



**BLACK ROCK**  
MINING LIMITED

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# **MAHENGÉ**

## **BEST IN CLASS GRAPHITE PROJECT**

**Africa Down Under Conference, Perth**  
4-6 September 2019



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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 Patel (Consultant with Patel Consulting Pty Ltd). Mr Barnes and Mr Patel 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 Patel 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 Black Rock Mining, 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".



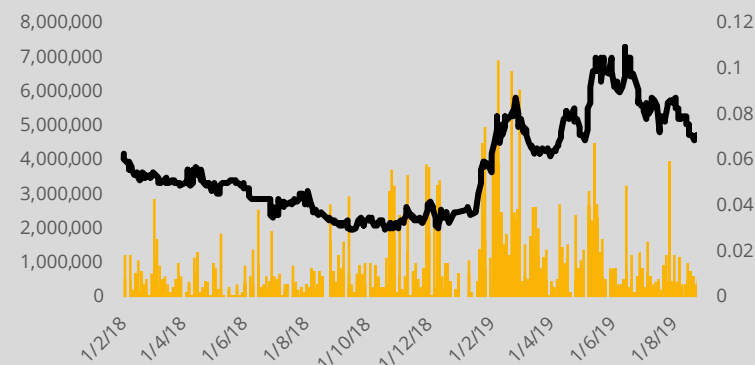
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**Black Rock Mining Limited** is an Australian based company listed on the Australian Securities Exchange (ASX:BKT). The Company has a 100% interest in the Mahenge Graphite Project located in Tanzania. The Project has a JORC compliant Mineral Resource Estimate of 212m tonnes at 7.8% TGC\*. It also has Ore Reserves of 70m tonnes at 8.5% TGC. The Ore Reserves support a mine life of up to 350k tonnes of graphite per annum for a reserve life of 16 years.

The Company is ready to commence construction subject to financing and confirmation of the Tanzanian Government agreement.

ASX Ticker	BKT
Share Price (as at 23 August 2019)	A\$0.071
Shares on Issue	622.5m
Options	57m
Fully Diluted Market Capitalisation	A\$41m
Top 20 Shareholders	c.42%







**JOHN DE VRIES**  
**CEO,**  
**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.



**RAYMOND HEKIMA**  
**Vice President –**  
**Corporate (Tanzania)**

Holding qualifications in Environmental Sciences and Management with over 13 years experience with Government and Corporate sectors. Raymond is responsible for overall business and operations in Tanzania and manages relationships and interactions with, National Government, Local Government, NGO's and Community relations.



**GABRIEL CHIAPPINI**  
**Non-Executive Director**  
**& Co-Secretary**

A Chartered Accountant with over 20 years' experience in the commercial sector. Over the last 15 years he has held positions of Director, Company Secretary and Chief Financial Officer in both public and private companies with operations in Australia, United Kingdom and the United States. He has assisted a number of companies to list on the ASX and been involved with equity and debt raisings exceeding AUD\$400 million.



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

A geologist with over 30 years executive experience in the resources and investments industries. Prior roles include Investment Director at Mining PE Fund EMR Capital, Executive Director in Macquarie Bank's Metals & Energy Capital Division and Chief Geologist then Mining Manager with Ernest Henry Mining. Has raised capital and financed a number of projects globally, including across Africa.



## MAHENGÉ - Unique by Geology and Geography

### GEOLOGY

- **No overprint mineralisation** results in industries highest grade and cleanest graphite concentrate
- **Large flake distribution** places product in uncontested and **multiple markets**
- Large deposit results in **intergenerational mine life**
- Large grind size permits **dry stacking**

### GEOGRAPHY

- Proximity to national grid provides access to **grid power**
- **Proximity to rail and deep water ports** lowers logistics complexity and costs
- **Well educated local workforce** eliminates commute and camp

# Why Graphite?



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**Growing demand**



**Clean Production**



**EV & Batteries**



**Flake Size opportunity**



**Emerging Product Premium**



- Demand for energy storage and expanded applications is likely to double volumes over next decade
- In the expandable market, urbanization and building renovation are driving demand for large flake and purity products
- Search for high grade graphite producers

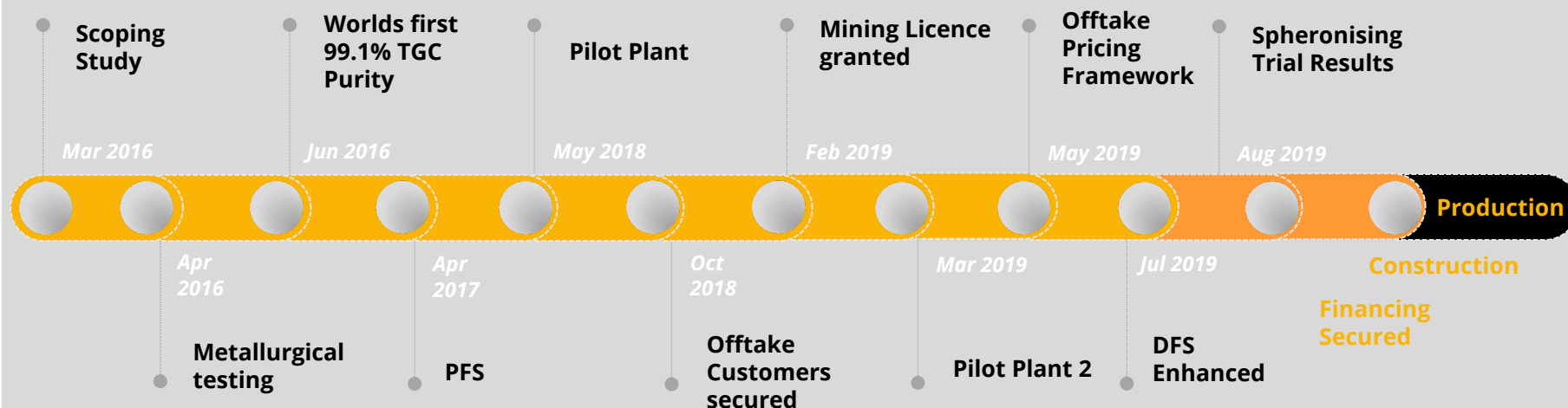


# Redefining the Road to Production



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Engineering approach to eliminating risks drive strong economics which underpin the financing process(s)



Largest Pilot Plant run of any Graphite mine globally

First to introduce a staged development model

Sector first EPC vendor bid plant with performance warranty

World first use of Dry Stack to eliminate tropical wet tails dam



## Mahenge Graphite



## Battery Pre-Cursor <sup>^</sup>

Yantai Pilot Plant - Enhanced Definitive Feasibility Study (eDFS, 2019)			
	Chinese Industry Benchmark	Inner Mongolia Ruisheng Graphite New Material Co - Acid Purified + Thermal & Reshaped	Wuhan University of Technology
Purification Process	Acid	Acid/Thermal	Thermal
Process yield to SPG	%	53% <sup>^</sup>	48%
Final purity	%	99.98%	99.98%

## Offtake Commitments \*

	Year 1	Year 2	Year 3
Heilongjiang Bohao	20,000	50,000	90,000
Qingdao Fujin	10,000	15,000	15,000
Taihe Soar	20,000	55,000	100,000
Qingdao Yujinxi	20,000	20,000	20,000
Yantai Jinyuan	15,000	30,000	30,000
<b>TOTAL</b>	<b>85,000</b>	<b>170,000</b>	<b>255,000</b>

## Pricing Framework \*

	Regular	Premium	Ultra
<b>Nominal Graphite Grade (TGC)</b>	94.5% - 95.5%	97.5% - 98.25%	>99%
<b>CIF China (ex-duty) (US\$/tonne)</b>	<b>\$1,117</b>	<b>\$1,490</b>	<b>\$2,161</b>
<b>Reference exchange rate</b>	RMB/USD 6.71		
<b>Rise &amp; fall pricing reference US\$/tonne</b>	95% TGC - #100 mesh Benchmark Minerals \$950/t as at Nov 2018		

## Pilot Plant



**Product Quality Proven**  
**Operational performance**  
**Clean "Green" Footprint**

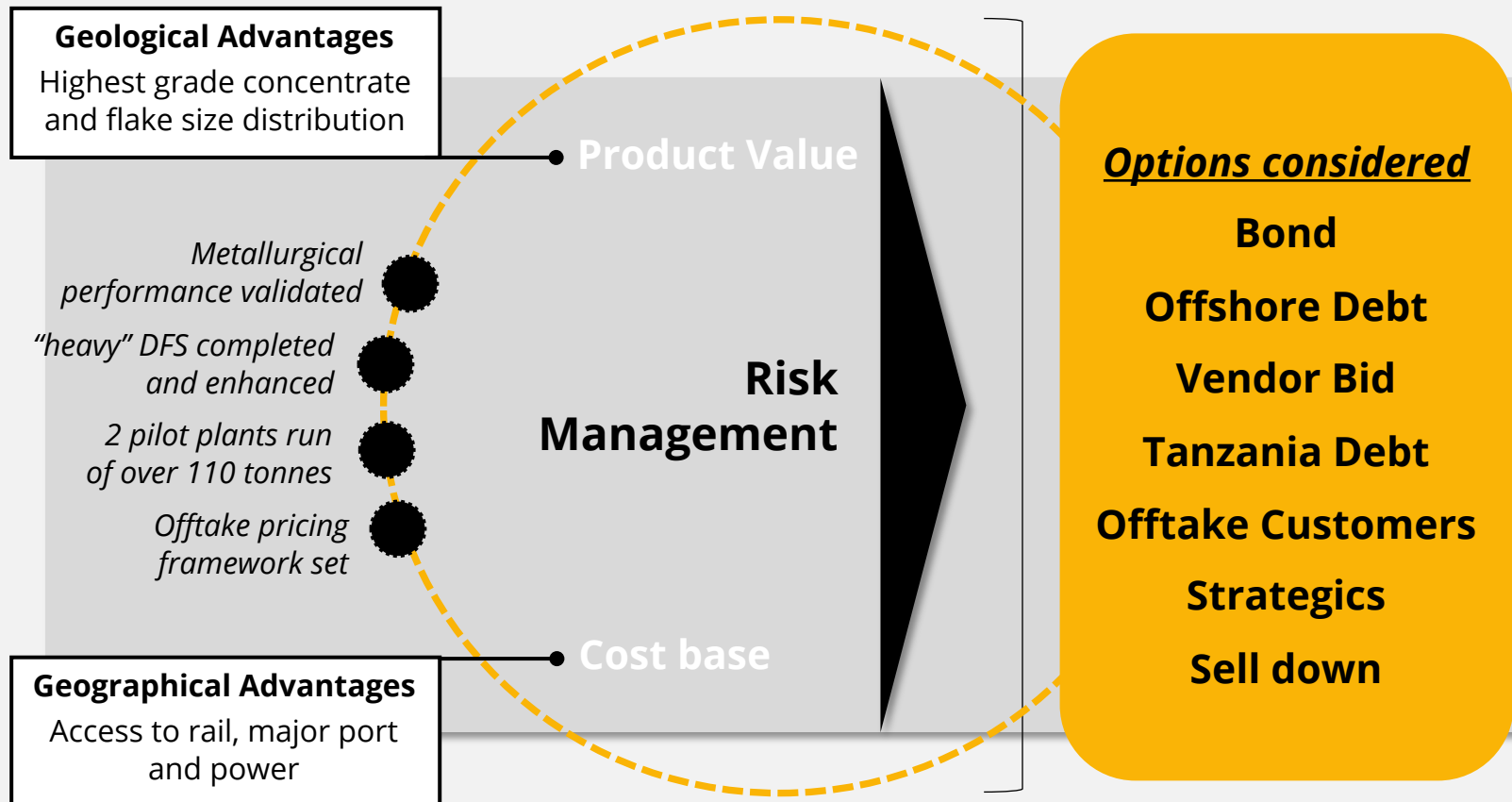
## eDFS Financial Metrics #

Black Rock DFS Financial Metrics	Value
Post-tax, unlevered NPV10	US\$1.16bn
Post-tax, unlevered IRR	44.80%
Capex for Phase One (83k tonnes per annum)	US\$116m
AISC margin	63.1%
Average steady state production rate	350k tonnes per annum





**Blended finance model is designed to leverage project advantages and match risks to participants who are best placed to manage it**

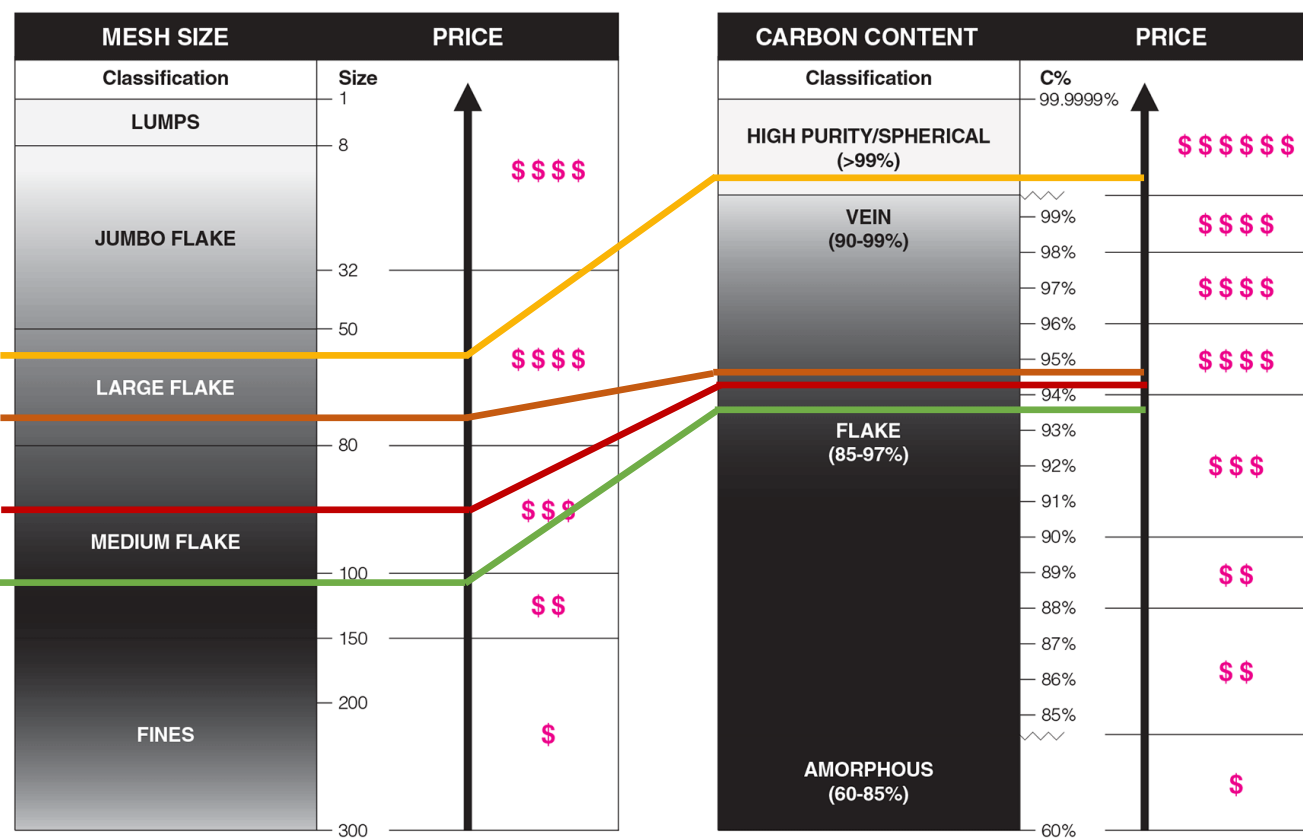


# Mahenge In Perspective - Value



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## Size and Purity is King

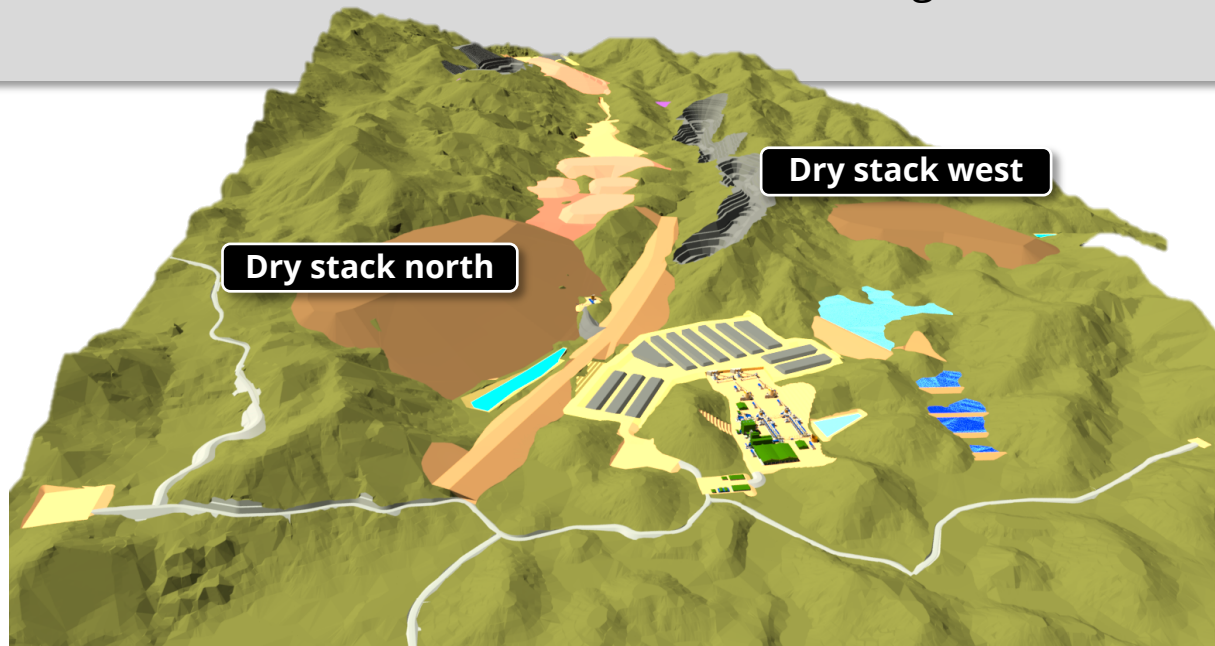


Additional processing costs required to achieve this

Less commonly traded  
More commonly traded  
Less commonly traded



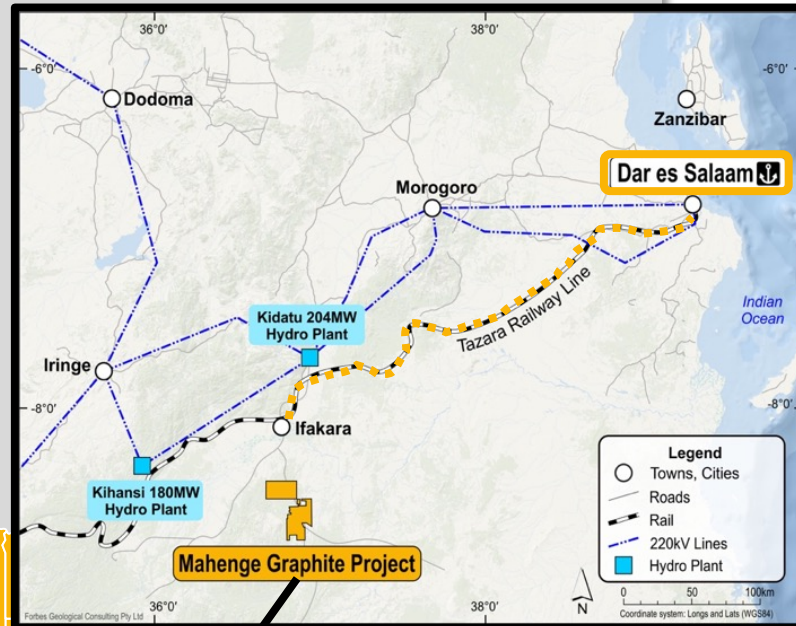
- Dry stack
  - Eliminates “Vale” dam failure risk
  - Neutral water balance
  - Reduced footprint
- Hydro power – low carbon footprint
- High grade concentrate – low acid consumption
- Integrated infrastructure – power, ports and railway
  - Long term sustainable national relationships
- Local workforce
  - Strong community support
  - Reduced staff turnover and training costs



# Mahenge In Perspective - Tanzania



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- Major project drives embedded national value
- Well serviced infrastructure available
- Permits:
  - Environmental permit
  - Mining licence(s)
  - Resettlement policy framework
- Stable and long term conflict free

# Why invest in Black Rock Mining ?



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The best undeveloped graphite project globally driven by geology and geography, **which delivers a unique product that is suitable for multiple market segments and is uncontested in the high grade sectors**



## Geology

Highest grade concentrate and flake size distribution delivers significant value in use to customers



## Geography

Low cost base driven by access to rail and major port at Dar es Salam along with direct grid power to site



## Risk Management

2 Pilot Plant runs of over 110 tonnes, enhanced DFS, offtake pricing framework and vendor financing



## Exceptional Economics \*

**CAPEX US\$116m | NPV<sub>10</sub> US\$1.16Bn | IRR 44.8% | MARGIN 63.1%**

\* refer to ASX announcement dated 25 July 2019. Following release of the enhanced DFS, the Company confirms that it is not aware of any new data or information that materially affects the results of the enhanced DFS and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed





## GROWING MARKET

- Significant growth opportunities across Electric Vehicles, Clean Energy and Battery markets
- Untapped demand for Mahenge's naturally high spec graphite product in the expandable markets
- Emerging demand for "clean" and higher spec graphite



## BKT WELL POSITIONED

- Geographical advantages drive a lower production cost base
- Geological (high product spec) delivers Value in use to customers
- Modular execution driven by customer demand
- Risk Management driven Execution and Financing strategy



## EXCEPTIONAL ECONOMICS \*

- Construction underwritten by Offtake commitments underpinned with a price framework
- Strong Financial Metrics with an enhanced DFS:
  - **NPV<sub>10</sub> US\$1.16Bn**
  - **IRR 44.8%**
  - **Margin 63.1%**



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# About Black Rock Mining



Black Rock Mining Limited is an Australian based company listed on the Australian Securities Exchange (ASX:BKT). The Company has a 100% interest in the Mahenge Graphite Project (the "Project") located in Tanzania. The Project has a JORC compliant Mineral Resource Estimate of 212m tonnes at 7.8% TGC. It also has Ore Reserves of 70m tonnes at 8.5% TGC. The Ore Reserves support a mine life of up to 350k tonnes of graphite per annum for a reserve life of 16 years. Since the release of the Mineral Resource Estimate, the Company confirms that it is not aware of any new information or data that materially affects the mineral resources estimate.

In October 2018, the Company released a Definitive Feasibility Study (DFS) for the Project, which was based on strong customer demand. This was enhanced in July 2019 (refer to ASX release 25 July 2019), and demonstrates exceptional financial metrics including:

- Low Capex: Lowest peak capital expenditure of US\$116M for phase one\*;
- High Margin: AISC margin of 63.1%;
- Low Technical Risk: Substantial pilot plant operations run of 110 tonnes; and
- Superior Economics: IRR of 44.8% with NPV10 of US\$1.16bn (A\$1.65bn\*\*)

In February 2019, the Company announced receipt of its mining licence for the DFS project.

In May 2019, the Company announced it had substantially allocated planned production with up to 255k tonnes per annum of graphite committed to sale by year three of production, through Pricing Framework Agreements (refer to ASX release 8 May 2019). The Company is progressing these agreements into binding offtake commitments.

Following release of the enhanced DFS (eDFS) in July 2019, the Company confirms that it is not aware of any new data or information that materially affects the results of the eDFS and that all material assumptions and, in the case of estimates of Mineral Resources or Ore Reserves, technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

The estimated Ore Reserves and Mineral Resources underpinning the production target has been prepared by competent persons in accordance with the requirements in Appendix 5A (JORC Code).

The Company is currently progressing financing discussions and detailed engineering with a view to commencing construction of the mine.

JORC Compliant Mineral Resource Estimate and Ore Reserve			
Ore Reserves	Tonnes (Mt)	Grade (% TGC)	Contained Graphite (Mt)
- Proven	0	0.0	0.0
- Probable	70	8.5	6.0
<b>Total Ore Reserves</b>	<b>70</b>	<b>8.5</b>	<b>6.0</b>
Mineral Resources			
- Measured	25.5	8.6	2.2
- Indicated	88.1	7.9	6.9
<b>Total M&amp;I</b>	<b>113.6</b>	<b>8.1</b>	<b>9.1</b>
- Inferred	98.3	7.6	7.4
<b>Total M, I&amp;I</b>	<b>211.9</b>	<b>7.8</b>	<b>16.6</b>



For further information on  
Black Rock Mining Ltd, visit  
[www.blackrockmining.com.au](http://www.blackrockmining.com.au)

\* Forecast Capex has been classified as a Class 3 estimate with accuracy of  $\pm 10\%$  as defined by AACE

\*\* \$AUD/USD 0.70

\*\*\* Resource and Ore Reserve Estimates as released to ASX on 8 August 2017 Optimised PFS