

3 | Mar | 2025

### **NEW CORPORATE PRESENTATION**

Sovereign Metals Limited (ASX:SVM; AIM:SVML; OTCQX: SVMLF) (**Sovereign** or **the Company**) is pleased to announce that a new Corporate Presentation titled "Graphite By-Product Strategy Update" has been published on ASX and the Company's website.

Investors can view the new presentation via the following link or below:

https://sovereignmetals.com.au/presentations/

Investors can view the presentation from Sovereign's Chairman, Mr Ben Stoikovich, here: https://youtu.be/X6A30NaccDY.

#### **Enquires**

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#### **Forward Looking Statement**

This release may include forward-looking statements, which may be identified by words such as "expects", "anticipates", "believes", "projects", "plans", and similar expressions. These forward-looking statements are based on Sovereign's expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Sovereign, which could cause actual results to differ materially from such statements. There can be no assurance that forward-looking statements will prove to be correct. Sovereign makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of that release.

This announcement has been approved and authorised for release by the Company's Managing Director & CEO, Mr Frank Eagar.

## SOVEREIGN METALS LIMITED

## **GRAPHITE BY-PRODUCT STRATEGY UPDATE**

MARCH 2025 ASX: SVM | AIM: SVML | OTCQX:SVMLF ABN: 71 120 833 427

### **DISCLAIMERS & DISCLOSURES**

#### AUTHORISATION STATEMENT

This presentation has been approved and authorised for release by the Company's Managing Director & CEO, Mr Frank Eagar.

#### **DISCLAIMER NOTICE**

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In relation to the disclosure of visual information/estimates, Sovereign cautions that the images displayed are for general illustrative purposes only, and that the samples displayed, and visual methods of mineralisation identification and estimation of mineral abundance should not be considered as a proxy or substitute for laboratory analysis. Laboratory analysis would be required for the grades of mineralisation. Visual information also potentially provides no information regarding impurities or deleterious physical properties relevant to valuations.

#### FORWARD LOOKING STATEMENT

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#### COMPETENT PERSONS STATEMENT

The information in this presentation that relates to Production Targets, Ore Reserves, Processing, Infrastructure, Capital and Operating Costs and Marketing (rutile and graphite) is extracted from an announcement dated 22 January 2025, which is available to view at www.sovereignmetals.com.au. Sovereign confirms that: a) it is not aware of any new information or data that materially affects the information included in the original announcement; b) all material assumptions and technical parameters underpinning the Production Target, and related forecast financial information derived from the Production Target included in the original announcement continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in this presentation have not been materially modified from the original announcement.

The information in this presentation that relates to the Exploration Results (metallurgy - rutile and graphite) is extracted from announcements dated 8 May 2024, 15 May 2024, 4 September 2024, 21 November 2024 19 February 2025 and 26 February 2025, which are available to view at www.sovereignmetals.com.au. Sovereign confirms that a) it is not aware of any new information or data that materially affects the information included in the original announcement; b) all material assumptions included in the original announcement continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in this report have not been materially changed from the original announcements.

The information in this presentation that relates to the Mineral Resource Estimate is extracted from Sovereign's 2024 Annual Report and is based on, and fairly represents information compiled by Mr Richard Stockwell, a Competent Person, who is a fellow of the Australian Institute of Geoscientists (AIG). Mr Stockwell is a principal of Placer Consulting Pty Ltd, an independent consulting company. Sovereign confirms that a) it is not aware of any new information or data that materially affects the information included in the original announcement; b) all material assumptions included in the 2024 Annual Report continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in 2024 Annual Report have not been materially changed from the disclosure in the 2024 Annual Report.

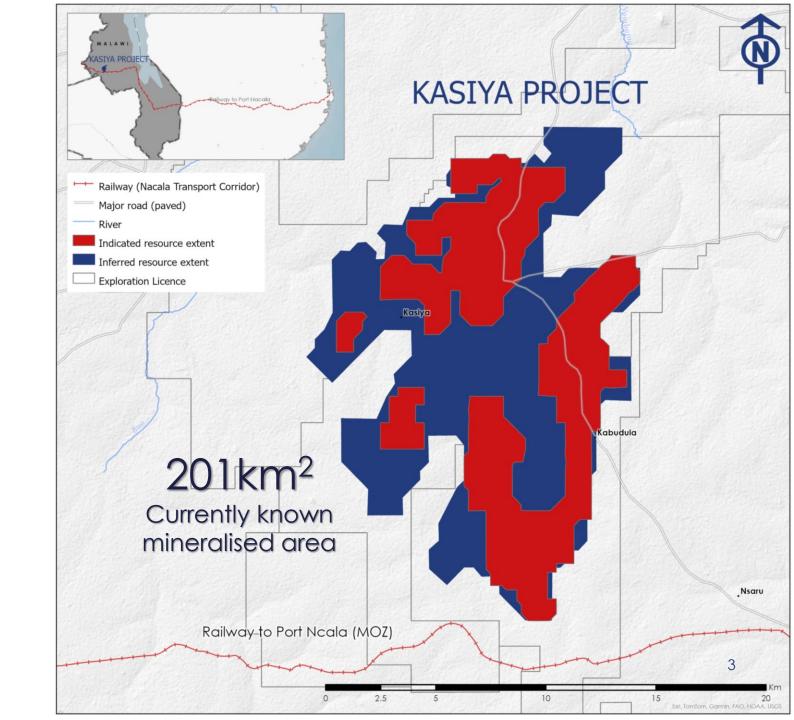
### **KASIYA PROJECT**

World's Largest Known Rutile Resource 17.9<sub>Mt</sub> Contained Rutile

2<sup>nd</sup> Largest Known Flake Graphite Resource

> **24.4**<sub>Mt</sub> Contained Graphite

- Kasiya is a primary rutile project
- Only known deposit where graphite is a by-product
- Rio Tinto is a 19.9%
  Strategic Investor



Mineral Resource Estimate in accordance with JORC 2012; see Appendix 4

## WEATHERED GEOLOGY DRIVES ADVANTAGES

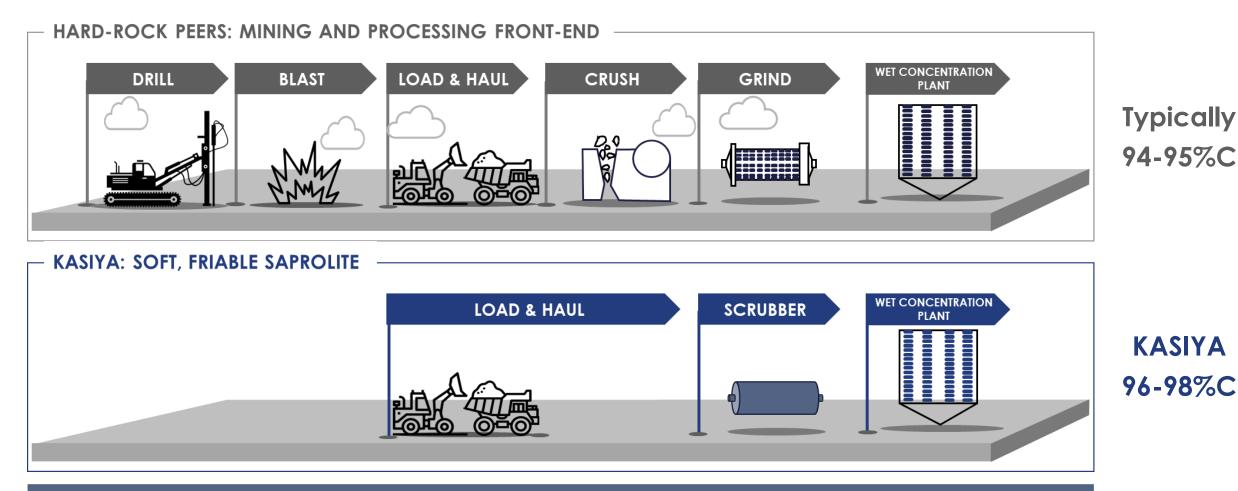




1. Saprolite ore includes FERP, MOTT, PSAP, and SAPL zones

2. Refer to Sovereign ASX Announcement dated 4 September 2024 titled "Outstanding Battery Anode Material Produced From Kasiya Graphite"

## SIMPLER PROCESSING DRIVES COMMERCIAL ADVANTAGES



Less intensive processing preserves flake size, resulting in a higher proportion of valuable medium and coarse flakes while also yielding a higher %C concentrate

### WEATHERED ORE YIELDS HIGHER VALUE GRAPHITE



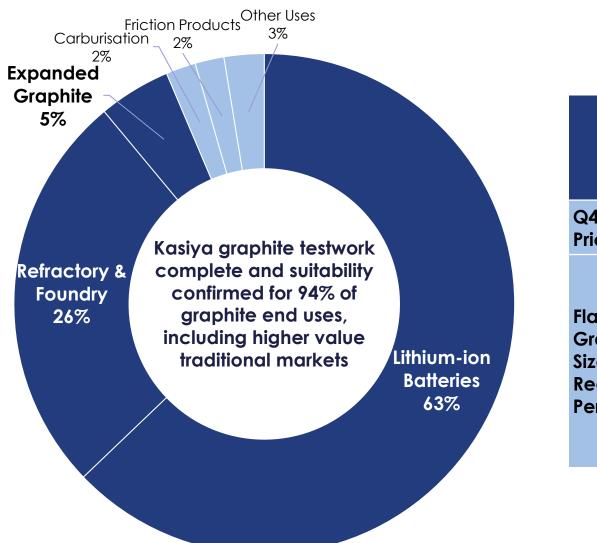
Project		SOVEREIGN METALS (OPFS)	Etablissements Gallois Largest Private Producer ex- China	Syrah Resources Largest Listed Global Producer	Northern Graphite Corp North American Producer	Mineral Commodities Largest European Producer	Larger flake size attracts significantly higher prices than small flake size and has different
		<b>KASIYA</b> Malawi	<b>Gallois</b> Madagascar	<b>Balama</b> Mozambique	<b>Lac Des lles</b> Canada	<b>Traelen</b> Norway	end-use markets
Ore Type		Weathered	Weathered	Transition/ Fresh Rock	Fresh Rock	Fresh Rock	Q4 2024 Prices (Benchmark)
	Large - Jumbo (+80 Mesh)	57%	70%	11%	37%	35%	US\$1,140 – 1,193/t
Flake Size Distribution	<b>Medium</b> (+100 Mesh)	12%	20%	-	18%	-	US\$860/t
	<b>Small</b> (-100 Mesh)	32%	10%	89%	45%	65%	US\$564/t

Source: Sovereign Metals; flake size distributions for peers are from Benchmark Mineral Intelligence

Prices are December 2024 94-95% C, FOB China prices as per Benchmark Mineral Intelligence except for Small (-100 Mesh) for which Syrah Resources Limited reported a Q4 2024 price for smaller flake graphite concentrate to be used for battery anode production of US\$564 per tonne (CIF) based on third-party sales

## **KASIYA GRAPHITE SUITABLE FOR ALL MAJOR END-USE MARKETS**





-	nd Uses of Graphite	Refractories	Expanded/ Expandables	Batteries
Q4 2024 Flake Graphite Price (US\$/t)		Up to 1,193	Up to 1,193	564
Flake	Large - Jumbo (+80 Mesh)	$\checkmark$	~	
Graphite Size Required Per End Use	<b>Medium</b> (+100 Mesh)	$\checkmark$	~	
	<b>Small</b> (-100 Mesh)		$\checkmark$	$\checkmark$

Source: Sovereign Metals; share of global natural graphite market as per Benchmark Mineral Intelligence Prices are December 2024 94-95% C, FOB China prices as per Benchmark Mineral Intelligence except for Small (-100 Mesh) for which Syrah Resources Limited reported a Q4 2024 price for smaller flake graphite concentrate to be used for battery anode production of US\$564 per tonne (CIF) based on third-party sales Other Uses includes: Lubricants (1%), Carbon Brushes (<1%)

## **DEVELOPMENTS SINCE 2023 RIO TINTO STRATEGIC INVESTMENT**

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### OPFS RESULTS INFORMED BY PILOT PHASE CONDUCTED WITH OVERSIGHT FROM SOVEREIGN-RIO TECHNICAL COMMITTEE



6 Months<br/>Trial Program10 Hectares<br/>Pilot Site170,000m³<br/>Material Mined

 $\Box$ 

## **OPTIMISED PFS – EXCEPTIONAL RESULTS**

		OPFS Results Jan 25
NPV 8% (Pre-tax)	US\$M	2,322
IRR	%	27
Ave. Annual EBITDA	US\$M	409
EBITDA Margin	%	64
Capex to 1 <sup>st</sup> Production	US\$M	665
Steady State Rutile Prod. (Ave)	ktpa	246
Steady State Graphite Prod. (Ave)	ktpa	265
Operating Cost	US\$/t	423
Graphite Incremental Cost of Production*	US\$/t	241

#### \*Graphite Incremental Cost of Production:

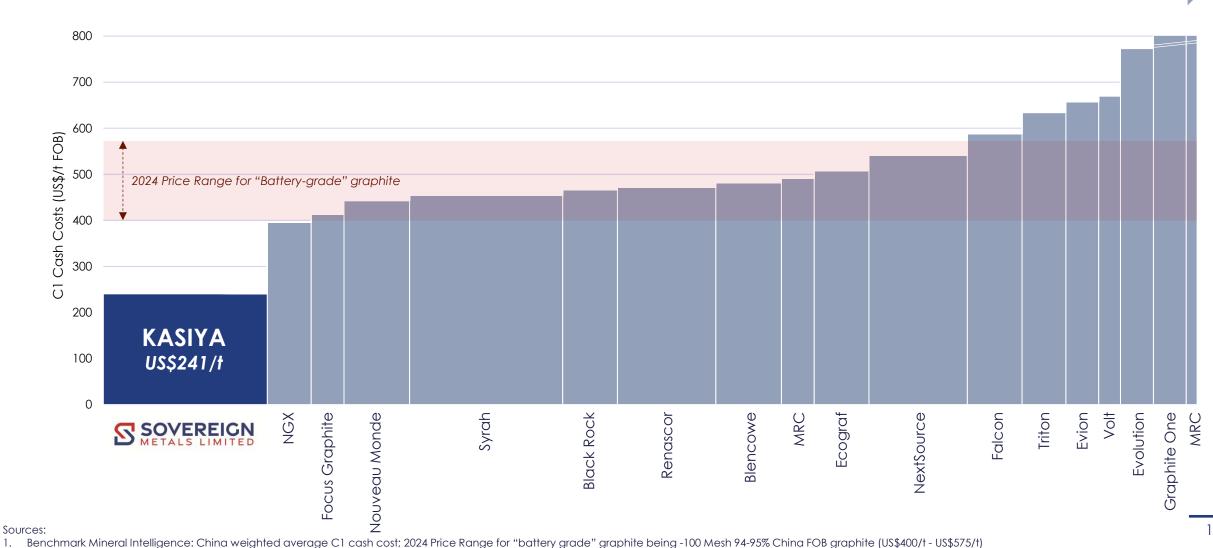
The cost to produce and transport one tonne of graphite concentrate to port, calculated after deducting the portion of total production costs allocated to rutile.

#### Source: Sovereign Metals

All cashflows and costs are presented in US\$ real January 2025 terms unless otherwise stated. Total Revenue includes revenue from processing and sales of graphite in two years post-cessation of active ore mining. Total Revenue during the 25 LOM is US\$15,990 million. Operating costs exclude mineral royalties and community development support costs. Free Cash Flow includes free cash flows in development stage and excludes free cash flows from processing and sale of graphite for two years post-mining. Long term graphite Basket price assumed – US\$1290/t - Rutile received price (95% TiO2) US\$1490/t). Incremental cost of graphite production includes only costs incurred on top of primary rutile production to produce an incremental tonne from the process plant and transport the graphite to market. Unit cost of rutile production under this scenario would be US\$628/t (FOB Nacala)).

### NATURAL GRAPHITE COST CURVE EX-CHINA (PFS Stage or Later) $\overline{\mathcal{S}}$

Cumulative Production = 1.7Mtpa



2. S&P Global Market Intelligence; Cumulative Demand; China graphite production

1.

For all company specific C1 cash costs and production figures, project information and sources, see Appendix 2 3.

## NATURAL GRAPHITE – CHALLENGING INDUSTRY DYNAMICS

### Graphite Is Not Scarce

- 2023 natural graphite demand: **1.6Mt**
- Known global resources: >800Mt
- Enough resources for **500** years of supply

### Opaque Pricing and Markets

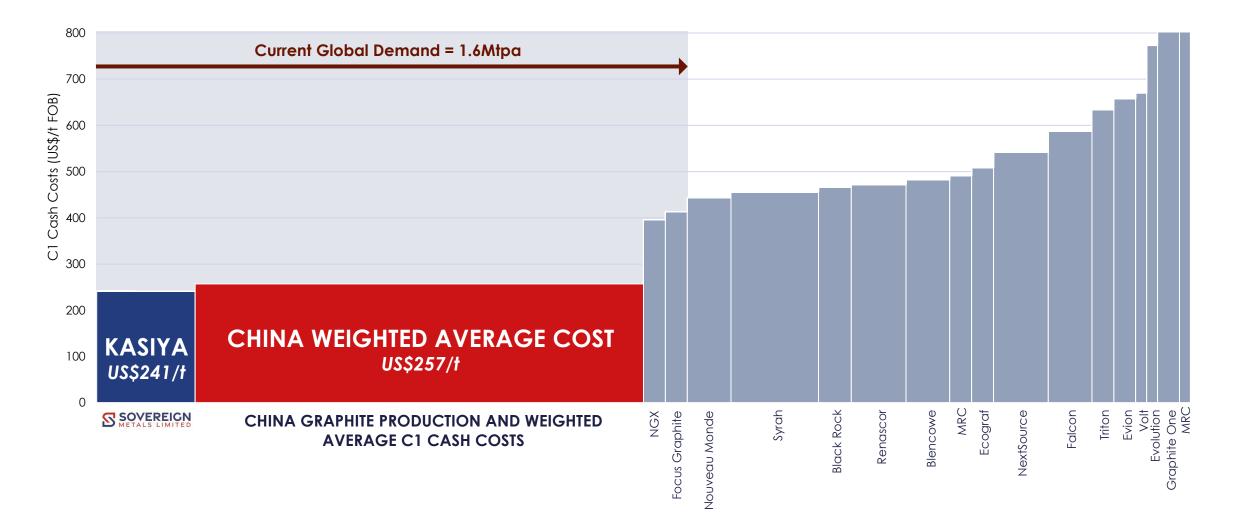
- No terminal market / widely varying specs
- Challenge to secure development finance

### China Dominates Low-Cost Production

- China produces ~1.2Mtpa i.e., ~75% global supply
- Average Chinese production cost of US\$257/t

REST OF WORLD CAN'T COMPETE WITH CHINA C1 COST OF US\$257/t

### **REAL NATURAL GRAPHITE COST CURVE (incl. CHINA)**



Sources:

1. Benchmark Mineral Intelligence: China weighted average C1 cash cost

2. S&P Global Market Intelligence; Cumulative Demand; China graphite production

3. For all company specific C1 cash costs and production figures, project information and sources, see Appendix 2

## **KASIYA – A WORLD CLASS MINING PROJECT**



- Other companies need to go downstream to capture margin and make a return on investment
- Sovereign Metals is a mining company NOT a chemistry company no requirement to move downstream to battery anode production
- Kasiya will potentially compete with low-cost Chinese production even in today's market

**GRAPHITE COMPANIES WITH DOWNSTREAM STRATEGIES** Blencowe Resources EcoGraf **Evion Group Evolution Energy Minerals** Falcon Energy Materials Graphite One International Graphite Mineral Commodities Nextsource Materials Northern Graphite Nouveau Monde Graphite Renascor Resources Syrah Resources Talga Group Volt Resources

### **KASIYA GRAPHITE – CONCLUSIONS**

- Kasiya is a primary rutile project only known project where graphite is a by-product
- Blue-chip major as strategic investor Rio Tinto
- Potentially largest and lowest cost graphite producer globally
  - Up to 265ktpa at US\$241/t
- High quality, high value graphite basket due to weathered geology
  - 96-98% C graphite concentrate with very low sulphur levels
  - 68% higher value medium/ large/ jumbo flakes
- Test work demonstrates Kasiya graphite suitable for all major end-use markets
- Rapidly progressing with Kasiya DFS due Q4 2025



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# APPENDICES

### APPENDIX 1: KASIYA GRAPHITE PRODUCES OUTSTANDING ANODE MATERIAL

Graphite ( (Kasiya	te	Spherica	l Purified Grap (SPG)	ohite	Coated SPG (CSPG: Anode Material)	
High-grade c 96.5-97 Low imp <0.02	2		t <b>ional purificat</b> 99.99% Standard >99.95%		Very low BET <sup>1</sup> ≤2.0m <sup>2</sup> /g Excellent Tap Densities 1.11-1.18g/cm <sup>3</sup>	
Electrochemical Results      First Cycle Efficiency    %		Kasiya CS	PG Sample	BTR's Leadi		
		1	2	GSN 17	LSG 17	
		95.8	94.2	≥95	≥94	Anode material produced from Sovereign's graphite has performance characteristics
Initial Capacity	mAh/g	362	364	≥360	≥355	comparable to or better than the global leading battery anode producer, China's BTR.
D50 µm		17.5	17.3	17.0 +/- 1.5	17.0 +/- 1.5	BTR serves major lithium-ion battery manufacturers such as Panasonic, Samsung SDI,

Source: BTR anode material specs taken from this webpage: https://www.btrchina.com/en/NegativeProducts/info.aspx?itemid=1069 Kasiya CSPG Sample Results taken from Sovereign Metals' ASX Announcement dated 4 September 2024: "Outstanding Battery Anode Material Produced from Kasiya Graphite" (https://api.investi.com.au/api/announcements/svm/cb286477-d1c.pdf)

LG, SK On, CATL, and BYD. BTR's 160,000 tonne battery anode facility in Indonesia, is the largest anode production plant outside China. BTR is also building a 60,000 tonne anode facility in Morocco.

### APPENDIX 2: KASIYA GRAPHITE SUITABLE FOR USE IN HIGHER VALUE TRADITIONAL MARKETS





**ASX Announcement** 

19 | Feb | 2025

### **KASIYA'S GRAPHITE SUITABLE FOR REFRACTORY USE**

- Kasiya graphite concentrate confirmed to meet or exceed all critical characteristics required for refractory applications
- Refractories market is the second largest end-user of natural graphite (24%) after batteries sector (52%)
- Refractories use coarser (larger) flake graphite products, which typically attract a premium over smaller flake-size products used in the batteries sector
- In Q4 2024, graphite usable in refractories achieved prices up to US\$1,193/t versus smaller flake graphite used in the batteries sector, which sold for US\$564/t
- Kasiya's incremental cost of graphite production per the recently announced Optimised Prefeasibility results is US\$241/t (FOB)
- Leading German laboratories ProGraphite and Dorfner Anzaplan completed a comprehensive testwork program of Kasiya's graphite concentrate
- Results will be used for customer engagement and potential offtake discussions
- Previous testwork has already confirmed that Kasiya's graphite can produce
  outstanding battery anode material

SOVEREICN METALS LIMITED **ASX Announcement** 

26 | Feb | 2025

### KASIYA'S GRAPHITE SUITABLE FOR EXPANDABLE/EXPANDED GRAPHITE MARKETS

- Medium to coarse Kasiya graphite concentrate (>150 microns to >300 microns) has met or exceeded the key specifications required for use as expandable graphite in flame retardants and as expanded graphite in gaskets, seals and brake linings.
- Demand for natural graphite in the expandable and expanded market is approaching 100,000 tonnes per year and is growing at 6%-8% CAGR.<sup>1</sup>
- According to Benchmark Mineral Intelligence, 94-95% graphite concentrate usable in the expandable and expanded markets was priced at US\$1,140/t (FOB) in December 2024.
- Overall test work to date demonstrates that Kasiya graphite is suitable for use in the three key segments that account for over 94% of the ~1.6Mtpa global demand for natural flake graphite-battery anodes, refractories and expanded/expandables.<sup>2</sup>
- Sovereign intends to produce a 96% graphite concentrate at an incremental cost of US\$241/t (FOB) per the recently announced Kasiya Optimised Prefeasibility results.
- Results will be used for customer engagement and potential offtake discussions.

### APPENDIX 3: FLAKE GRAPHITE OPERATING COST INFORMATION (SLIDES 11 AND 13)

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Company	Project	Stage of Development	C1 Cash Costs (FOB) US\$/t	Steady State Production Tpa	Current Production tpa	Notes	Source
Black Rock Mining	Mahenge	Financing post DFS	466	89,000	-	Operating costs are for first 10 years therefore prodcution of first 10 years only shown	Company Announcement: Black Rock Completes FEED and eDFS Update (10 October 2022)
Blencowe Resources	Orom-Cross	PFS Complete	482	101,000	-	-	Company Announcement: Major Milestone as Blencowe Delivers US\$482M NPV Pre-Feasibility Study for Orom-Cross Graphite Project (19 July 2022)
Ecograf	Epanko	BFS Complete	508	73,000	-	-	Updated Epanko Ore Reserve (25 July 2024) Epanko Pre-Development Program Delivers Outstanding Results (28 April 2023)
Evion	Maniry	DFS Complete	657	56,400	-	Production of 56.4ktpa is from year 4. Years 1-3 production is 39ktpa	BlackEarth Minerals Maniry Graphite Project Definitive Feasibility Study (3 November 2022)
Evolution Energy	Chilalo	DFS Complete	773	52,000	-	Operating costs are for first 9 years of produciton	capex and development-ready graphite project (20 March 2023)
Falcon Energy Materials	Lola	Updated DFS Complete	588	92,435	-	-	SEDAR Filing: Lola Graphite Project NI 43-101 Technical Report - Updated Feasibility Study (7 April 2023)
Focus Graphite	Lac Knife	FS Complete	413	50,000	-	Converted from Canadian Dollars to US Dollars based on exchange rate used in source document of 1.00 CAD / 0.736 USD	Company Announcement: NI 43-101 Technical Report – Feasibility Study Update Lac Knife Graphite Project Québec, Canada (14 April 2023)
Graphite One	Graphite Creek	PFS Complete	1,394	51,813	-	Production and costs relate to Graphite Creek Mine and not the proposed graphite manufacturing facility	Company Announcement: Graphite One Advances its United States Graphite Supply Chain Solution Demonstrating a Pre-tax USD\$1.9B NPV (8%), 26.0% IRR and 4.6 Year Payback on its Integrated Project (29 August 2022)
Mineral Commodities (MRC)	Skaaland	Production	1,434	10,000	10,000	Production based on annual operating target, costs based on latest reported numbers for September 2024	Quarterly Activities Report: September 2024
Mineral Commodities (MRC)	Munglinup	DFS Complete	491	54,000	-		Company Announcement: Robust Munglinup DFS Results Allow MRC to Move to 90% Ownership of Munglinup Graphite Project (8 January 2020)
NextSource Materials	Molo	Construction	541	1 <i>50,</i> 000	-	Figures relate to Molo expansion case. Operating Costs are US\$392.59/t Minesite Operating Cost plus Selling Cost of US\$148.80	Company Announcement: Nextsource Materials announces robust feasibility study results for Molo Mine expansion to 150,000 tonnes per annum of Superflake® graphite concentrate (12 December 2023)

### APPENDIX 3 CONTINUED: FLAKE GRAPHITE OPERATING COST INFORMATION (SLIDES 11 AND 13)

Company	Project	Stage of Development	C1 Cash Costs (FOB) US\$/t	Steady State Production Tpa	Current Production tpa	Notes	Source
NGX	Malingunde	PFS Complete	396	52,000	-	-	Company Presentation: Clean Energy Minerals in Africa (August 2024)
Nouveau Monde Graphite	Matawinie	Construction	443	103,328	-	Exchange rate used as per technical report	Technical Report: Feasibility Study for the Matawinie Property
Renascor	Siviour	DFS Complete	472	150,000	-		Company Announcement: Siviour Battery Anode Material Study Results (8 August 2023)
Syrah Resources	Balama	Production	455	240,000	-	Production based on Company guidance of 20kt per month production rate. Operating costs based on midpoint of Balama C1 cost (FOB Nacala/Pemba) medium-term guidance of US\$430-480 per tonne.	Company Quarterly Activities Report September 2024 (30 October 2024)
Triton	Ancuabe	DFS Complete	634	60,000	-	2023 updates to DFS do not include updated costs and base case production figures. On 9th December 2024, Triton Minerals announced that i had executed a Share Sale and Purchase Agreement with Shandong Yulong Gold Limited for the sale of at least 70% of its interests in the entities that hold the Ancuabe Graphite Project	t Company Announcement: Triton Delivers Robust Ancuabe Definitive Feasibility Study and Declares Maiden Ore Reserve (15 December 2017)
Volt Resources	Bunyu	Stage 1 FS Complete	670	24,780	-	Relates to stage 1 development which has had a feasibility study completed	Company Announcement: Feasibility Study Update for Bunyu Graphite Project Stage 1, Tanzania, delivers significantly improved economics (14 August 2023)

Notes:

- 1. Blencowe Resources C1 cash costs calculated as US\$499/t operating costs (FOB) less US\$17/t royalties as disclosed in the source above
- 2. South Star Battery Metals Corp.'s Santa Cruz mine not included as FOB costs not disclosed. For reference, operating costs are disclosed as US4396/t from source: Technical Report: Updated Resources and Reserves Assessment and Pre-feasibility Study (18 March 2020)
- 3. Magnis not included while shares are suspended by the ASX in December 2023
- 4. Walkabout's Lindi Project not included following appointment of voluntary administrators and Receivers in November 2024
- 5. Leading Edge Materials Woxna Graphite not included as it is currently under care and maintenance
- 6. Northern Graphite's Lac des lles not included due to recent maintenance
- 7. Talga Group not shown as latest technical study based on integrated anode plant strategy
- 8. Tirupati Graphite not included due to lack of relevant disclosure

### **APPENDIX 4: KASIYA MINERAL RESOURCE**

Kasiya Miner	Kasiya Mineral Resource Estimate at 0.7% Rutile Cut-off (inclusive of Ore Reserves)									
Mineral Category	Resource	Tonnes (Mt)	Rutile Grade (%)	Contained Rutile (Mt)	Graphite Grade (TGC, %)	Contained Graphite (Mt)				
Indicated		1,200	1.0%	12.2	1.5%	18.0				
Inferred		609	0.9%	5.7	1.1%	6.5				
Total		1,809	1.0%	17.9	1.4%	24.4				

Ore Reserves for the Kasiya Deposit									
Classification	Tonnes (Mt)	Rutile Grade (%)	Contained Rutile (Mt)	Graphite Grade (TGC, %)	Contained Graphite (Mt)				
Proved	-	-	-	-	-				
Probable	538	1.03%	5.5	1.66%	8.9				
Total	538	1.03%	5.5	1.66%	8.9				