



OPTIMISED PFS OUTCOMES

FEBRUARY 2025

ASX: SVM | AIM: SVML | OTCQX:SVMLF

ABN: 71 120 833 427

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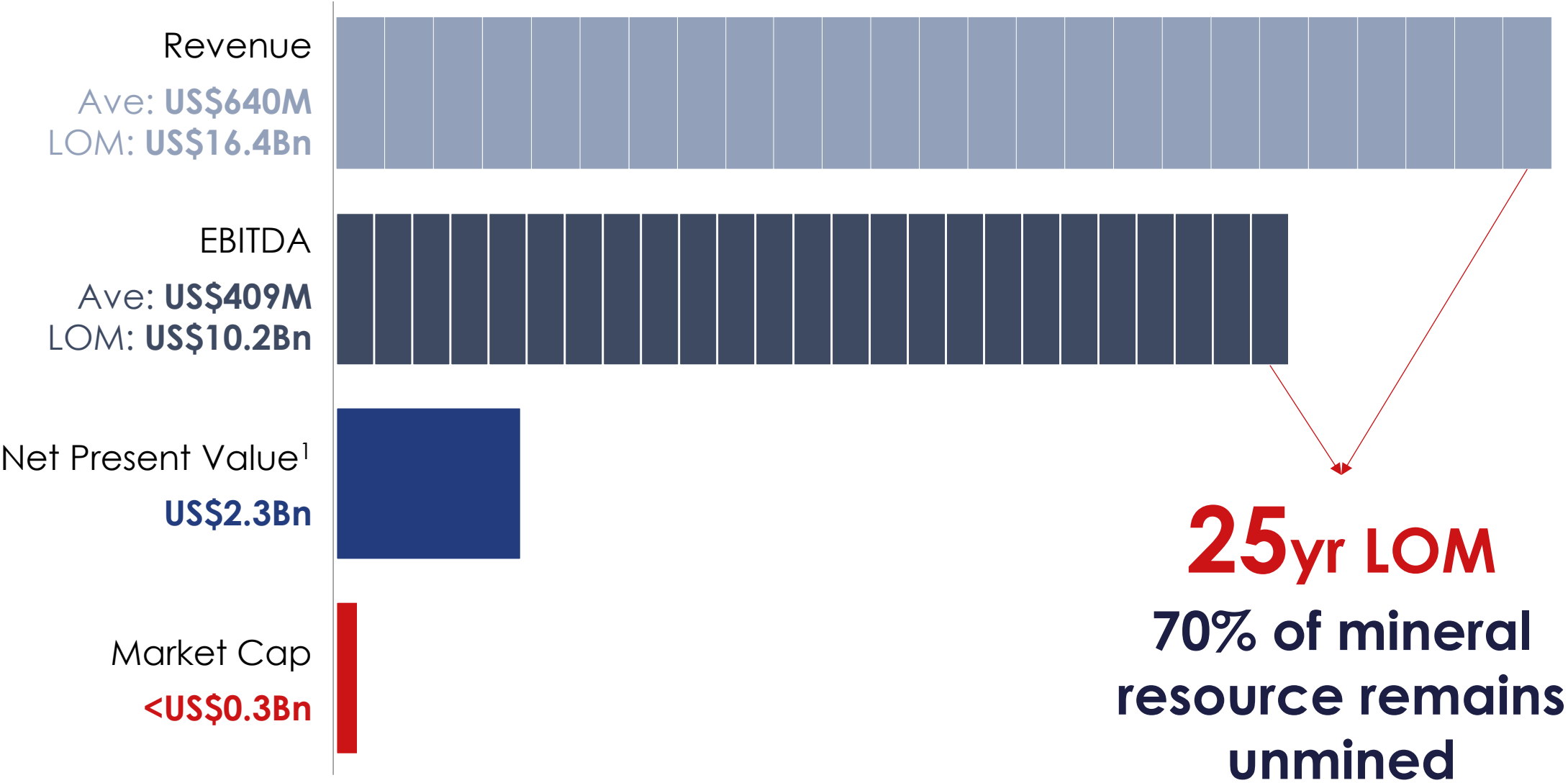
COMPETENT PERSONS STATEMENT

The information in this presentation that relates to Production Targets, Ore Reserves, Processing, Infrastructure and Capital and Operating Costs 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 and 21 November 2024, 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 announcements; b) all material assumptions included in the original announcements 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.

A GENUINE TIER 1 MINING PROJECT



Source: Sovereign Metals; market capitalisation as at 24th January 2025
1. Pre-tax NPV at 8% discount rate

OUR PROPOSITION IS SIMPLE

#1
LARGEST RUTILE
RESOURCE
GLOBALLY

#2
LARGEST GRAPHITE
RESOURCE
GLOBALLY

#1
POTENTIALLY
LARGEST
PRODUCER
GLOBALLY

#1
POTENTIALLY
LOWEST COST
PRODUCER
GLOBALLY

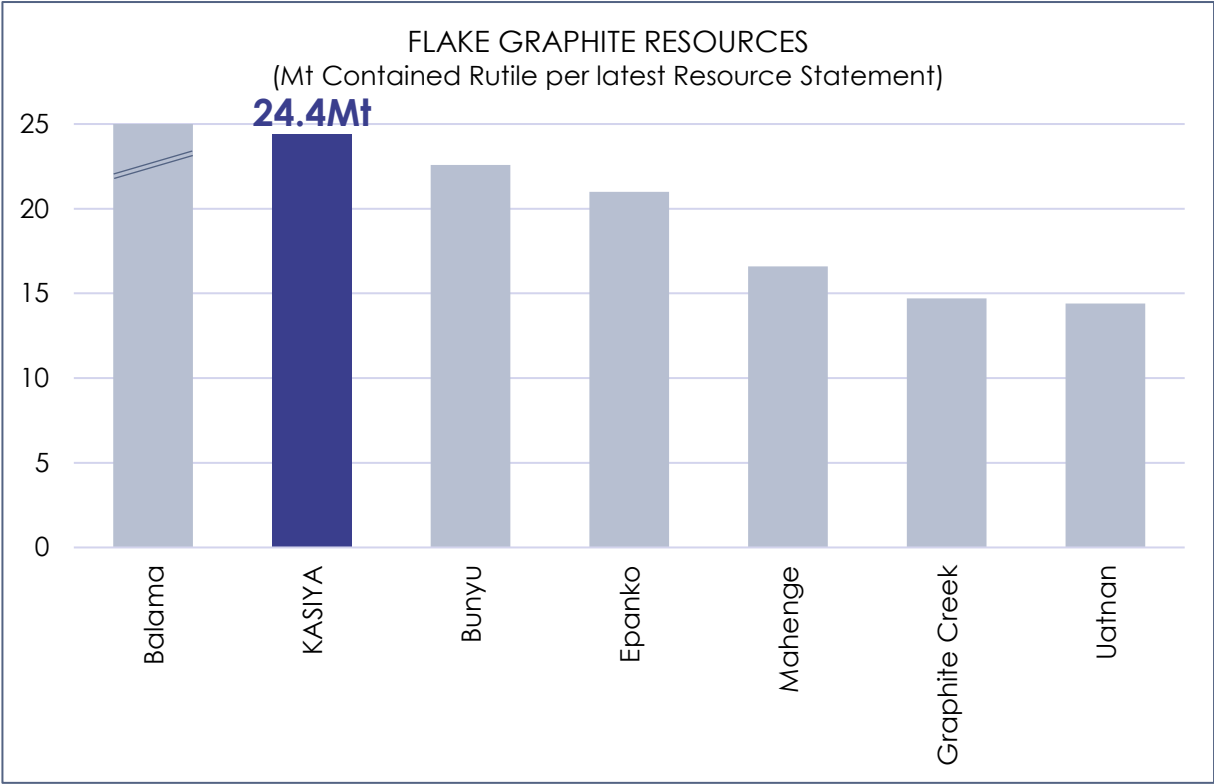
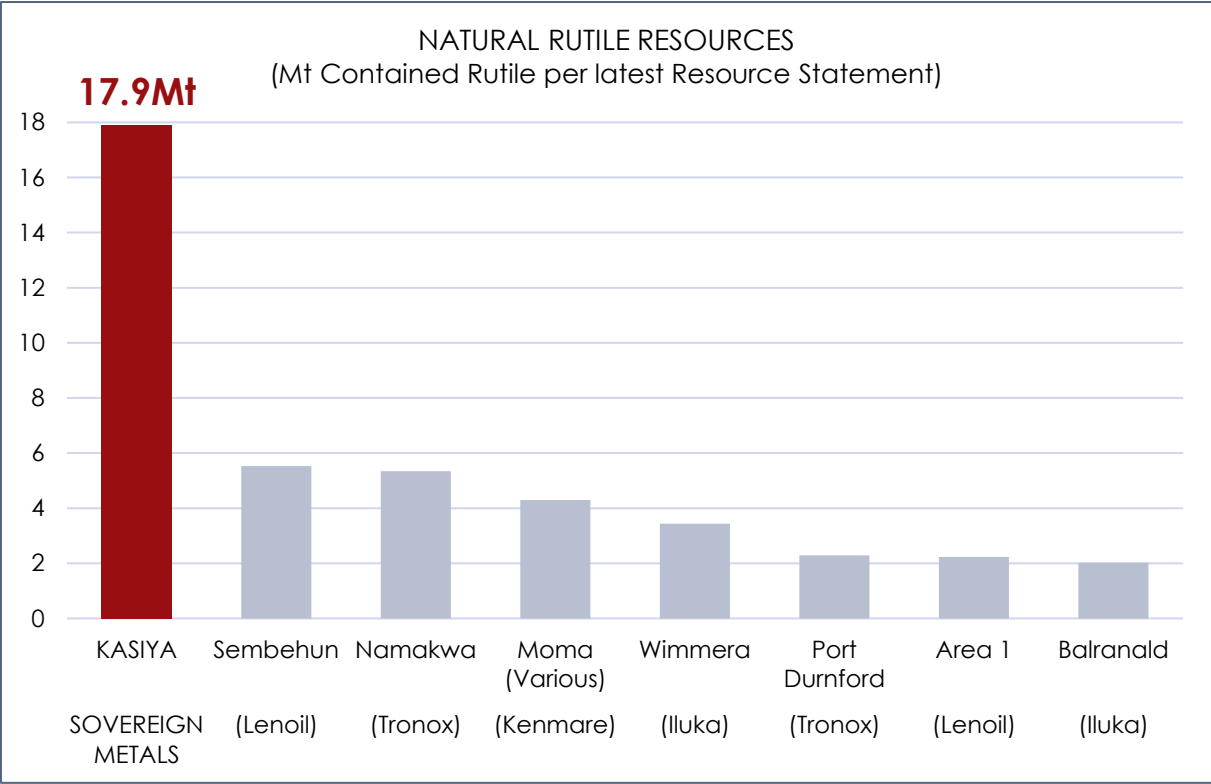
OUR PROJECT KASIYA IS GLOBALLY STRATEGIC



Titanium and Graphite are Critical and Strategic Minerals for the US, EU & NATO

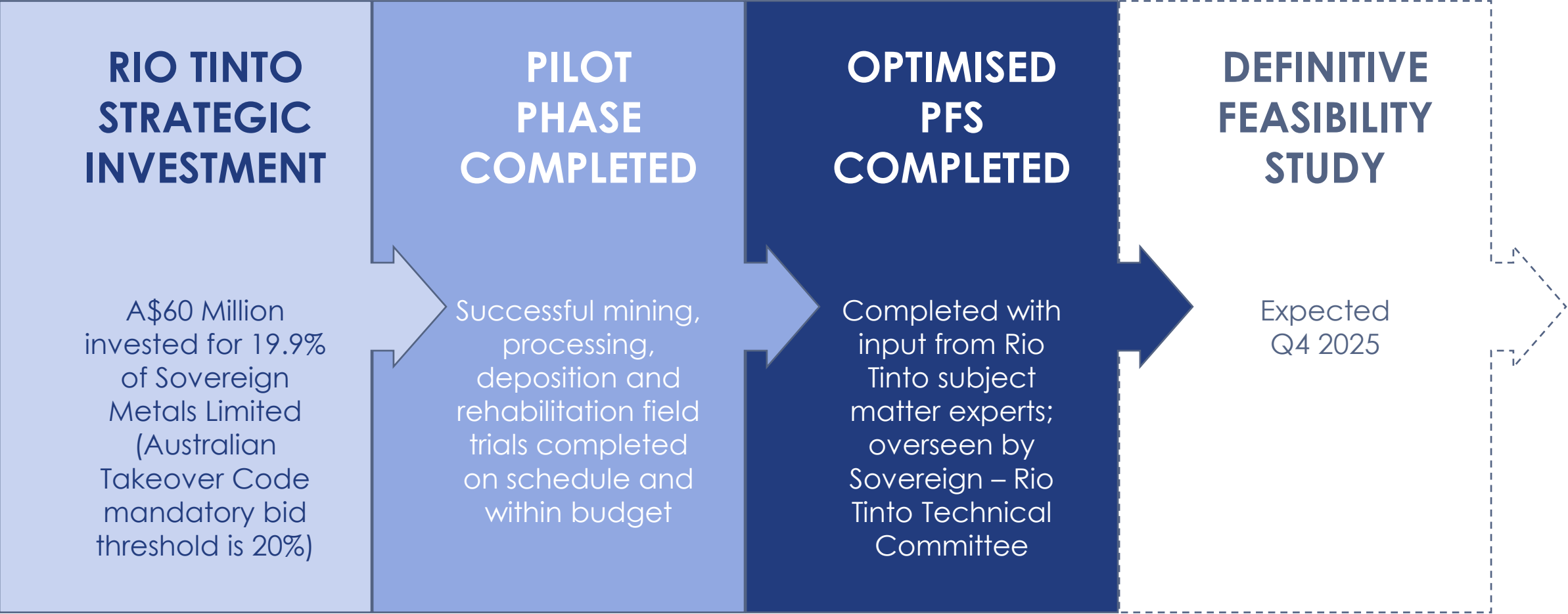
Kasiya is the world's largest natural rutile deposit

AND the world's second-largest natural flake graphite deposit



Source: Sovereign Metals; Company disclosures; see Appendices 1 to 3

RECENT DEVELOPMENTS



OPFS RESULTS INFORMED BY PILOT PHASE ACHIEVED IN CONJUNCTION WITH RIO TINTO



BEFORE



MINED



PROCESSED



REHABILITATED



6 Months

Trial Program

10 Hectares

Pilot Site

170,000m³

Material Mined

OPTIMISED PFS COMPLETED IN JANUARY 2025



SUPERIOR PROJECT DELIVERY, OPERATIONAL FLEXIBILITY, PERMITTING, ENVIRONMENTAL AND SOCIAL OUTCOMES

MINING METHOD

- Dry mining using draglines and trucks
 - Flexible operations
 - Increased safety
 - Lower cost

PLANT LOCATION

- Initial 12Mtpa South plant
- Additional 12Mtpa North plant in year 5
- Process plant front end : two scrubbers & screens
- No plant relocation required leading to lower LOM capex

TAILINGS & WATER

- TSF volumes reduced by 44%
 - Improved dewatering due to mud farming & flocculant
 - Improved TSF density due to optimized slimes/sand ratio
- 40% decrease in water requirement
- Reduction in volume of raw water dam wall volume from 0.79Mm³ to 0.57Mm³

POWER

- Hydro-sourced grid network only
- No requirement for IPP (solar)

OPTIMISED PFS – OPERATING OUTCOMES



Input from world-class consultancies, Sovereign's owner's team, and subject matter experts from Rio Tinto

OPFS reconfirms Kasiya's potential as leading global future supplier of strategic critical minerals outside of China

		OPFS Results Jan 25	2023 PFS Sep 23
Initial Mine Life	<i>Years</i>	25	25
Plant Throughput (Stage 1: Years 1-4)	<i>Mtpa</i>	12	12
Plant Throughput (Stage 2: Years 5-25)	<i>Mtpa</i>	24	24
Rutile Produced (Ave. Ann. Steady State)	<i>ktpa</i>	246	245
Graphite Produced (Ave. Ann. Steady State)	<i>ktpa</i>	265	288
Average rutile "received" price (95% TiO₂)	<i>US\$/t</i>	1,490	1,490
Average graphite basket price (96% TGC)	<i>US\$/t</i>	1,290	1,290

Source: Sovereign Metals

Note: Average annual rutile production over both Stage 1 and Stage 2 is 222ktpa; average annual graphite production over both Stage 1 and Stage 2 is 240ktpa. 292kt of graphite is processed and sold in two years post cessation of active ore mining (years 26 and 27); average graphite production including these years is 233ktpa

OPTIMISED PFS – EXCEPTIONAL ECONOMIC RETURNS



Kasiya is well positioned to become the lowest cost producer of both rutile and graphite

Economic outcomes relate to the 25-year mining operation; 70% of the known Mineral Resources remains after 25 years of mining

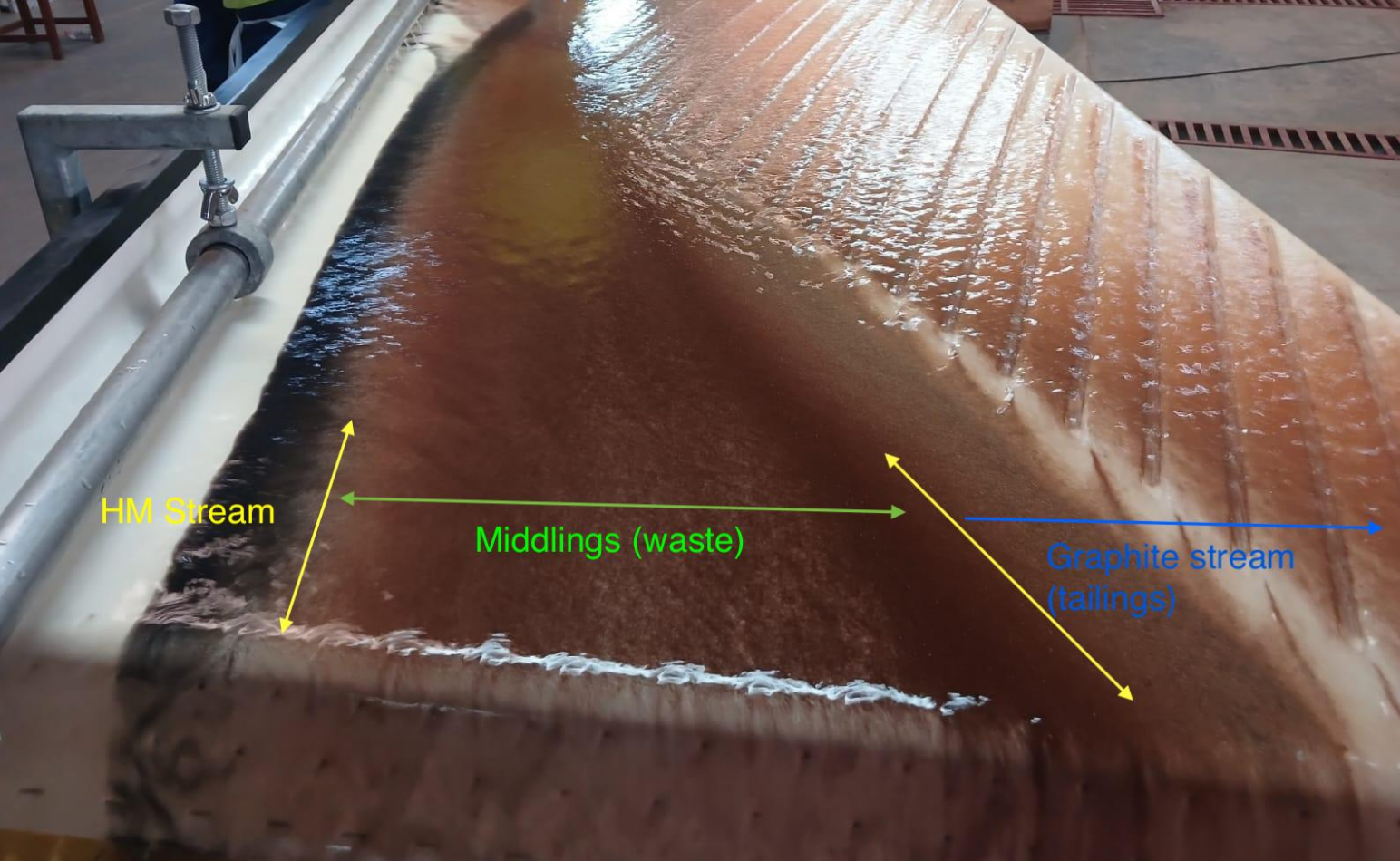
		OPFS Results Jan 25	2023 PFS Sep 23
NPV 8% (Pre-tax)	US\$M	2,322	2,419
IRR (Pre-tax)	%	27%	32%
Total Revenue	US\$M	16,367	16,121
Ave. Annual EBITDA	US\$M	409	415
EBITDA Margin	US\$M	64%	64%
Free Cash Flow (Pre-tax, ungeared)	US\$M	302	n/a
Operating Cost	US\$/t	423	404
Capex to 1st Production	US\$M	665	597

Source: Sovereign Metals; refer to ASX Announcement dated 22 January 2025: "Kasiya – Optimised PFS Results"

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



SIMPLE CONVENTIONAL MINING



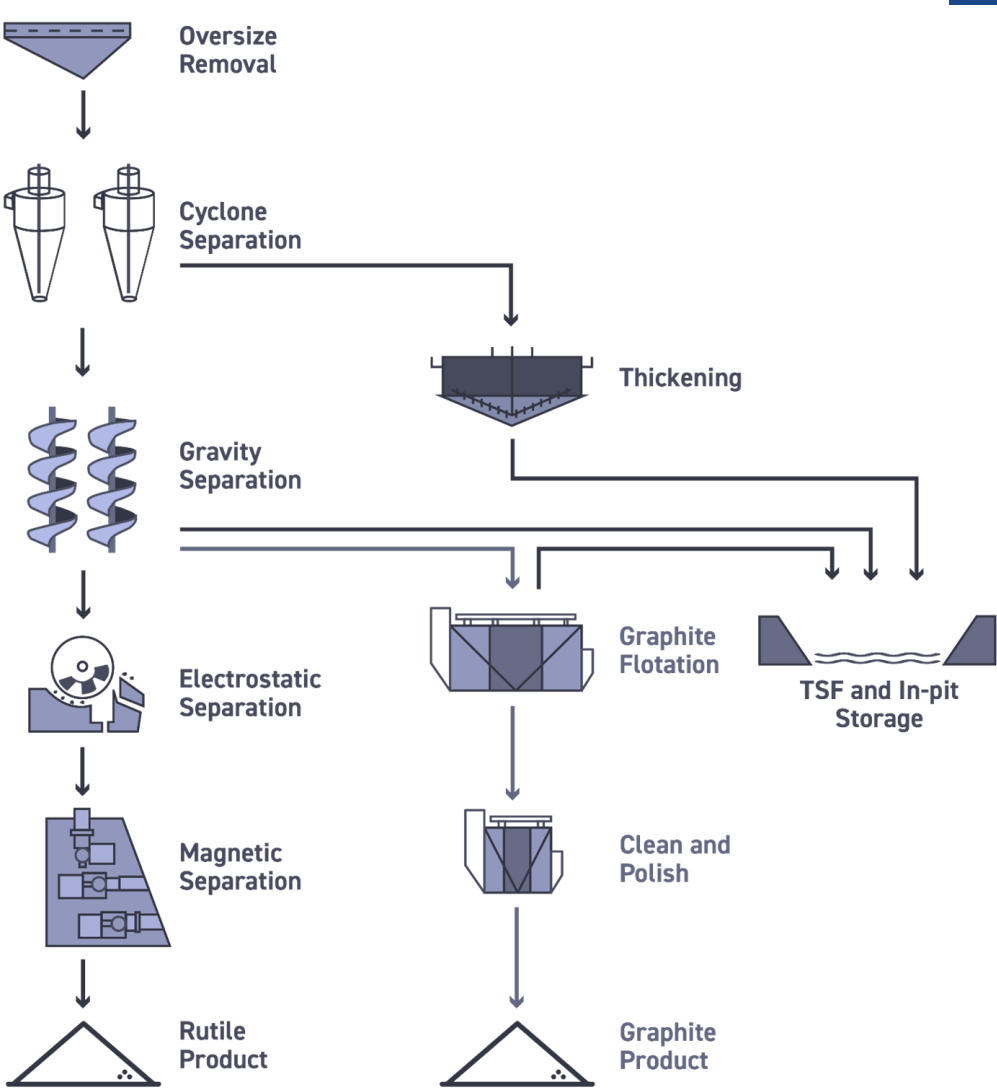
SIMPLE CONVENTIONAL PROCESSING

PREMIUM PRODUCTS AND METALLURGY



Kasiya Rutile Specification				
Constituent		Kasiya (Sovereign Metals)	Sierra Rutile* (Sierra Rutile Limited)	Kwale (Base Resources)
TiO ₂	%	95.7	96.3	96.2
ZrO ₂ +HfO ₂	%	0.18	0.78	0.72
SiO ₂	%	0.70	0.62	0.94
Fe ₂ O ₃	%	0.98	0.38	1.25
Al ₂ O ₃	%	0.44	0.31	0.23
Cr ₂ O ₃	%	0.10	0.19	0.17
V ₂ O ₅	%	0.58	0.58	0.52
Nb ₂ O ₅	%	0.37	0.15	-
P ₂ O ₅	%	0.018	0.01	0.00
MnO	%	0.007	0.01	0.03
MgO	%	0.001	0.01	0.10
CaO	%	0.011	0.01	0.04
S	%	0.005	<0.01	-
U+Th	ppm	30	26	53

Kasiya Graphite Specification				
Particle Size		Carbon (C ⁺ %)	Weight Distribution (% w/w)	Flake Category
Tyler Mesh	Micron (μ)			
+32	+500	97.1	5.6	Super Jumbo
-32 +48	-500 +300	96.4	24.2	Jumbo
-48 +80	-300 +180	96.7	27.1	Large
-80 +100	-180 +150	97.1	11.6	Medium
-100 +150	-150 +106	96.9	12.3	Small/Medium
-150 +200	-106 +75	98.2	7.7	Small
-200	-75	94.1	11.7	Amorphous
Total		96.5	100	



Source: Sovereign Metals; Sierra Rutile and Kwale data from the 2010 BGR Assessment Manual titled “Heavy Minerals of Economic Importance.”
*In 2024, Lenoil Company Limited acquired Sierra Rutile following a takeover offer.
Selected rutile product specification derived from bulk testwork on samples representing the first three years of mining, which is broadly representative of the overall Kasiya Ore Reserve. Energy Fuels Inc. acquired all the shares of Base Resources in October 2024. Selected graphite specification from bulk sample testwork from samples representing the first three years of mining which in general is also broadly representative of the +200 mesh products in the overall Kasiya Ore Reserve.



OPTIMISED TAILINGS MANAGEMENT & REHABILITATION

KASIYA'S GRAPHITE PRODUCES OUTSTANDING ANODE MATERIAL

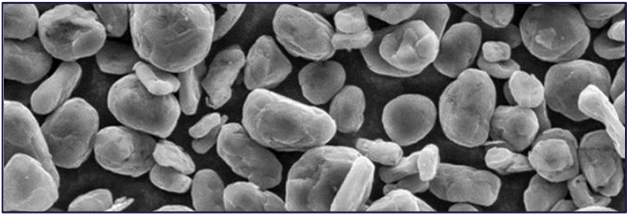
Kasiya graphite testwork to date 



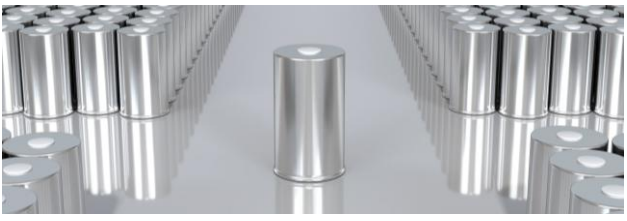
High-grade concentrate
96.5-97.9% TGC
Low impurities
<0.02% S



Conventional purification
99.99%
(China Standard <99.95%)



Very low BET¹
≤2.0m²/g
Excellent Tap Densities
1.11-1.18g/cm³



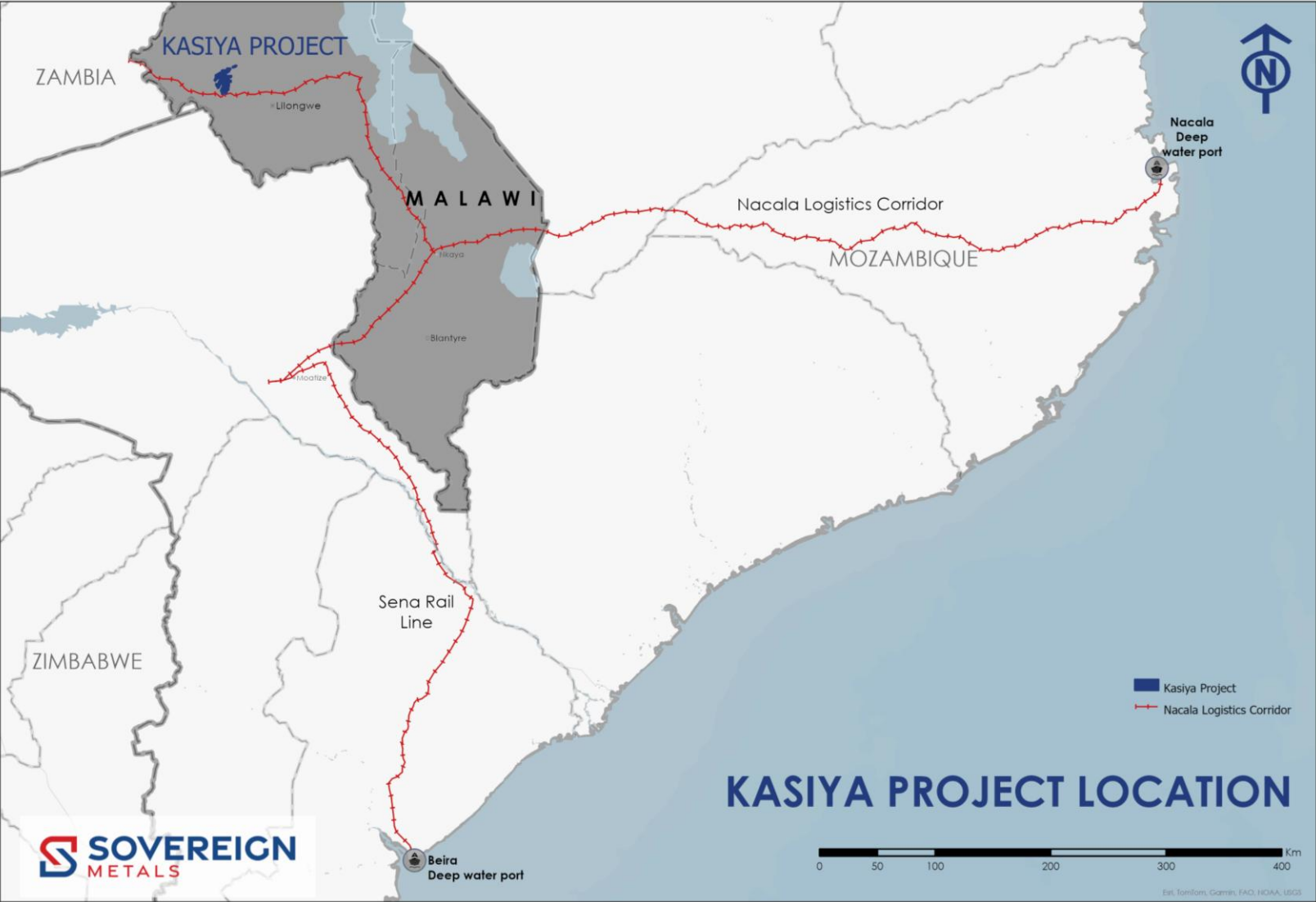
Electrochemical Results		Kasiya CSPG Sample		BTR's Leading Products	
		1	2	GSN 17	LSG 17
First Cycle Efficiency	%	95.8	94.2	≥95	≥94
Initial Capacity	mAh/g	362	364	≥360	≥355
D50	μm	17.5	17.3	17.0 +/- 1.5	17.0 +/- 1.5



Anode material produced from Sovereign's graphite has performance characteristics **comparable to or better than the global leading battery anode producer**, China's BTR

Source: Sovereign Metals; BTR New Material Group
1. 1. BET: Brunner-Emmett-Teller Theory used to measure material surface area

KASIYA IS CONNECTED TO THE GLOBAL MARKETS



RIO TINTO IS A 19.9% STRATEGIC INVESTOR IN SOVEREIGN AND A GLOBAL LEADER IN TiO_2 WITH 14% MARKET SHARE



MAJOR RIO TINTO TITANIUM OPERATIONS & PROJECTS

NORTH AMERICA

Sorel-Tracey (100%; Quebec) – TiO_2 slag (1.2Mtpa capacity)

Havre-Saint-Pierre (100%; Quebec) – Ilmenite

AFRICA

Richards Bay Minerals (74%; South Africa) – TiO_2 slag (1.2Mtpa capacity); Includes Zulti North which mines predominantly ilmenite

QMM (80%; Madagascar) – Ilmenite

KASIYA OPFS COMPLETED WITH OVERSIGHT FROM SOVEREIGN-RIO TINTO TECHNICAL COMMITTEE AND INPUT FROM VARIOUS RIO TINTO SUBJECT MATTER EXPERTS

2019-2023 Average

1.1 Mt

TiO_2 slag production

US\$587m

EBITDA

29%

EBITDA Margin

US\$239m

Free cash flow

RIO TINTO INVESTMENT AGREEMENT HIGHLIGHTS



INVESTMENT

Total of **\$60 million for 19.9%** of Sovereign Metals Limited
Australian Takeover Code mandatory bid threshold is 20%

TECHNICAL COMMITTEE

Technical Committee comprising 3 Rio Tinto + 3 Sovereign representatives
Sovereign holds Chairmanship and casting vote

RIO TINTO INVOLVEMENT

Complete: Optimised PFS, Mining Trial
In progress: DFS

OTHER CONDITIONS

Funding: Co-operation on mine construction funding package
Product: Co-operation on graphite qualification with focus on battery anode market
Rio Tinto Rights: ROFR on equity funding; offtake restrictions; Board nominee / observer

INVESTOR END DATE

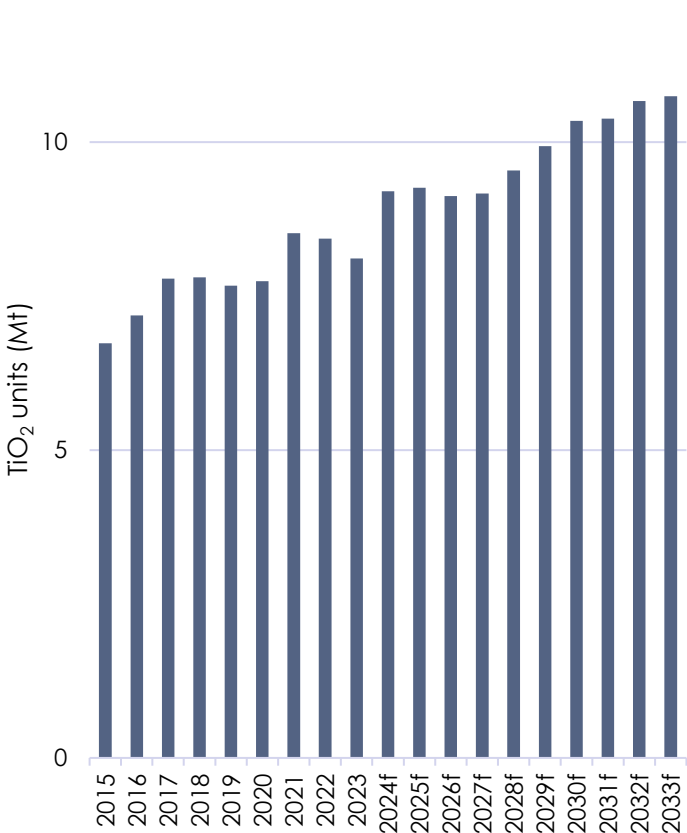
Investment Agreement (and Investor Rights) falls away 180 days post announcement of a DFS (in accordance with JORC) by Sovereign

RUTILE SUPPLY DECLINES WHILE TITANIUM DEMAND INCREASES



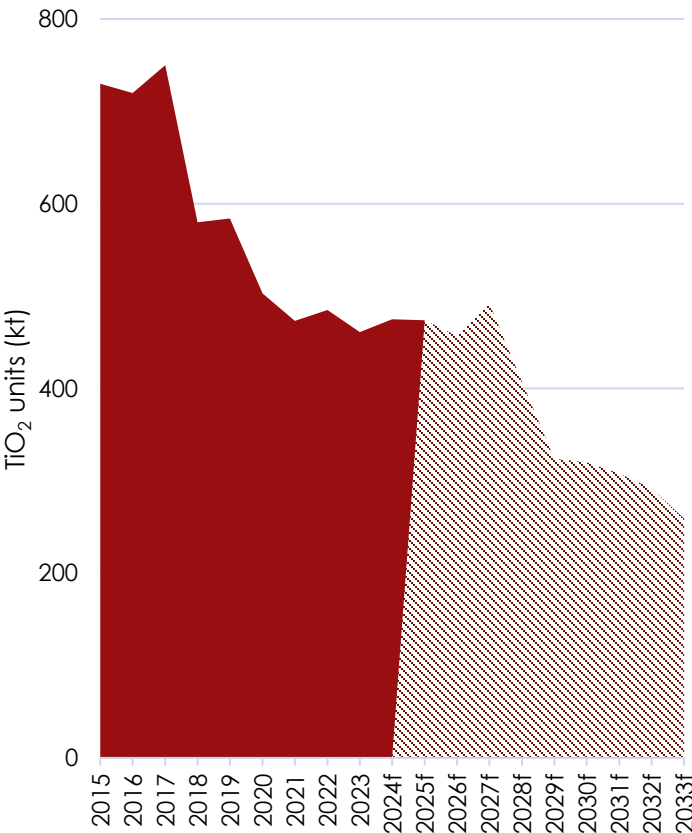
TITANIUM DEMAND INCREASING

TITANIUM FEEDSTOCK DEMAND
(Source: TZMI)



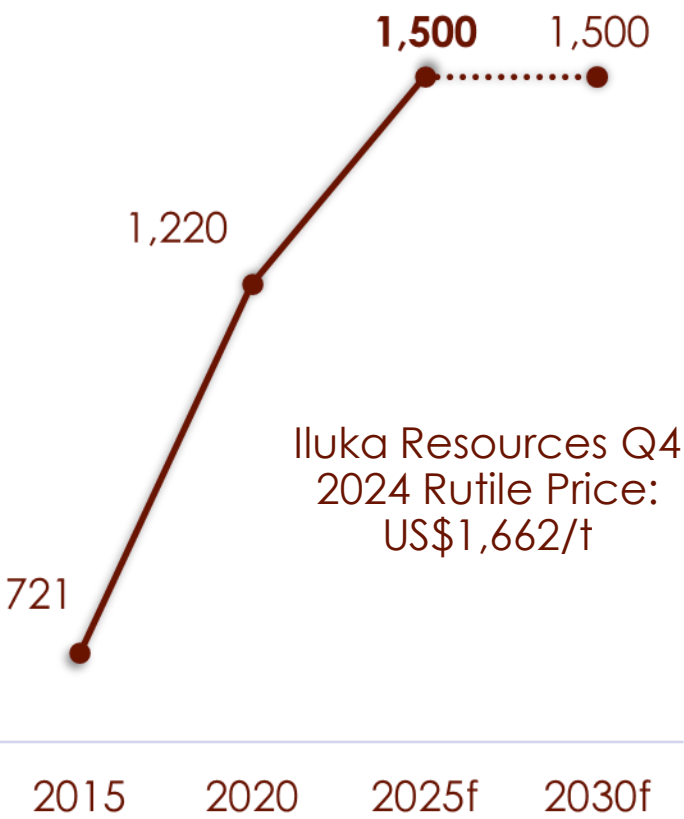
RUTILE SUPPLY DECREASING

RUTILE SUPPLY
(Source: TZMI)



RUTILE PRICE INDICATES DEFICIT

Rutile Price (US\$/t)



UPCOMING NEWSFLOW



- ☐ Updated Mineral Resource Estimate
- ☐ Rehabilitation Outcomes
- ☐ Updated Life Cycle Assessments
- ☐ Traditional-Use Graphite Testwork
- ☐ Anode Quality Assessments
- ☐ Offtake Discussions
- ☐ Permitting progress
- ☐ DFS Completion (Q4 2025)

CAPITAL STRUCTURE (as at 24 Jan 2025)	
Share Price	A\$0.755 39p \$0.4795
Market Cap	A\$453 £234m US\$285
Shares in Issue	600m
Performance Rights	17.4m
Cash (31 Dec 24)	A\$34m £17m \$21m
Debt	-
MAJOR SHAREHOLDERS	
Rio Tinto	19.9%
Insiders / Management	10%
Sprott Inc.	6.8%



APPENDICES

APPENDIX 1: KASIYA RESOURCES & RESERVES



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

APPENDIX 2: NATURAL RUTILE RESOURCES CONTAINING >2Mt



Ref	Project	Company	Status	Source
1	Sembehun	Lemoil Company Limited	DFS	2023 Annual Report https://sierra-rutile.com/media/52zon0go/sierra-rutile-2023-annual-report.pdf
2	Namakwa	Tronox Holdings plc	Production	2023 Annual Report https://s1.q4cdn.com/960380961/files/doc_financials/2023/ar/2023_trox_annual_report.pdf
3	Moma (Various)	Kenmare Resources plc	Production	2023 Annual Report https://www.kenmareresources.com/application/files/6417/1377/1105/2024-04-04_Kenmare_2023_Annual_Report_-_interactive.pdf#page=53
4	Wimmera	Iluka Resources	DFS	https://iluka.com/media/tvooma0v/2023-resource-reserve-deposit-tables-website-update.pdf
5	Port Durnford	Tronox Holdings plc	Pre-development	2023 Annual Report https://s1.q4cdn.com/960380961/files/doc_financials/2023/ar/2023_trox_annual_report.pdf
6	Area 1	Lemoil Company Limited	Production	2023 Annual Report https://sierra-rutile.com/media/52zon0go/sierra-rutile-2023-annual-report.pdf
7	Balranald	Iluka Resources	Construction	https://iluka.com/media/tvooma0v/2023-resource-reserve-deposit-tables-website-update.pdf

APPENDIX 3: NATURAL FLAKE GRAPHITE RESOURCES CONTAINING >10Mt



Ref	Project	Company	Status	Source
1	Balama	Syrah Resources	Production	https://www.syrahresources.com.au/our-business/reserves-resources
2	Bunyu	Volt Resources	Stage 1 FS Complete	https://api.investi.com.au/api/announcements/vrc/716eabf2-08b.pdf
3	Epanko	Ecograf	BFS Complete	ASX announcement "Updated Epanko Ore Reserve", dated 25 July 2024
4	Mahenge	Black Rock Mining	Post eDFS	https://blackrockmining.com.au/wp-content/uploads/AnnualReportToShareholders23Sep24.pdf
5	Graphite Creek	Graphite One	PFS Complete	https://www.graphiteoneinc.com/wp-content/uploads/2022/10/JDS-Graphite-One-NI-43-101-PFS-20221013-compressed.pdf
6	Uatnan	Nouveau Monde Graphite	PEA Complete	https://nmg.com/acquisition-lac-gueret/

APPENDIX 4: RIO TINTO INVESTMENT AGREEMENT



Investment Agreement

As part of the investment by Rio Tinto, the Company has agreed to provide Rio Tinto with certain rights pursuant to the Investment Agreement between the parties.

- **(Use of funds)** The Company will use the proceeds from Rio Tinto's strategic investment to fund the advancement of its Project, including the completion of a DFS, product qualification and other expenditures agreed with Rio Tinto such as permitting costs.
- **(Board nominee/observer)** Subject to Rio Tinto's voting power in the Company not falling below 15% for a continuous 3 month period, Rio Tinto will have the right to nominate one director or one observer to the board of the Company where it has not nominated a director.
- **(Right of first refusal – equity raisings)** Subject to Rio Tinto's voting power in the Company not falling below 10%, if the Company undertakes equity raisings (other than pursuant to a pro rata entitlement offer), Rio Tinto has a right to be consulted and a right of first refusal to participate in the equity raisings up to a level where Rio Tinto's aggregate voting power does not exceed 19.99%. This right is subject to any approvals required by law (including any securities exchange) and/or governmental or other regulatory approvals.
- **(Right of first refusal – Project interests)** Subject to Rio Tinto's voting power in the Company not falling below 10% and until the Investor End Date, if the Company receives an offer to dispose of any shares in or the assets held by any of its subsidiaries with interests in Kasiya (Project Interest) from a third party, then Rio Tinto has a pre-emptive right to acquire the Project Interest in priority to the third party. This right is subject to any approvals required by law (including any securities exchange) and/or governmental or other regulatory approvals.

- **(Governance)**

- (Technical Committee & Access to Information) Until the Investor End Date, Rio Tinto and the Company will establish a technical committee comprising of 3 members appointed by each to provide recommendations, advice and reports to the Company's Board on technical matters relating to the Project. Until the Investor End Date, the Company will also provide Rio Tinto's General Manager to the Project and the members of the Technical Committee with access and inspection rights to information relating to the Project.
- (Restricted matters) Until the Investor End Date, the Company is restricted from entering into any offtake, marketing or sales agreement (including pre-pay agreements or streaming and similar agreements), royalty agreements and granting any encumbrance over the Project or shares in any of the Company's subsidiaries with interests in Kasiya without Rio Tinto's consent.
- (Project debt funding) Until the Investor End Date, if the Company is considering any debt financing for the development and operation of Kasiya, it must consult and negotiate with Rio Tinto's to seek to put in place an acceptable mine construction funding package, with any legally binding commitments relating to such funding package not to be entered into until after the Investor End Date.
- (Graphite co-product) Until the Investor End Date, Sovereign and Rio Tinto's will work together to qualify the Project's graphite co-product with a particular focus on supplying the spherical purified graphite segment of the lithium-ion battery anode market.

- **(Operatorship of Project and marketing)** Following the Company announcing a DFS for the Project until the Investor End Date, Rio Tinto has the option **(Rio Tinto Option)** to be appointed as the operator of the Project on arm's length terms and subject to Rio Tinto becoming the operator of the Project, be granted the exclusive right to 40% of the annual production of all products produced from the Project as identified in the DFS for so long as Rio Tinto remains the operator of the Project. This right is subject to any approvals required by law (including any securities exchange) and/or government or other regulatory approvals.

The Company has also provided undertakings to Rio Tinto to comply with various corporate governance and administrative matters.