

Black Rock Mining's Scoping Study delivers US\$286m NPV and 2 year Payback



22 March 2016

Highlights

- Independent Scoping Study returns robust conceptual economics for a 52,000tpa graphite concentrate mining operation over a 25 year mine life
- 2 year payback indicated from US\$57.3M pre production Capex
- NPV of US\$285.7m and IRR of 62%
- Cash costs of US\$458/t and a sales price of US\$1,236/t FOB Dar es Salaam
- Board commissions Pre Feasibility Study (PFS)

Black Rock Mining Limited (ASX:BKT) ("Black Rock Mining" or "the Company") is pleased to announce the completion of an independent Scoping Study over the company's flagship Mahenge Graphite Project. The Scoping Study was completed by consultant, BatteryLimits Pty Ltd, and confirms strong scoping economics for a long-life, low cost graphite concentrate mining operation at the Mahenge Graphite Project.

Following the receipt of positive results from the Scoping Study, the Board has now commissioned a Pre-Feasibility Study over the Mahenge Graphite Project. The Company has also commenced more detailed metallurgical test work to continue optimising the process flowsheet and will commence a final drill programme in April to upgrade the current 131.1Mt @ 7.9% Mineral Resource and provide additional metallurgical samples.

Managing Director, Steve Tambanis commented: "The company is extremely excited to announce the results from the independent scoping study over the Mahenge Graphite Project. The results provide further validation of the Company's exploration work at the Mahenge Graphite Project and underpin the potential for Black Rock Mining to become a significant Tanzanian Graphite Producer. In particular, we are excited that the Scoping Study indicates that a relatively straightforward and small-scale plant of 52,000tpa can offer potentially high returns due to the high-grade, near surface and coarse flake nature of the resource. A smaller, relatively simple plant will require less capital and time to develop and in-turn decreases commissioning risk."

Chairman Stephen Copulos commented: "The highly positive Scoping Study is another significant milestone for Black Rock Mining Shareholders, following the recently announced large-scale JORC resource in February. The large resource with high-grade portions, straightforward metallurgy and coarse flake product are now further enhanced by positive Scoping Study economics. The Company has commenced PFS activities and looks forward to updating Shareholders over the coming months with results."

Cautionary Statement: The Scoping Study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

Introduction

The Scoping Study results are summarized in Table 1, indicating potential to establish a long life and low cost mining operation for a 50,000tpa production case.

Description	Unit	50,000 tpa case
Plant throughput	Tpa	500,000
Plant recovery	%	93.0
Feed Grade	%TGC	10.5
Concentrate Production	tpa	52,000
Cash cost of production	US\$/t	450
Basket Sales Price	US\$/t	1,236
Mine Life	years	25
Capital cost – pre production	US\$M	57
Mine strip ratio	Waste: ore	1.23:1
Discount Rate	%	10
NPV	US\$M	285.7M
IRR	%	62%
Payback	years	2

Table 1. Summary of key financial results from Scoping Study

The primary objective of the scoping study was to identify the most efficient development opportunity that would yield the best return on the Company's investment and minimise capital expenditure.

The scoping study reviewed three production scenarios: 31,000tpa, 42,000tpa and 52,000tpa. The 52,000tpa case predictably returned the best economics of the three alternatives due to scale economies and as such is the assumed production case. A larger throughput option will be reviewed as part of the next stage of economic assessment.

Scope for material cost reduction Mining costs of US\$5.00/t have been assumed for both ore and waste at an ore to waste strip ratio of 1:1.23. There is significant scope to improve mining costs through optimising the strip ratio, re-calculating the cost of free digging material for the top 20m of the resource, reviewing an owners' fleet, and adjusting the cut-off grade.

Capital cost estimate

Capital costs have been estimated for a 500,000tpa mill feed rate. The Scoping study was completed to an accuracy of +/-35% for capital and operating costs.

Item	Cost USD
Process Plant	\$28,575,981
Site Infrastructure	\$11,478,255
Offsite infrastructure	\$104,171
Equipment and spares	\$706,126
EPCM (first three line items)	\$6,023,761
Contingency (four line items)	\$6,129,680
Owners Costs	\$4,302,642
Total	\$57,320,616

Table 2. Capital Cost estimate summary.

Operating cost estimate

Item	Graphite Production Scenario					
	31000 t/y		42,000 t/y		52,000 t/y	
	LOM US\$/y	US\$/t conc.	LOM US\$/y	US\$/t conc.	LOM US\$/y	US\$/t conc.
Mining	3,861,464	123	4,963,630	118	6,574,200	127
Processing and Power	6,854,931	219	7,056,100	168	7,217,384	139
General and Administration	4,961,505	158	4,961,505	118	4,961,505	96
Product logistics FOB	3,047,001	97	4,088,370	97	5,049,204	97
Total	18,724,900	598	21,069,605	501	23,802,293	458

Table 3. Operating Cost estimate summary.

Operating costs for life of mine are calculated to be US\$458/t of concentrate.

JORC Mineral Resource

The Scoping study utilised Black Rock Mining's Mineral Resource Statement as announced on 29 February 2016.

The global resource is 131.1mt @ 7.9% TGC including 37.6Mt @ 10.2% TGC or 16.6Mt @ 11.1% TGC, making the Mahenge Project resource the largest and highest grade in Tanzania or the fourth largest globally. 40% of the resource tonnes are in the Indicated Resources Category.

Prospect	Category	Tonnes (millions)	TGC (%)	Contained TGC (million tonnes)
Ulanzi	Indicated	35.0	8.3	2.9
	Inferred	45.5	8.7	4.0
	Sub-total	80.5	8.5	6.9
Epanko	Indicated	17.6	6.4	1.1
	Inferred	20.8	5.9	1.2
	Sub-total	38.4	6.1	2.3
Cascade	Indicated	-	-	-
	Inferred	12.3	9.5	1.2
	Sub-total	12.3	9.5	1.2
COMBINE	INDICATE	52.5	7.7	4.0
	INFERRED	78.6	8.1	6.4
	TOTAL	131.1	7.9	10.4

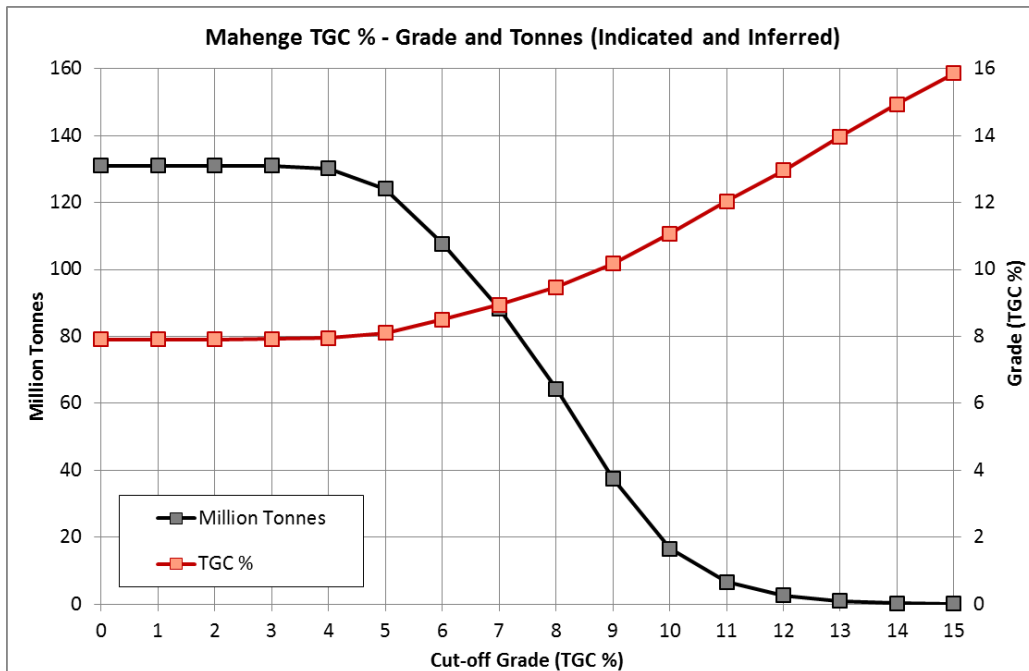
Tables 4a, 4b. JORC resource summary table and global resource table by cut-off grade.

Mahenge Global Resource by cut-off grade		
Indicated and Inferred		
Cut-off TGC%	Mt	TGC %
0	131.1	7.9
1	131.1	7.9
2	131.1	7.9
3	131	7.9
4	130.2	7.9
5	124.1	8.1
6	107.6	8.5
7	88.3	8.9
8	64.3	9.5
9	37.6	10.2
10	16.6	11.1
11	6.6	12
12	2.7	13
13	0.9	14
14	0.3	15
15	0.1	15.9

The Scoping study utilised 12.5Mt of the highest grade near-surface tonnage of the 131Mt resource, described in more detail on page 6.

A final drilling programme commencing early April is planned to:

- Increase the proportion of Indicated Resources at Ulanzi by increasing drill density
- Test a high grade mineralised portion of the Ulanzi resource identified from the last drill programme
- Drill test the 1km long Cascades structure to deliver an Indicated Resource
- Provide additional metallurgical test holes



Graph 1. Mahenge Global Resource Grade-Tonnes curve

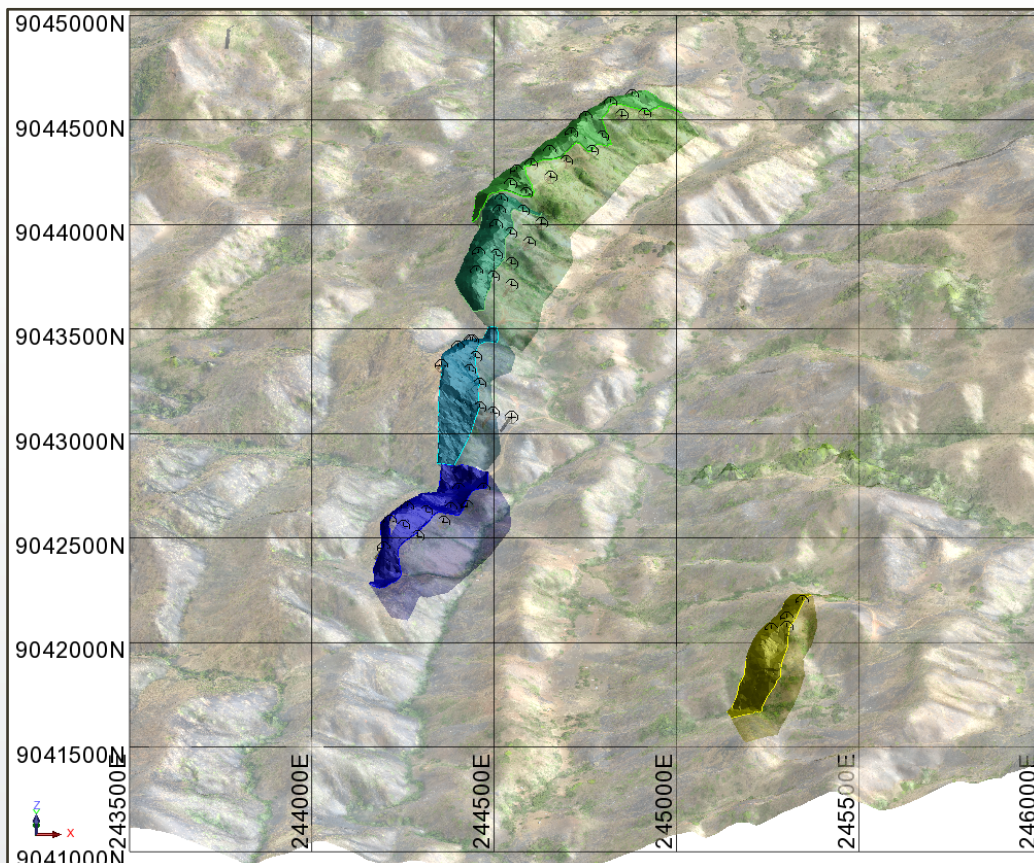


Image 1. 3D view of Ulanzi and Cascades Mineral Resources, looking northwards

Mining

The Production Target referred to in this study is 12.5Mt of mineralisation at 10.5% TGC, utilising both Indicated and Inferred Resources, with inferred resources being scheduled from Year 2 of mining commencement. A mining schedule was developed using Whittle pit shells to optimise three mine pits and subsequent mining schedule. Mining is assumed to be through a contract miner for the Scoping Study.

Description	Unit	500 ktpa
		Total
Tonnes mined / processed	tonnes	12,500,000
Grade	TGC %	10.50
Waste mined	tonnes	15,375,000
Strip ratio	tonne/tonne	1.23
Product produced	TGC tonnes	1,220,625

Table 5. Proposed Life of Mine production summary for 500ktpa over a 25 year mine life

Cautionary Statement: The production target used in the scoping Study is based on 25% Indicated Mineral Resources and 75% Inferred Mineral Resources. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target or preliminary economic assessment will be realised.

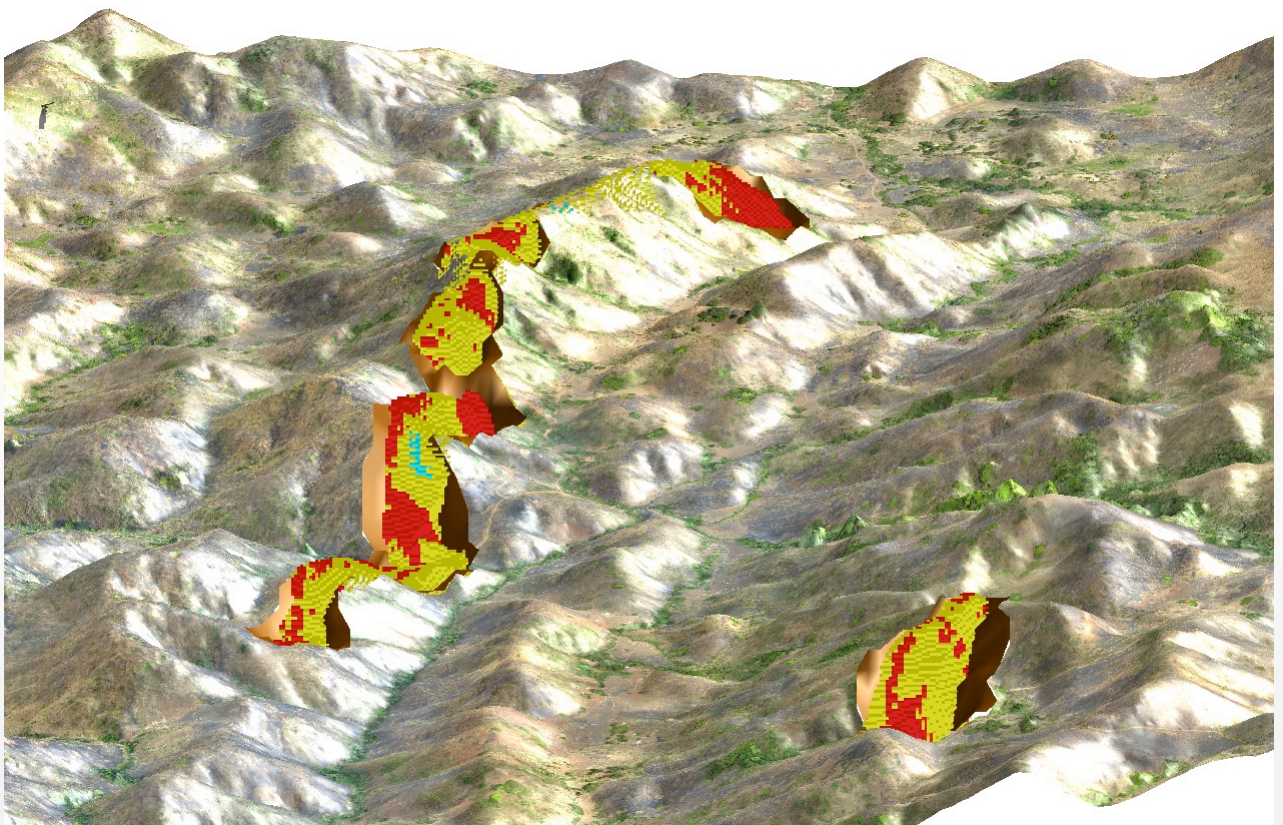


Image 2. Proposed pit shells for Ulanzi and Cascades

Metallurgy and process design

A metallurgical test work program was developed based on four main composite samples generated from a recent drilling program. The composites were created from selected interval samples of ½ cut drill core from Epanko North fresh, and oxide, Ulanzi fresh and oxide deposits. In addition a surface high-grade oxide bulk sample was received from the Ulanzi deposit to be used for the generation of bulk concentrates for marketing samples.

The preliminary flotation tests were planned with the intent to maintain the graphite flakes as coarse as possible, while achieving high recovery to concentrate. The test work is being undertaken by Bureau Veritas Minerals Laboratory (Perth) and is currently on going.

Test work was flowsheet comprising rougher flotation and three stages of cleaner flotation. The preliminary results shown in Table 6 indicate high grade >94% TGC can be produced with a high component of high-grade coarse flake graphite.

Screen Size	Epanko Fresh test T24		Epanko Fresh test T30		Epanko Oxide test T29		Ulanzi Fresh test T28	
	Mass %	TGC (%) Assay	Mass %	TGC (%) Assay	Mass %	TGC (%) Assay	Mass %	TGC (%) Assay
+300 µm	16.5	98.2	14.1	98.9	16.0	97.3	7.0	98.0
+180 µm	37.8	98.3	35.0	98.5	33.5	96.4	34.0	98.2
+150 µm	9.4	97.3	9.0	97.8	8.7	95.4	10.1	97.8
+106 µm	13.8	97.6	13.3	97.7	13.7	95.5	15.6	98.1
+75 µm	8.7	96.5	8.9	96.4	9.5	94.8	10.8	96.6
+38 µm	7.7	89.2	8.6	85.3	9.4	92.6	11.7	86.1
-38 µm	6.2	76.7	11.1	80.8	9.3	88.0	10.7	74.6
	100.0	95.9	100.0	95.1	100.0	95.0	100.0	94.0

Table 6. Metallurgical test work results for Ulanzi and Epanko north

In addition test work on the bulk surface sample produced similar high-grade coarse flake graphite concentrates as shown in the following Table.

Screen Size	Mass %	TGC (%) Assay
+500 µm	1.8	98.5
+300 µm	26.0	97.3
+180 µm	39.7	94.4
+150 µm	9.4	93.5
+106 µm	10.5	95.0
+75 µm	6.1	95.8
+25 µm	4.7	96.5
-25 µm	1.7	87.6
	100.0	95.3

Table 7. Bulk concentrate results from Ulanzi oxide. First phase test work

The process flow sheet has been developed based on the initial test work program. The processing plant is designed to recover graphite concentrate by froth flotation. Ore from the mine will be primary and secondary stage-crushed, followed by grinding, flotation, filtering, sizing and drying and transportation to port for shipping.

Processing Plant

The processing plant incorporates the following unit process operations:

- ROM ore will be stage crushed in primary and secondary crushers
- Ore will be wet ground by primary rod mill for concentration by flotation
- Graphite concentrate will be recovered by flotation roughing, cleaning and scavenging stages with re-grind targeting coarse graphite recovery
- Graphite concentrate will be dried, screen in to various sizes and bagged for transport
- Flotation tailings will be thickened to enhance water recovery and discharged in a constructed tailings storage facility

The process flow sheet is shown in Figure 1.

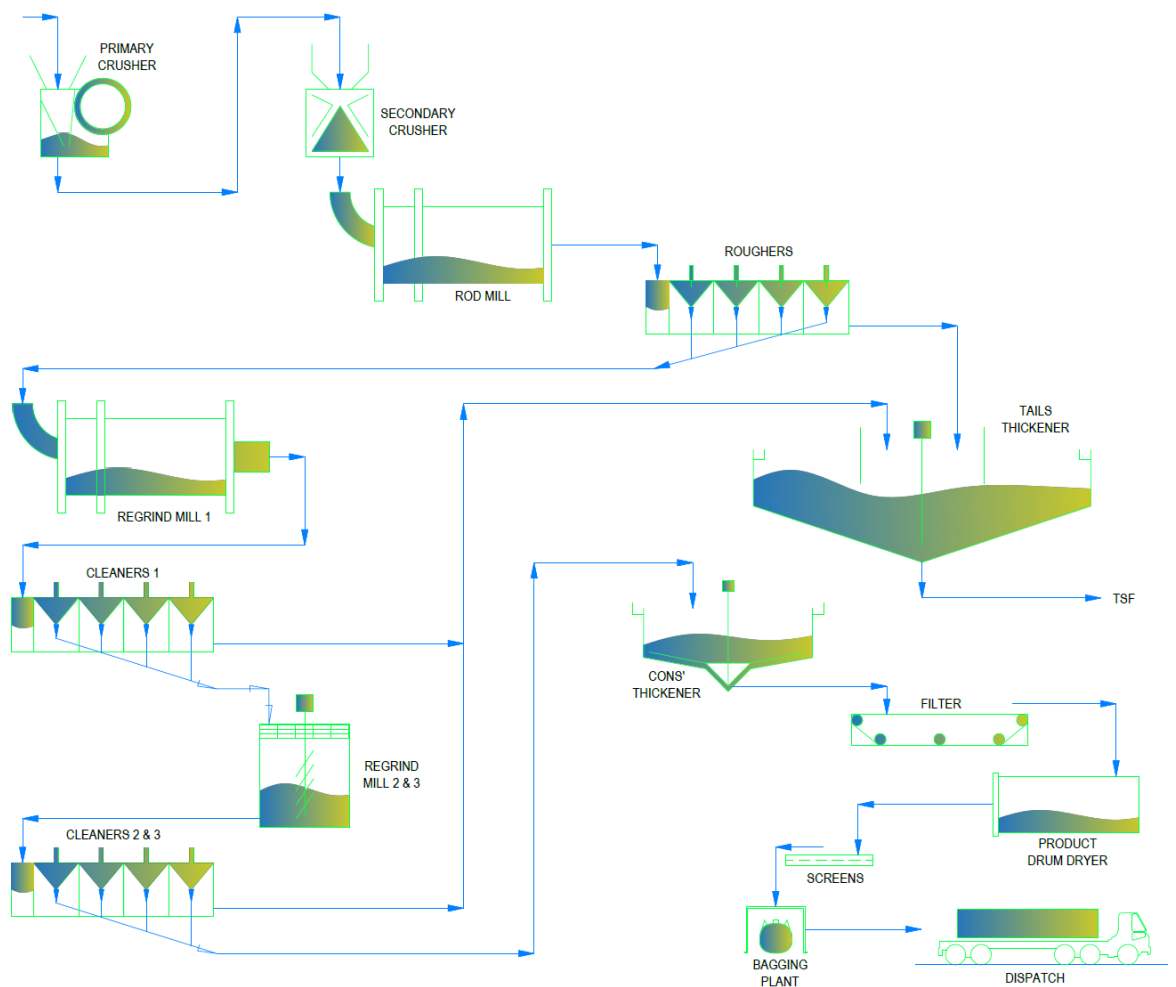


Figure 1. Process flowsheet.

Infrastructure

Key infrastructure components for the project include:

- Power generation - On site diesel generators with grid power assumed to be available in year two of operation. An allowance for deferred capital to connect to the grid power has been included in the financial model
- Site accommodation - Modular prefabricated accommodation will be provided for non-local employees
- Water – Water supply for the project will comprise a combination of borefield, pit dewatering, tailings return water and site run off.
- Tailings storage facility - A tailings storage facility (TSF) is included in the design with an initial capacity for 2 years with water recovered from the TSF via a tailings return decant system. The TSF will be progressively lifted from year 2
- Transport - The Mahenge project is approximately 65km by road from the nearest train line (the TAZARA Line) that runs to Dar es Salaam. For this study it is assumed that product will be trucked to Ifakara rail siding and railed to the Port of Dar es Salaam

Summary table for 31,000, 42,000 & 52,000 scenarios

Item	Unit	Graphite Production Scenario		
		31,000 t/y	42,000 t/y	52,000 t/y
Mine Life	Years	25	25	25
Mill Feed rate	tpa	300,000	400,000	500,000
Feed grade	%TGC	10.6	10.6	10.5
Av. concentrate production	tpa	31,335	42,044	51,925
Basket price	US\$/t conc.	1,236	1,236	1,236
Development capital	US\$M	47.2	52.0	57.3
Sustaining and deferred capital	US\$/t conc.	8.8	10.4	12.2
Operating cost	US\$/t conc.	598	501	458
NPV	US\$M	115.6	204.0	285.7
IRR	%	35%	50%	62%
Discounted payback	Years	4	3	2

Tables 8,9. Summary production tables and cash costs.

Item	Graphite Production Scenario					
	31,000 t/y		42,000 t/y		52,000 t/y	
	LOM US\$/y	US\$/t conc.	LOM US\$/y	US\$/t conc.	LOM US\$/y	US\$/t conc.
Mining	3,861,464	123	4,963,630	118	6,574,200	127
Processing and Power	6,854,931	219	7,056,100	168	7,217,384	139
General and Administration	4,961,505	158	4,961,505	118	4,961,505	96
Product logistics FOB	3,047,001	97	4,088,370	97	5,049,204	97
Total	18,724,900	598	21,069,605	501	23,802,293	458

Product pricing

A basket price of US\$1,236/t has been calculated using 2016 pricing in China by size category, adjusted for purity. Benchmark Minerals Intelligence has provided price data for the study. The flake distribution is based on a conservative flake distribution profile from metallurgical test work to date.

Graphite size and grade	Price USD	Distribution %	US\$/t FOB
+500µm	2,200	1	22
-500µm+300um	2,000	20	400
-300µm+180um	1,450	30	435
-180µm+150um	1,150	15	172.5
-150µm+75um	750	20	150
-75µm	400	14	56
Basket price		100	\$1,236

Table 10. Graphite pricing assumptions for Basket Price.

Graphite Market Outlook

The Company considers that it has coarse flake graphite with a significant purity advantage over conventional flake sold out of China and plans to fully test a series of concentrates for its suitability to manufacture spherical graphite. Mahenge flake concentrate is also being tested for its suitability into mainstream graphite applications.

The natural flake Graphite market is assumed to be between 500,000-700,000 tpa of a 1.5Mtpa natural graphite market. The natural flake graphite market supplies industries such as refractories, steel making (recarburing), battery manufacture (anode material), lubrication and insulation. The Synthetic graphite market is much larger and provides graphite for smelter electrodes, carbon fibre and the battery market. Synthetic graphite is more expensive to produce than natural flake graphite but higher purity and there is substitution between natural flake and synthetic flake producers into the battery market.

The Battery Market The lithium ion battery (LiB) manufacturing business continues to grow strongly since LiBs were commercialised in the early 1990's. LiB's are used in all portable consumer electronics such as smart phones, tablets and laptop computers. The drive for smaller, thinner and longer lasting portable devices is driving a massive R&D programme into increasing the energy density, efficiency and longevity of LiBs. At the same time, the rapidly developing Electric Vehicle (EV) and Hybrid Electric Vehicle (HEV) market is demanding lighter batteries with increased energy density characteristics AND the ability to recharge quickly and have a >10 year life.

The Portable electronics, EV and HEV producers are both driving LiB demand and funding massive research and development initiatives. As a result, pricing of LiBs has fallen dramatically from thousands of dollars per kWh a decade ago to US\$200/kwh in 2014/15, to claims by General Motors that LiB production costs are now around the US\$150/kwh level and are continuing to fall. Numerous LiB battery factories are operational with a number of "mega" factories under construction in the US and Asia to the tune of >80Gwh of new annual production coming on stream over the next three years. This relentless new production will see battery prices continue to fall as manufacturing methods are scaled up. Tesla is quoted as wanting to see battery prices fall by a third for its EV programme economics – and it is happening.

Current LiB pricing is decreasing to the point where it can be economically utilised into the renewable energy power storage sector. The Holy Grail of renewable energy is to be able to store (or smooth out) intermittent power from solar, wind and tidal sources so this energy can be used when required by end-users. Various mechanical and chemical storage systems have been unsuccessful. As the cost of LiBs fall, and their lifespan increases through technology improvements, a number of companies are beginning to offer home and industrial scale power storage solutions. Apart from home power storage units offered by Telsa and Mercedes Benz, Chinese and Japanese Companies advertised LiB battery storage units at the Tokyo Rechargeable Battery Conference in February 2016.

As the price of LiB decreases towards US\$100/kwh, demand will continue to increase for battery storage solutions. Australia has 1.42M solar installations and in the USA solar installations are at an all time high. Solar City in the US wants to offer battery storage as an integrated package with new solar installations within 4 years. Urban electricity self-sufficiency is becoming a reality due to LiB technology and pricing. As such, we consider that LiBs for electrical storage will eclipse the EV and HEV market over the next 4-5 years.

Summary and Next Steps

The positive Scoping Study results are highly encouraging and validate the potential of the Mahenge Graphite project to become a long mine life, low cost operation.

- The Board has approved moving to a PFS to more accurately cost a circa 50,000tpa mine development. This is expected to take 4-5 months to completion
- The metallurgical evaluation programme is continuing with the objectives of optimising flake size and purity of the Ulanzi and Epanko north lodes. Results will be regularly reported from this ongoing programme
- The final drilling programme planned for April is designed to increase the proportion in Indicated Resources, define additional high-grade portions of the Ulanzi structure and to deliver an Indicated resource from Cascades, which has delivered the highest-grade zones to date at Mahenge. The overall resource is expected to increase as a result of this programme with results expected during May/June
- A mining study will incorporate the new drill data to prepare an optimised pit shell and mining schedule
- Additional core and bulk samples will be taken from Ulanzi and Cascades for metallurgical test work
- The 500kg bulk sample is at its final cleaning stage and is expected to provide 80kg of flake graphite to be used for spherical graphite testing and marketing samples
- The graphite marketing programme is underway for the rest of the Calendar year with the objective of delivering offtake agreements to match proposed annual production

The Company is well funded to complete the above programmes and to commence BFS studies.

For further information please contact:

Mr. Steven Tambanis

Managing Director

Office: +61 8 9320 7550

Email: st@blackrockmining.com.au

Mr. Gabriel Chiappini

Director

+61 8 9320 7550

Email: gabriel@blackrockmining.com.au

About Black Rock Mining

Black Rock Mining Limited is an Australian based company listed on the Australian Securities Exchange. The Company has graphite tenure in the Mahenge region, Tanzania, a Country which hosts world-class graphite mineralisation. The Company announced its Mahenge JORC compliant resource on 29 February 2016, which is the largest and highest grade resource in Tanzania and the 4th largest globally.

The company is building a skill and knowledge base to become a developer and diversified holder of graphite resources.

Shareholder value will be added by:

- ✓ *identifying and securing graphite projects with economic potential*
- ✓ *focussing on tenure with scale potential that can be commercialised by converting into a JORC compliant resource; and*
- *developing the resource into a producing mine*

Our current focus is on completing technical and financial studies to take the Mahenge Project into production.

Competent Person's Statements

The information in this report that relates to Exploration Results and the JORC Mineral Resource (announced on 29 February 2016) is based on and fairly represents information and supporting documentation prepared by Mr Steven Tambanis (Managing Director of Black Rock Mining Limited). Mr Tambanis is a member of the Australian Institute of Mining and Metallurgy and has 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 Tambanis consents to the inclusion in this report of the matters based on his information in the form and context in which they appear.

The information in this report that relates to the Scoping Study and results is based on information compiled by Mr David Pass, a Competent Person who is a member of Australian Institute of Mining and Metallurgy. Mr Pass is a full time employee of BatteryLimits Pty Ltd, a specialist engineering and metallurgical consultancy and an independent consultant to Black Rock Mining Limited. Mr Pass has sufficient experience that is relevant to the style of mineralogy and type of deposit under consideration and the typical beneficiation thereof. Mr Pass consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the Scoping Study and results is based on information compiled by Mr Phillip Hearse, a Competent Person who is a Fellow of Australian Institute of Mining and Metallurgy. Mr Hearse is a full time employee of BatteryLimits Pty Ltd, a specialist engineering and metallurgical consultancy and an independent consultant to Black Rock Mining Limited. Mr Hearse has sufficient experience that is relevant to the style of mineralogy and type of deposit under consideration and the typical beneficiation thereof. Mr Hearse consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the mine schedule and optimisation is based on information compiled by Mr Roselt Croeser, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy. Mr Croeser is a mining engineer and an independent consultant to Black Rock Mining Limited. Mr Croeser has sufficient experience that is relevant to the style of mineralogy and type of deposit under consideration and the mining thereof. Mr Croeser consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.