

# MALINGUNDE GRAPHITE PROJECT



## THE SAPROLITE ADVANTAGE

A SIMPLE OPERATION WITH  
SUBSTANTIAL COST BENEFITS  
OVER PEERS.

FEBRUARY 2018

ASX:SVM

# SOVEREIGN METALS OVERVIEW.

**A RARE COMBINATION OF EXCEPTIONALLY LOW CAPEX & OPEX PROVIDES A CLEAR PATHWAY TO PRODUCTION.**

- 1. WORLD'S LOWEST OPEX & CAPITAL INTENSITY<sup>1</sup>.**
- 2. A SIMPLE STRATEGY BASED ON MARKET FUNDAMENTALS.**
- 3. A STABLE JURISDICTION WITH CLEAR PATHWAY TO MARKET.**
- 4. FULLY FUNDED TO DFS WITH A WORLD CLASS BOARD & MANAGEMENT TEAM.**

1. Lowest opex & capital intensity amongst listed graphite developers. Source: Company reports.



# MALINGUNDE: THE LOWEST COST GRAPHITE DEVELOPMENT.

## SAPROLITE MATERIAL IS VERY SIMPLE TO MINE AND PROCESS.

- Saprolite is the very soft, graphite-bearing, clay-rich oxide material that is formed from intense weathering of the original bedrock.
- Malingunde is the world's largest reported saprolite-hosted graphite resource. Resource update expected Q2 2018.

◆ Total: **28.8Mt @ 7.1% TGC** (4.0% TGC cut-off)  
◆ High-grade: **8.9Mt @ 9.9% TGC** (7.5% TGC cut-off)

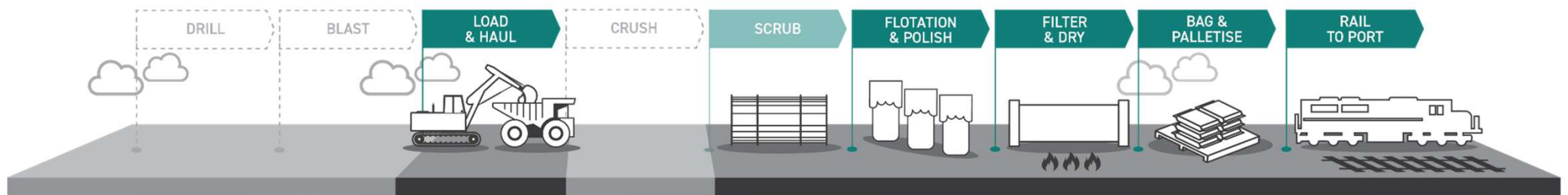
- Near surface with free dig mining, low strip ratios and a simple flow sheet equates to low cost production.
- Scalable to match demand: just 28% of resource included in mine plan. Huge exploration upside.



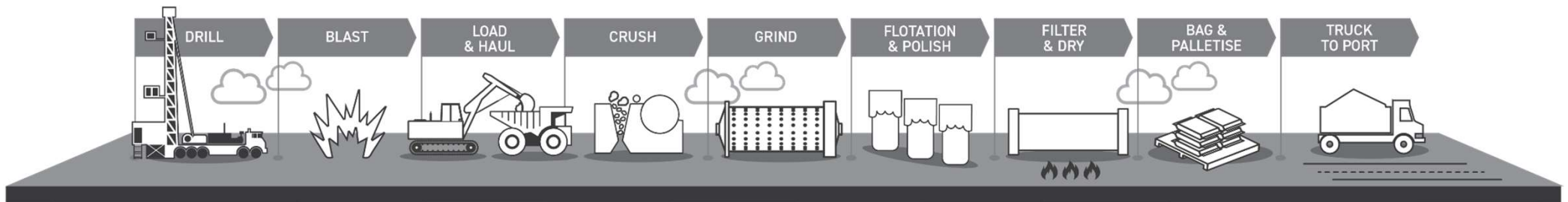
# SAPROLITE ADVANTAGE: VERY SIMPLE OPERATIONS WITH ENORMOUS COST ADVANTAGES VERSUS ALL PEERS.

**NO DRILLING OR BLASTING, NO CRUSHING OR GRINDING REQUIRED.**

## Sovereign – Soft sapolite (clay) material



## Peers – Hard rock material



# POTENTIAL FOR A SIMPLE & HIGHLY PROFITABLE FLAKE GRAPHITE OPERATION.

MALINGUNDE SOFT SAPROLITE-HOSTED DEPOSIT TO DELIVER VERY LOW COST PRODUCTION, WITH BEST IN CLASS MARGINS.

## OPERATING COST

BOTTOM OF THE COST CURVE

## CAPITAL COST & INTENSITY

LOWEST OF ALL PEERS

## OPERATIONS

SIMPLE MINING & PROCESSING ONLY

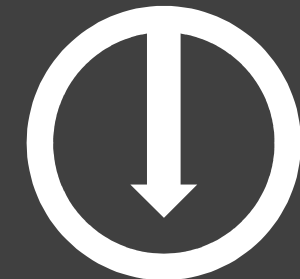
## MARKETING

EXISTING MARKETS + BATTERY SUPPLY CHAIN

HIGHEST MARGINS



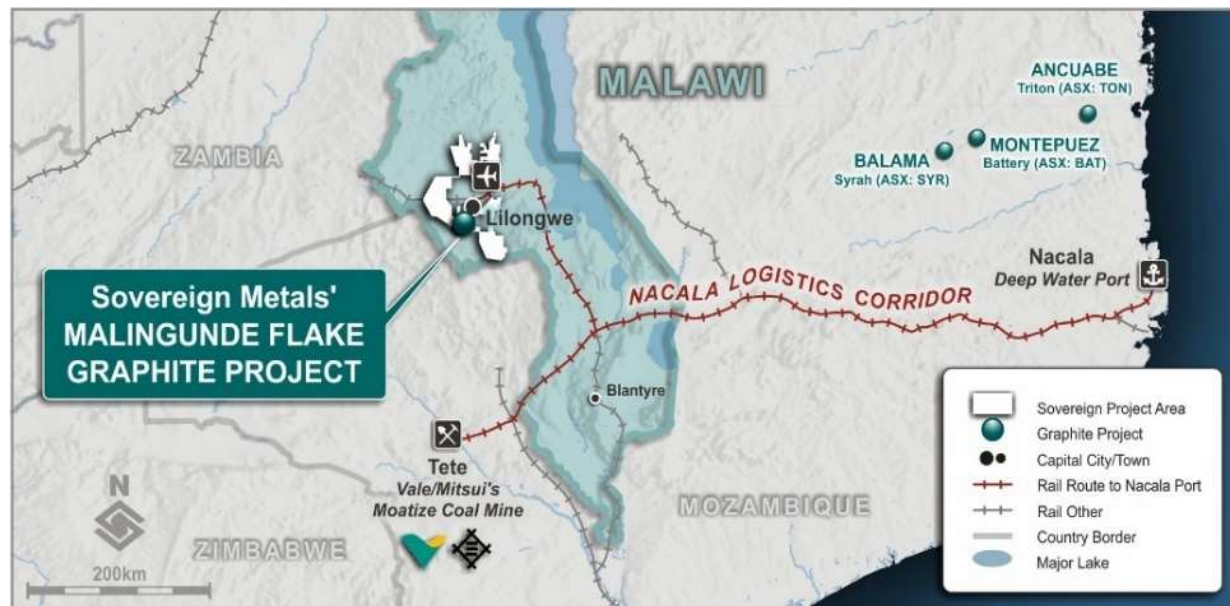
LOWEST RISK





# MALAWI: A MINING FRIENDLY JURISDICTION WITH LOGISTICS SOLUTION IN PLACE.

- Enviable access to infrastructure; just 20km from Lilongwe, the capital of Malawi.
- A stable, transparent jurisdiction, increasingly attracting significant international investment.
- Transport MoU signed with Vale & Mitsui.



**US\$65/t<sup>1</sup>**  
 Total transport  
**MINE GATE  
 TO PORT**

*“The Government actively encourages foreign investment in Malawi’s mining industry, and provides a friendly and stable environment for investors. To this end, the Government of Malawi offers its full support and assistance to Sovereign Metals in order to develop Malawi’s first flake graphite operation at Malingunde.”*

Hon. Aggrey Masi, Minister of Natural Resources, Energy and Mining, September 2017

# MALINGUNDE: PROJECT ECONOMICS



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METALS LIMITED

# MALINGUNDE: GENERATING VALUE THROUGH A SIMPLE, LOW COST STRATEGY.

JUNE 2017 SCOPING STUDY OUTCOMES.



## US\$301/t

Average  
**OPERATING  
COST**



## US\$29m

Total  
**DEVELOPMENT  
CAPEX**



## <1.5 years

Capital  
**PAYBACK  
PERIOD**



## 17yrs

Total  
**MINE LIFE**



## 44kt

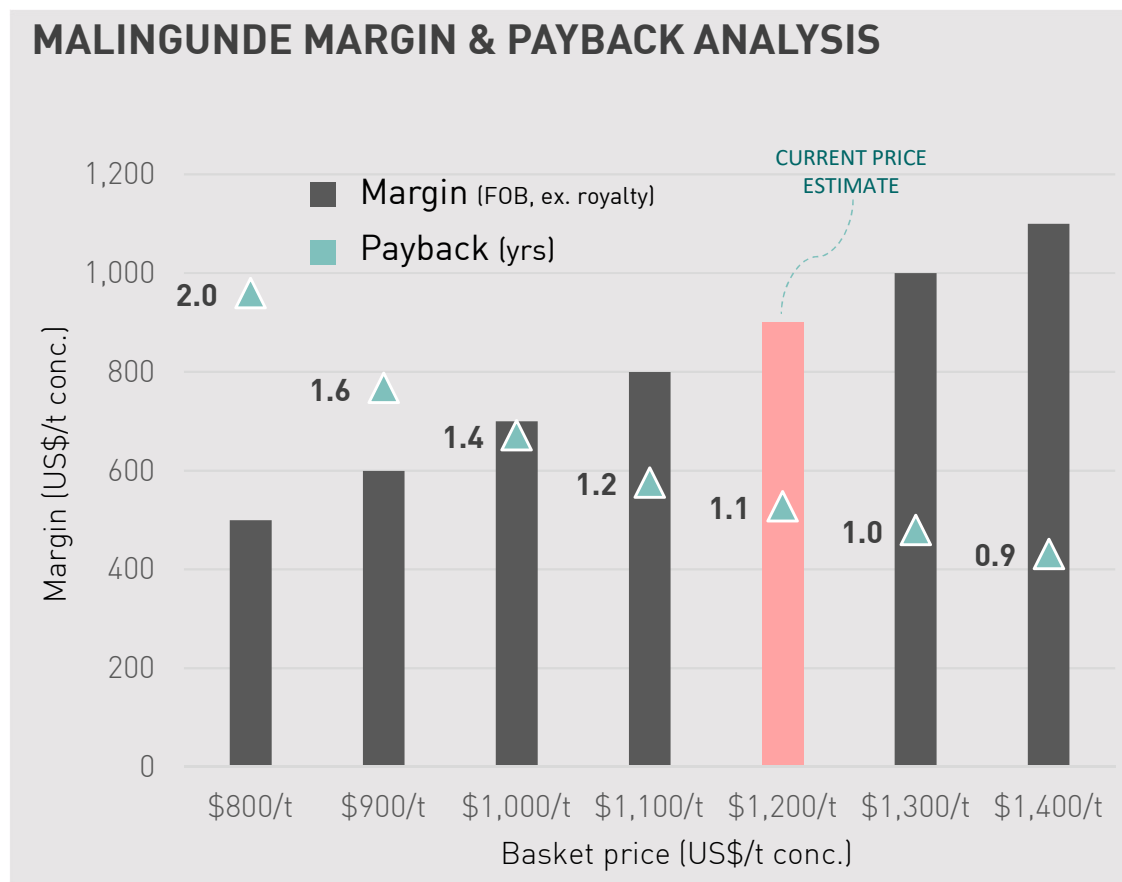
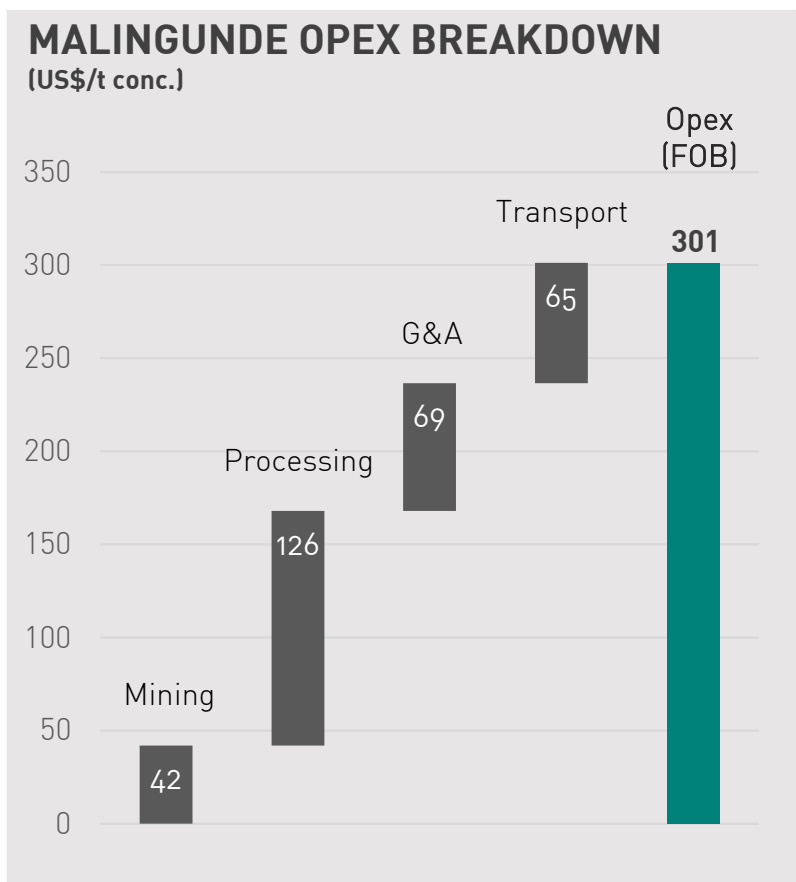
Average  
**ANNUAL  
PRODUCTION**





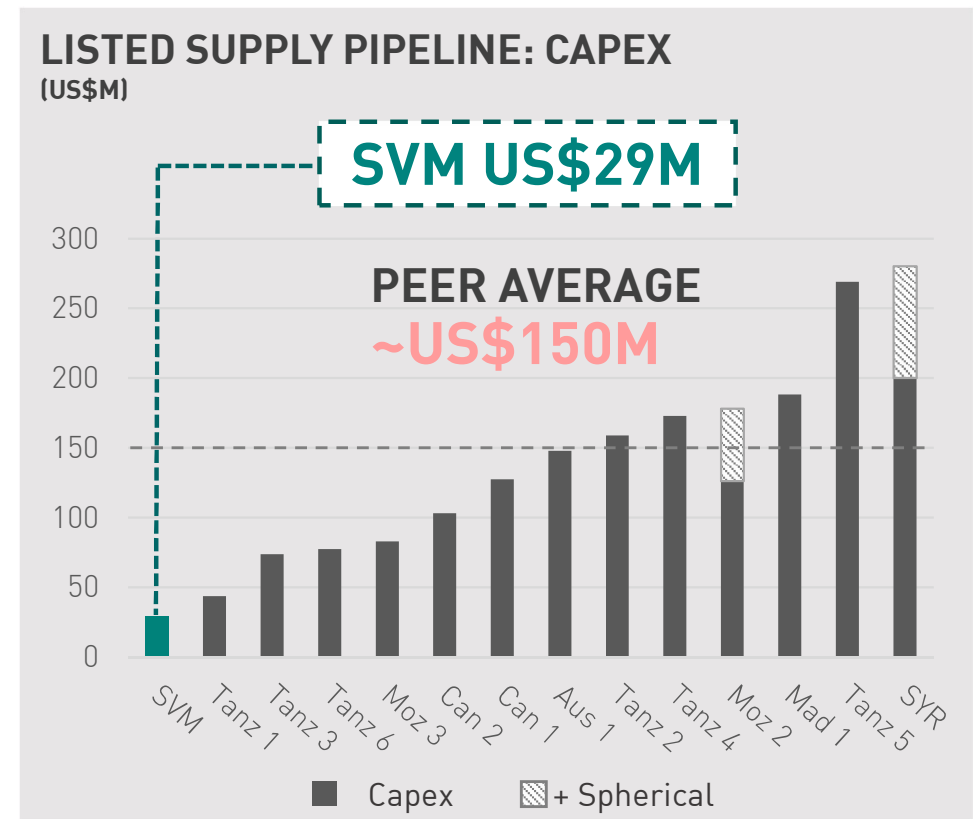
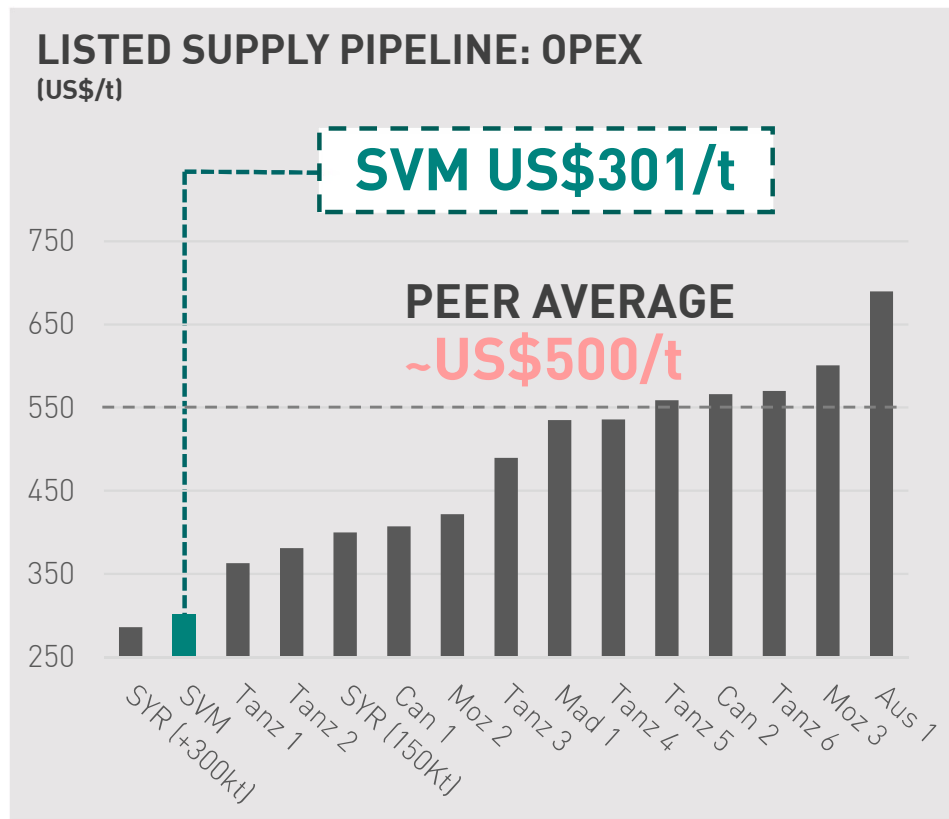
# MALINGUNDE: LOW COST EQUATES TO SUPERIOR MARGINS & VERY SHORT PAYBACK IN ALL PRICING SCENARIOS.

- **Credible pricing assumptions** for product sold to existing markets.
- **Exceptional margins** even in bearish global pricing scenarios.



# MALINGUNDE: THE ABILITY TO GENERATE CASH FROM EXISTING MARKETS.

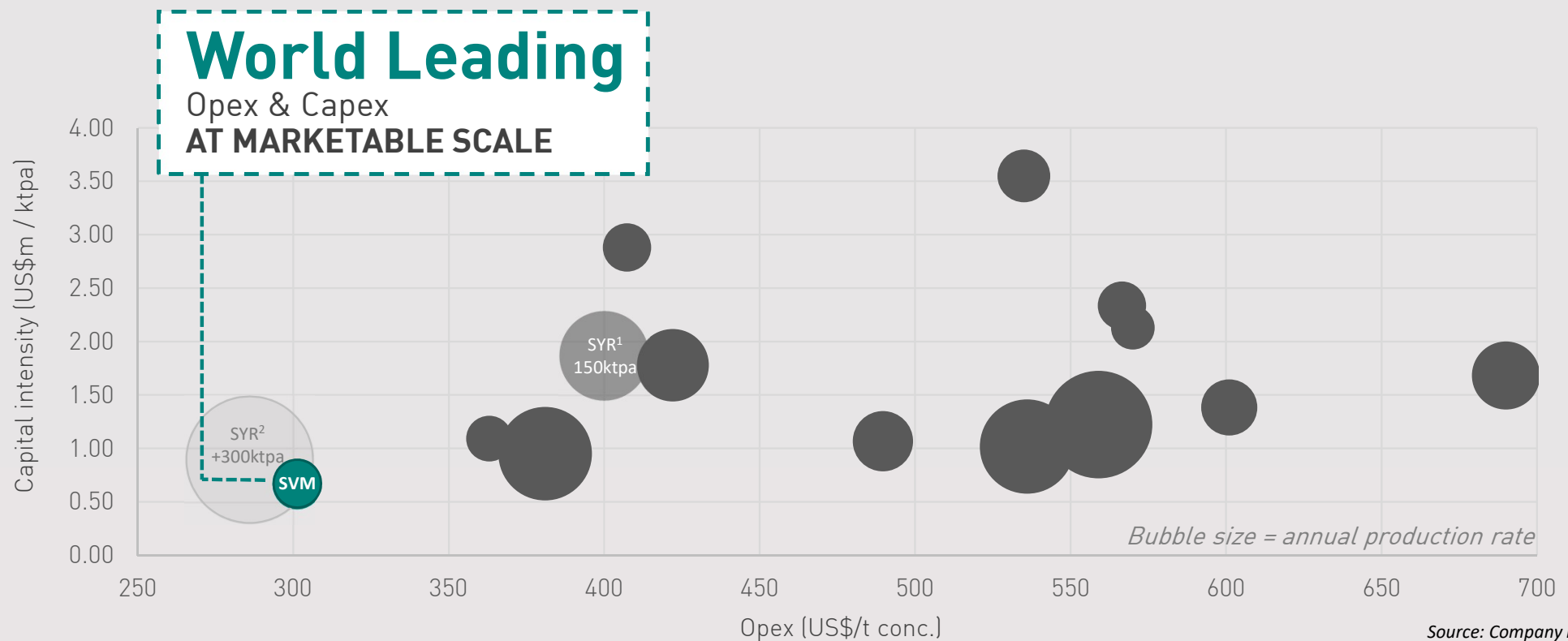
- SVM's simple, low cost strategy is the clearest and **lowest risk path to market**.
- Low cost will enable sales to existing traditional markets **and the rapidly growing battery supply chain**.
- Project economics not contingent on extreme volume & pricing assumptions.



# MALINGUNDE: A VERY RARE COMBINATION OF LOW OPEX & LOW CAPEX WITH REALISTIC SCALE.

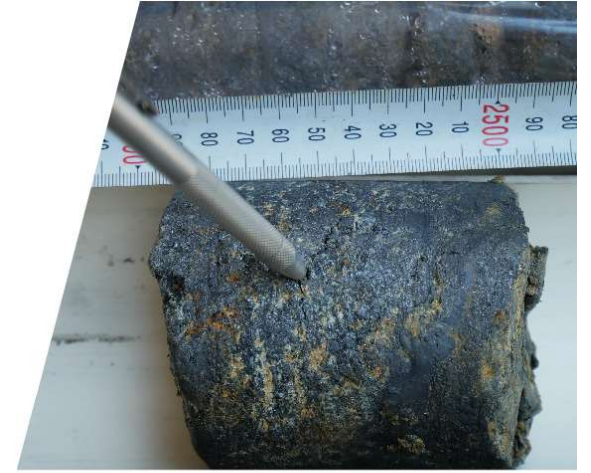
- Malingunde Scoping Study: **Q1 operating costs and best in class capital intensity.**
- Malingunde's production volumes can be realistically placed into current markets.
- Many peers are only economic at unrealistic scale & unsustainable pricing.

## SCALE v. OPEX v. CAPITAL INTENSITY





# MALINGUNDE: TECHNICAL DETAIL



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# MINING: SOFT, NEAR SURFACE MATERIAL. FREE DIG, SIMPLE AND CHEAP TO MINE.

- Saprolite is the very soft, graphite-bearing, clay-rich oxide material formed from intense weathering of the original bedrock.
- The Malingunde deposit is near surface, free dig and has a very low strip ratio of 0.5.
- By comparison, almost all graphite peers are hosted in hard rock.
- Resource update expected in Q2 based on 6,212m of infill and extensional drilling.

## WORLD'S LARGEST SAPROLITE HOSTED GRAPHITE RESOURCE

**28.8Mt @ 7.1% TGC**

(4.0% TGC cut-off)

**TOTAL SAPROLITE RESOURCE**

**8.9Mt @ 9.9% TGC**

(7.5% TGC cut-off)

**HIGH GRADE SAPROLITE RESOURCE**

## PRODUCTION TARGET

**8.0Mt @ 10.0% TGC**

**44kt**

Average  
**ANNUAL PRODUCTION**

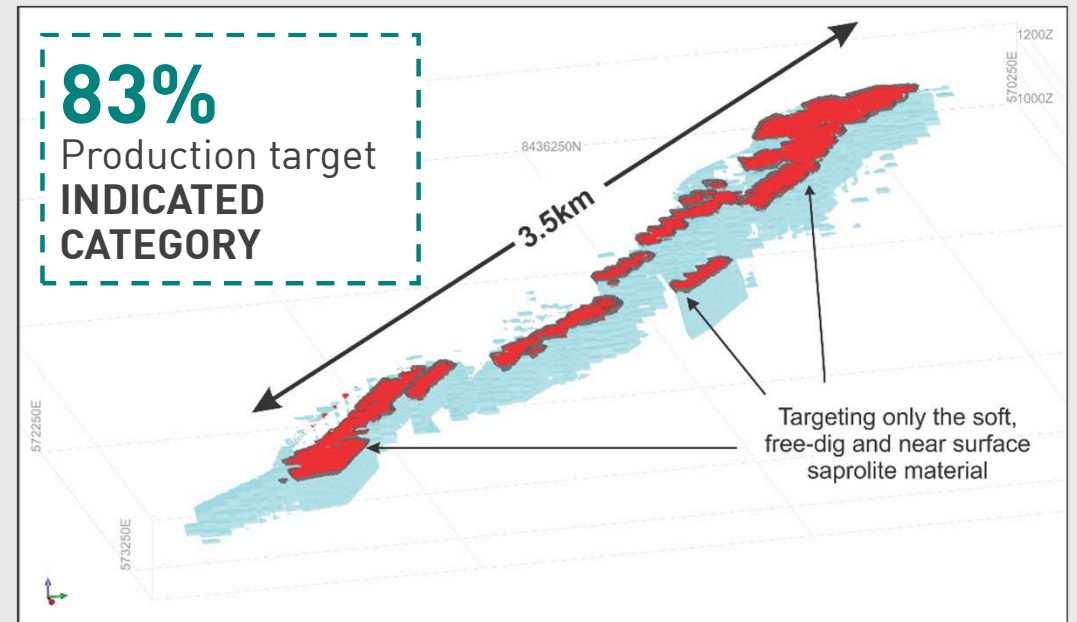


**17yrs**

Total  
**MINE LIFE**

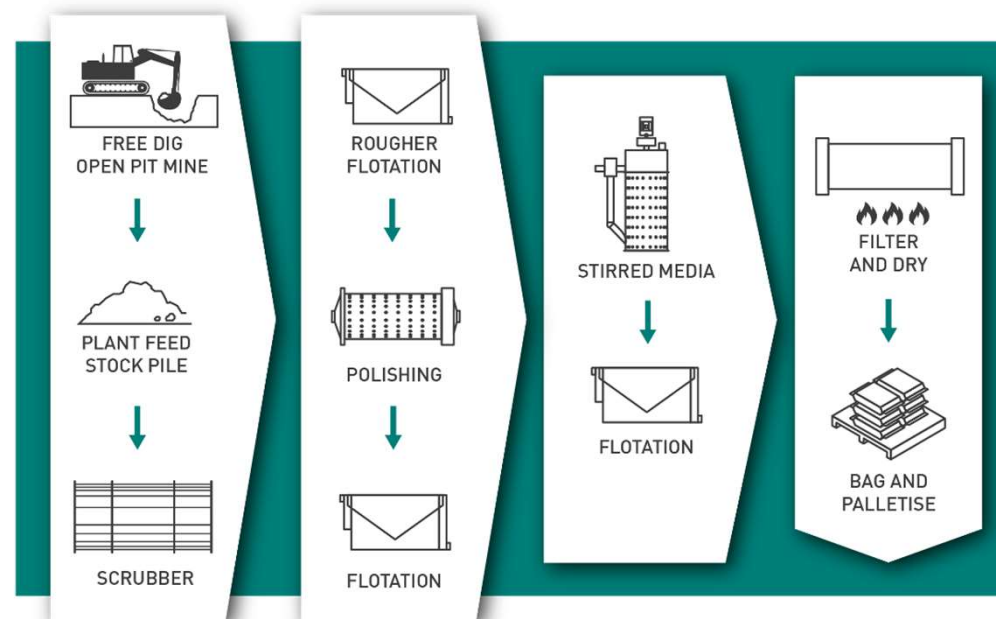


## PROPOSED MINING OVERVIEW

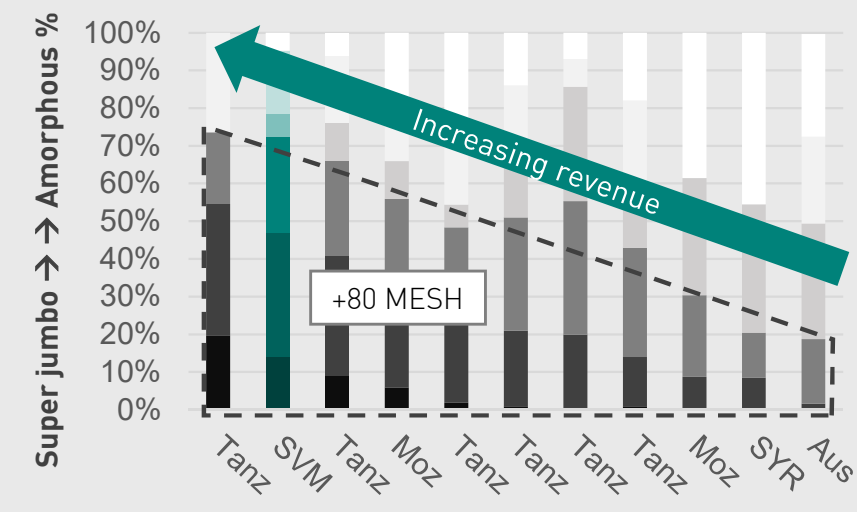


# PROCESSING: HIGH GRADE CONCENTRATES PRODUCED VIA A SIMPLE PROCESS FLOW-SHEET.

- Simple process flowsheet – no primary crush or grind.
- Significant capex & opex benefits over hard-rock processing.
- Modular design enables scalability.
- High grade concentrate across all flake size fractions.



### CONCENTRATE COMPOSITION v. PEERS



### MALINGUNDE 2017 FLOTATION RESULTS – TEST #F13

PARTICLE SIZE		C (%)	Distribution (wt. %)	Flake Category
Tyler Mesh	(µm)			
+ 32	+ 500	97	14	Super jumbo
+ 48	+ 297	96	33	Jumbo
- 48 + 80	- 297 + 177	97	25	Large
- 80 + 100	- 177 + 149	97	6	Medium
- 100 + 200	- 149 + 74	97	17	Small
- 200	- 74	95	5	Amorphous
<b>TOTAL</b>		<b>97</b>	<b>100</b>	

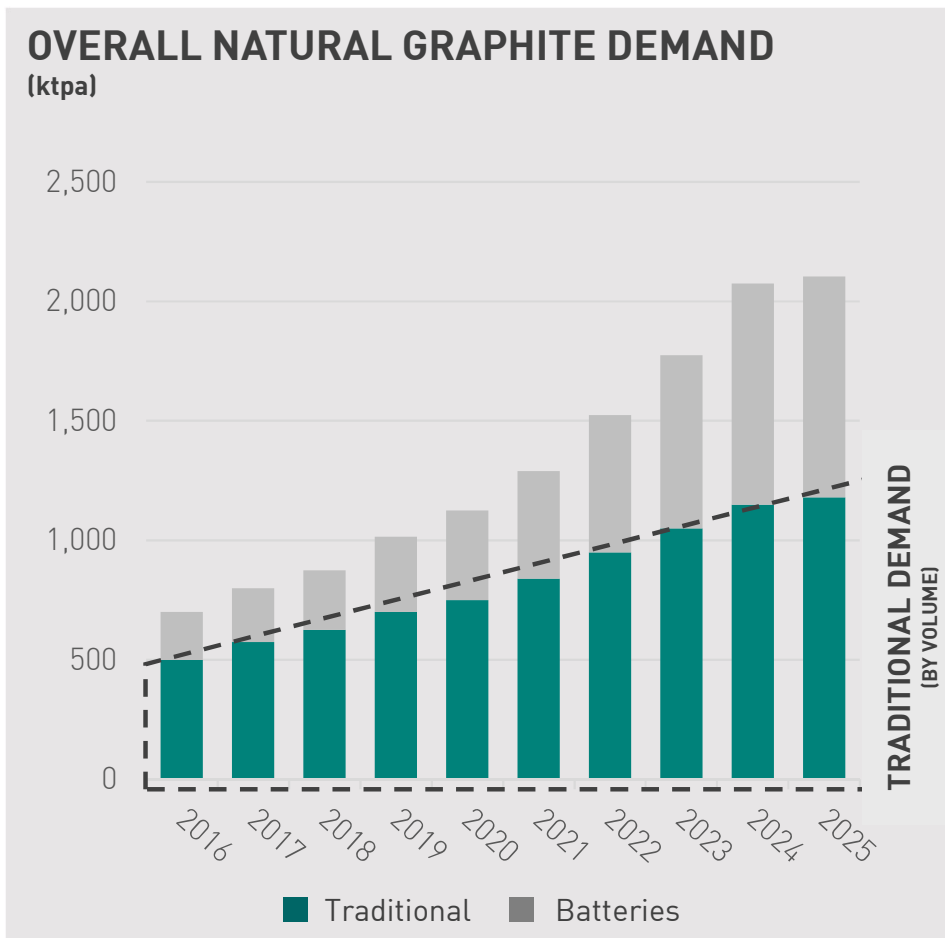


# THE GRAPHITE MARKET

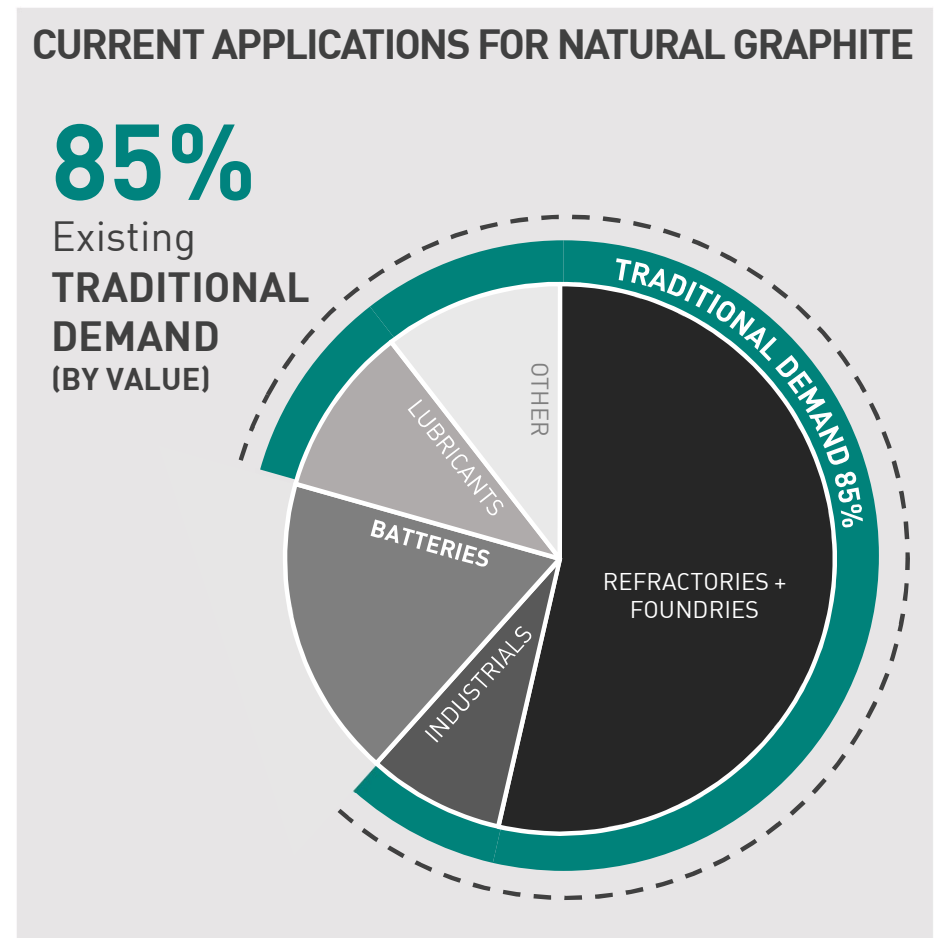


# NATURAL FLAKE GRAPHITE: UNDERSTANDING DEMAND.

- Long term growth forecasts for energy storage are very compelling.
- Significant graphite demand is also driven by **traditional industrial applications**.



Source: Canaccord Genuity



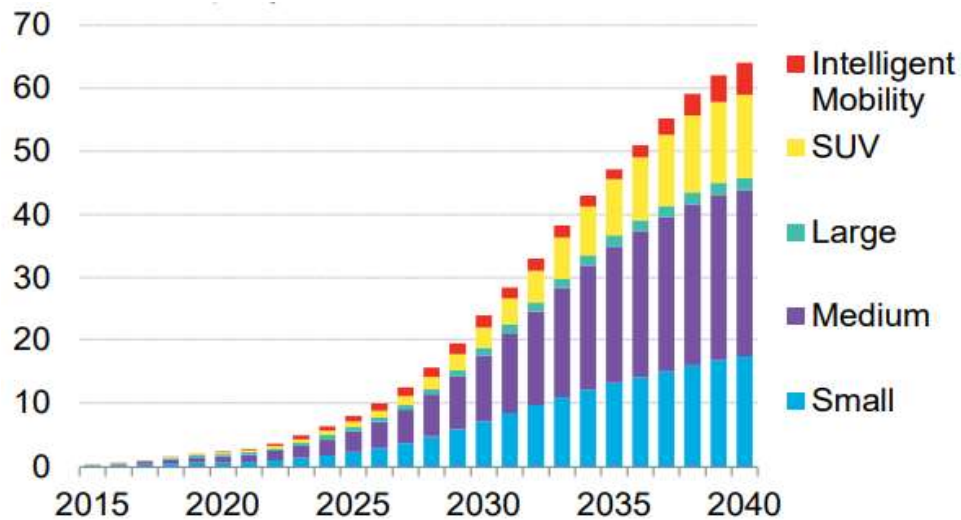
Source: Canaccord Genuity, UBS, Metal Bulletin & Company estimates

# 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.

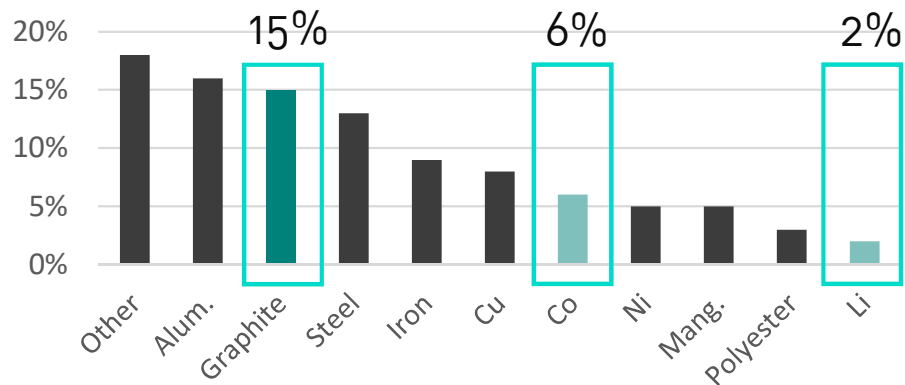
## ANNUAL GLOBAL EV SALES BY VEHICLE CLASS

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



## BATTERY PACK COMMODITY BREAKDOWN

(by weight) *UBS Evidence Lab*



**Lithium-Ion (Li-ion)**  
 Sony released the first commercial lithium-ion battery in 1991.  
 Lithium-ion batteries have high energy density and have a number of specific cathode formulations for different applications.

Graphite is a common material for use in the anode, and the electrolyte is most often a type of lithium salt suspended in an organic solvent.

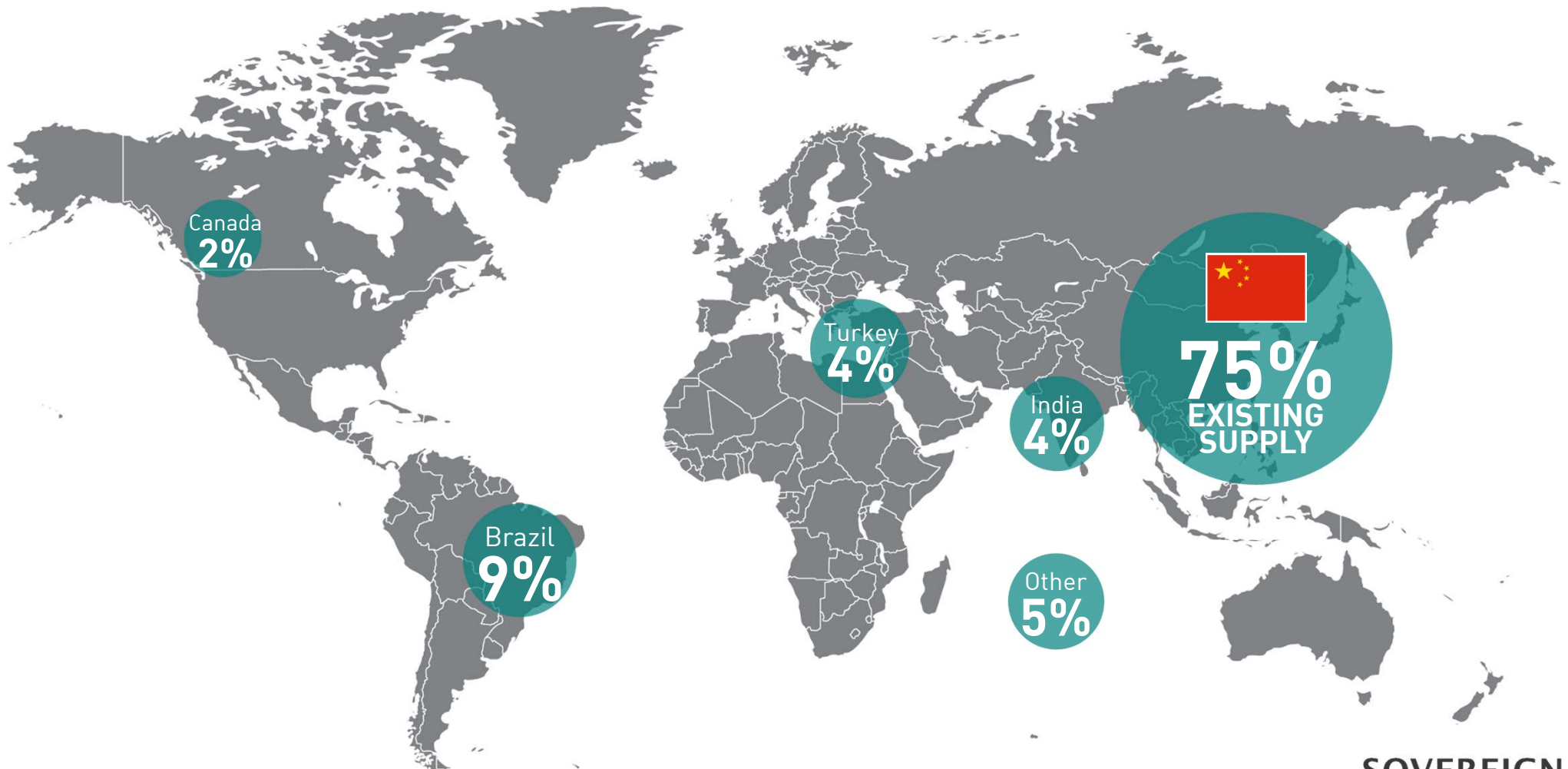
Lithium nickel cobalt aluminum oxide (LiNiCoAlO<sub>2</sub>) cathodes, also known as NCAs, are used in the batteries of vehicles such as the Tesla Model S.

Lithium cobalt dioxide (LiCoO<sub>2</sub>) cathodes are used in laptops and smartphones.



# NATURAL FLAKE GRAPHITE: UNDERSTANDING SUPPLY.

- The ability to **compete on price with China** is critical to project success, noting Chinese supply is increasingly constrained by quality & environmental factors.
- China remains the dominant and lowest cost global producer.



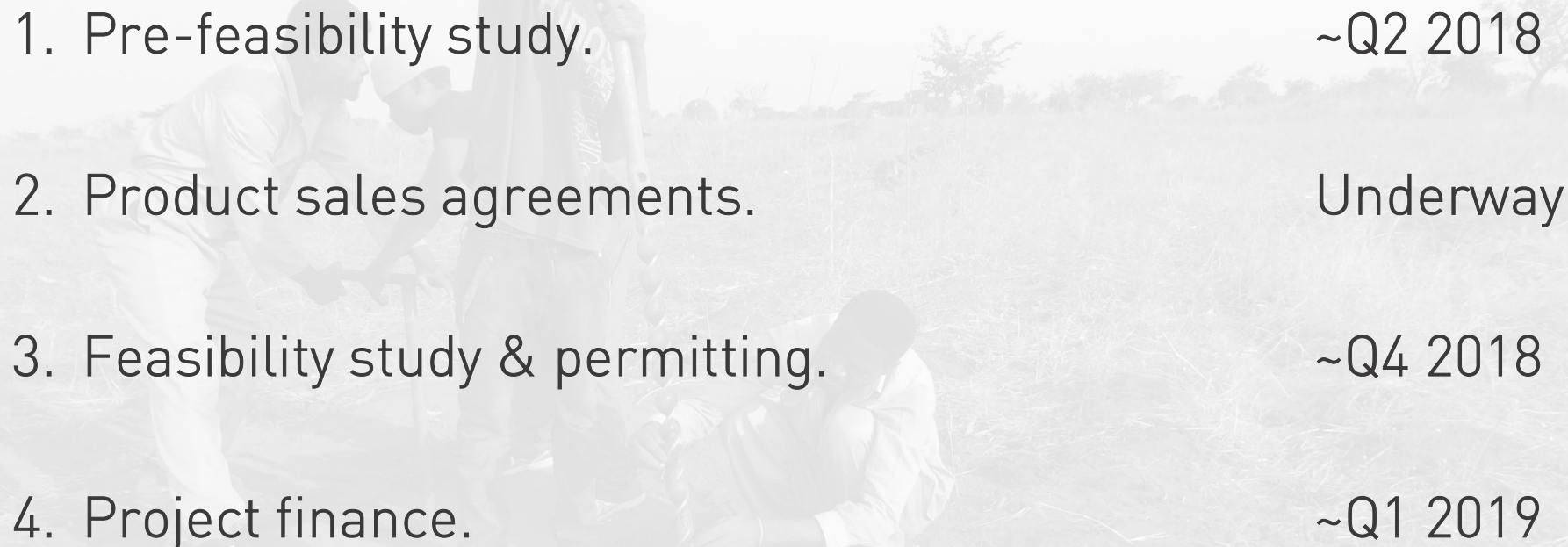
# SUMMARY



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# NEXT STEPS: RAPID PATHWAY TO PRODUCTION.

## ACCELERATED PROJECT DEVELOPMENT BASED ON EXCEPTIONAL SCOPING STUDY OUTCOMES.

- 
1. Pre-feasibility study. ~Q2 2018
  2. Product sales agreements. Underway
  3. Feasibility study & permitting. ~Q4 2018
  4. Project finance. ~Q1 2019



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

**US\$301/t**

Average  
**OPERATING  
COST**



**US\$29m**

Total  
**DEVELOPMENT  
CAPEX**



**44kt**

Average  
**ANNUAL  
PRODUCTION**



**17yrs**

Total  
**MINE LIFE**



**<1.5 years**

Capital  
**PAYBACK  
PERIOD**



## TECHNICAL

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

## FINANCIAL

- ✓ Best in class opex
- ✓ Best in class capex & capital intensity
- ✓ Access to low cost infrastructure
- ✓ Ability to enter existing & future markets
- ✓ Low capex will facilitate ease of funding

# APPENDIX

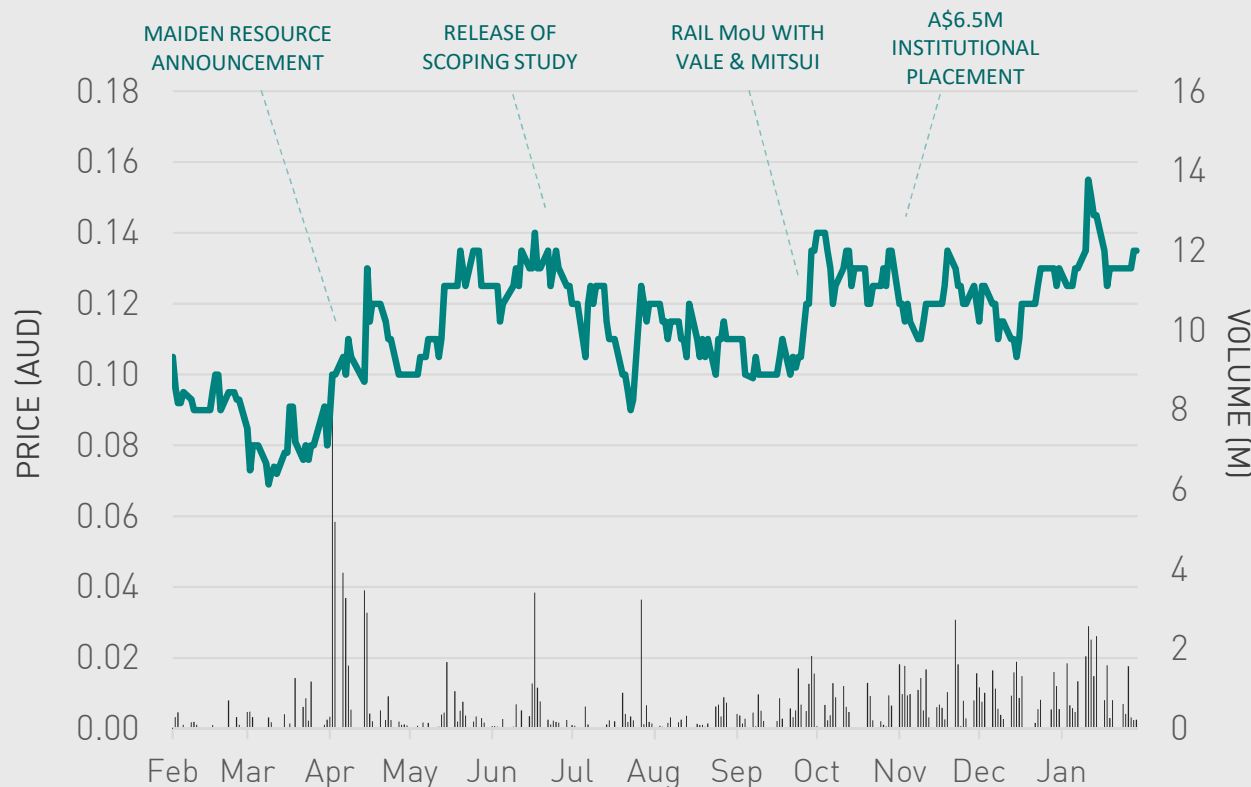


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# MARKET INFORMATION.

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

## ASX : SVM SHARE PRICE MOVEMENT



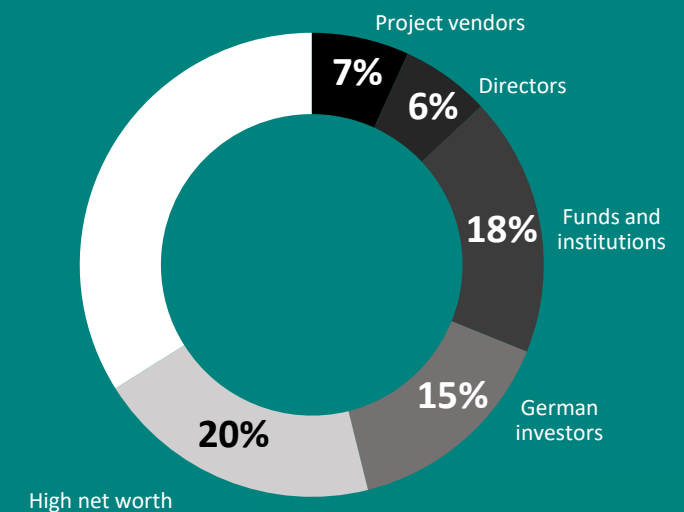
Source: ASX as at market close 2 February 2018

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

Shares on Issue	276,796,073
Unlisted Options (\$0.10 to \$0.18)	24,916,667
Performance Rights	700,000
Un-Diluted Market Capitalisation @A\$0.135	A\$37.4 m
Cash (31 December 2017)	~A\$6.6 m

<sup>1</sup>.As at 2 February 2018

## SHAREHOLDERS



**SOVEREIGN**  
METALS LIMITED

# MANAGEMENT TEAM WITH A PROVEN TRACK RECORD OF SUCCESS.

**RAISED +A\$285M IN 2017 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.

**DOMINIC ALLEN**  
*Business Development Manager*

Mr Allen is a Chartered Accountant with over 10 years commercial experience in the resources sector, including senior roles with Rio Tinto Limited and Oyu Tolgoi LLC. Mr Allen previously worked for Ernst & Young Transaction Advisory Services.

**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.



# MALINGUNDE: SIGNIFICANT ABILITY TO GENERATE CASH.

- **Rapid payback of initial capital.**
- Margin sensitivity highlights the significant cash generated across a wide range of price scenarios.

## CAPITAL ESTIMATE

(US\$M)

DEVELOPMENT CAPITAL	US\$M
Mining	0.4
Capitalised pre-strip	1.6
Processing	10.7
Infrastructure	3.0
Tailings	3.3
Indirect & ~35% Contingency	9.9
<b>Total Development Capital</b>	<b>28.9</b>

## CASH FLOW PROFILE – PRICING SENSITIVITY

(US\$, 44ktpa for 17 yrs)

Basket price (\$/t conc.)	\$800	\$1,000	\$1,200	\$1,400
Opex (\$/t conc.)	(300)	(300)	(300)	(300)
Royalty (\$/t conc.)	(40)	(50)	(60)	(70)
Margin (\$/t conc.)	460	650	840	1,030
<b>Margin (\$M per year)</b>	<b>20</b>	<b>29</b>	<b>37</b>	<b>45</b>
<b>LoM Margin (\$M, pre-tax)</b>	<b>345</b>	<b>490</b>	<b>630</b>	<b>770</b>

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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.

## CAUTIONARY STATEMENTS

The Scoping Study referred to in this presentation has been undertaken to determine the potential viability of an open pit mine and graphite processing plant constructed onsite at the Malingunde Project ("Project") and to reach a decision to proceed with more definitive studies. The Scoping Study has been prepared to an accuracy level of  $\pm 35\%$ . The results should not be considered a profit forecast or production forecast. The Scoping Study is a preliminary technical and economic study of the potential viability of the Project and is based on low-level technical and economic assessments that are not sufficient to support the estimation of ore reserves. Further evaluation work including infill drilling and appropriate studies are required before SVM will be able to estimate any ore reserves or to provide any assurance of an economic development case.

Approximately 83% of the total production target is in the Indicated resource category with 17% in the Inferred resource category. Approximately 96% of the scheduled throughput over the first four years (the estimated maximum payback period based on downside pricing) of production is in the Indicated category, with 4% in the Inferred category. SVM has concluded that it has reasonable grounds for disclosing a production target which includes a modest amount of Inferred material. However, there is a low level of geological confidence associated with Inferred mineral resources and there is no certainty that further exploration work (including infill drilling) on the Malingunde deposit will result in the determination of additional Indicated mineral resources or that the production target itself will be realised.

The Scoping Study is based on the material assumptions outlined in an announcement made on 20 June 2017. These include assumptions about the availability of funding. While SVM considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range outcomes indicated in the Scoping Study, additional funding will likely be required. Investors should note that there is no certainty that SVM will be able to raise funding when needed. It is also possible that such funding may only be available on terms that dilute or otherwise affect the value of the SVM's existing shares. It is also possible that SVM could pursue other 'value realisation' strategies such as sale, partial sale, or joint venture of the Project. If it does, this could materially reduce SVM's proportionate ownership of the Project.

The Company has concluded it has a reasonable basis for providing the forward looking statements included in this announcement and believes that it has a reasonable basis to expect it will be able to fund the development of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

# COMPETENT PERSONS STATEMENT.

## COMPETENT PERSONS STATEMENT

The information in this presentation that relates to Mineral Resources is extracted from an announcement dated 18 April 2017. 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 Metallurgical Testwork Results is extracted from announcements dated 23 November 2016 and 27 February 2017. These announcements are 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 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.

The information in this presentation that relates to Mining, Processing, Infrastructure, Production Targets, and Capital and Operating Costs is extracted from an announcement dated 20 June 2017. 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 Mining, Processing, Infrastructure, Production Targets, and Capital and Operating Costs based on and fairly represent information compiled or reviewed by Mr David Dodd, who is a Fellow of the Southern Africa Institute of Mining and Metallurgy. Mr Dodd is a consultant to Amec Foster Wheeler. Mr Dodd 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 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.

## PRODUCTION TARGET

The Production Target referred to in this presentation is based on SVM's Scoping Study for the Malingunde Project released to the ASX on 20 June 2017. The information in relation to the Production Target that the Company is required to include in a public report in accordance with ASX Listing Rules 5.16 and 5.17 was included in SVM's ASX Announcement released on 20 June 2017. The Company confirms that the material assumptions underpinning the Production Target referenced in the 20 June 2017 release continue to apply and have not materially changed.

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**SOVEREIGN**  
METALS LIMITED





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