



# **BLACK ROCK**

**MINING LIMITED**

**AGM PRESENTATION**  
**NOVEMBER 28 2017**

*Naturally Better Graphite*



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## COMPETENT PERSONS

The information in this report that relates to Exploration Results and Mineral Resource Statements is based on information compiled by John de Vries, who is a member of the AusIMM. He is an employee of Black Rock. John de Vries 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 2004 and 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

The information that relates to Mineral Resources is based on and fairly represents information compiled by Mr Lauritz Barnes, (Consultant with Trepanier Pty Ltd) and Mr Aidan Platel (Consultant with Platel Consulting Pty Ltd). Mr Barnes and Mr Platel are members of the Australian Institute of Mining and Metallurgy and have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Barnes, Mr Platel and Mr de Vries consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.

The Ore Reserves have been compiled by Oreology Consulting Pty Ltd, under the direction of Mr John de Vries, who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr de Vries is a full-time employee of Black Rock Mining and holds performance rights in the company as part of his total remuneration package. Mr de Vries has sufficient experience in Ore Reserve estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves".

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# 1. Black Rock Mining

## DEVELOPER OF THE MAHENGE GRAPHITE MINE



### Mahenge Graphite Project – truly a world-class deposit

- Lowest quartile FOB costs of US\$378 per tonne steady state
- Upper quartile margins of US\$863 per tonne *based on credible price deck*
- Best in class peak capex at US\$90m against 250k tonnes per annum of steady state production
- Scalable and option rich



### Successfully delivered optimised PFS with disciplined “crawl walk run” strategy

- Increased NPV<sub>10</sub> to US\$905m after tax, inclusive of 16% free carried interest, inspection fee and royalty increases (announced in July 2017)
- Ore Reserves increased to 69.6 million tonnes at 8.5% TGC
- Production rate increased to a maximum of 250k tonnes per annum
- Steady state EBITDA increased to over US\$220m per annum



### Simple concentrate only business model

- Investable & fundable
- Avoids over stressing balance sheet
- Avoids corporate distraction
- Simplifies marketing and avoids competing with customers

## 2. Corporate Overview

### SENIOR MANAGEMENT TEAM CONTINUES TO BUILD ON TRANSITION FROM EXPLORER TO DEVELOPER



**JOHN DE VRIES**  
**CEO and Executive Director**

Mining Engineer with over 35 years-experience in mine development and operations. Previously, General Manager Technical Services with St Barbara and integral in the 2014 turnaround. John has held positions at BHP Ni West, and was Global Business Manager, Advanced Mining Solutions with Orica Mining Services. John's geographic experience includes Africa, the Pacific, the FSU, North America and South America.



**RICHARD CROOKES**  
**Non-Executive Chairman**

A geologist with over 28 years executive experience in the resources and investments industry. He is currently an Investment Director of EMR Capital and was formerly a Director of Macquarie Bank's Metals Energy Capital Division and was Chief Geologist with Ernest Henry Mining.



**STEVE COPULOS**  
**Non-Executive Director**

Businessman and investor with over 30 years experience in a wide range of industries. Experienced Director for both listed and private companies. Largest BKT shareholder. Committed to increasing value per share.



**GABRIEL CHIAPPINI**  
**Non-Executive Director and Company Secretary**

Gabriel is an experienced ASX director & has been active in the capital markets for 17 years. Has assisted in AUD\$450m raising & has provided investment & divestment guidance. Gabriel specialises in Start-Up companies & has been involved with 10 ASX IPO's in the last 12 years. He is a member of the AICD & CA ANZ



**ANTHONY HALL**  
**Head of Strategy**

A qualified lawyer with 20 years' commercial experience. Previously Managing Director of ASX listed Highfield Resources Ltd from 2011 to 2016. During his tenure the company's market cap grew from \$10m to \$500m & over \$140m was raised to progress potash projects in Spain. Anthony is also an Executive Director of borate and lithium developer APBL (ABR.ASX).

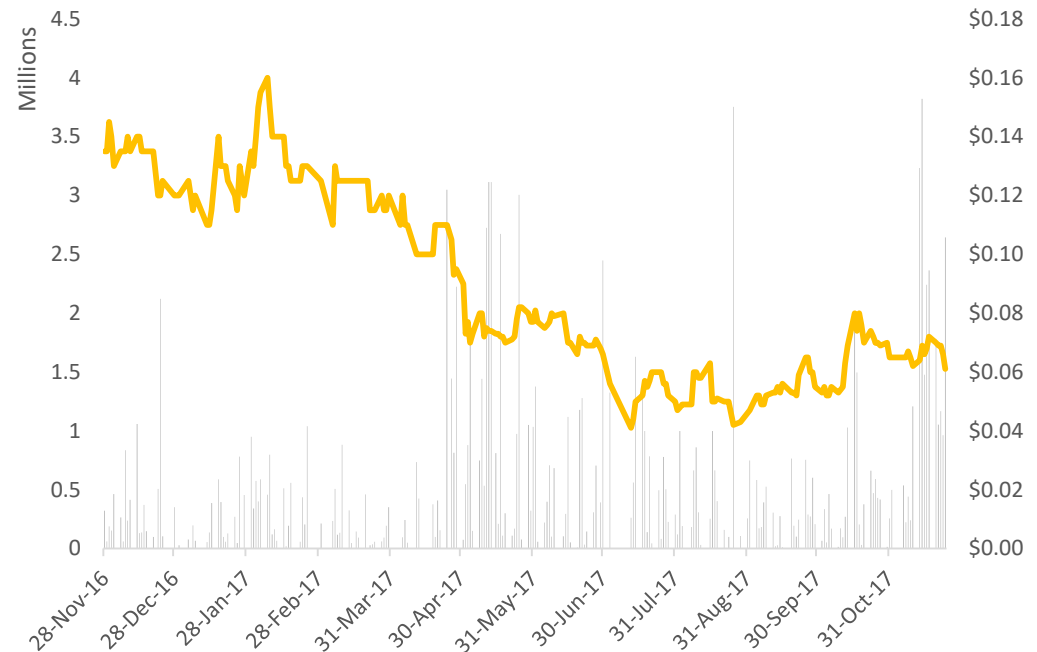
## 2. Corporate Overview

# UNDEMANDING MARKET CAPITALISATION FOR A WELL FUNDED ADVANCED WORLD CLASS PROJECT

### CORPORATE SNAPSHOT

ASX Ticker	BKT
Share Price	\$0.062
Shares on Issue <sup>1</sup>	443.7m
Options	47.2m
Performance Rights	9.4m
Market Capitalisation	\$27.5m
Cash on hand as at 30 Sept 2017 <sup>1</sup>	\$5.25m
<b>Top 20 Shareholders</b>	<b>46.67%</b>
<b>Major shareholders</b>	
Stephen Copulos	24.63%

### SHARE PRICE (12-MONTHS)



<sup>1</sup>Following settlement of capital raising announced to the ASX on 6 November 2017

## 2. Corporate Overview



### **TANZANIAN CENTRIC OPERATING MODEL** **BUILDING SYSTEMS AND PROCESSES TO UPLIFT** **LOCAL SKILLS TO A POINT WHERE ASSET CAN** **BE RUN FROM WITHIN COUNTRY:**

- Bolt on/off
- Lower long term cost base
- Increased premium (bolt on/off)
- Consistent with legislative reset and credible risk management strategy

#### **TANZANIA**

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- Operations & asset management
- P&L and Balance Sheet for asset accountability in country
- Build up systems and processes to support independent operations

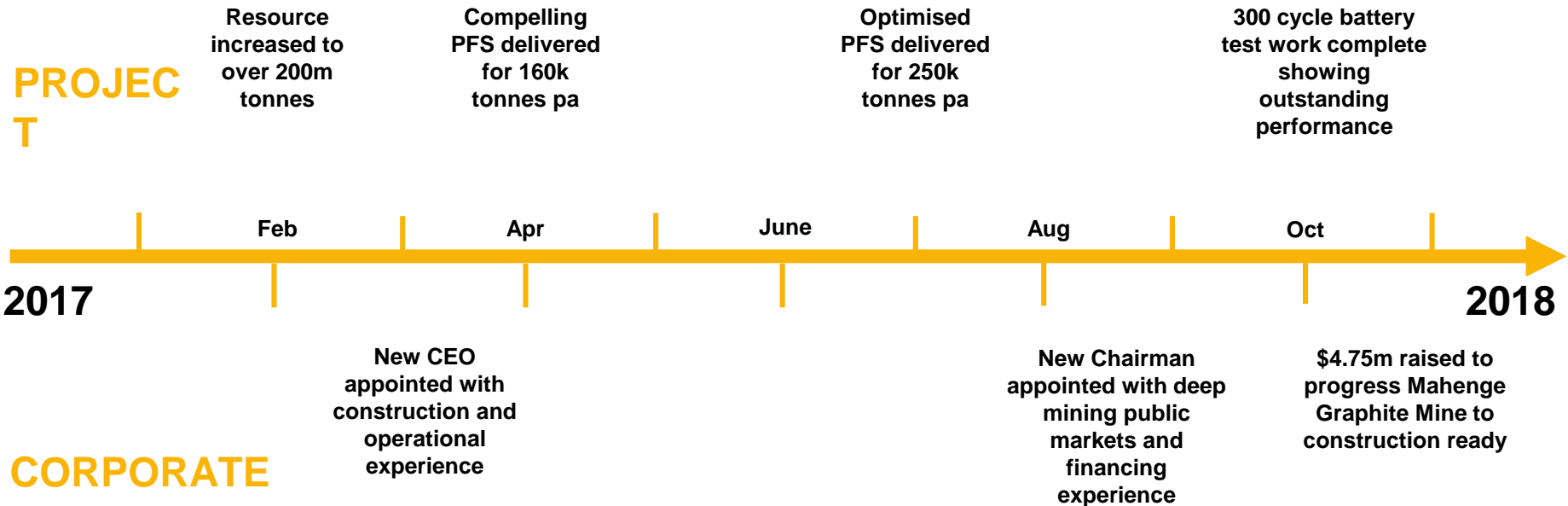
#### **PERTH**

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- Governance
- CFO, treasury
- Marketing
- HR & policy

### 3. 2017 – From Explorer to Developer

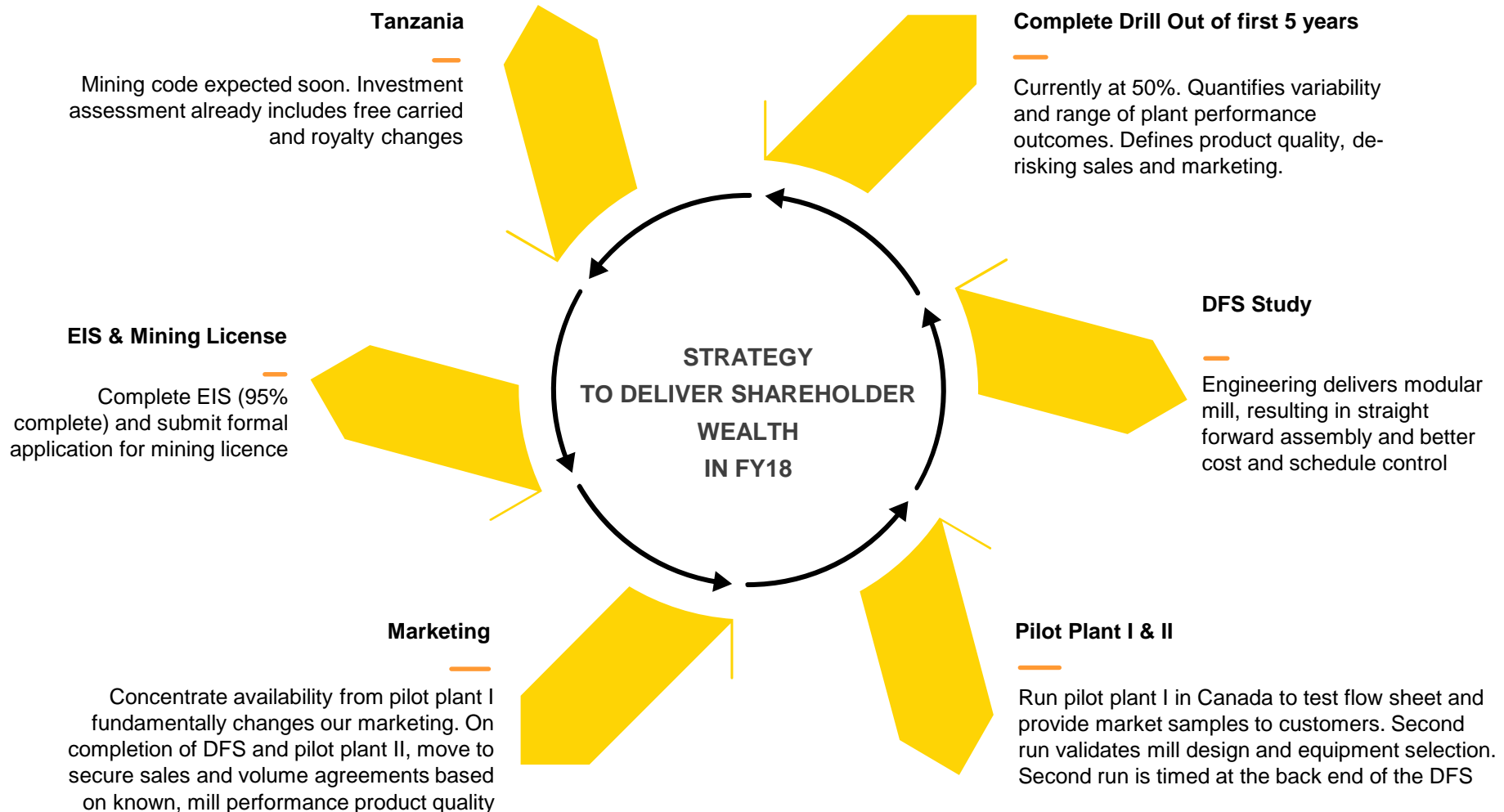
## TRANSITIONAL YEAR THAT ESTABLISHED THE MAHENGE GRAPHITE MINE AS A WORLD CLASS PROJECT





# 4. 2018 – Construction Ready

## CLEAR FOCUS



# 5. Mahenge Graphite Mine

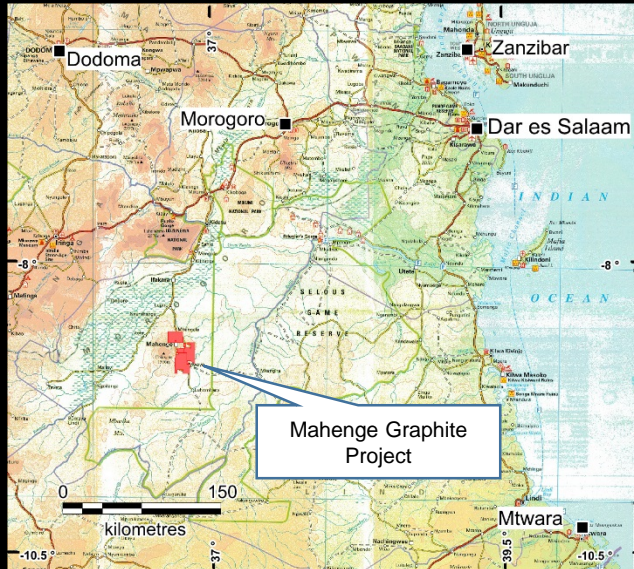


Image showing project location in Tanzania

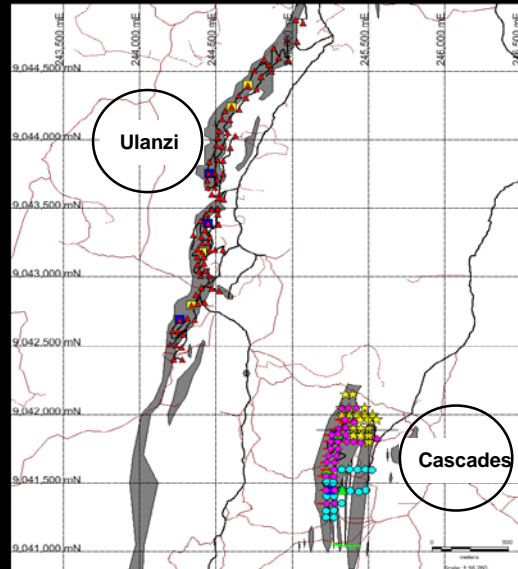


Image showing Ulanzi and Cascades localities. Grid spacing is 500m.

**HIGH-GRADE  
 RESOURCE CAPABLE  
 OF DELIVERING A  
 MULTI-GENERATIONAL  
 MINE WITH  
 SIGNIFICANT SCALE**

Feed profile is derisked with 69.6 million tonnes ore reserve delivering 80% of plant feed\*

Three staged bootstrap development model gives magnitude without overreach

Good infrastructure with 220 kv power, and rail 60 km away at Ifkara, and new bridge over Kilombero River

Total Resource contains over 16 million tonnes of graphite

\* ASX Release of 20 July 2017

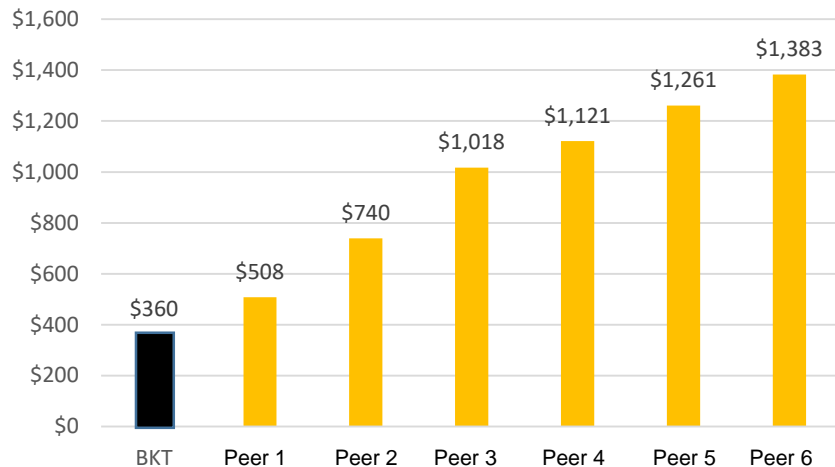
# 5. Mahenge Graphite Mine

## OUTSTANDING FINANCIAL METRICS

### KEY PFS INVESTMENT METRICS

- NPV<sub>10</sub> of US\$905m
- IRR of 45.1%
- EBITDA in first full year of production of US\$220m (EBITDA margin of 66%)

PEAK CAPITAL INTENSITY VS FINAL RUN RATE



SENSITIVITY ANALYST ON BASKET PRICE ASSUMPTION

Basket Price Assumption (US\$ per tonne)	Price Assumption (US\$ per tonne)	NPV <sub>10</sub> (nominal) US\$ m	IRR %
+400	1,641	1,421	62.8
+200	1,441	1,163	54.0
BASE	1,241	905	45.1
-200	1,041	648	36.0
-400	841	390	26.6

## 5. Mahenge Graphite Mine

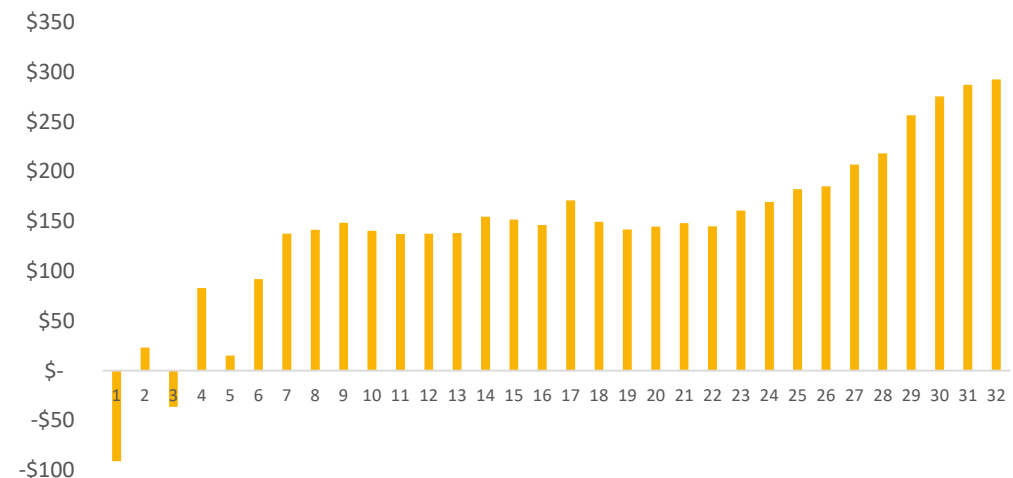
### INDUSTRY LEADING PRE-PRODUCTION CAPEX, MARGIN, CONCENTRATE GRADE WITH A MULTI-GENERATIONAL MINE LIFE

Key parameters of the Mahenge Graphite Project

- Three stage construction to deliver a maximum of **250k tonnes per annum of 98.5% graphite concentrate for 31 years**. Stages two and three to be funded from free cash flow
- Pre-production capex of **US\$90.1m\***
- Steady state opex reduced to **US\$378 per tonne**
- Realistic basket price assumption of **US\$1,241 per tonne delivering an operating margin of US\$863 per tonne**
- Assumed feed grade of **8.5% TGC**
- Life of mine strip ratio of **0.8:1 (early years are 0.5:1)**
- Post-tax unlevered project **NPV<sub>10</sub> of US\$905m**
- Post-tax, unlevered **IRR of 45.1%**
- EBITDA in first full year of production **US\$220 million (EBITDA margin of 66%)**

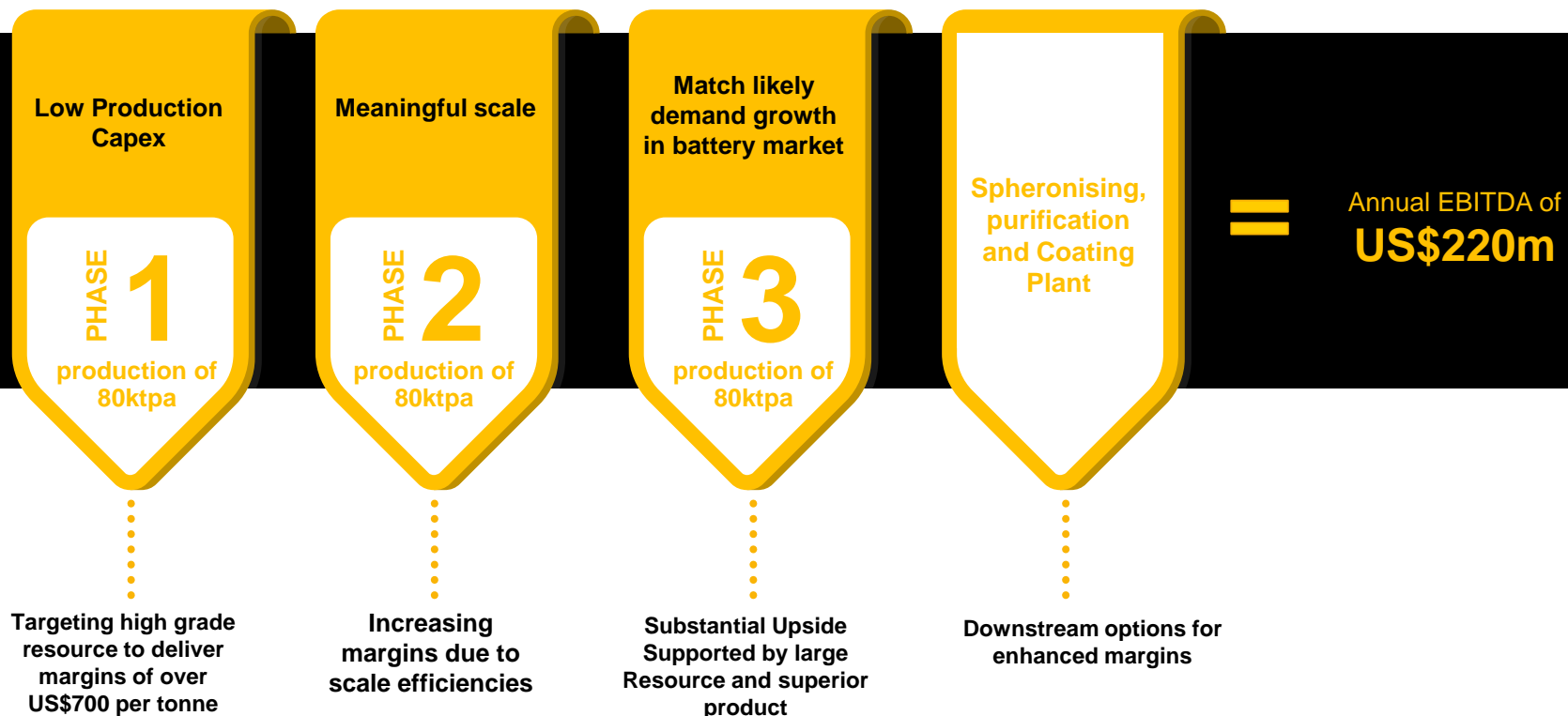
KEY FINANCIAL PARAMETERS	Unit	Single Module	Two Module	Three Module	LOM
Commencement	(Year)	1 & 2	3+	5	31
Capital Cost	(USD M, real)	90.7	72.2	81.7	243.7
IRR - after tax	(%, nom)	35.3%	43.8%	45.6%	45.6%
NPV @ 10%	(USD nom)	202	506	905	905
Total Sales	('000 t)	3,265	5,142	6,738	6,738
FOB Cash Costs	(USD/t, real)	513	382	378	378

#### MODULES 2 AND 3 FUNDED FROM CASHFLOW



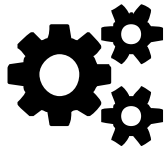
\* ASX Release of 8 August 2017

## 5. Mahenge Graphite Mine



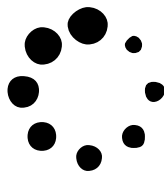
- Disciplined focus on realistic low pre production capex to ensure financing is achievable and ramp up profile properly matches likely increases in market demand
- Meaningful scale supported by large multi-generational Resource
- Long-term product development and partner strategy supported by superior graphite product

## 5. Mahenge Graphite Mine



### ENGINEERING STUDIES

- Modular approach results in higher level of final engineering before execution decision is made
- Modular approach minimises in-field risk via completion testing and fixed price deliver at factory gate
- Assembly vs construction minimises in-field complexity



### ORGANISATION DEVELOPMENT

- Develop systems and processes to support business in-country
- Invest in skills as part of DFS to facilitate smooth start-up and running of module 1
- Boot strap approach results in orderly scale up of workforce as successive modules are added to the business



### MARKET DEVELOPMENT

- Pilot plant and bulk sample early gives customers concentrate at least two years before commercial operation
- Extended battery test program gives consumers a “cookbook” to start with
- Funded and resourced component of study

## 5. Mahenge Graphite Mine

### MOU'S SIGNED WITH REAL INDUSTRY PARTICIPANTS



**MEIWA CORPORATION**

#### MEIWA

- Part of Mitsubishi group of companies
- Existing major player in battery space



#### BOTIAN

- Existing spherioniser in Chinese market
- Creates capacity to deliver final product without investing capital, organisational development and management bandwidth

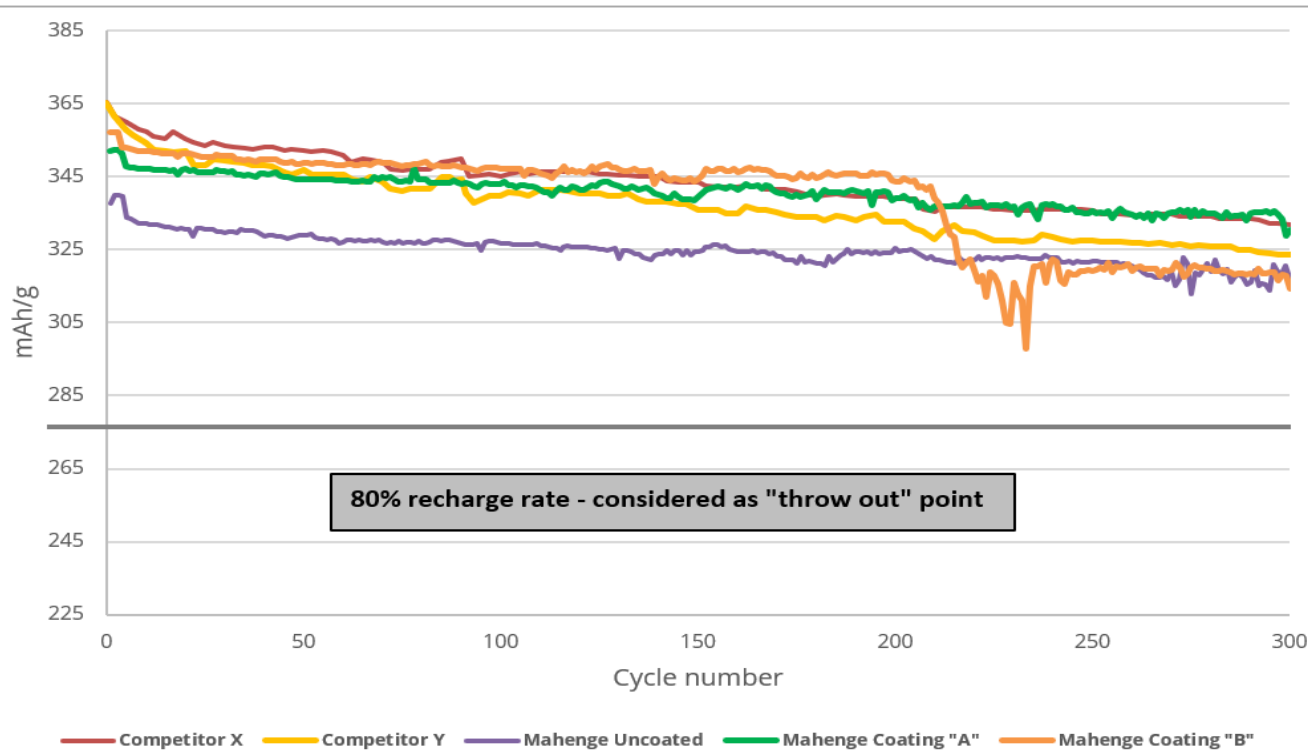


#### BATTERY TESTING

- Long cycle data available to customers to facilitate acceptance testing

## 5. Mahenge Graphite Mine

### 300 CYCLE TESTING – INDUSTRY STANDARD FOR CONSUMER APPLIANCE



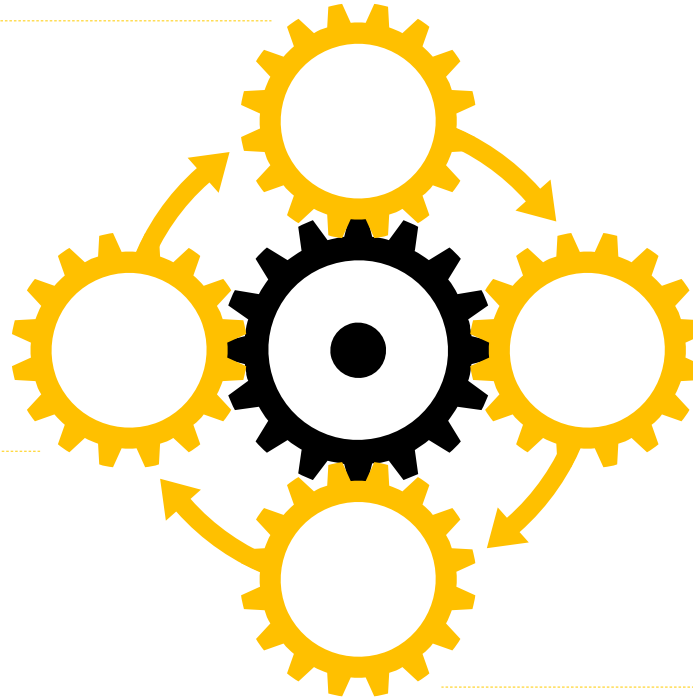
- The evidence from Mahenge graphite's performance at 200-cycles indicates it **strongly outperforms commercially available products**, potentially establishing new performance benchmarks of natural graphite in the battery market.
- Establishing new industry performance benchmarks is an important step in the Company's commercialisation strategy



## 5. Mahenge Graphite Mine

Black Rock Management believes the Mahenge Graphite Project works under the announced new mining framework

In the absence of a formal State Agreement, Black Rock Mining will be assuming the announced mining framework applies and it will use the framework subject to renegotiation of a few critical elements associated with financial stability



Black Rock Mining is in the process of submitting an EIS and is preparing for the new mining code via completing of an application for a Mining Licence under the existing legislation

Any State Agreement that is likely to be achieved in the medium term and will only enhance Black Rock Mining's position

### ONCE THE MINING CODE IS COMPLETED:

- Recommence some work as a sign of goodwill once mining is signed (Pilot Plant 1 – provides concentrate for marketing)
- Resume DFS once mining licence is granted
  - Complete drill out and Pilot Plant 2
  - Commence engineering, organisational development and increase marketing

## 6. Graphite Market

### DEMAND INCREASING DRIVEN BY ENERGY EFFICIENCY AND STORAGE BUILDING CLADDING

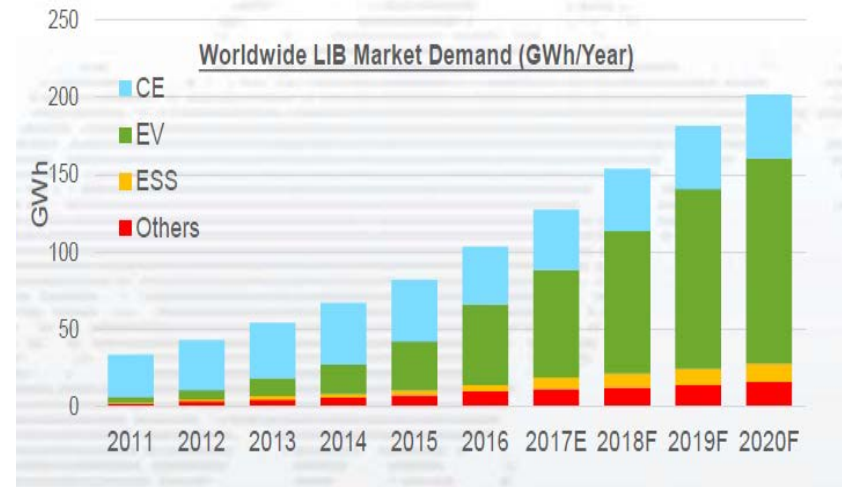


Increased regulation to drive move from polystyrene to expandable flake graphite resulting from unfortunate incidents at:

- Grenfell Tower – London
- Torch Tower - Dubai
- Lacrosse Building – Melbourne

Volume estimates vary from 250k tonnes pa to over 1m tonnes pa of flake graphite within five years

### LI-ION BATTERIES



ProGraphite(a) projects 60% growth in flake graphite demand between 2016 and 2025, with LIB growth dominating at 15.7% CAGR

Roskill(b) projects ~10% CAGR in total graphite demand from LIB between 2016 and 2026 –overall increase ~700,000 tons

Source: Yuan Gao, Ph. D. President & CEO Pulead Technology Industry Co. Ltd. "Chinese EV Market & Cathode Materials Used for Automotive LIBs" 2017 International Lithium & Graphite & Cobalt Conference

## 6. Graphite Market

### **EXISTING SUPPLY UNDER PRESSURE DUE TO ENVIRONMENTAL REGULATION AND REDUCTION IN SYNTHETIC SUBSTITUTES**

#### **Natural**

Majority of current global supply comes from China.

China has moved increased anti pollution emphasis, crack downs on undocumented and unlicensed operation procedures and reduced access to explosives supply.

Anecdotal evidence suggests this has resulted in 40% permanent closures of graphite mines.

#### **Synthetic**

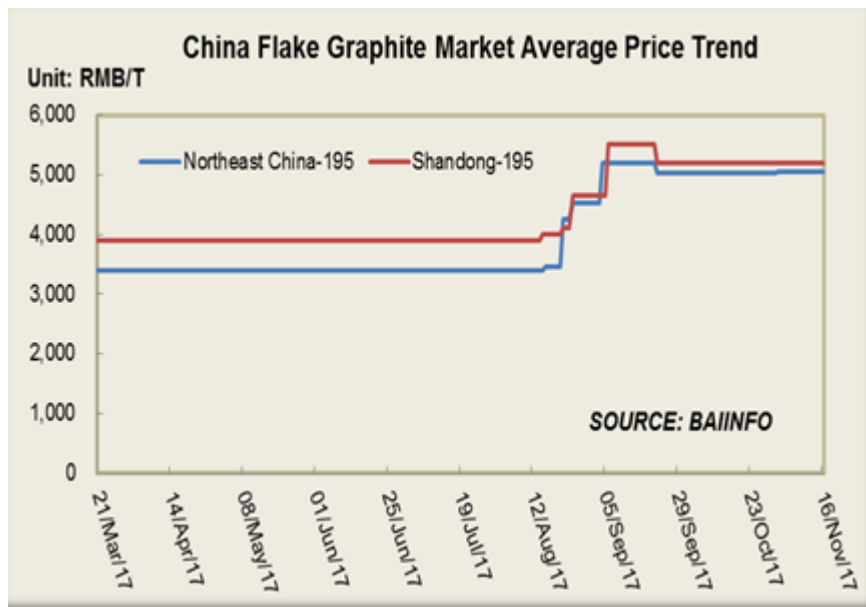
Within China, coal tar price increased during 2016 from RMB1,400/t to RMB2,200/t and is currently (September 2017) between RMB2,500/t and RMB3,000/t with resulting anode grade coke from India moving from US\$230/t in late 2016 to over US\$500/t with spot pricing recently exceeding US\$1,000/t.

Closure of facilities during last electrode arc furnace (EAF) downturn, consolidation of suppliers and shortage of needle coke has pushed prices up from ~US\$ /lb in May to US\$4 to US\$10 lb

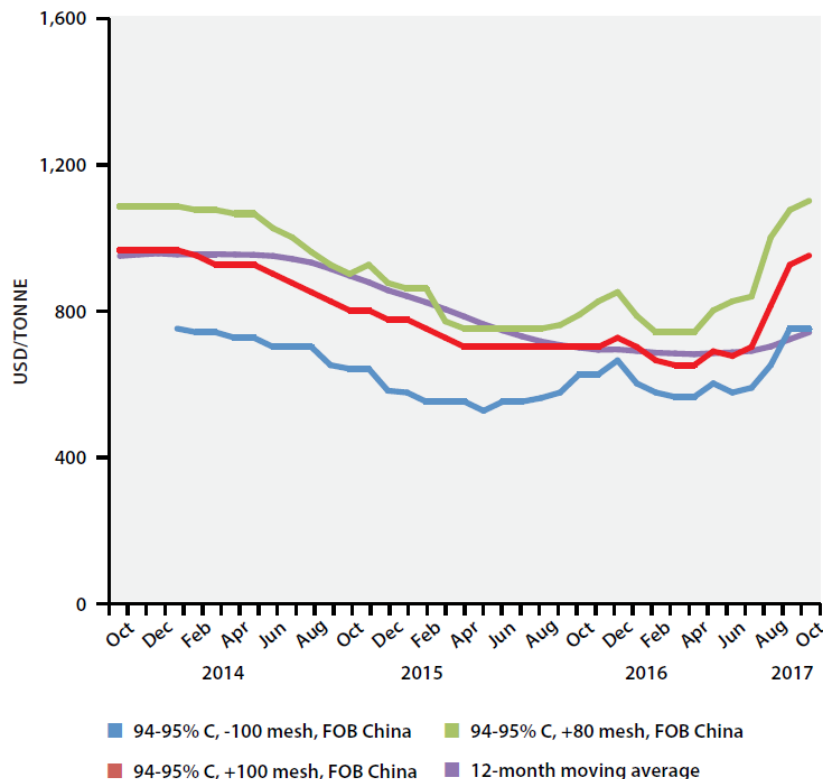
Source: Richard Morgan – “The global outlook for the graphite market” - 2017 International Lithium & Graphite Conference  
Kerry Hotel, Hong Kong, November 13-14, 2017

# 6. Graphite Market

**PRICES INCREASING DUE TO DEMAND INCREASING AND SUPPLY DECREASING**



Source BAIINFO.com



Source: Benchmark Mineral Intelligence



## 7. Black Rock Mining Summary

### DEVELOPING THE MAHENGE GRAPHITE MINE

The Mahenge Graphite Project has a JORC Compliant Mineral Resource Estimate of 211.9 million tonnes at 7.8% Total Graphitic Carbon (“TGC”) for **over 16 million tonnes of contained graphite.**

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### INDUSTRY LEADING LOW CAPEX

The Company’s optimised PFS released in August 2017 estimates capex at US\$90.1m for phase one production of 83,000 tonnes per annum.

Phases two and three are self funded and adds a further 83,000 tonnes per annum each, taking total production to 250,000 tonnes per annum.

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### INDUSTRY LEADING MARGIN

Cash costs to port in full production estimated at US\$378 per tonne, significantly lower than most African peers.

With industry leading product concentrate grade and attributes selling price likely to be higher than other developers.

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### COMPELLING FINANCIAL METRICS

Post-tax unlevered project NPV<sub>10</sub> of USD \$905m after tax, inclusive of 16% free carried, inspection fee and royalty increase

EBITDA in first full year of production US\$220 million (EBITDA margin of 66%).

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### SIGNIFICANT SCALE OPPORTUNITIES

Ability to add scale or life given initial 32 year mine life uses around 30% of the Resource’s contained graphite.

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### INCREASING DEMAND AND CHALLENGING SUPPLY DYNAMIC

Building cladding and lithium-ion batteries driving demand at very significant annual growth rates with production of natural flake graphite and synthetic substitutes decreasing. Pricing data proving out positive supply demand dynamic



# **BLACK ROCK**

**MINING LIMITED**

