



**SOVEREIGN**  
METALS LIMITED

ABN: 71 120 833 427

# MALINGUNDE PFS

**LOWEST OPERATING COST  
COARSE FLAKE GRAPHITE  
PROJECT GLOBALLY**



**NOVEMBER 2018**

**ASX:SVM**

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## COMPETENT PERSONS STATEMENT

The information in this presentation that relates to Production Targets and Ore Reserves is extracted from an announcement dated 7 November 2018. This announcement is available to view on [www.sovereignmetals.com.au](http://www.sovereignmetals.com.au). The information in the original ASX Announcements that related to Production Targets and Ore Reserves is based on and fairly represent information provided by Mr Ryan Locke, a Competent Person, who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Locke is employed by Oreology Group Pty Ltd, an independent consulting company. Mr Locke has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that it is not aware of any new information or data that materially affects the information including in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The information in this presentation that relates to Processing, Infrastructure and Capital and Operating Costs is extracted from an announcement dated 7 November 2018. This announcement is available to view on [www.sovereignmetals.com.au](http://www.sovereignmetals.com.au). The information in the original ASX Announcements that related to Processing, Infrastructure and Capital and Operating Costs are based on and fairly represent information compiled or reviewed by Mr Matthew Langridge, a Competent Person, who is a Fellow Member of The Australasian Institute of Mining and Metallurgy. Mr Langridge is employed by Minnova Pty Ltd, an independent consulting company. Mr Langridge has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activities undertaken. The Company confirms that it is not aware of any new information or data that materially affects the information including in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The information in this presentation that relates to Metallurgical Testwork Results is extracted from an announcement dated 7 November 2018. This announcement is available to view on [www.sovereignmetals.com.au](http://www.sovereignmetals.com.au). The information in the original ASX Announcements that related to Metallurgical Testwork Results was based on, and fairly represents, information compiled by Mr Oliver Peters, M.Sc., P.Eng., MBA, who is a Member of the Professional Engineers of Ontario ('PEO'), a 'Recognised Professional Organisation' ('RPO'). Mr Peters is a consultant of SGS Canada Inc. ('SGS'). SGS is engaged as a consultant by Sovereign Metals Limited. Mr Peters has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that it is not aware of any new information or data that materially affects the information including in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The information in this presentation that relates to Mineral Resources is extracted from an announcement dated 12 June 2018. This announcement is available to view on [www.sovereignmetals.com.au](http://www.sovereignmetals.com.au). The information in the original ASX Announcement that related to Mineral Resources was based on, and fairly represents, information compiled by Mr David Williams, a Competent Person, who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Williams is employed by CSA Global Pty Ltd, an independent consulting company. Mr Williams has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. 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, 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 Person's findings are presented have not been materially modified from the original market announcement.

The information in this presentation that relates to Malingunde Exploration Results is extracted from announcements on 29 August 2016, 12 October 2016, 26 November 2016, 18 January 2017, 21 February 2017, 15 March 2017, 17 January 2018, 18 February 2018, 19 March 2018 and 3 April 2018. These announcements are available to view on [www.sovereignmetals.com.au](http://www.sovereignmetals.com.au). The information in the original announcements that related to Exploration Results were based on, and fairly represents, information compiled by Dr Julian Stephens, a Competent Person who is a member of the Australasian Institute of Geoscientists (AIG). Dr Stephens is the Managing Director of Sovereign Metals Limited and a holder of shares, options and performance rights in Sovereign Metals Limited. Dr Stephens has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements

# SOVEREIGN METALS: INVESTMENT HIGHLIGHTS

## ONE OF A KIND

HIGH GRADE, SOFT, FREE-DIG SAPROLITE DEPOSIT

## LOW COST

AN EXCEPTIONALLY LOW COST, COARSE FLAKE GRAPHITE PROJECT

## LOW TECHNICAL RISK

FREE-DIG MINING WITH SIMPLE, PROVEN PROCESS FLOWSHEET

## HIGH QUALITY CONCENTRATES

OPEN TO TRADITIONAL REFRACTORY AND EMERGING LI-ION SECTORS

## SUBSTANTIAL UPSIDE

HUGE SCALABILITY AND EXPANSION OPPORTUNITIES

# POTENTIAL FOR A SIMPLE & HIGHLY PROFITABLE FLAKE GRAPHITE OPERATION

MALINGUNDE SOFT SAPROLITE-HOSTED DEPOSIT TO DELIVER VERY LOW COST PRODUCTION, WITH HIGH VALUE CONCENTRATES.

## OPERATING COST

BOTTOM OF THE COST CURVE

## OPERATIONS

SIMPLE MINING & PROCESSING ONLY

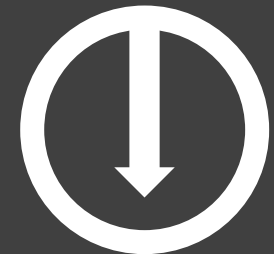
## MARKETING

EXISTING MARKETS + BATTERY SUPPLY CHAIN

HIGHEST MARGINS



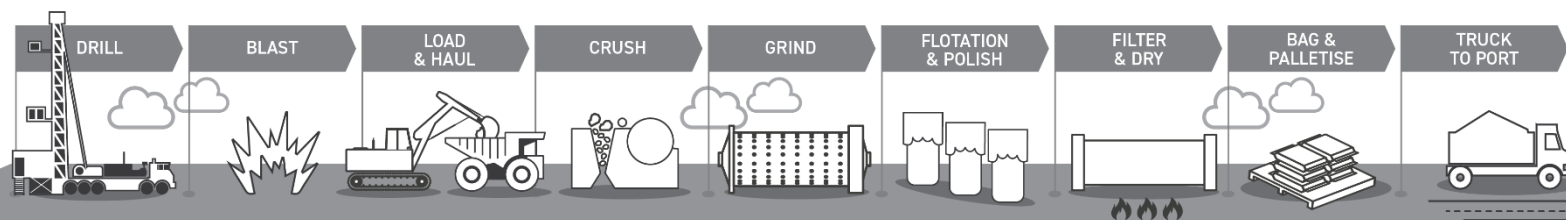
LOWEST RISK



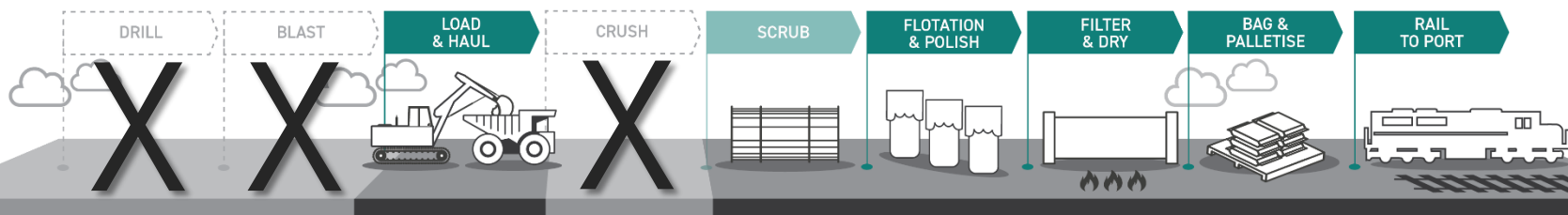
# SAPROLITE ADVANTAGE: VERY SIMPLE OPERATIONS WITH SIGNIFICANT OPERATING COST ADVANTAGES VERSUS HARD ROCK PEERS

FREE DIG, NO DRILL & BLAST, NO PRIMARY CRUSH OR GRIND REQUIRED

## Peers – Hard rock material



## Sovereign – Soft saprolite (clay) material



**SAPROLITE + HIGH GRADE + COARSE FLAKE = LOW COST & HIGH REVENUE**



# PFS CONFIRMS EXTREMELY ROBUST PROJECT

**US\$323/t**

Average  
**OPERATING  
COST**



**US\$49m**

Total  
**DEVELOPMENT  
CAPEX**  
(including contingency of US\$5.2m)



**US\$1,216/t**

**BASKET SALES  
PRICE**



**16 years**

Total  
**MINE LIFE**



**52,000t**

Average  
**ANNUAL  
PRODUCTION**



**600,000t**

Average annual  
**PLANT  
THROUGHPUT**



**US\$201m**

**NPV** 10%  
*Pre-tax*



**IRR 56%**

*Pre-tax*



**US\$42m**

LoM  
**EBITDA**



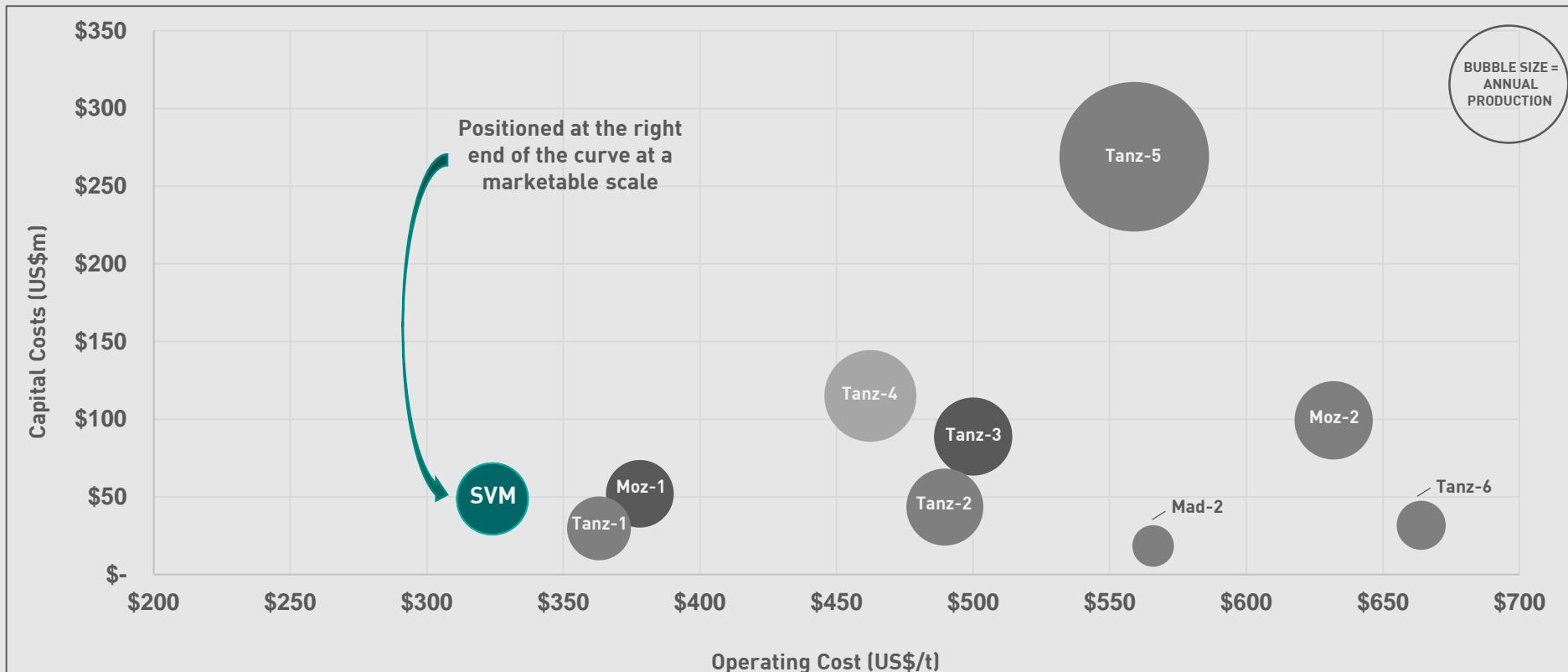
**MAIDEN ORE RESERVE**

**9.5Mt at 9.5% TGC**

**(32% PROVED & 68% PROBABLE)**

# MALINGUNDE IS AT THE RIGHT END OF THE CURVE

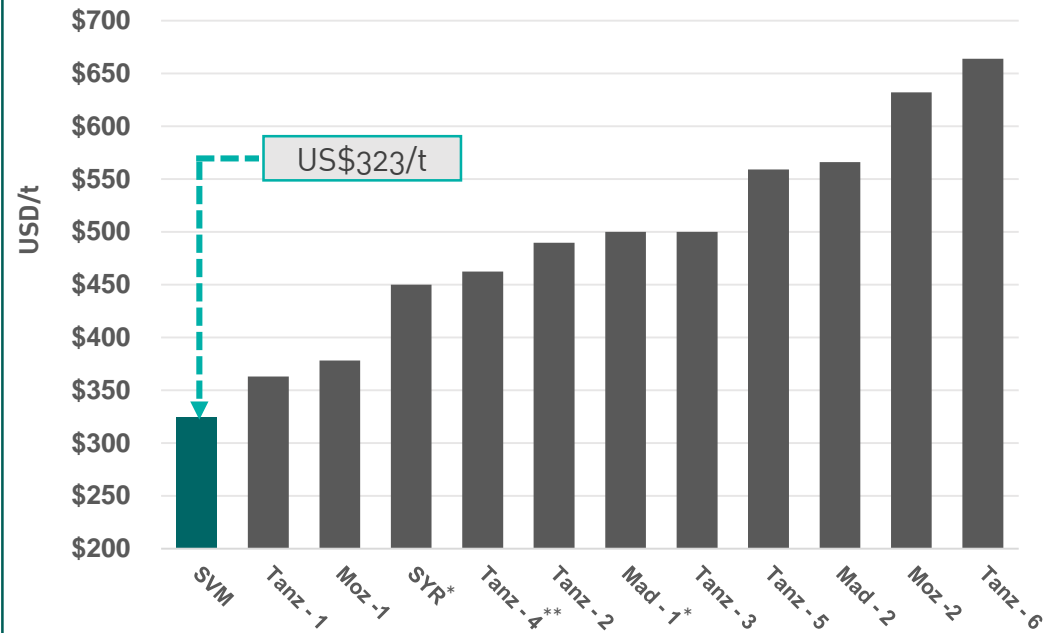
THE PFS SHOWS THE PROJECT'S LOW CAPITAL AND VERY LOW OPERATING COSTS ARE AT THE BOTTOM OF THE GRAPHITE SUPPLY COST-CURVE.



# OPERATING COSTS: AT THE BOTTOM OF THE CURVE

MALINGUNDE HAS THE **LOWEST ESTIMATED UNIT OPERATING COST** OF THE CURRENT AND FUTURE LISTED GRAPHITE DEVELOPMENT PIPELINE.

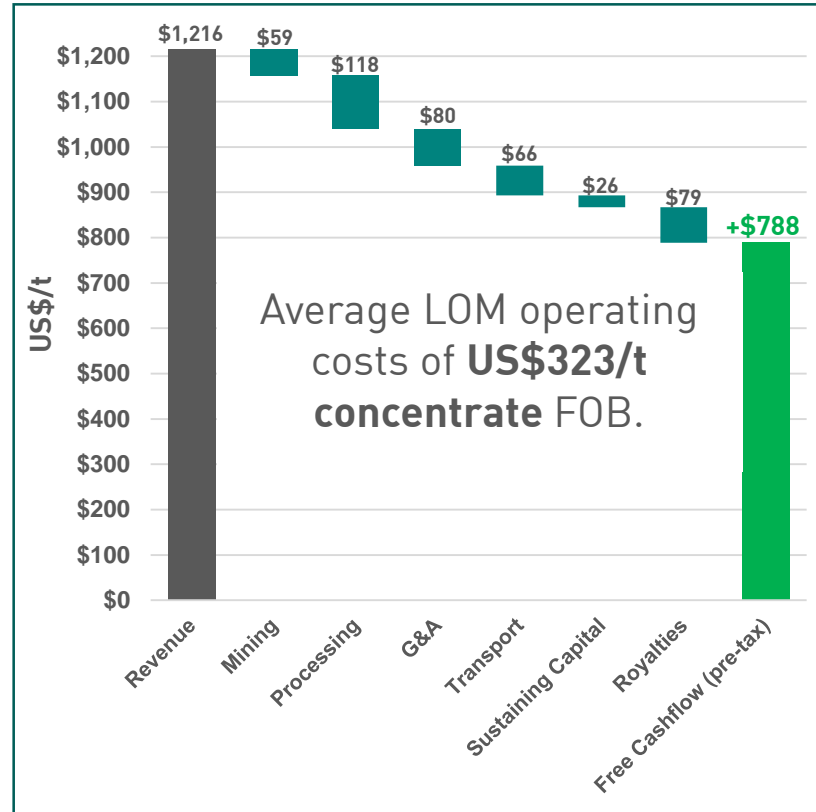
## LISTED SUPPLY PIPELINE: OPEX



\* Based on the company's reported aspirational costs.

\*\* Based on Stage 1 project costs.

Source: Company Reports and Announcements



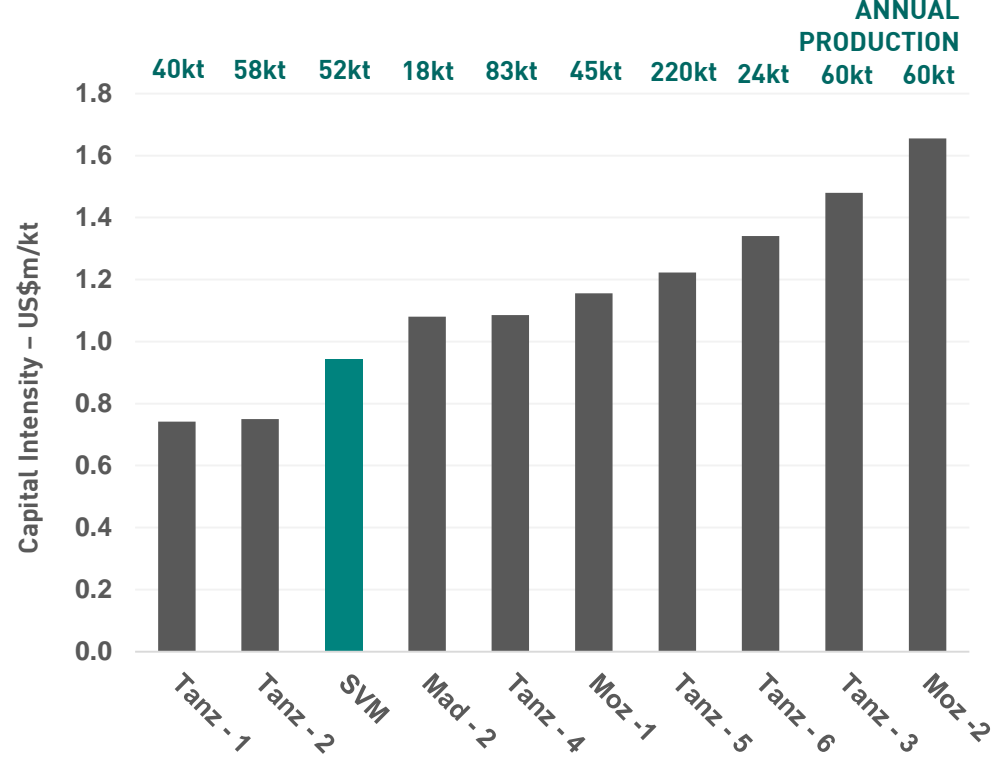
Average LOM operating costs of **US\$323/t concentrate FOB**.



# CAPITAL COSTS: PROVIDING A SHORT PAYBACK PERIOD AND INCREASED ABILITY TO FINANCE

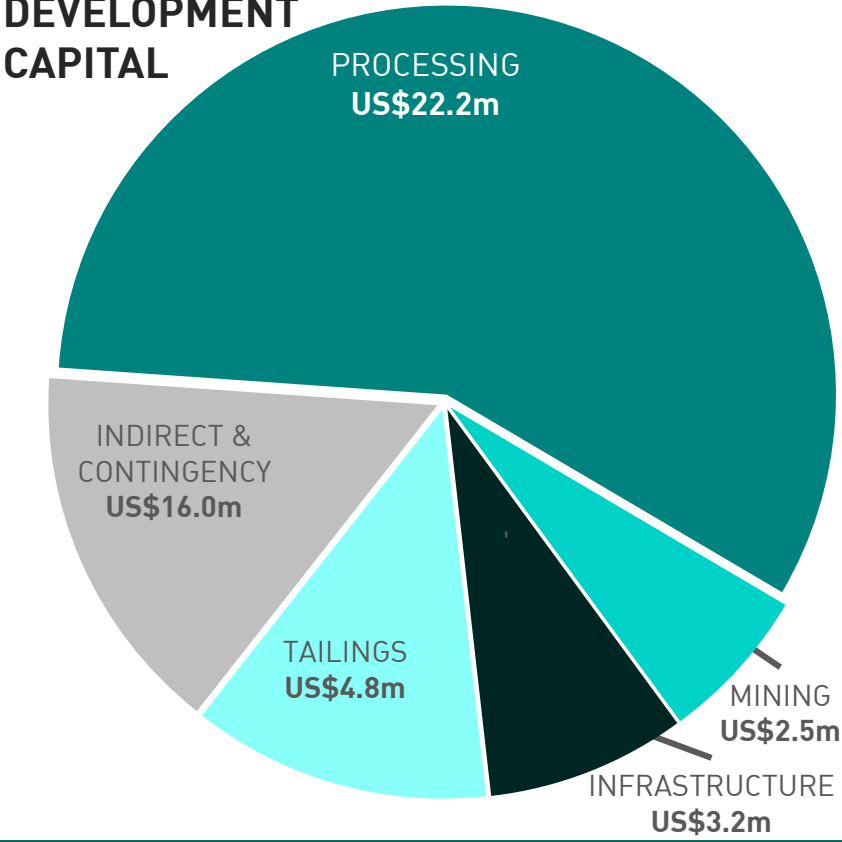
MALINGUNDE IS PLACED AT THE LOW END OF THE FUTURE SUPPLY PIPELINE IN TERMS OF BOTH ABSOLUTE CAPITAL AND CAPITAL INTENSITY.

## CAPITAL INTENSITY



Source: Company Reports and Announcements

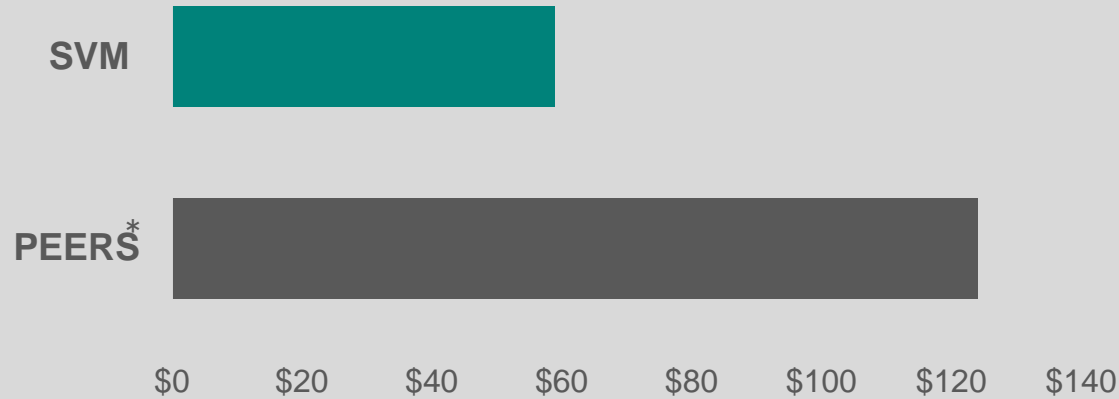
## DEVELOPMENT CAPITAL



# OPERATING COSTS: AT THE BOTTOM OF THE CURVE

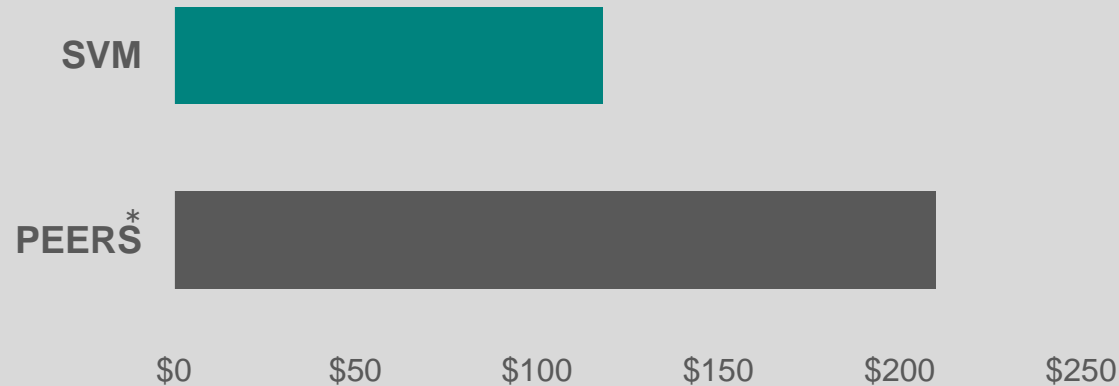
MASSIVE OPERATIONAL ADVANTAGE OVER HARD ROCK PEERS.

## MINING COSTS



- ✓ Free-dig (no drill and blast)
- ✓ Near surface
- ✓ Low strip ratio 1:1
- ✓ Conventional truck and shovel operation

## PROCESSING COSTS



- ✓ Simple process
- ✓ High grade
- ✓ Soft, friable material with no primary crush or grind
- ✓ Grid power from 2024

# LOGISTICS: ACCESS TO OPERATING RAIL PROVIDES MATERIAL TRANSPORT COST ADVANTAGE

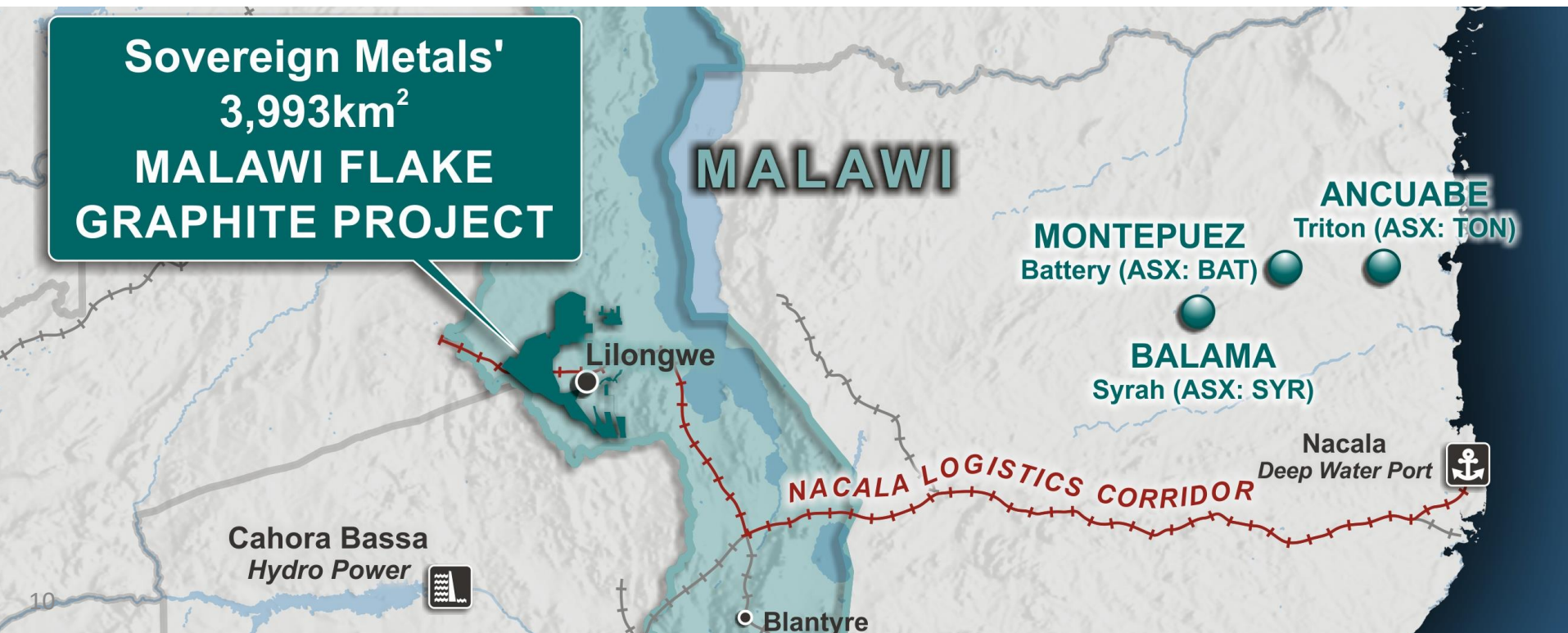
- Operating rail = low transport costs; below or comparable to regional peers utilising trucks.
- Transport MoU signed with Vale & Mitsui. Drafting of formal agreement in progress.
- Rail delivers product directly to the deep water port at Nacala.

**US\$66/t**

Total  
**MINE GATE  
TO PORT**



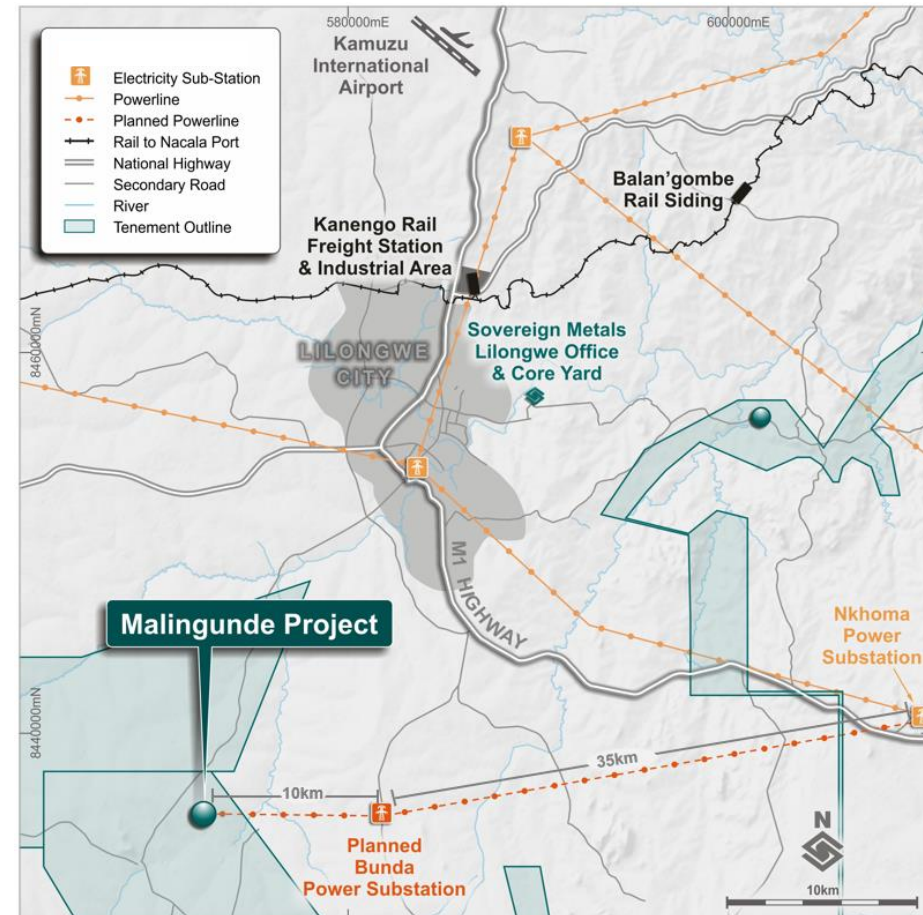
**Sovereign Metals'**  
**3,993km<sup>2</sup>**  
**MALAWI FLAKE**  
**GRAPHITE PROJECT**



# EXCELLENT EXISTING INFRASTRUCTURE

THE PROXIMITY OF THE PROJECT TO MALAWI'S CAPITAL CITY LILONGWE OFFERS SIGNIFICANT INFRASTRUCTURE ADVANTAGES.

- ✓ Grid power from 2024
- ✓ Rail.
- ✓ Road network.
- ✓ Established labour pool and other industrial services.



Recently commissioned (on time and budget)  
Nkhoma power substation



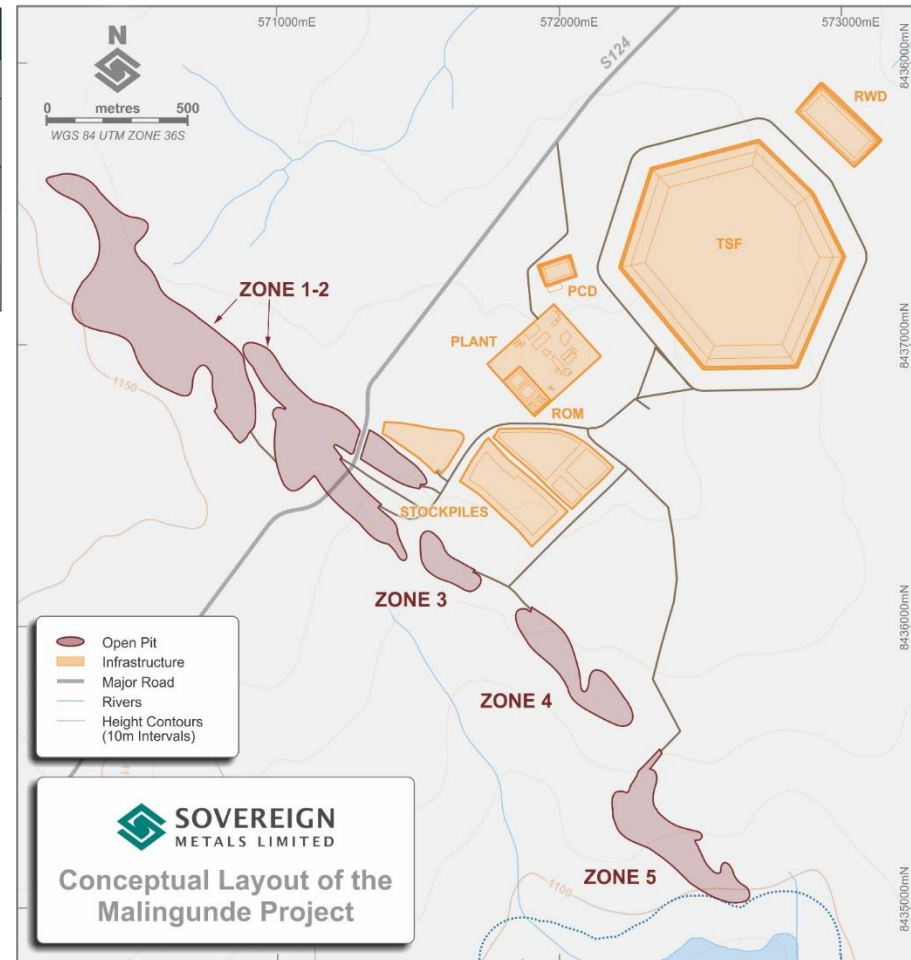
# MAIDEN ORE RESERVE

HIGH GRADE RESERVE WITH 32% IN THE PROVED AND 68% IN THE PROBABLE CATEGORY. PFS BASED 100% ON RESERVES.

MALINGUNDE ORE RESERVE

	Proved		Probable		Total	
	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)
Saprolite	3.1	9.5%	5.3	8.9%	8.4	9.1%
Saprock	-	-	1.2	12.3%	1.2	12.3%
<b>Total</b>	<b>3.1</b>	<b>9.5%</b>	<b>6.4</b>	<b>9.5%</b>	<b>9.5</b>	<b>9.5%</b>

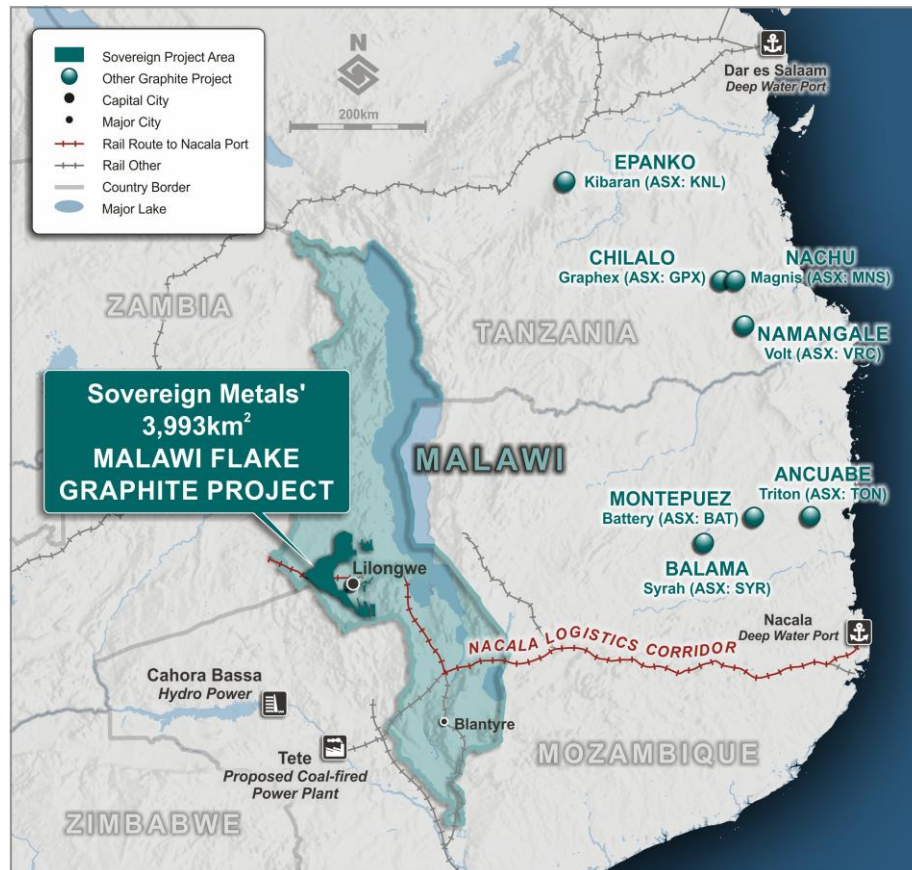
- ❖ Saprolite is the very soft, graphite-bearing, clay-rich oxide material that is formed from intense weathering of the original bedrock.
- ❖ Significant opportunity to increase the mine life beyond 16 years by the processing of lower grade or discovery of additional high-grade resources.
- ❖ Ore Reserve only ~21% of total saprolite + saprock Mineral Resource (refer to Appendices).



# MALAWI: MINING FRIENDLY JURISDICTION

A STABLE, TRANSPARENT JURISDICTION, INCREASINGLY ATTRACTING INTERNATIONAL INVESTMENT.

Strong government and community support with long standing relationships.



# MARKETING STRATEGY: SOVEREIGN HAS THE ABILITY TO SELL INTO BOTH MARKETS

TARGETING SALES INTO EXISTING TRADITIONAL MARKETS AND EMERGING LI-ION BATTERIES MARKETS.

❖ Premium quality product with **~60% +150µm**, 96-98% TGC commanding high revenues.

❖ Realistic basket pricing assumption of **US\$1,216 per tonne** of concentrate.

**MALINGUNDE FLOTATION RESULTS – PFS INPUTS**

PARTICLE SIZE		C (%)	Distribution (wt. %)	Flake Category
Tyler Mesh	(µm)			
+32	+500	98%	5%	Super Jumbo
-32 +48	-500 +297	97%	19%	Jumbo
-48 +80	-297 +177	97%	26%	Large
-80 +100	-177 +149	97%	9%	Medium
-100 +200	-149 +74	97%	25%	Small
-200	-74	94%	16%	Amorphous
<b>TOTAL</b>		<b>97%</b>	<b>100%</b>	

## TRADITIONAL MARKETS

FLOTATION TESTING



**FLAKE SIZE**  
+60% above 150µm

BIAS TO FLAKE SIZE:

- REFRACTORIES
- EXPANDABLES
- OTHER TRADITIONAL APPLICATIONS

## EMERGING MARKETS

PURIFICATION TESTING



**HIGH PURITY**  
Purified to +99.9995% C

BIAS TO PURITY:

- LI-ION BATTERIES
- HIGH END APPLICATIONS: NUCLEAR, FUEL CELLS ETC.

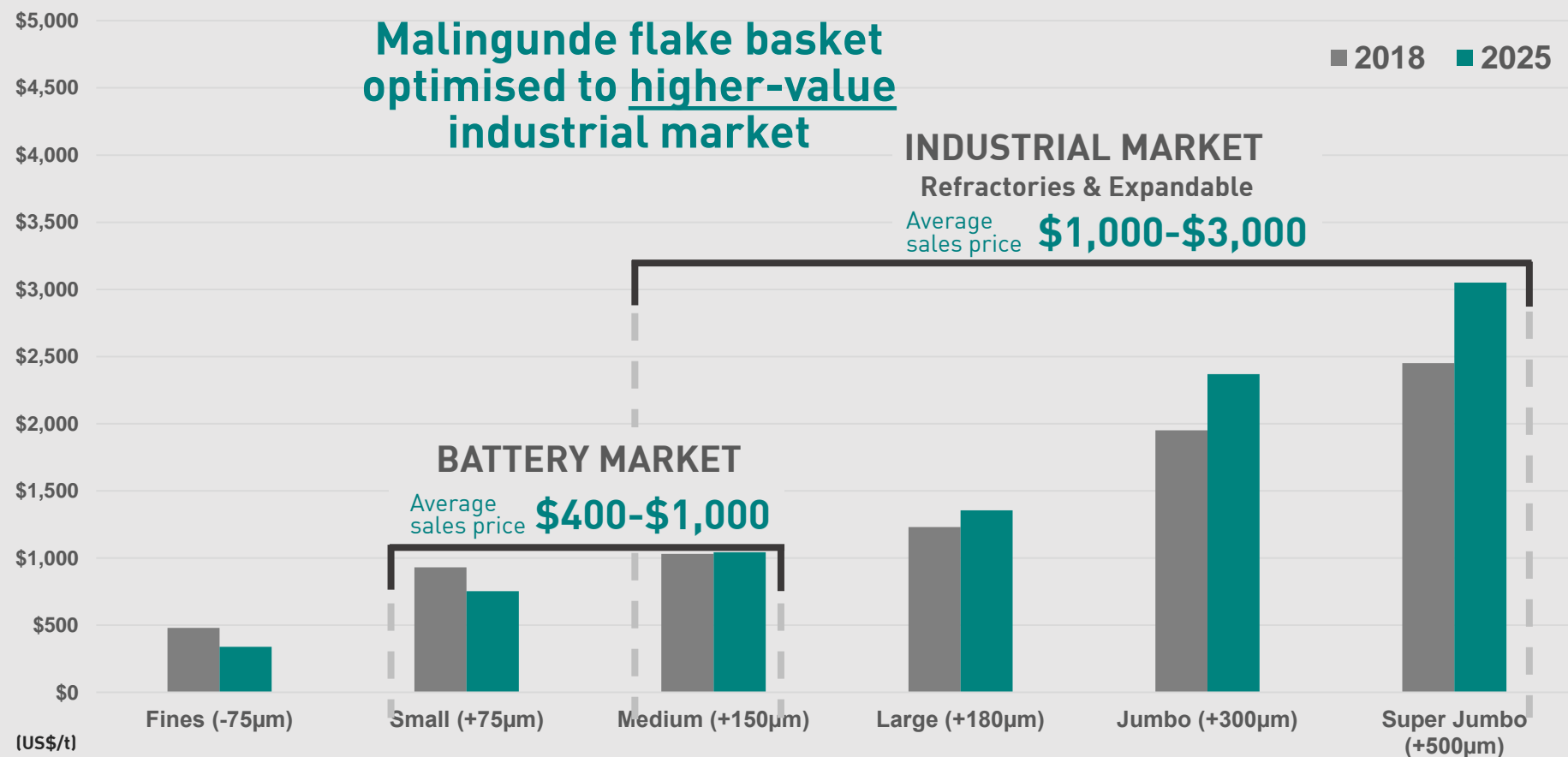
❖ Well advanced discussions with Tier 1 and high quality offtake parties across a number of industrial sectors and global locations.



# THE RIGHT MARKET

MAJORITY OF SOVEREIGN'S REVENUE TO BE FROM HIGH VALUE COARSE FLAKE

## FORECASTED GRAPHITE PRICES

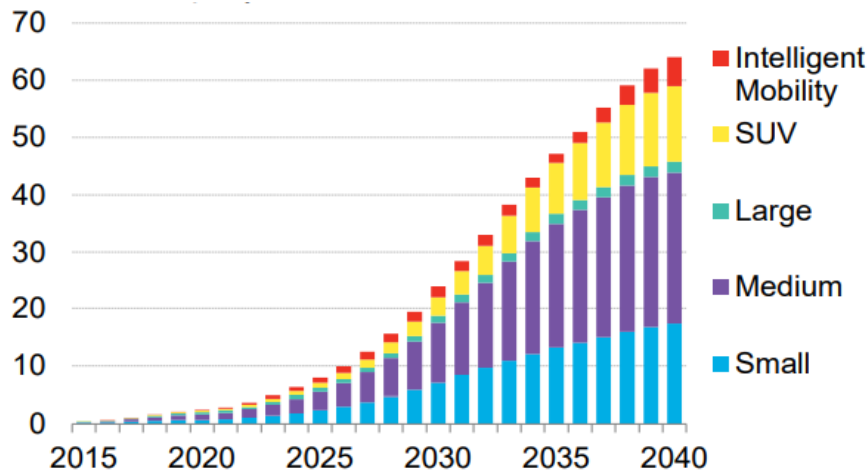


# THE BATTERY REVOLUTION IS RAPIDLY GAINING MOMENTUM.

SOVEREIGN METALS WILL BE IN THE BEST POSITION TO SUPPLY HIGH QUALITY, LOW COST GRAPHITE FOR BOTH BATTERY & TRADITIONAL APPLICATIONS.

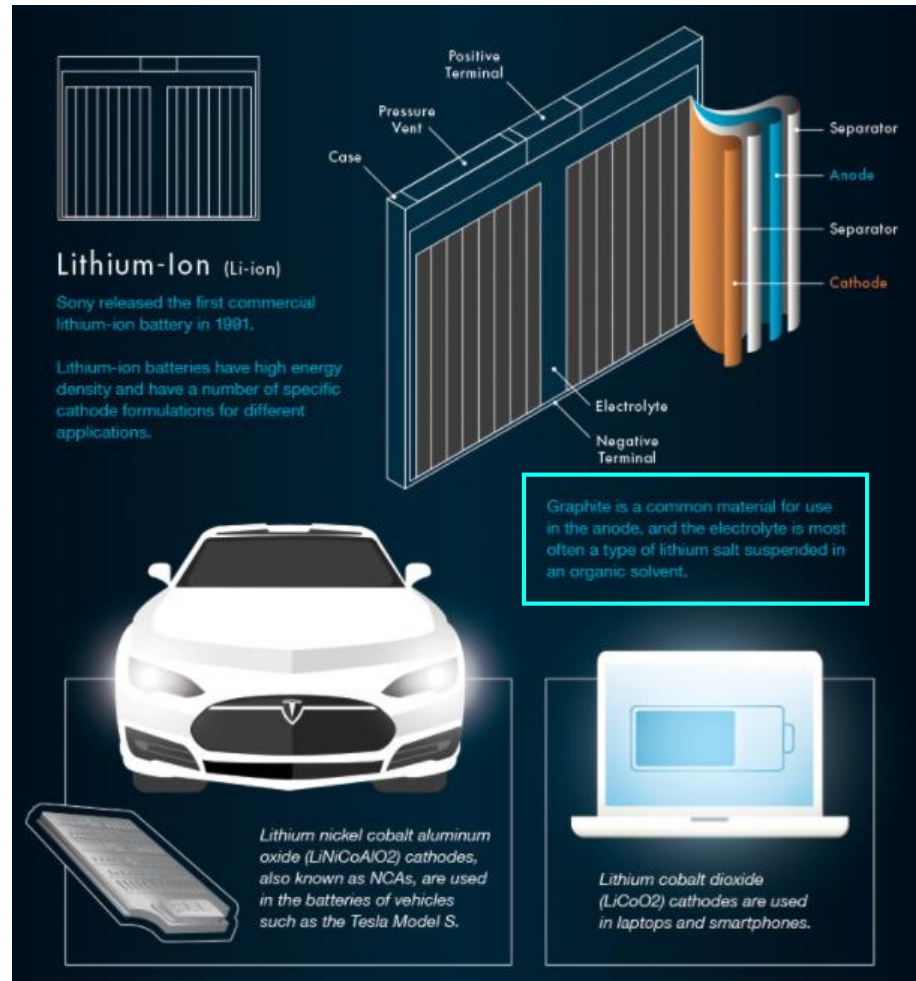
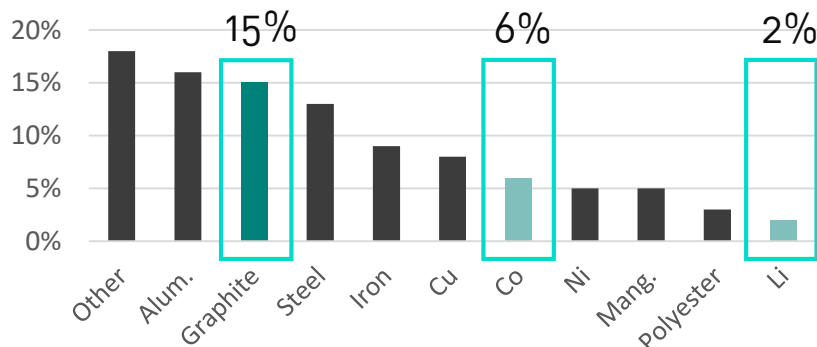
## ANNUAL GLOBAL EV SALES BY VEHICLE CLASS

(million cars per year) *Bloomberg New Energy Finance*



## BATTERY PACK COMMODITY BREAKDOWN

(by weight) *UBS Evidence Lab*



Source: The Visual Capitalist

# NEXT STEPS: RAPID PATHWAY TO PRODUCTION

## ACCELERATED PROJECT DEVELOPMENT BASED ON EXCEPTIONAL PFS OUTCOMES:

- Commencement of definitive feasibility study (DFS).
- Development of product sales agreements.
- Permitting to commence – environmental, social & mining license.
- Community development agreement consultation to commence.
- Pilot plant for product marketing and qualification.
- Project finance.



# MALINGUNDE: THE WORLD'S BEST FLAKE GRAPHITE PROJECT.

**US\$323/t**

Average  
**OPERATING  
COST**



**US\$49m**

Total  
**DEVELOPMENT  
CAPEX**



**52kt**

Average  
**ANNUAL  
PRODUCTION**



**16 years**

Total  
**MINE LIFE**



**US\$201m**

Pre-tax  
**NPV**



## TECHNICAL

- ✓ World's largest, soft saprolite graphite resource
- ✓ High-grade, low strip ratio
- ✓ No requirement for drill & blast
- ✓ No requirement for crush or primary grind
- ✓ Marketable production volume

## FINANCIAL

- ✓ Best in class opex – strong cash generation
- ✓ Low capex
- ✓ Access to existing infrastructure
- ✓ Ability to enter industrial & emerging battery markets



# APPENDICES



# MINERAL RESOURCE ESTIMATE – JUNE 2018

Malingunde is the world's largest reported saprolite-hosted graphite resource.

MALINGUNDE MINERAL RESOURCE ESTIMATE 4.0% cut-off grade								
	Measured		Indicated		Inferred		Total	
	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)
Saprolite	4.8	8.5%	18.7	7.1%	5.4	6.3%	28.8	7.2%
Saprock	-	-	13.6	7.4%	3.3	6.3%	16.9	7.2%
<b>Total</b>	<b>4.8</b>	<b>8.5%</b>	<b>32.3</b>	<b>7.2%</b>	<b>8.6</b>	<b>6.3%</b>	<b>45.7</b>	<b>7.2%</b>
Fresh rock	-	-	-	-	19.3	7.3%	19.3	7.3%
<b>Total resource</b>	<b>4.8</b>	<b>8.5%</b>	<b>32.3</b>	<b>7.2%</b>	<b>27.9</b>	<b>7.0%</b>	<b>65.0</b>	<b>7.2%</b>

MALINGUNDE MINERAL RESOURCE ESTIMATE 7.5% cut-off grade								
	Measured		Indicated		Inferred		Total	
	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)
Saprolite	2.7	10.0%	5.4	9.6%	1.1	9.0%	9.2	9.7%
Saprock	-	-	4.7	10.0%	0.6	9.1%	5.3	9.9%
<b>Total</b>	<b>2.7</b>	<b>10.0%</b>	<b>10.1</b>	<b>9.8%</b>	<b>1.7</b>	<b>9.0%</b>	<b>14.5</b>	<b>9.7%</b>
Fresh rock	-	-	-	-	6.5	9.9%	6.5	9.9%
<b>Total resource</b>	<b>2.7</b>	<b>10.0%</b>	<b>10.1</b>	<b>9.8%</b>	<b>8.3</b>	<b>9.7%</b>	<b>21.0</b>	<b>9.8%</b>



# MARKET INFORMATION

**OPPORTUNITY FOR MATERIAL RE-RATE:**  
DELIVERY OF WORLD CLASS PFS WITH A  
CLEAR & SIMPLE STRATEGY.

## ASX : SVM SHARE PRICE MOVEMENT



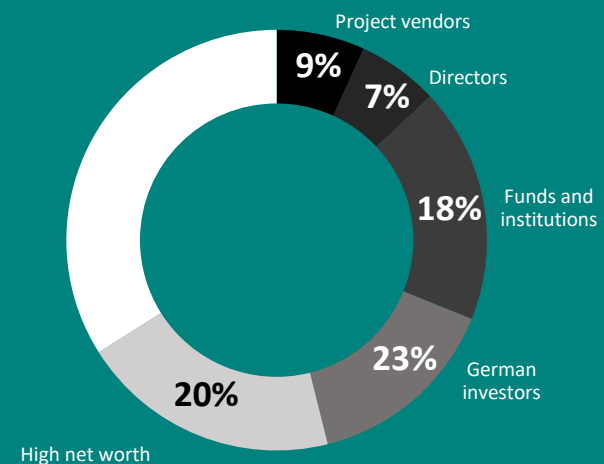
Source: ASX as at market close 6 November 2018

## CAPITAL STRUCTURE<sup>1</sup>

Shares on Issue	276,796,073
Unlisted Options (\$0.10 to \$0.18)	32,325,000
Performance Rights	700,000
Un-Diluted Market Capitalisation @A\$0.08	A\$22.1 m
Cash (30 September 2018)	~A\$2.1 m

1.As at 2 November 2018

## SHAREHOLDERS



**SOVEREIGN**  
METALS LIMITED



# MANAGEMENT TEAM WITH A PROVEN TRACK RECORD OF SUCCESS

**RAISED OVER \$1 BILLION TO FUND NATURAL RESOURCE PROJECTS, INCLUDING TWO PROJECTS CURRENTLY IN CONSTRUCTION.**

**IAN MIDDLEMAS**  
*Chairman*

Mr Middlemas was a Senior Group Executive for Normandy Mining for more than ten years, which was Australia's largest gold miner before merging with Newmont Mining. He is currently Chairman of Salt Lake Potash, Berkeley Energia, Paringa Resources, Prairie Mining & a number of other listed resource companies. Mr Middlemas was also previously Chairman of Papillon Resources Limited and Mantra Resources Limited.

**JULIAN STEPHENS**  
*Managing Director*

Dr Stephens is a Geologist with over 20 years experience in mineral exploration across many commodity types, and has spent 10 years working on minerals projects in Malawi. Julian identified, secured and led the team that discovered the Malawi Flake Graphite Project.

**SAM CORDIN**  
*Business Development Manager*

Mr Cordin is an experienced Chartered Accountant who commenced his career at a large international accounting firm and has since been involved with a number of ASX and AIM listed exploration and development companies operating in the resources sector, including most recently Salt Lake Potash Limited.

**ANDRIES KRUGER**  
*Country Manager*

Mr Kruger is a Geologist with over 20 years experience in mineral exploration. Mr Kruger has spent 10 years working on major Malawian minerals projects for ASX listed companies, directing all in-country activities relating to project development.



# SOVEREIGN METALS LIMITED

**Sovereign Metals Limited | ASX : SVM**

T: +61 8 9322 6322 | F: +61 8 9322 6558

E: [info@sovereignmetals.com.au](mailto:info@sovereignmetals.com.au) | [www.sovereignmetals.com.au](http://www.sovereignmetals.com.au)

Level 9, BGC Centre, 28 The Esplanade, PERTH WA 6000 | ABN: 71 120 833 427

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