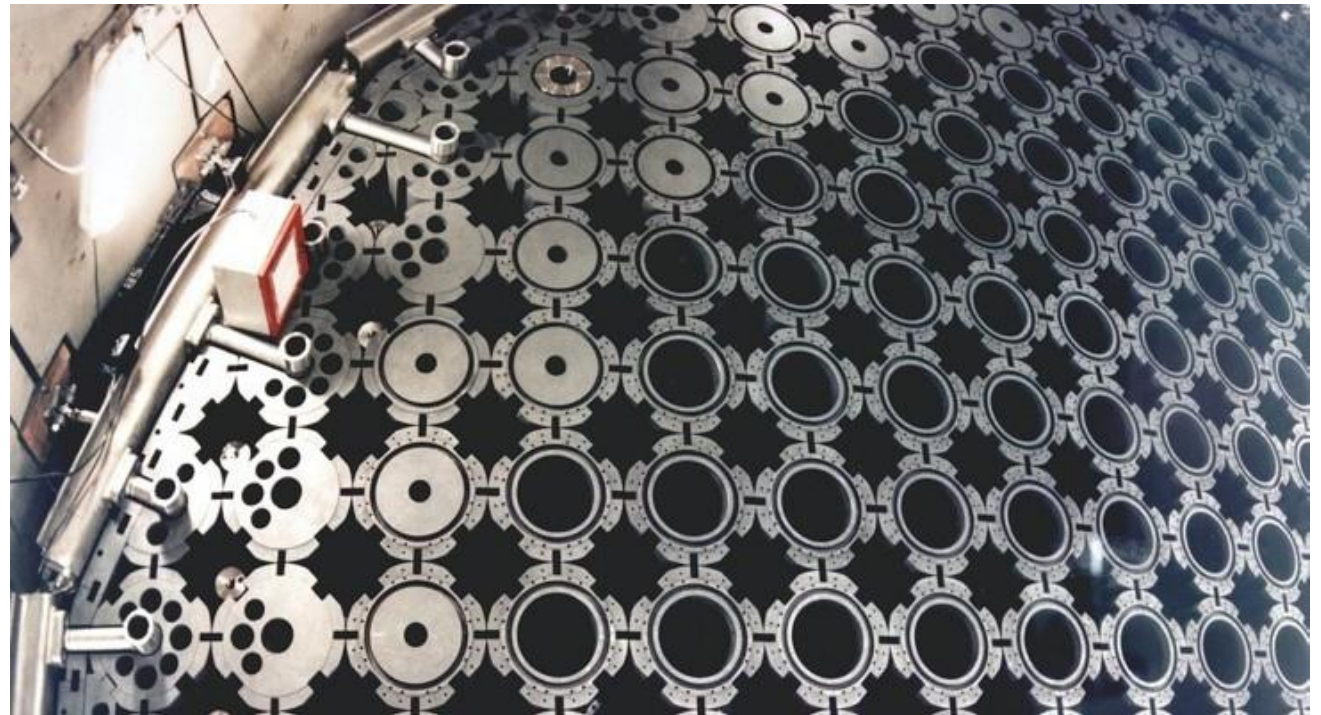
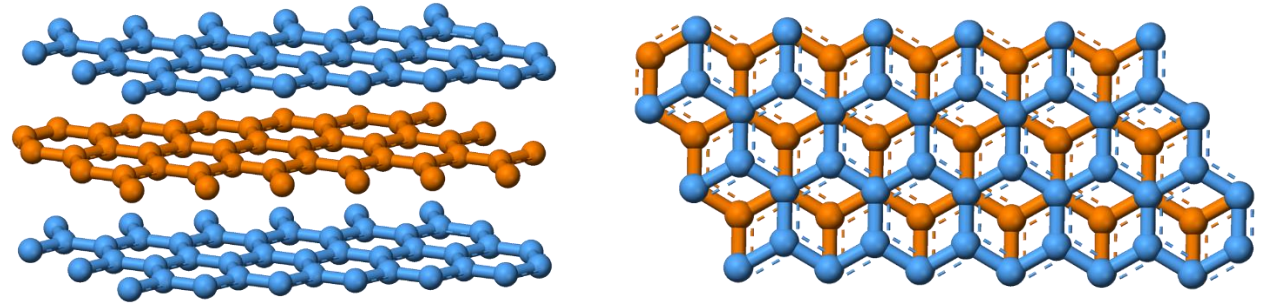


- 'Inverted flowsheet', purification ahead of spheroidization, produces Ultra-High Purity Fines (UHPF)
- The PFS will study 3 proposed graphite products totalling about 50,000 tpa
- Strategy is small and modular, giant Mineral Resource allows future replication
- All flowsheet elements and product uses have now been demonstrated by test work



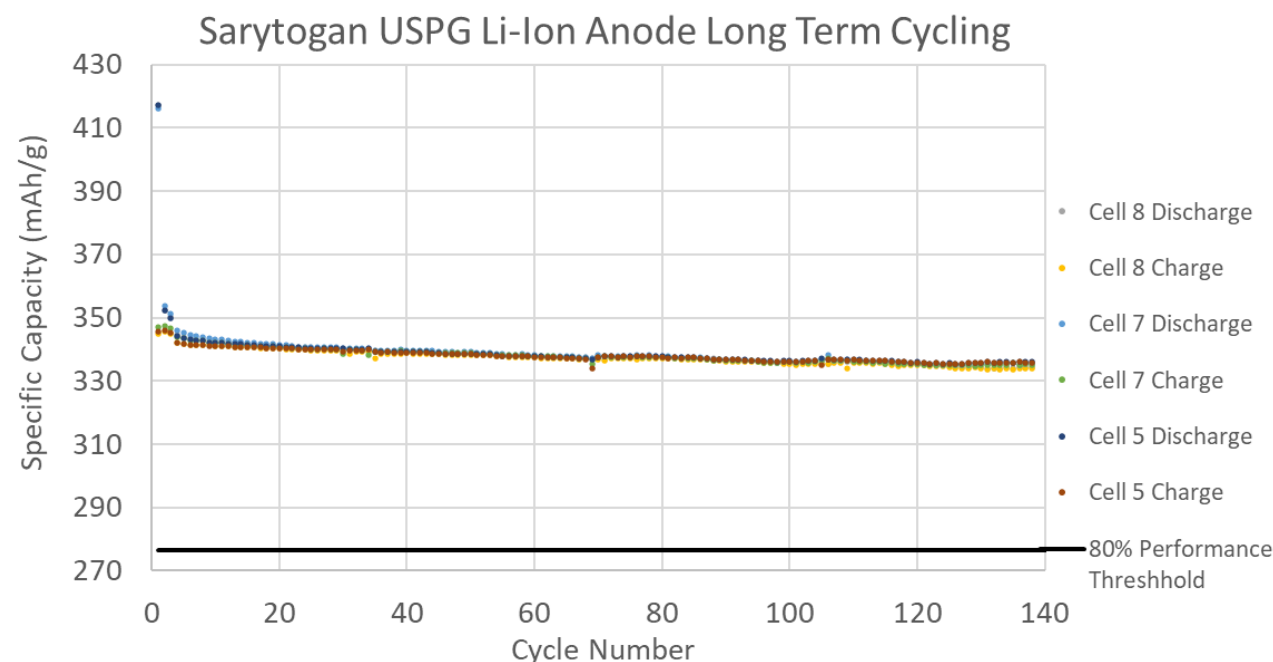
Tight packing of micro-crystalline graphite layers ( $\leq 0.336$  nm) is why Sarytogan Graphite is suitable for:

- Traditional uses such as dry lubricant<sup>1</sup>
- Cathode conductivity additive in primary alkaline and lithium batteries<sup>2</sup>
- Nuclear moderator with Equivalent Boron Content (EBC) of only 1.1ppm<sup>3</sup>
- Anodes in lithium-ion batteries<sup>4</sup>

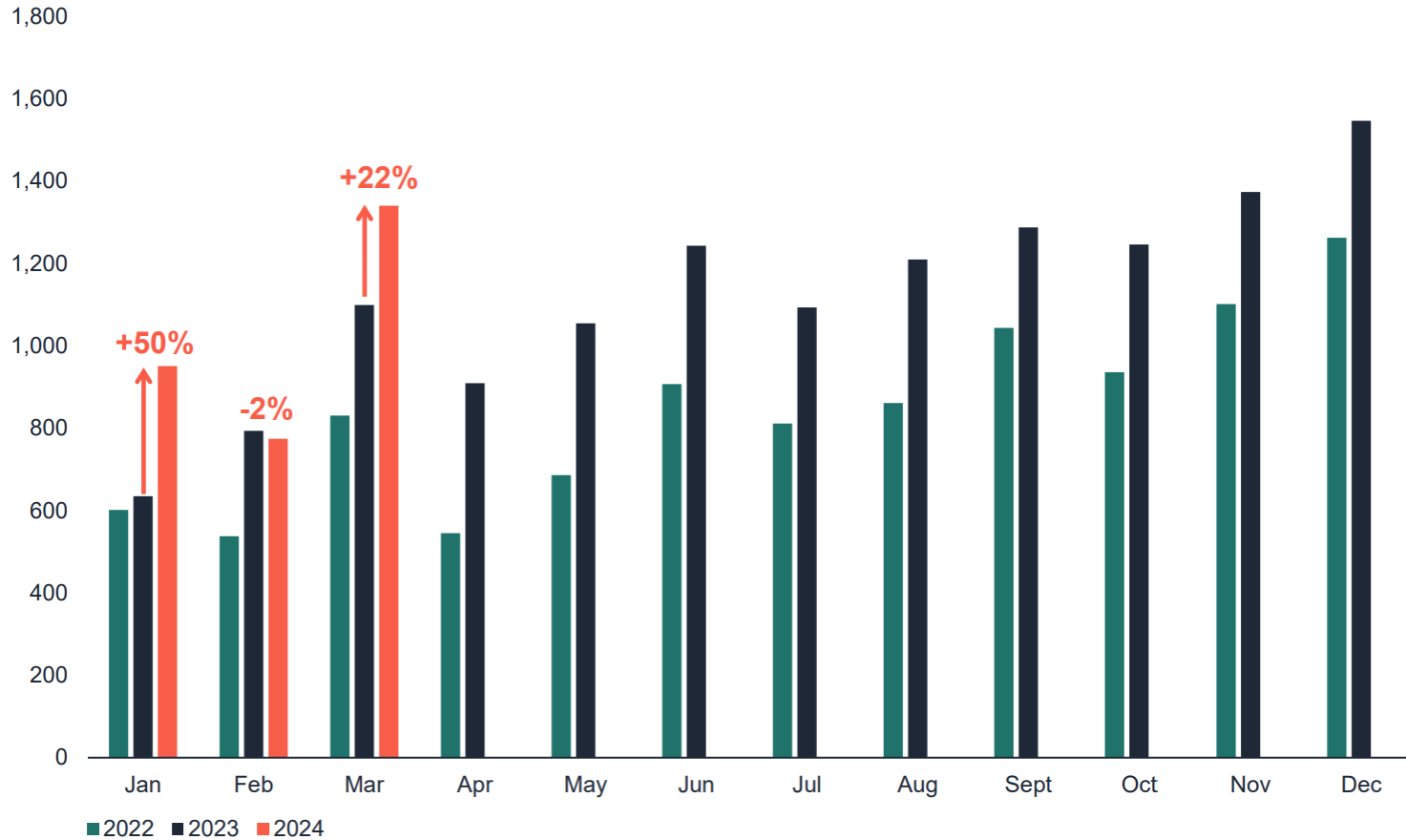


# The Project – Battery Performance Demonstrated

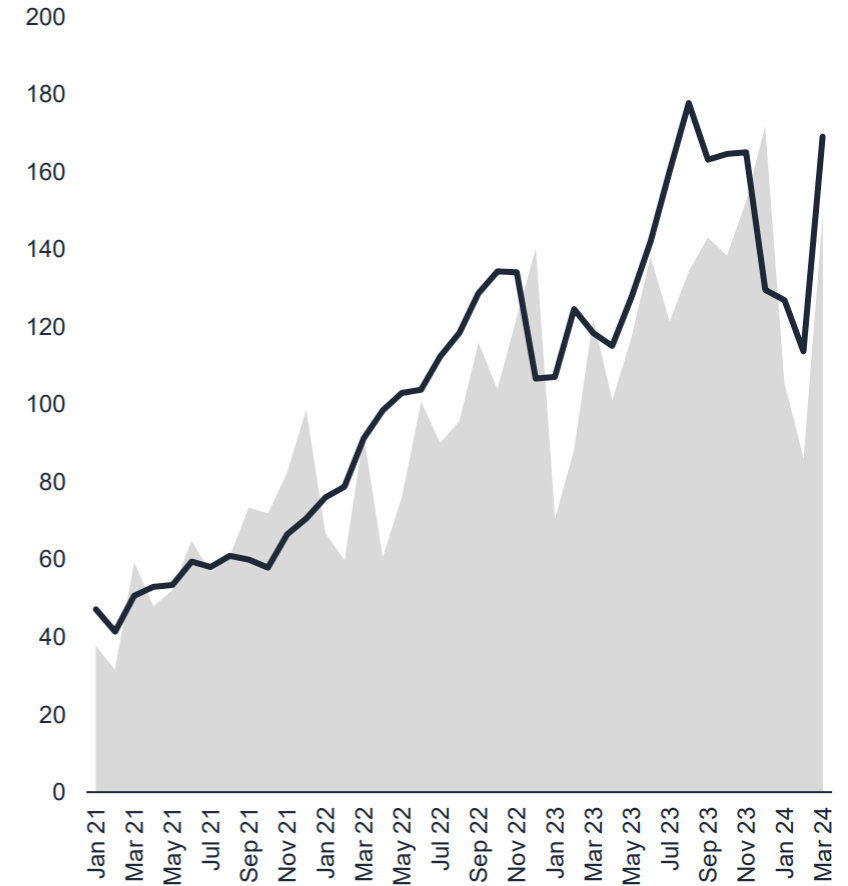
- Coin-cell lithium-ion batteries have been manufactured from Sarytogan USPG.
- Consistently superior capacity compared to many synthetic graphite anodes for EVs<sup>1</sup>.
- Results of Coated Spherical Purified Graphite (CSPG) testing imminent.



## Global Monthly EV Sales ('000 Units)<sup>1</sup>



## China Monthly Anode Production (kt)<sup>2</sup>





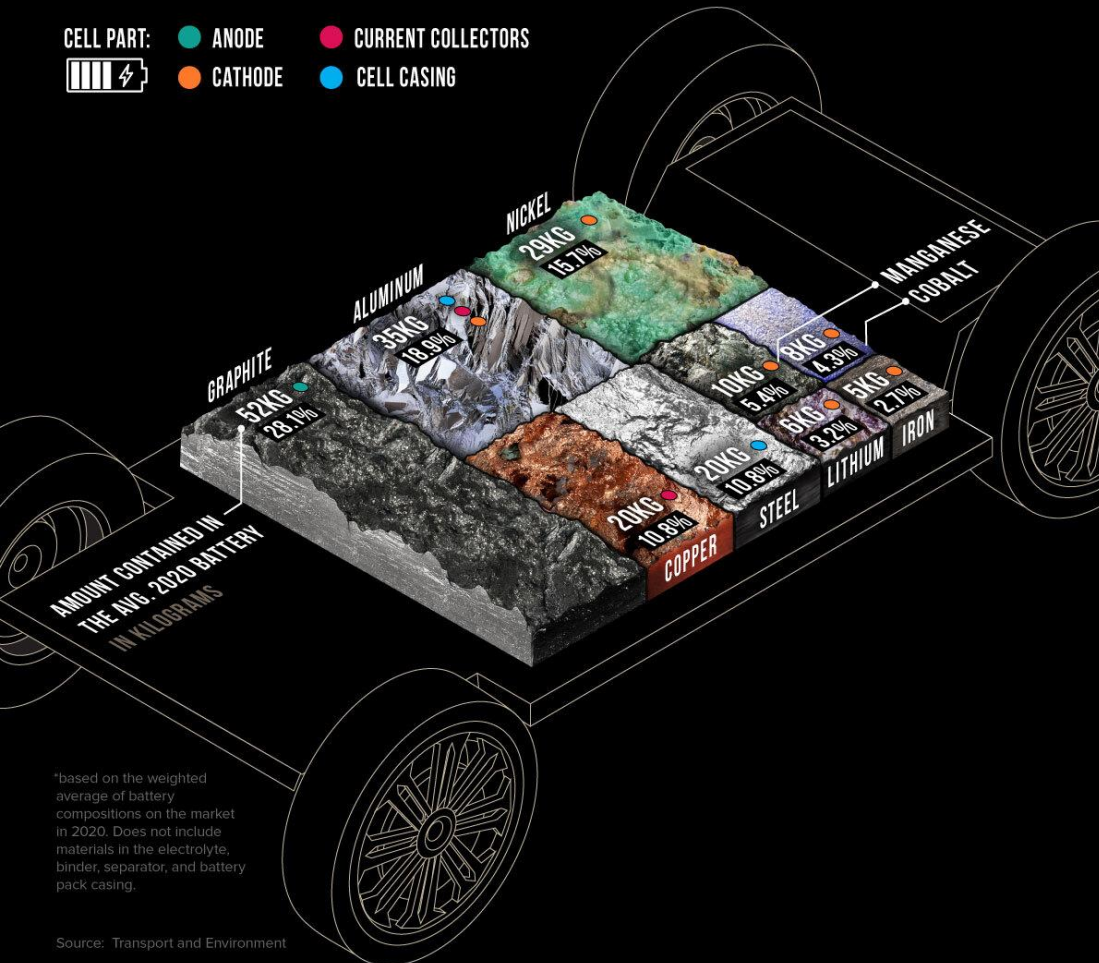
# The Market - Graphite is the major raw material in all EV battery types



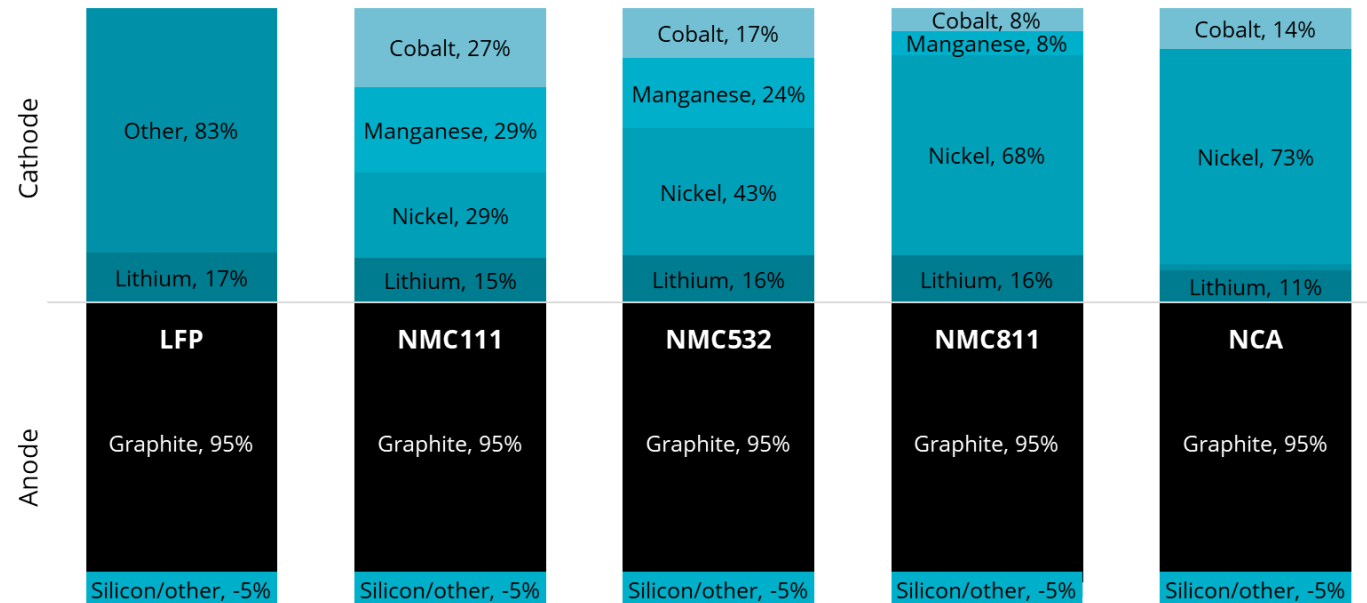
## THE KEY MINERALS IN AN EV BATTERY

Lithium-ion batteries harness the properties of various minerals to power electric vehicles. The cells in the average lithium-ion battery with a **60-kilowatt-hour (kWh)** capacity contain around **185kg\*** of minerals.

CELL PART: ● ANODE ● CURRENT COLLECTORS  
● CATHODE ● CELL CASING



- Graphite is the major raw material in EV batteries.
- The EV battery anode is always graphite, regardless of battery chemistry.
- Silicon is limited to 5% as any anode performance gains are not matched on the cathode



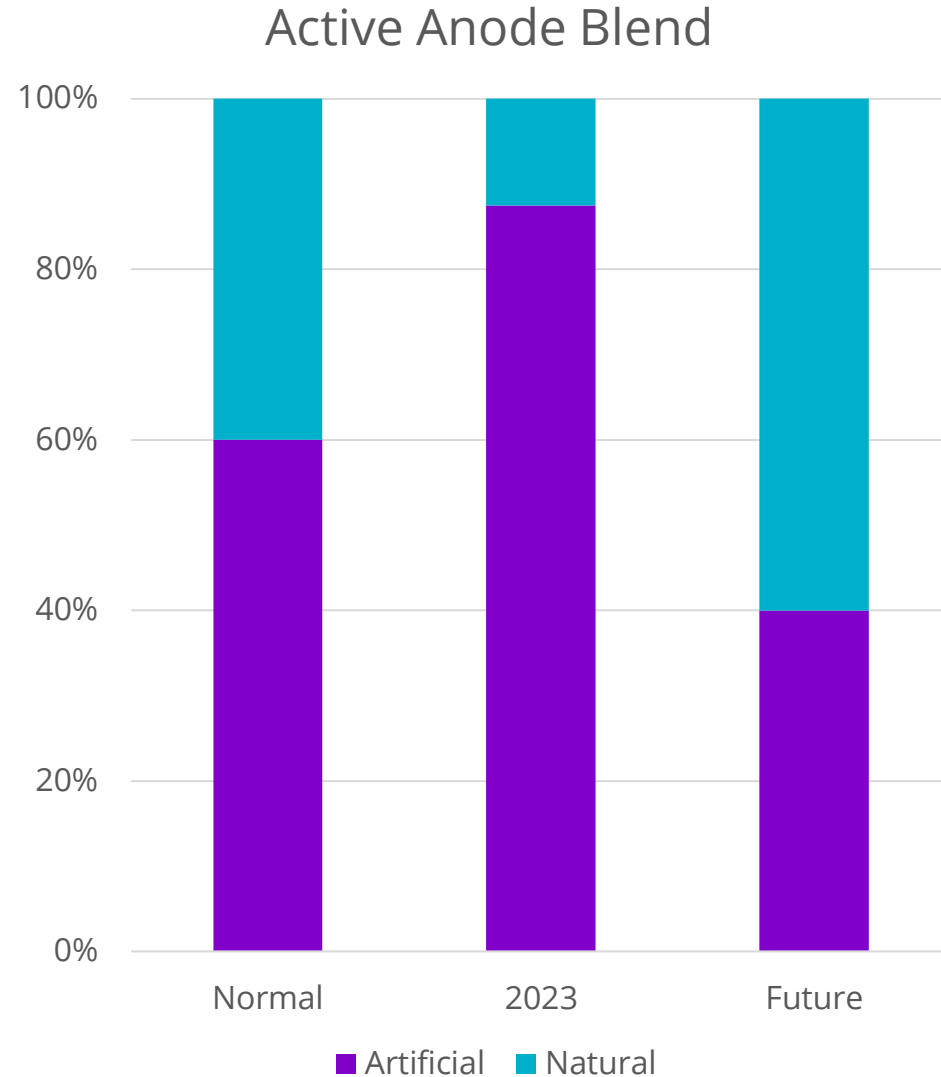
## LFP Cell—Global Warming Potential Contribution Analysis

Contribution to CO<sub>2</sub> impact per kg



- Environmental regulation will continue to tighten. E.g. EU Battery Passport
- Graphite is a focal point to reduce the CO<sub>2</sub> footprint of the EV battery





- Natural graphite has been created by geological forces over millennia.
- Artificial graphite requires expensive and CO<sub>2</sub> intensive treatment of fossil fuel by-products.
- China rapidly expanded synthetic graphite production in 2023 to meet EV demand.
- Policies will mature and insist on greener, lower-cost and high-quality natural graphite.
- Natural graphite demand will be supercharged as a growing proportion of a growing market.

## HOW MANY MINES DO WE NEED?

As the lithium ion battery revolution gains momentum, **Benchmark** forecasts just how many mines need to be built to keep up with the exceptional volumes of demand for key raw materials expected by 2035.



■ 2022 Supply Vs 2035 Demand



Natural Graphite



Average Mine/Plant Size



56,000 t

No. of Mines/Plants Needed





## USA Inflation Reduction Act 1/1/2027

Tax credits for EVs with majority of battery minerals from FTA countries & nil China

## China Export Limits 1/12/2023

Dominate 70% of graphite mining & 90% of anode value add<sup>1</sup>

Source: <sup>1</sup>Benchmark Minerals Intelligence 20/10/23

## EU Battery Passport 1/2/2025

QR code database of provenance & CO<sub>2</sub> footprint for all large batteries







## Key Economic Facts

- Top 50 GDP US\$290Bn
- Population 20M
- US\$370Bn in Foreign Investment post USSR

## Favorable Taxation:

- Corporate income tax: 20%
- VAT 12%
- Mineral royalty: 3.5%
- Other taxes: 1.5%

Affordable containerized rail to Europe and China.

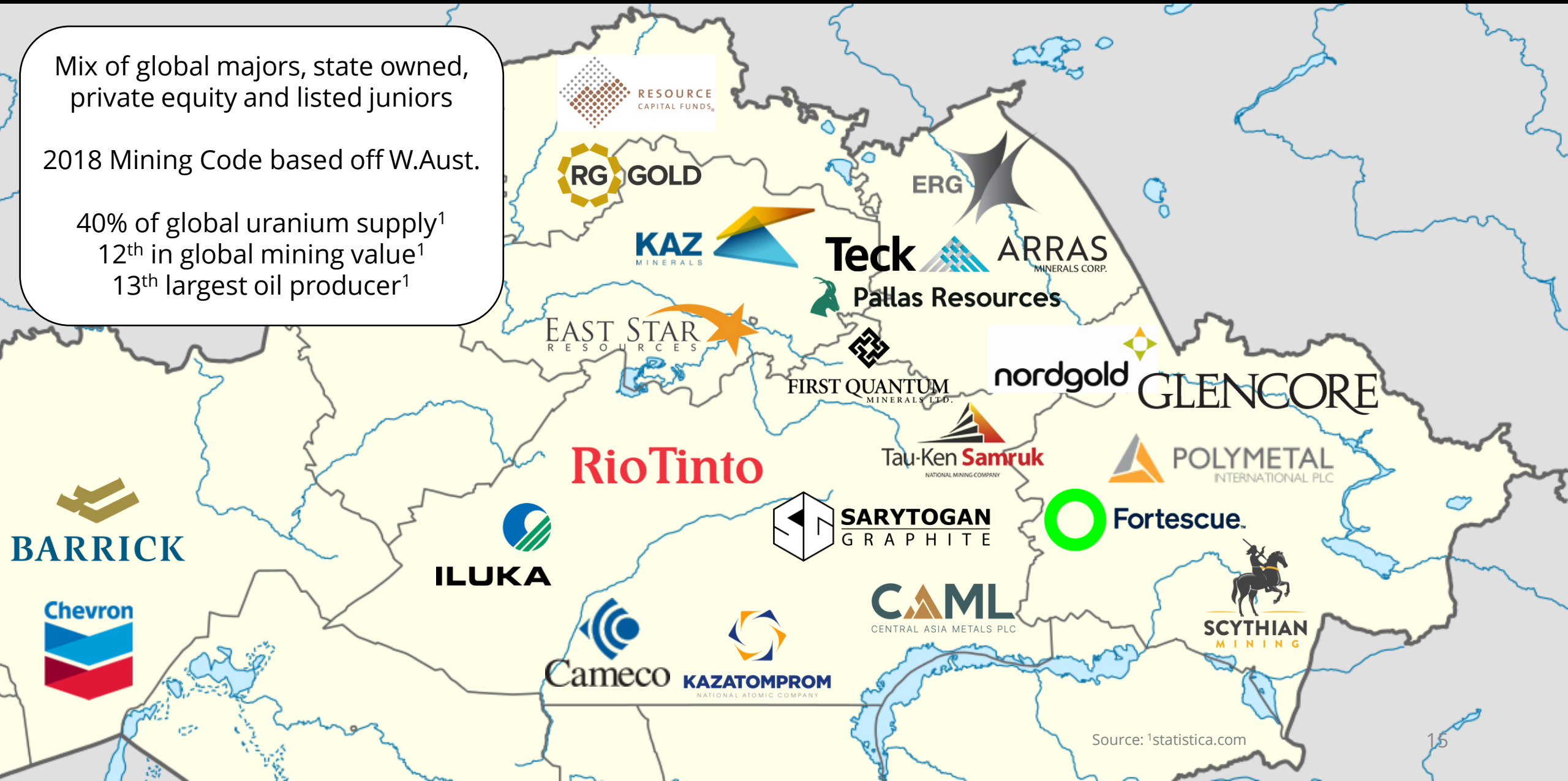


# Kazakhstan – Established Mining Jurisdiction

Mix of global majors, state owned,  
private equity and listed juniors

2018 Mining Code based off W.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>



Source: <sup>1</sup>statistica.com

# Kazakhstan - Regional Infrastructure Advantages



170km by highway to the large city of Karaganda



6km from bitumen road to project



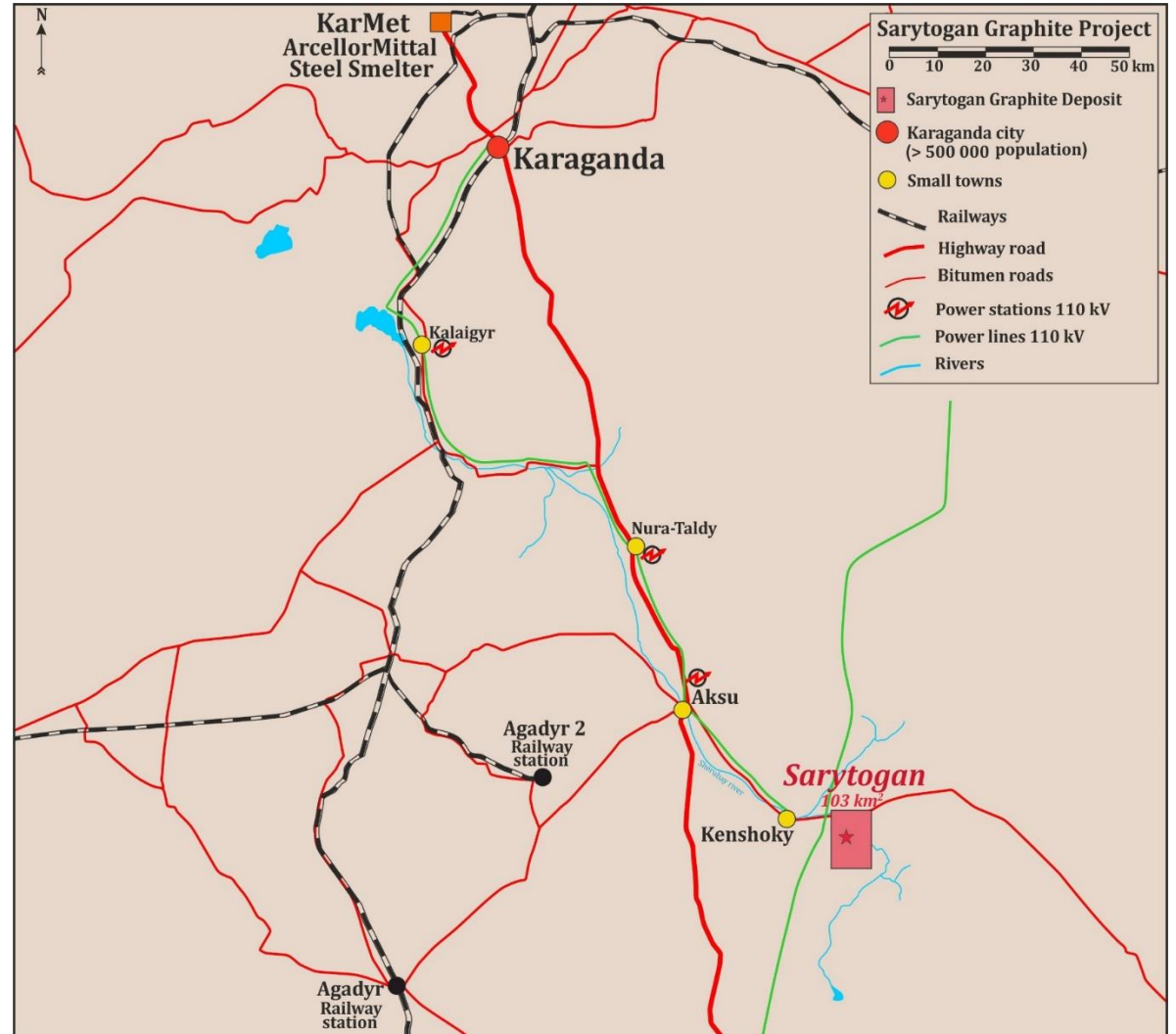
68km from nearest railway station



Sufficient water supply available



Skilled local workforce

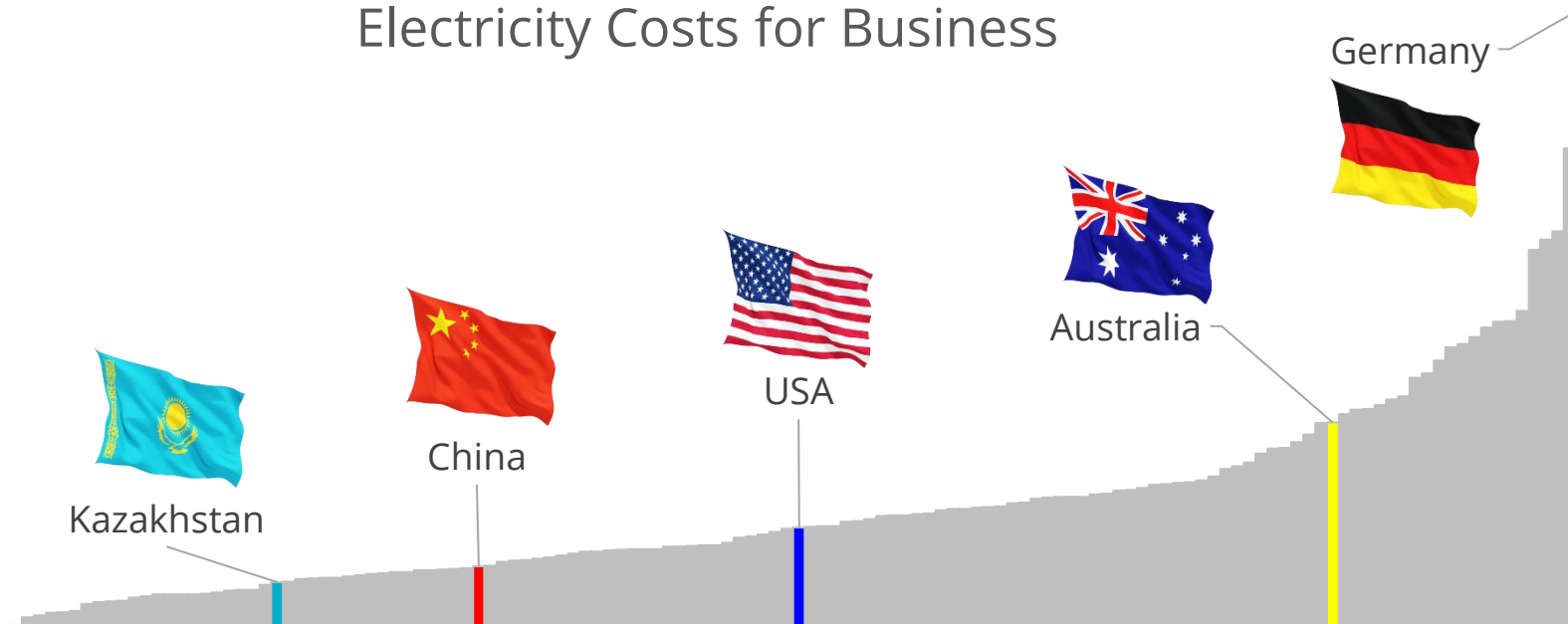




# Kazakhstan - Lowest Quartile Power Costs Including Renewables

- Kazakhstan's power cost is in the lowest quartile globally
- 110 kV powerline 2 km from the project (pictured)
- 35 kV powerline 15 km from the project
- 50 MW Solar farm is 100 km from the project (pictured)

## Electricity Costs for Business



133 countries - December 2022 - data source [www.globalpetrolprices.com](http://www.globalpetrolprices.com) - includes power, distribution and taxes



|                              | 2023 | 2024 |    |    |    | 2025 |
|------------------------------|------|------|----|----|----|------|
| Milestone                    |      | Q1   | Q2 | Q3 | Q4 |      |
| Mineral Resource upgrade     | ✓    |      |    |    |    |      |
| Land access agreement        | ✓    |      |    |    |    |      |
| Geotech and hydro drilling   | ✓    |      |    |    |    |      |
| Bulk concentrate production  | ✓    |      |    |    |    |      |
| Spheroidization tests        | ✓    |      |    |    |    |      |
| Battery performance tests    |      |      | ✓  |    |    |      |
| Pre-feasibility study        |      |      |    |    |    |      |
| Maiden Ore Reserve           |      |      |    |    |    |      |
| Mining lease application     |      |      |    |    |    |      |
| Definitive Feasibility Study |      |      |    |    |    |      |
| Marketing discussions        |      |      |    |    |    |      |



# Corporate Overview and Value Proposition



**Stephen Penrose**

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



**Sean Gregory**

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



**Dr. Waldemar Mueller**

*Technical Director*  
PhD, MAusIMM



**Brendan Borg**

*Non-Executive Director*  
B.Sc., MSc, MAusIMM



**Ian Hobson**

*Company Secretary*  
B.Bus, FCA, G. Dip. (C. Gov.)



**Sarkis Akopov**

*Chief Financial Officer*  
CPA GAICD



**Local Leadership**

*Kazakhstan Team*

## Capital Structure

Shares on Issue (Undiluted) 148.7M

Director Interests 36%

Options (25c, 49.5c, 60c, expiry '24, '26, '28) 45.2M

Performance Shares and Perf. Rights 22.1M

Market Capitalisation – Undiluted at 20c \$29.7M

Cash – 31 March 2024 \$3.9M

Enterprise Value \$25.8M



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## Compliance Statement

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 as cross referenced on the relevant slides. 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.





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