



## Its About Batteries

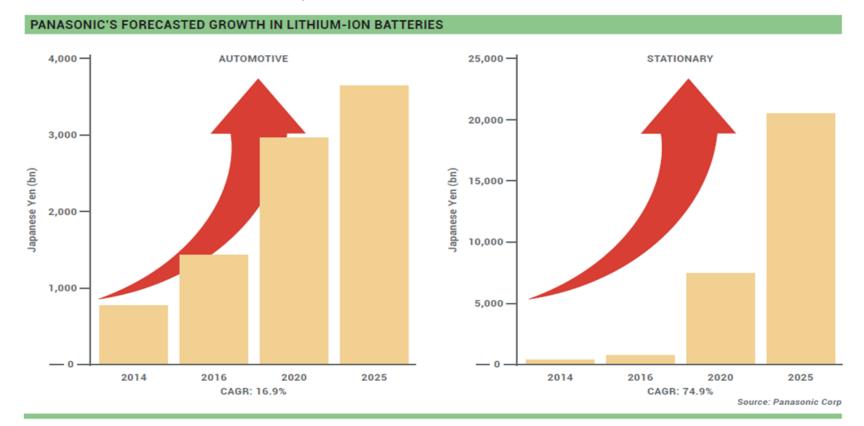


- Its all about stored energy Lithium Ion Battery
- Spherical graphite ("SPG") is used as the anode of a Lithium Ion Battery
- Moving to development
- High grade low cost in the worlds leading graphite province
- Development strategy and market
- What does the battery market want?
- Next Steps

# Specifically LIBs show the greatest potential



 Lithium-ion battery (LIB) market expected to grow from US\$10bil to +US\$60Bil in the next 10 years

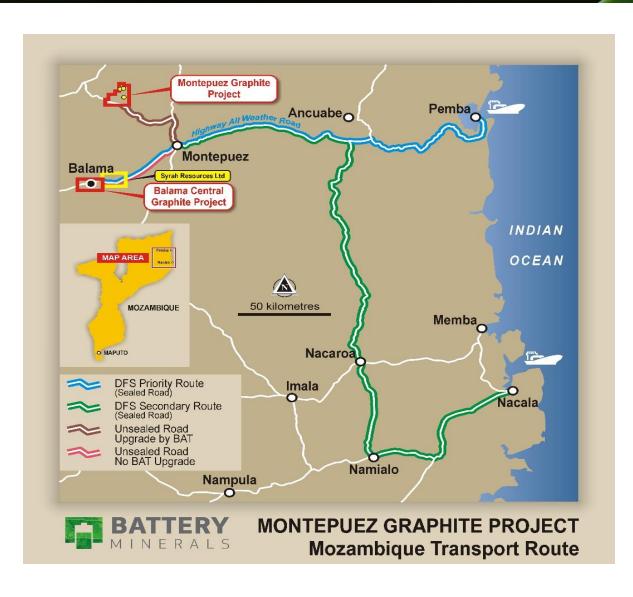


- ✓ LIB materials market is expected to make up +US\$30bil of this number, up from US\$1bil in 2016
- ✓ Rapid growth in electric vehicles (eg Tesla) and home storage/ grid storage (renewable energy)
- ✓ Panasonic is predicting significant growth in emerging markets for lithium-ion batteries
- ✓ Renewable energy battery storage will revolutionise the energy sector

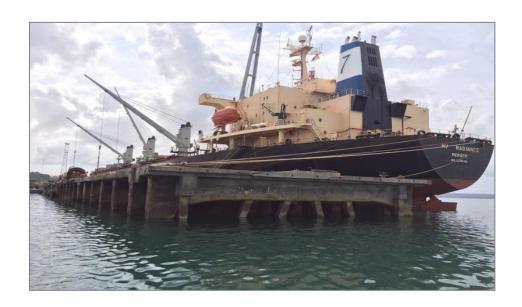


# Mine Location & Infrastructure Benefits





- Two graphite projects located in the Cabo Delgado province of Mozambique in East Africa
- Significant graphite export operations/ capacity
- Excellent logistics: only 260km to Pemba port via existing roads
- Modern mining act and pro-mining government
- Stable multi-party democracy since 1994



# Stage 1 Large Scale Bulk Sample - iron out the wrinkles BATTERY

# Stage 1 -Bulk Sample

- Demonstration plant in 2017 will achieve DFS level of confidence in downstream SPG production
- Complete Spherical plant procurement, and commissioning
- Mine, process and ship 2,000 tonnes bulk sample
- Toll treat & produce graphite flake 97-99% TGC
- Establish 100% owned ~2000tpa spheronising plant in USA
- Produce 50-100 tonnes of SPG

# Stage 2 - Up and Running



## **Stage 2 - Commercial Operations**

- 250-300,000tpa mining and processing in Mozambique
- 20,000tpa of flake concentrate 97 to 99% TGC in Mozambique
- 10,000tpa Spherical production in Nevada, USA
- \$57 to \$67M CAPEX total for Montepuez Project & spherical facility
- Graphite flake OPEX~\$450-500/t
- Purified/Coated Spherical Graphite OPEX ~ \$5,000-6,000/t
- Commence site works Q1 2018
- Commence production Q2 2019

# **Next 12 Months**



- Award contracts and commence mining bulk sample Stage 1, May 2017
- Acquire, install and commission Stage 1 SPG plant Nevada USA 2H 2017
- Lodge mining license approval documentation, May 2017
- Mozambique mining license approved, 2H 2017
- Stage 1 spherical graphite produced from bulk sample
- Dry season exploration activity May 2017 to November 2017
- Continued recruitment of key personnel
- Detailed engineering and procurement of plant and equipment for Stage 2, 2H 2017
- Choose preferred funding option for Stage 2
- Commence Stage 2 site works and construction, Q1 2018



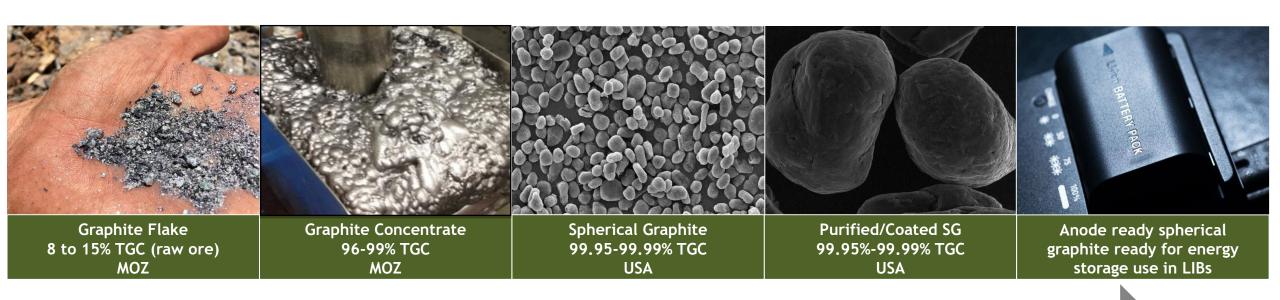


# Appendix

# Pathway: Flake to Coated Spherical Graphite



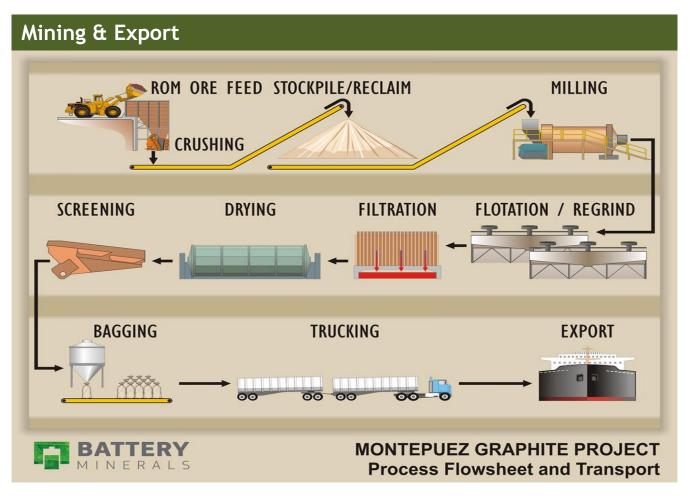
- BAT understands how to mine and process graphite to create a product suitable for the booming LIB market
- Vertical integration captures downstream profit margins

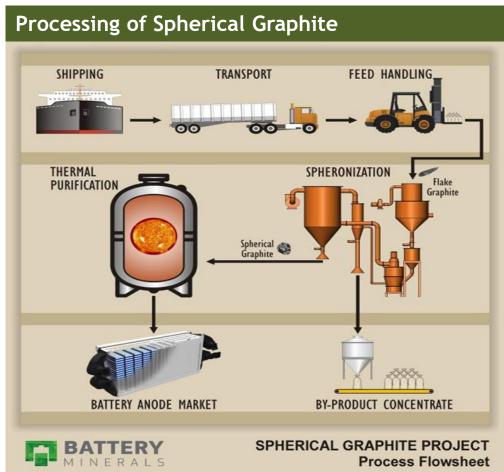


# From the mine to the gigafactory

## **Process Flowsheet**

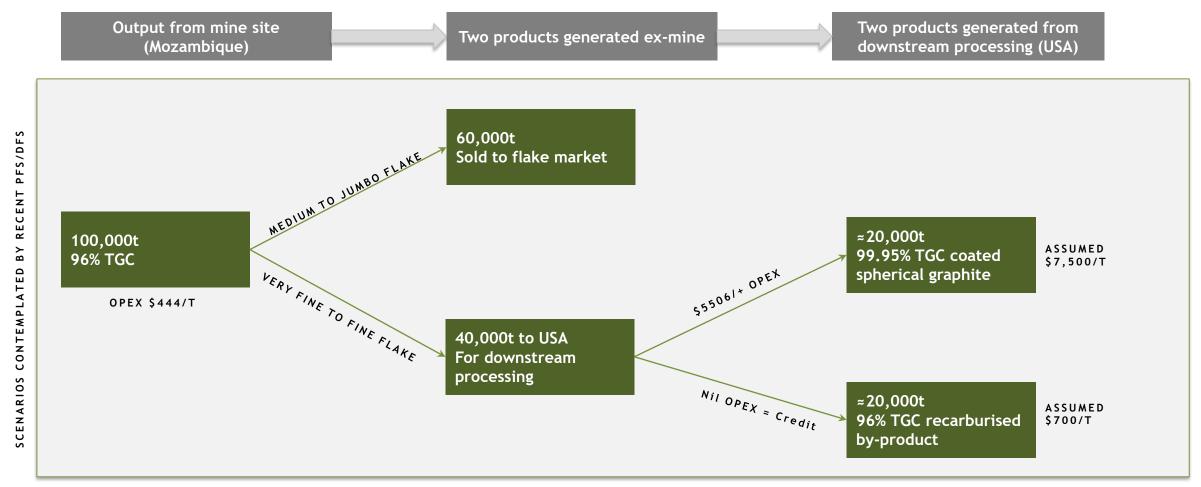






# Process Pathway at full ramp up





### Investigating opportunities to

- (1) increase mine concentrate grade from 96% to 99%TGC with use of attrition cells,
- (2) consider initial smaller output to reduce capex and opex, and
- (3) downstream processing of mine output

# Summary of Consolidated Study



	PFS on PSG ***	DFS on Montepuez Graphite Project ***
Annual production	-20,000t of 99.99% PSG	-100,000 tonnes of 96% purity graphite
Allituat production	-20,000t recarburiser product	concentrate
Life of Mine (LoM) net revenue	US\$4,903 million	US\$2,156 million
LoM cash generation	US\$1,558 million	US\$809 million
NPV (10% discount rate)*	US\$377 million	US\$146 million
IRR*	76.5%	21.4%
Project payback period	1.5 years	4.75 years
Capex (pre-production)	US\$48 million	US\$126 million
LoM concentrate assumed basket price	US\$7,500/t 99.99% PSG	US\$798/t
Low concentrate assumed basket price	US\$700/t recarburiser product	
LoM operating cash cost	US\$5,506 per tonne of PSG	US\$444/t of product (FOB)
Mine life **		30 years

	Consolidated Project Outcomes
Consolidated net revenue	US\$7,120 million LOM (US\$237m per annum)
Consolidated operating cashflow	US\$2,368 million LOM (US\$79m per annum)
Net Present Value (NPV <sub>10</sub> )	US\$524 million
Internal Rate of Return (IRR)	36.2%
Consolidated payback period	3 years
Consolidated capex	US\$168 million

<sup>\*-</sup> Excludes National Ownership (anticipated to be ~5%) and 32% tax rate

<sup>\*\*-</sup> Based on Ore Reserves (see ASX released dated 15 February 2017) prepared by a competent person in accordance with the requirements in Appendix 5A (JORC Code). All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed.

<sup>\*\*\*-</sup> DFS (+/-15%) and PFS (+/- 30%)

# Montepuez Ore Reserves and Mineral Resources



- Ore Reserve Estimate January 2017 for Buffalo and Elephant deposits is 41.4Mt @ 8.80% TGC for 3.64Mt of graphite reported at a cut-off grade of 4% TGC (see note below)
- <u>Total Mineral Resource</u> January 2017 for Buffalo and Elephant deposits is **105.9Mt @ 7.74% TGC for 8.2Mt** of graphite reported at a 2.5% TGC cut-off (see note below)
- Two world class deposits provide optionality of product, blending opportunities and development options
- Flake size, creates opportunity for price premium Natural Flake products
- Chemical structure and easy liberation attributes (low impurities) offers unique opportunities
- The graphite resources remain open in every direction ensuring mine life opportunity beyond the currently scheduled 30 years

MONTEPUEZ GRAPHITE PROJECT - ORE RESERVE STATEMENT  @ 4% TGC cut-off - January 2017						
Ore Type	Classification	Ore Reserve	TGC	Contained Graphite		
		Mt	%	Mt		
Weathered	Proved	-	-	-		
	Probable	8	8.5	0.68		
Fresh	Proved	-	-	-		
	Probable	33.5	8.8	2.96		
Total	Proved	-	-	-		
	Probable	41.4	8.8	3.64		

<u>Note</u>: See ASX Announcement dated entitled 'Montepuez Graphite Project Mineral Resource and Ore Reserve Estimate' dated 15 February 2017 for full details.

# Montepuez Mineral Resource Statement



ELEPHANT RESOURCE					
@ 2.5% TGC cut-off - January 2017					

Classification	Туре	Tonnes	TGC	V205	Contained Graphite	Contained V2O5
		Mt	%	%	Mt	Kt
Indicated and Inferred	Weathered	7.80	7.70	0.19	0.60	15.00
	Unweathered	59.40	7.50	0.19	4.50	114.00
	Total	67.20	7.50	0.19	5.10	129.00

### BUFFALO RESOURCE @ 2.5% TGC cut-off - December 2016

Classification	Туре	Tonnes	TGC	V205	Contained Graphite	Contained V2O5
		Mt	%	%	Mt	Kt
Indicated and Inferred	Weathered	5.20	8.14	0.22	0.40	11.30
	Unweathered	33.50	7.90	0.21	2.60	70.90
	Total	38.70	7.93	0.21	3.00	82.20

Note: See ASX Announcement dated entitled 'Montepuez Graphite Project Mineral Resource and Ore Reserve Estimate' dated 15 February 2017 for full details.

# Disclaimer & Competent Persons Statement



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Statements and material contained in this Presentation, particularly those regarding possible or assumed future performance, resources or potential growth of Battery Minerals Limited, industry growth or other trend projections are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Such forecasts and information are not a guarantee of future performance and involve unknown risk and uncertainties, as well as other factors, many of which are beyond the control of Battery Minerals Limited. Information in this presentation has already been reported to the ASX.

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- Any references to Ore Reserve and Mineral Resource estimations should be read in conjunction with the competent person statements included in the ASX announcements referenced in this presentation as well as Battery Minerals' other periodic and continuous disclosure announcements lodged with the ASX, which are available on the Battery Minerals' website.
- The information in this report that relates to Battery Minerals' Mineral Resources or Ore Reserves is a compilation of previously published data for which Competent Persons consents were obtained. Their consents remain in place for subsequent releases by Battery Minerals of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.
- The information in this Presentation that relates to Mineral Resources and Ore Reserves is extracted from the ASX Announcement titled 'Montepuez Graphite Project Mineral Resource and Ore Reserve Estimate' dated 15 February 2017 and DFS and PFS information is extracted from the ASX announcement entitled 'Lithium Ion Battery anode PFS and Montepuez Graphite DFS confirm robust economics' dated 15 February 2017, both of which are available at Battery Minerals website at http://www.batteryminerals.com.au in the ASX announcement page.

 Battery Minerals confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the market announcements continue to apply and have not materially changed. Battery Minerals 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.