



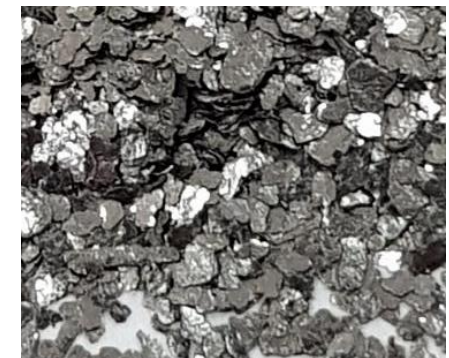
## **Battery Minerals Limited**

**June, 2019**

**Investor Presentation**

# Positioned to Rapidly Respond to Clean Energy Growth

1. Exposure to growing traditional graphite markets, and unprecedented forecast demand from the global transition to clean energy
2. 2 x world class low cost, long life graphite projects; Montepuez & Balama Central
3. Montepuez is at an advanced stage of development to produce 50ktpa flake concentrate at 96% TGC; low risk expansion to 100ktpa<sup>1</sup>
4. Balama Central Project Feasibility Study completed and mining license application progressing
5. Potential for phased, market driven expansion to 200ktpa flake concentrate - scalable, low risk production profile<sup>1</sup>
6. Capable team with a track record of project execution



Note 1: Subject to the completion of all necessary feasibility studies, permit applications, construction, financing arrangements, market conditions, port access and execution of infrastructure related agreements

# Strongly Positioned for Development & Growth

Company

Graphite

Graphite Market



Our Projects

Further Value

Forward Plan

# Our Company

# Board and Executive Management



**David Flanagan**  
Executive Chairman



**Ben Vanroon**  
Chief Operating Officer



**Jeremy Sinclair**  
Managing Director



**Nick Day**  
Chief Financial Officer



**Jeff Dowling**  
Lead Independent Director



**Daniel Taylor**  
Head of Marketing



**Paul Glasson**  
Non Exec Director



**Naomi Scott**  
General Counsel

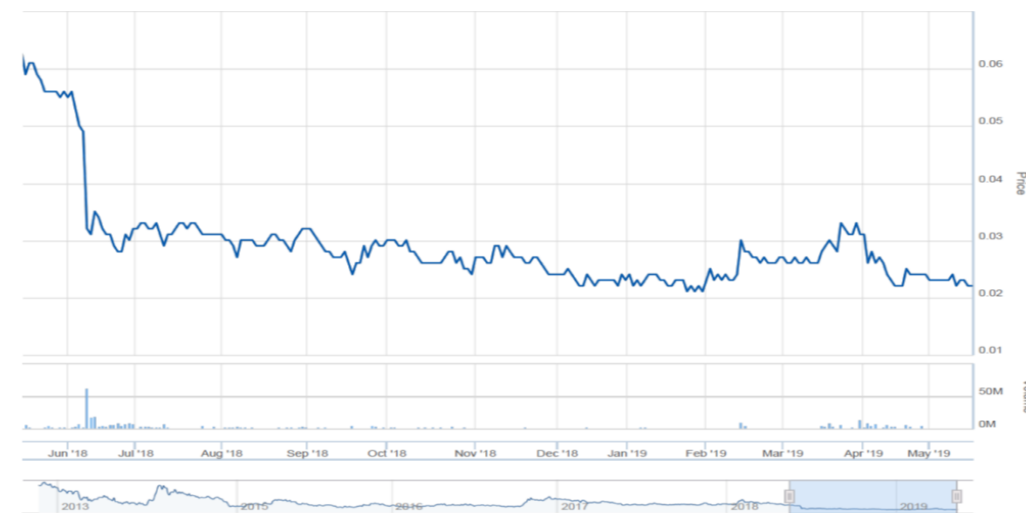


**Ivy Chen**  
Non Exec Director



**Tony Walsh**  
Company Secretary  
& GM Corporate

## Share Price for last 12 months



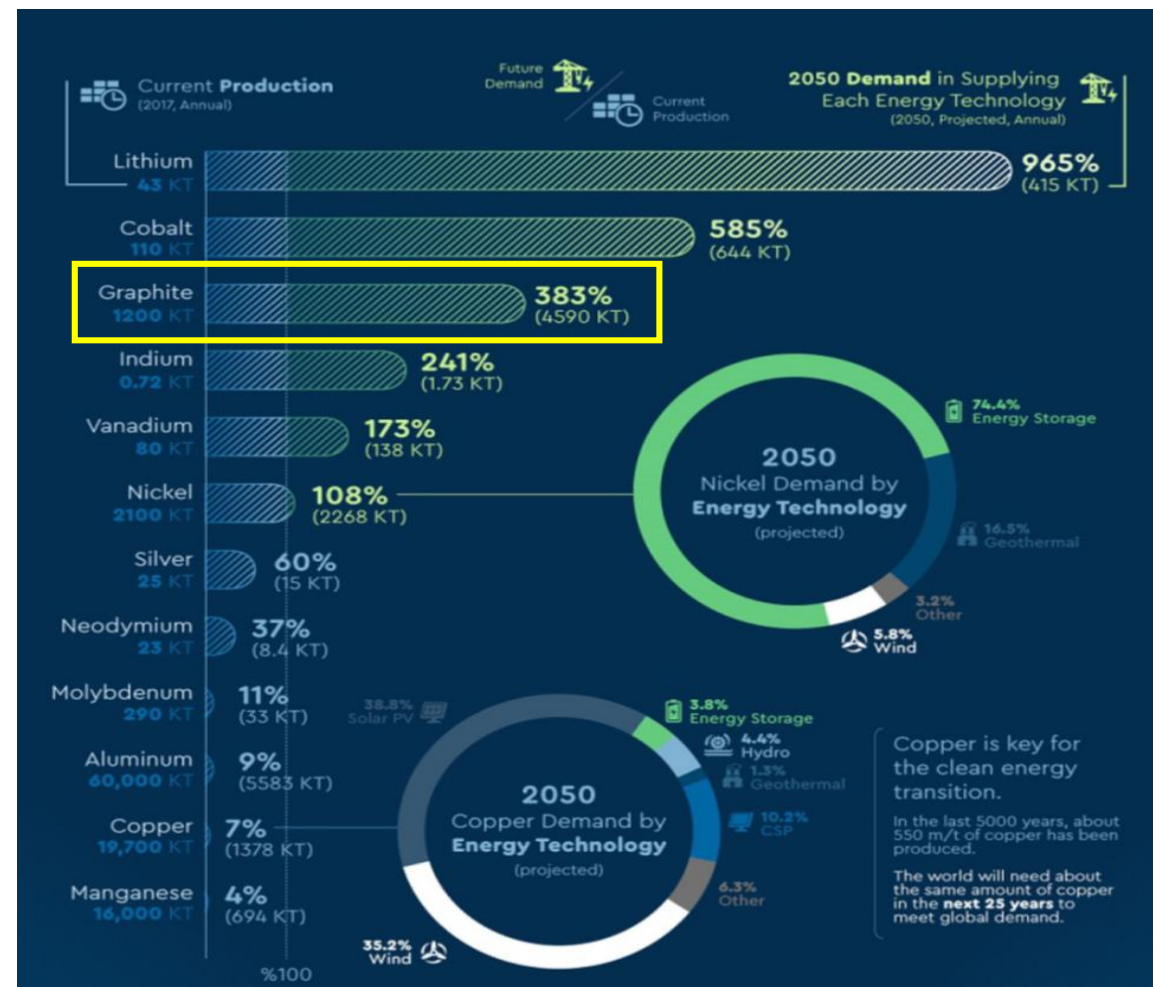
## Capital Structure

Shares on Issue (ASX Code: BAT)	1,318M
Board and Management	>10% fully diluted
Share price (as at 17 <sup>th</sup> May 2019)	2.3cps
Market Capitalisation (as at 17 <sup>th</sup> May 2019)	\$30.3 million
Cash at bank (as at 31 <sup>st</sup> March 2019)	\$4.3 million
Enterprise Value	\$26 million
Top 20 Shareholders	~40%
Listed Options (ASX Code: BATO 10 cents exercise price, expire 23/7/23)	274.5 million
Option price (ASX Code BATO)	0.6 cps
Unlisted Options	146.7 million

# Graphite and its Importance

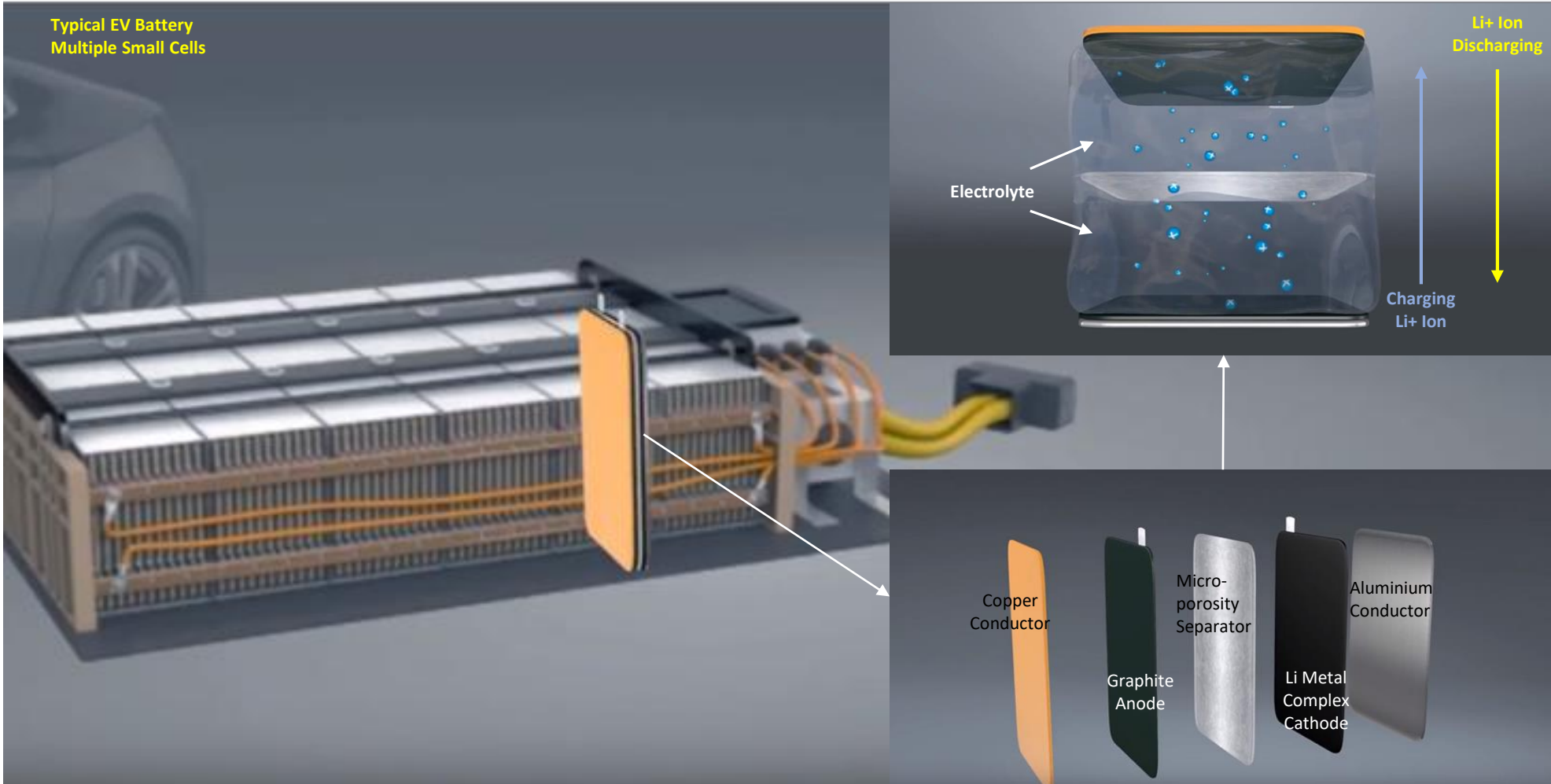
# Graphite - a vital raw material

- Climate change and the shift to Clean Energy is here
- Energy storage is a key element in the drive to providing Clean Energy
- Without natural graphite, the cost of Clean Energy storage systems is high



Source: World Bank-Climate Smart Mining- worldbank.org

# Graphite - the anode in Li-ion batteries





# Graphite - largest contributor by weight in a Li-ion battery



Volvo XC 90 T8 PHEV 12.5kg



Porsche Cayenne E-Hybrid 16.8kg



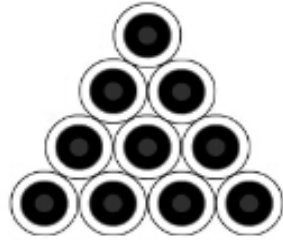
Tesla Model X 120kg



Hyundai Kona 47kg



Rivian 216kg



Refractory  
**+41%**

Friction & Lubricants

**+26%**



Graphite



Expandables  
**+49%**

## It's a lot more than Electric Vehicles

Even in the short-term to 2023, a significant increase in demand is forecast in traditional graphite sectors: refractories, fire retardant materials, friction and lubricants<sup>1</sup>.

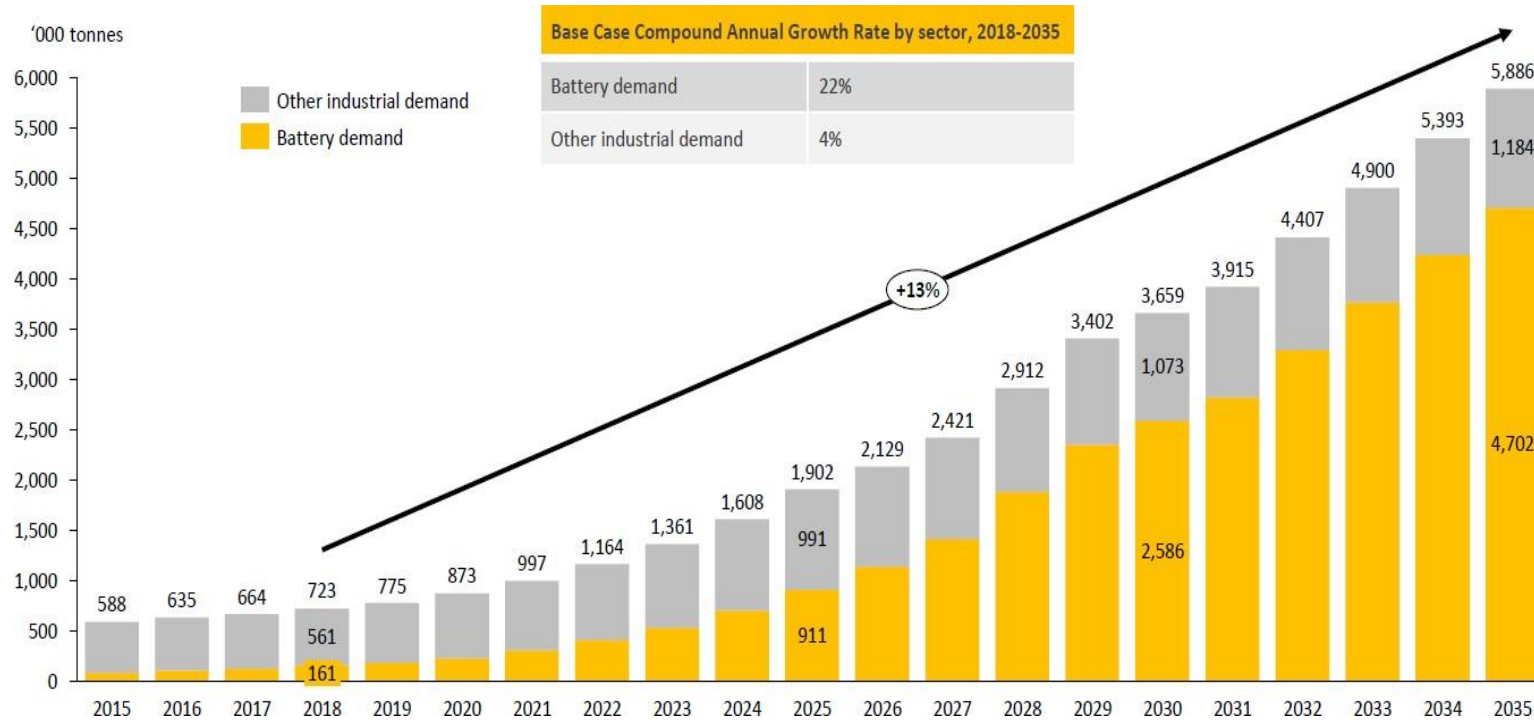
1. Benchmark Mineral Intelligence

# Graphite Market

# Clean Energy Will Drive Battery Minerals

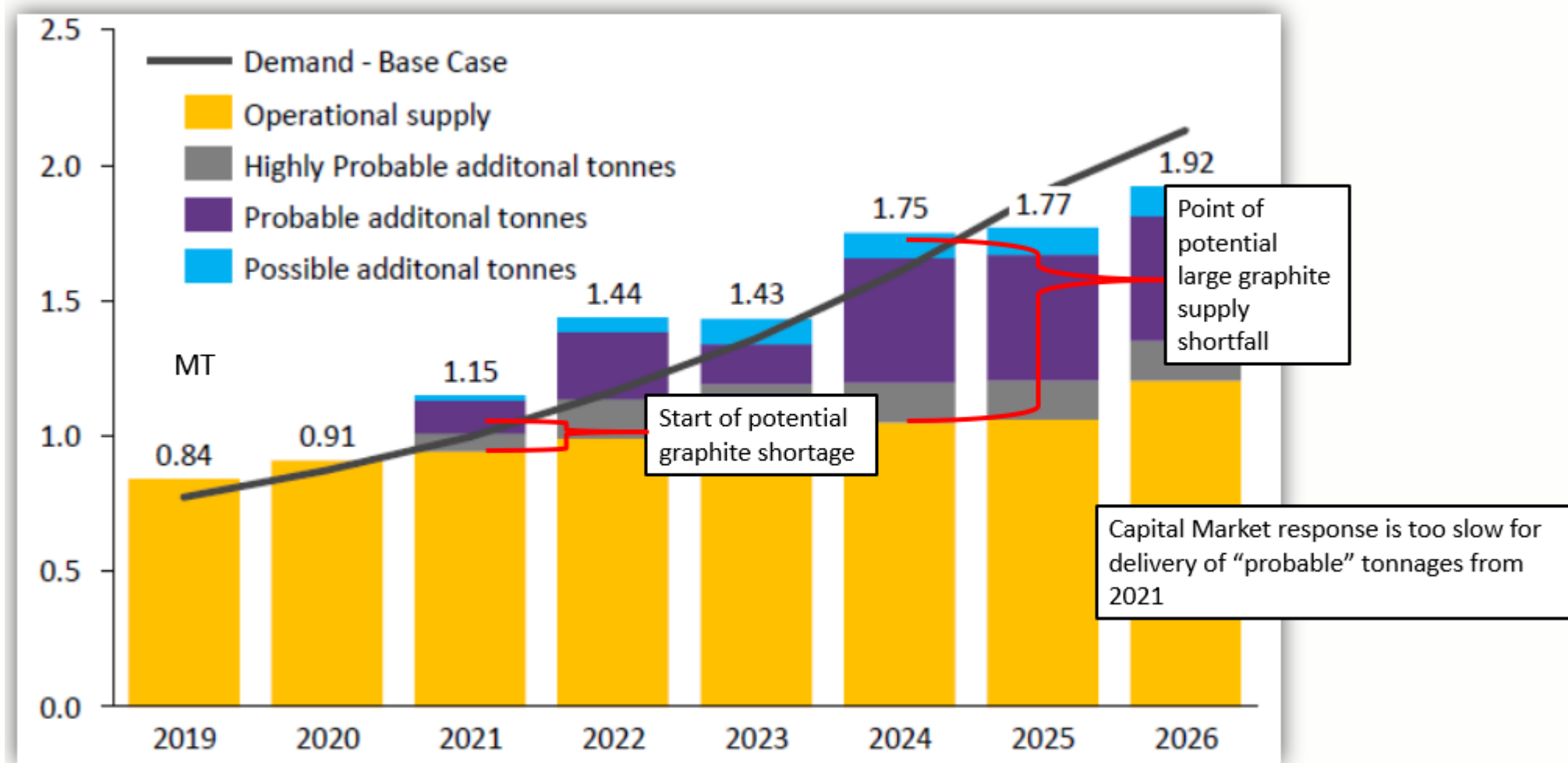
Battery Minerals' product range, in terms of flake size distribution and carbon content, is an **everyman's product**

## Graphite Demand by Sector 2018-2035



Source: Benchmark Mineral Intelligence

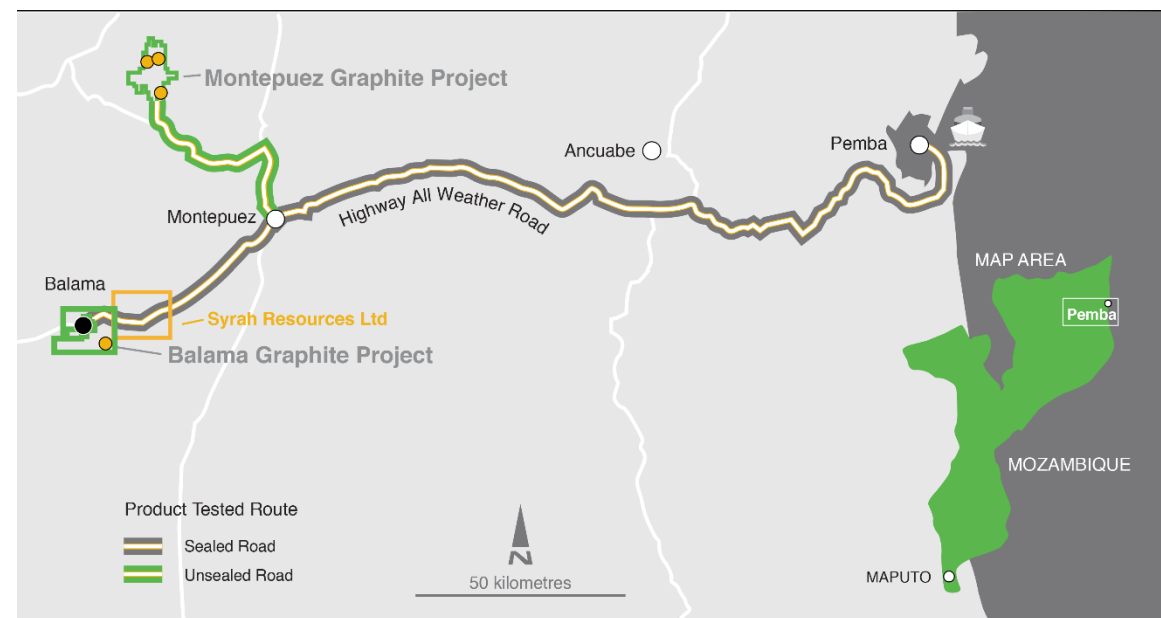
# Graphite Supply & Demand – Benchmark Minerals



# Our Projects

# Montepuez Graphite Project - Phase 1

Montepuez Graphite Project <sup>1</sup>	(First Module)
Capex to complete <sup>3</sup>	US\$39.5 M
C1 Opex (concentrate/t first 10yrs)	US\$361/t
Grade processed	11% TGC (12% for first 18yrs)
Plant Type and Scale	Modular, ~500ktpa
Projected Payback	<2 years
EBITDA per annum <sup>1</sup>	>US\$30 Mpa
Metallurgical Recovery	80% (weathered), 85% (Fresh)
Production Output	+50,000 tpa concentrate
Mine Life	+50 years
Graphite Concentrate purity	>96% TGC
Mineral Resource <sup>2</sup>	119.6Mt at 8.1% TGC
Current Ore Reserve <sup>1</sup>	42.2Mt at 9.3% TGC



Montepuez Graphite Project - Mozambique Transport Route

- Construction ~ 15 months from finance, followed by ~ 6 months commissioning and ramp up
- Project finance; Technical due diligence complete, engagement with potential financiers underway
- Mining Licence granted, port allocation & offtake agreements in place. No regulatory impediments to commencing production and exports

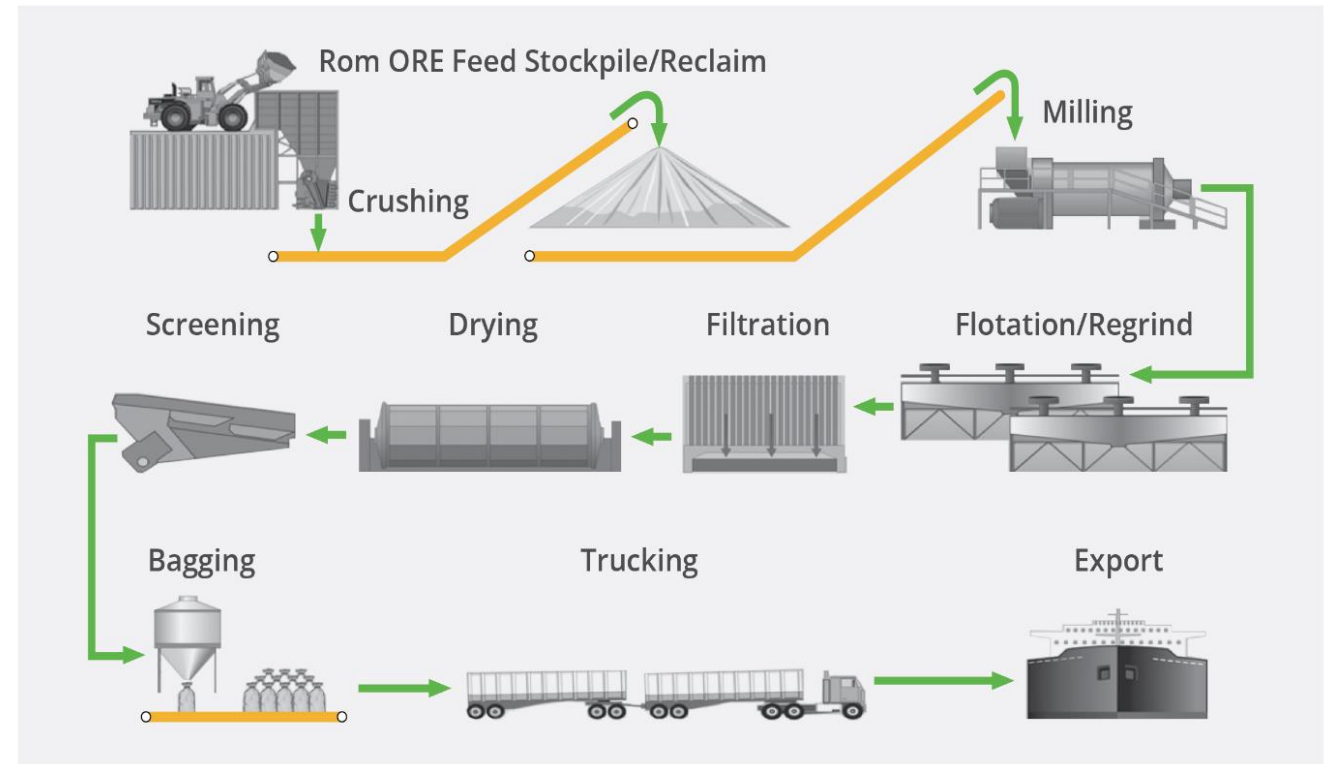
1. See ASX announcement on 4 December 2018 for "Increase in Montepuez Graphite Reserve" for detailed disclosure. Ore Reserves prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed
2. See ASX announcement on 18<sup>th</sup> October 2018 for "Group Resources Update" for detailed disclosure, Mineral Resources prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed
3. Direct Site Capex to complete construction and commissioning, excludes VAT (~US\$3.6M which is expected to be refunded after year 1 of production commencement), Australian and Mozambique corporate and development costs (~US\$7.2M) incurred between project finance close and sustained commercial production, project financing costs (~US\$8.7M), working capital (US\$8M) needed during ramp up and cash reserve/contingency (~US\$4.7M).

# Montepuez Graphite Project – Resources & Reserves

Montepuez Graphite Project <sup>1</sup> November 2018 Ore Reserve Estimate			
Deposit	Ore type	Ore (Mt)	TGC (%)
Buffalo	Weathered	3.58	8.31
	Fresh	16.80	10.06
	Subtotal	20.38	9.75
Elephant	Weathered	2.41	8.39
	Fresh	19.41	8.87
	Subtotal	21.82	8.82
TOTAL	Weathered	5.98	8.34
	Fresh	36.21	9.42
	<b>TOTAL</b>	<b>42.19</b>	<b>9.27</b>

Montepuez 2018 Mineral Resource Estimate (2.5% TGC Cut-off) <sup>2</sup>			
Total Mineral Resource			
Type	Mt	% TGC	Cont. Graphite (1000 tonnes)
Weathered	10.3	7.7	790
Primary	109.2	8.1	8,870
<b>Total</b>	<b>119.6</b>	<b>8.1</b>	<b>9,660</b>

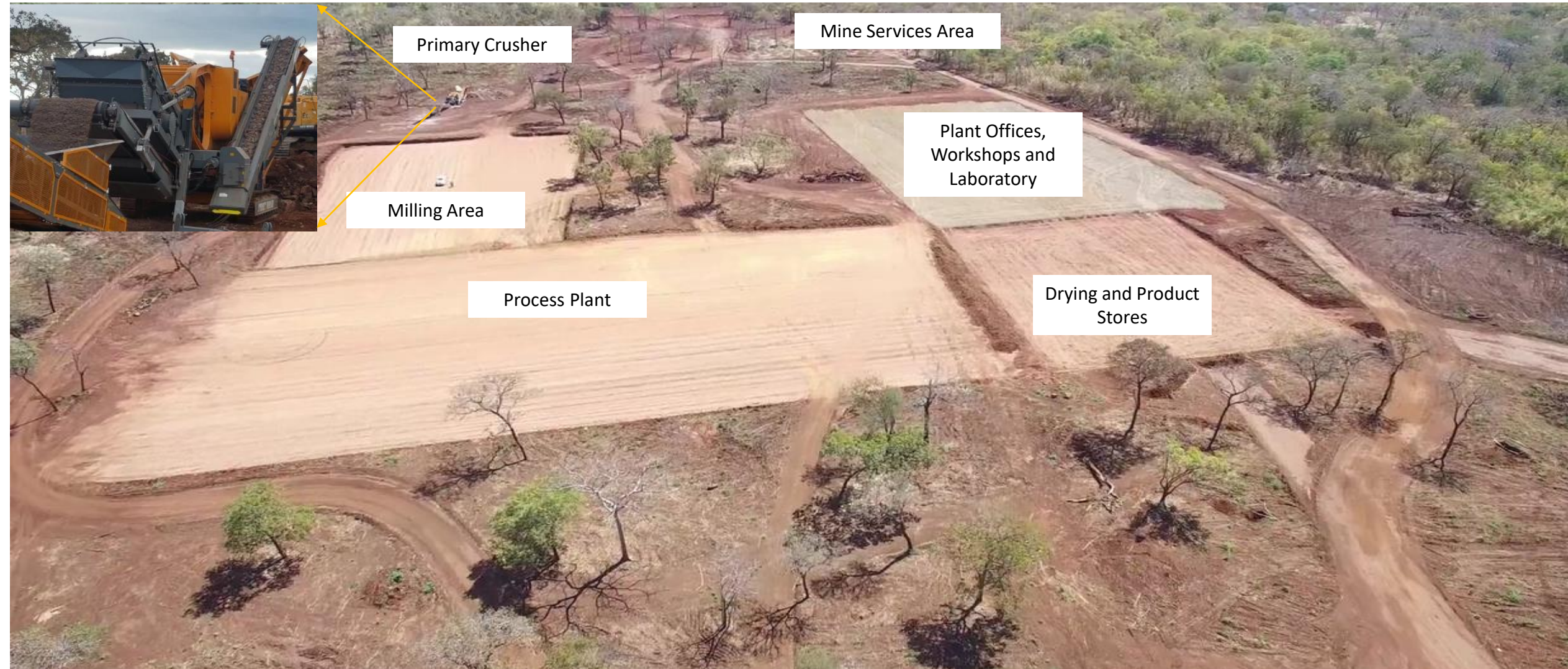


Montepuez Graphite Project - Production Flowsheet

1. See ASX announcement on 4 December 2018 for “Increase in Montepuez Graphite Reserve” for detailed disclosure. Ore Reserves prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed
2. See ASX announcement on 18<sup>th</sup> October 2018 for “Group Resources Update” for detailed disclosure, Mineral Resources prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed



# Plant Site Earthworks - Complete



# Tailings Storage Facility (TSF) Wall - Complete



# 100 Man Camp - Complete



# Pemba Port – 100ktpa allocation

- **Port Allocation approved:** at Pemba Port for 100,000tpa of graphite concentrate
- **Pemba Port:** 8-12m deep berthing water, capacity 3 – 4Mtpa cargo and goods
- **Vessels : Geared.** 30,000t to 40,000t vessels, Container and break bulk facilities
- **Shipping Route:** Vessel availability as required as Pemba is located on coastal shipping route between Durban and Dar es Salam
- **Port Authorities** planning expansion of loading capacity and facilities for 2020

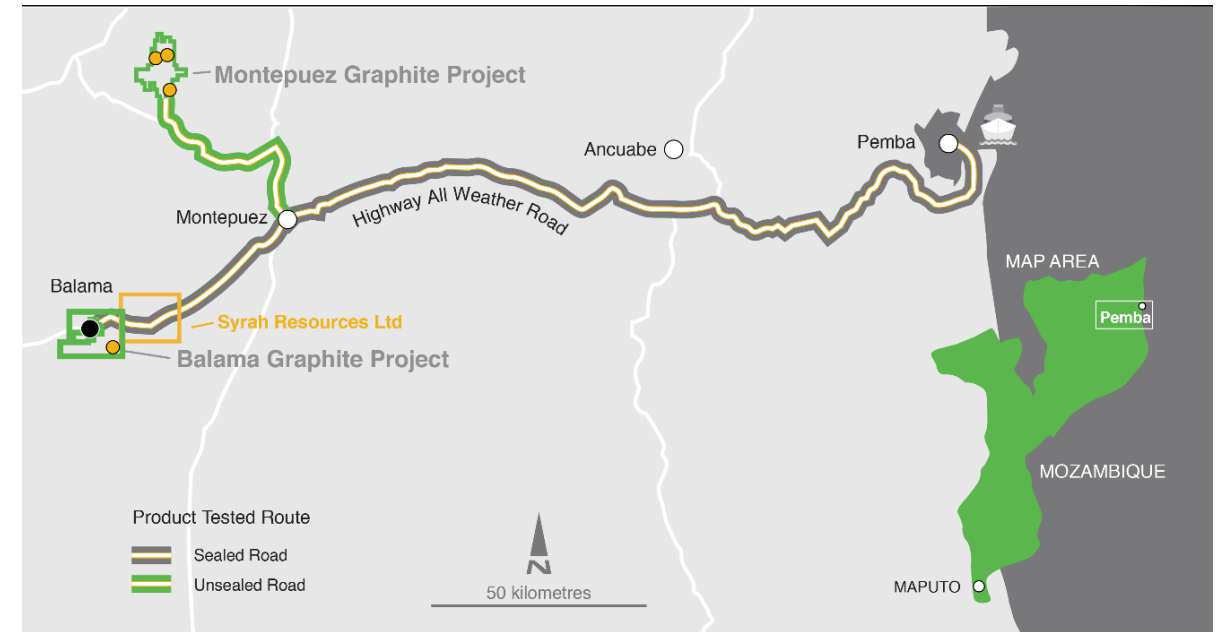


# Community Engagement



# Balama Central Graphite Project

Balama Central Graphite Project	Feasibility Study Dec 2018
Annual graphite production	58,000pa
Capex (pre-production) <sup>4</sup>	US\$69.4 M
Opex (concentrate/t first 8 yrs)	US\$363/t
Grade Processed	12.5% TGC
Plant Type and Scale	Modular, ~ 500ktpa
Projected Payback	~2.3 years
Net Operating Cash Flow	>US\$30 Mpa
Metallurgical Recovery	>93%
Mine Life	+35 years
Balama Central Basket Price <sup>3</sup>	US\$1,106/t
Graphite Concentrate purity	+96% TGC
Mineral Resource <sup>2</sup>	32.9Mt at 10.2% TGC
Ore Reserves <sup>1</sup>	19.7Mt at 11.1% TGC

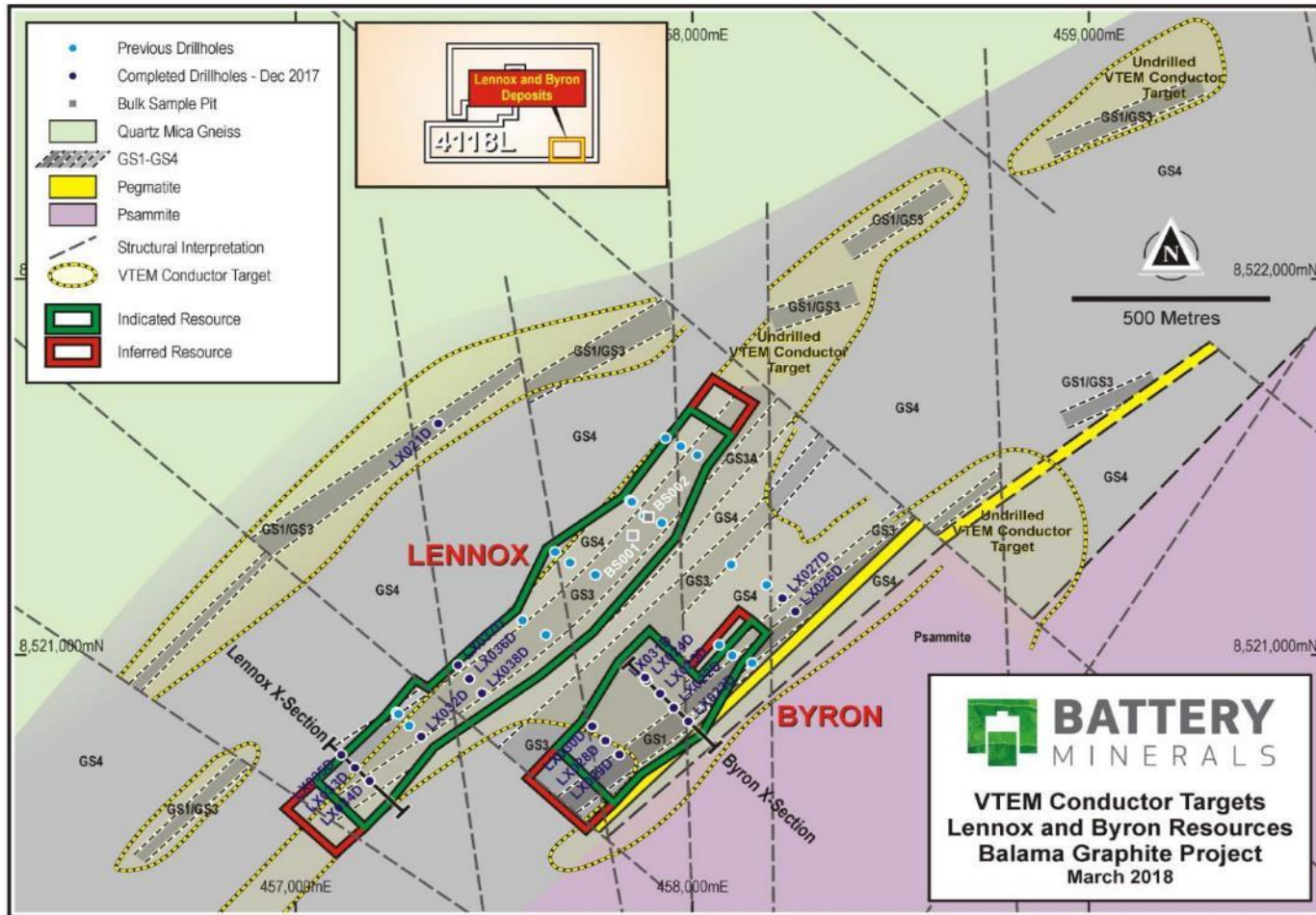


Balama Central Graphite Project Location

**Mining License Application:** Expected to be submitted in 2019

1. See ASX announcement on 12 December 2018 for “Maiden Reserve for Balama” for detailed disclosure. Ore Reserves prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed
2. See ASX announcement on 29th March 2018 for “Mineral Resource Doubles at Balama” for detailed disclosure, Mineral Resources prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed
3. Based on the Benchmark Mineral Intelligence (BMI) CIF China forecast graphite prices (as at October 2019) for 2022

# Balama Central Graphite Project - Reserves and Resources



Total Mineral Resource <sup>2</sup>				
Domain	Type	Tonnage	TGC	Cont. Graphite
		Mt	%	kt
High Grade GS1 (>10% TGC)	Weathered	3.2	15.7	498
	Primary	9.1	15.7	1,429
	Sub-Total	12.3	15.7	1,927
Medium Grade (6 to 10% TGC)	Weathered	4.2	6.9	288
	Primary	16.4	6.9	1,142
	Sub-Total	20.6	6.9	1,430
Total		32.9	10.2	3,357

Ore Reserve Estimate (6% TGC cut-off grade) <sup>1</sup>			
Pit	Ore type	Ore (Mt)	TGC (%)
Lennox	Weathered	3.36	11.09
	Fresh	8.19	11.70
	Total	11.55	11.52
Byron	Weathered	2.08	10.18
	Fresh	6.02	10.49
	Total	8.11	10.41
Total	Weathered	5.44	10.74
	Fresh	14.21	11.19
	Total	19.66	11.06

1. See ASX announcement on 12 December 2018 for “Maiden Reserve for Balama” for detailed disclosure. Reserves prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed
2. See ASX announcement on 29<sup>th</sup> March 2018 for “Mineral Resource Doubles at Balama” for detailed disclosure, Resources prepared by a competent person in accordance with the JORC Code. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed

# Further Value Potential



# High Purity Flake and Anode Material Testwork



- Testwork programme undertaken by
- Progress to date
  - Purification success with Urbix environmentally friendly, low temp <80°C, non-HF process **with no impact on flake morphology**

Sample Fraction	Initial purity, %TGC	Final Purity, %TGC
-43 micron	95.2	99.95
-150 +43 micron	97.1	99.97
+300 micron	94.3	99.95
-300 +180 micron	93.6	99.98

- Spheroidising testing complete - analysis in progress
- Programme completion - end of 2019

Unique Montepuez flake qualities of

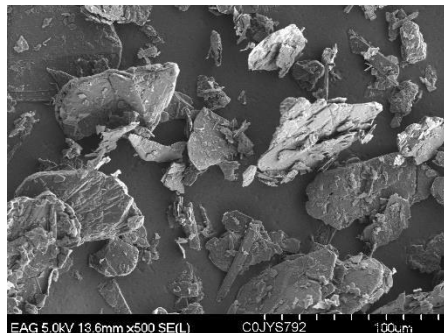
- high crystallinity,
- ultra low Boron content,
- unique flake morphology complimented by URBIX purification technology

Opening new markets in nuclear, concrete, composites, and military applications

Montepuez flake used by URBIX in US Department of Energy Grant for Nuclear Grade Graphite Development

Planned Urbix Pilot Plant:

- Capacity – 24,000 tpa Purified Flake Graphite
- High overall recoveries +75% for PSG



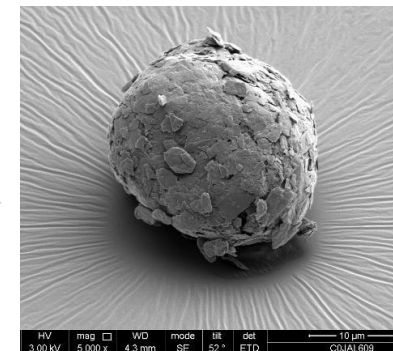
Flake Concentrate



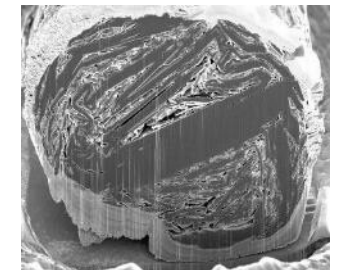
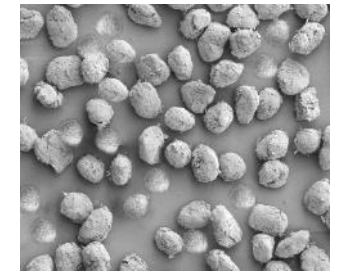
Graphite Concentrate @ ± 95%TGC

Urbix proprietary innovative purification and spheroidisation technology

Purified Spherical Graphite @ +99.95% TGC



Spherical Graphite



# Montepuez Vanadium Potential

- Montepuez Vanadium Inferred Resource announced in April 2019
- Favourable results from preliminary metallurgical testwork to extract Vanadium from the tailings
- Further testwork and studies to understand Vanadium economic potential are planned

## Vanadium Market

- New rebar standards implemented in China will double Vanadium content in rebar, 6% annual growth forecast
- Demand for ever lighter and more efficient steel will further drive demand for Vanadium
  - 0.1% vanadium strengthens steel by up to 100% and can reduce weight by up to 30%
- Vanadium Flow Batteries, providing large-scale power storage, will further drive demand

Montepuez Vanadium Resource<sup>1</sup>

Deposit, type	Inferred Mineral Resource	
	Tonnage Mt	V <sub>2</sub> O <sub>5</sub> %
Elephant, primary	18.4	0.24
Buffalo, primary	16.2	0.25
<b>Total</b>	<b>34.6</b>	<b>0.25</b>

Montepuez Vanadium Testwork Results<sup>1</sup>

Feed Grade for Test Work V <sub>2</sub> O <sub>5</sub> %	Recovery %	Concentrate Grade V <sub>2</sub> O <sub>5</sub> %
0.53	75.3	1.30

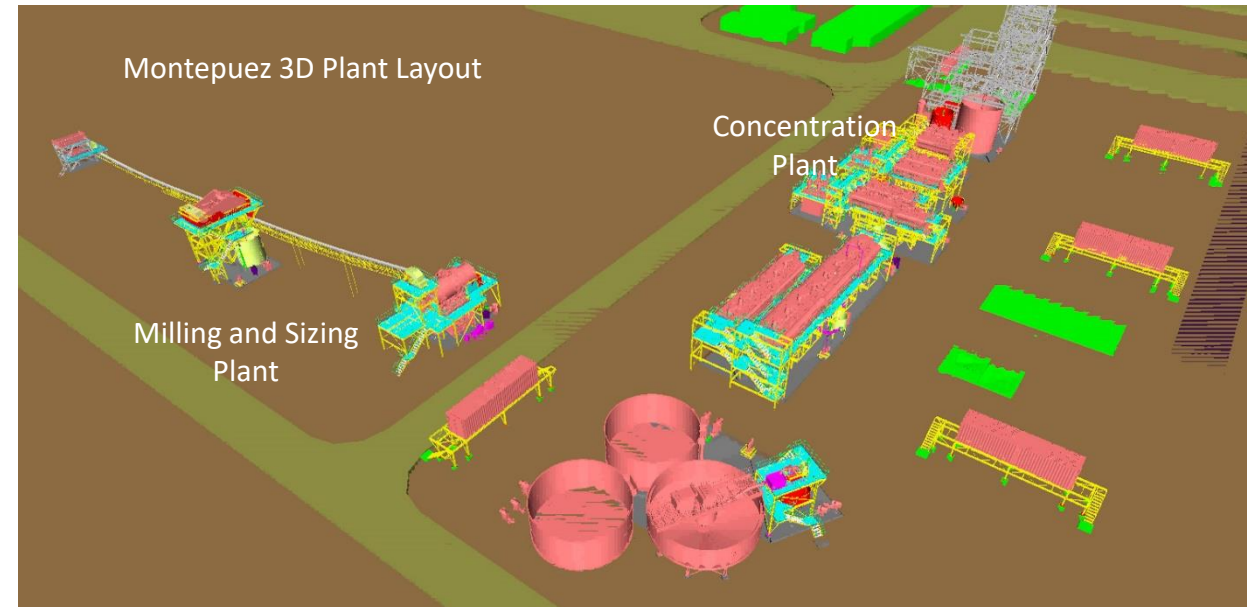
Note 1: See ASX announcement on 29 April, 2019 for full details and competent person sign-off. All material assumptions underpinning the Inferred Resources continue to apply and have not materially changed.

# Forward Plan

# Highly Leveraged to Growing Clean Energy Market

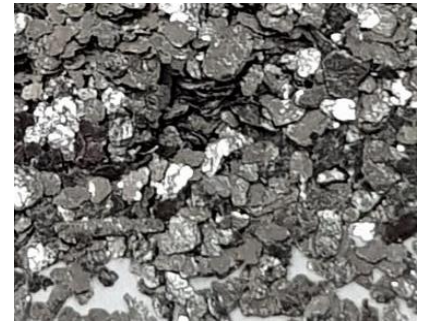
## Forward Plan

1. Montepuez Project
  - Finance the project
  - Complete Engineering, Procurement & Award of Contracts
  - Construct & Commission (15 months from finance)
  - Ramp up & Sales
2. Balama Central Project – keep progressing Mining License
3. Progress purification technology & Anode material scoping study
4. Continue work on Vanadium opportunity



# Positioned to Rapidly Respond to Clean Energy Growth

1. Exposure to growing traditional graphite markets, and unprecedented forecast demand growth driven by global transition to clean energy
2. 2 x world class low cost, long life graphite projects; Montepuez & Balama Central
  - Total JORC Resource of 152.5Mt at 8.5% TGC<sup>1</sup>
  - Total JORC Reserve of 61.9Mt at 10.1% TGC<sup>2</sup>
3. Montepuez is at an advanced stage of development to produce 50ktpa concentrate at 96% TGC;
  - Detailed Design 70% complete, Mining Licence granted
  - 100 man camp, Tailings Storage Facility wall, process plant earthworks, all complete
  - 4 x offtake agreements in place
  - Proven logistics path to port of Pemba, and 100ktpa port allocation in Pemba
4. Balama Central Project Feasibility Study completed and mining license application progressing
5. Scalable low risk production profile; commencing at 50ktpa flake concentrate, potential for 200ktpa<sup>3</sup>
6. Capable team with a track record of project execution



Note 1: See announcement dated 18 October 2018 for details and Competent Persons Statement

Note 2: See announcements dated 4 and 12 December 2018 for details on Montepuez and Balama Central Ore Reserves and Competent Persons Statement

Note 3: Subject to the completion of all necessary feasibility studies, permit applications, construction, financing arrangements, market conditions, port access and execution of infrastructure related agreements



[www.batteryminerals.com](http://www.batteryminerals.com)

## Forward Looking Statements

- 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.

- Battery Minerals confirms that all the material assumptions underpinning the production targets for its Montepuez and Balama Central graphite projects and any of the forecast financial information derived from these production targets, in the 4 and 12 December 2018 ASX announcements, on these projects continue to apply at the date of release of this presentation and have not materially changed. Battery Minerals confirms that it is not aware of any new information or data that all material assumptions and technical parameters underpinning the estimates in the 4 and 12 December 2018 announcements continue to apply and have not materially changed.

## Competent Persons Statement

- All references to future production and production & shipping targets and port access made in relation to Battery Minerals are subject to the completion of all necessary feasibility studies, permit applications, construction, financing arrangements, port access and execution of infrastructure-related agreements. Where such a reference is made, it should be read subject to this paragraph and in conjunction with further information about the Mineral Resources and Ore Reserves, as well as the relevant competent persons' statements.
- Any references to Exploration Results, 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 Montepuez Mineral Resources and Ore Reserves is extracted from the ASX Announcements dated 18 October 2018 and 4 December 2018 respectively, both of which are available at Battery Minerals website in the ASX announcement page.

- See ASX announcements on the Balama Central Feasibility Study dated 12 December 2018 for details, Table 1 and Competent Person Statement

- Any references to Mineral Resource estimates on the Balama Central Project should be read in conjunction with the competent person statements included in the ASX announcements referenced in this report (See ASX announcement dated 29 March 2018 entitled "Resources double at Balama Central graphite project in Mozambique" for full details and Competent Persons Statement) 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 presentation that relates to Battery Minerals' Balama Central Mineral Resources 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 in the ASX announcement dated 29 March 2018 and entitled "Resources double at Balama Central Graphite Project in Mozambique" which is available at Battery Minerals Limited website [www.batteryminerals.com.au](http://www.batteryminerals.com.au) in the ASX announcements 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.

- Battery Minerals Limited released the results of a DFS on its Montepuez Project on 15 February 2017 & its Value Engineering Study (VES) results for Montepuez on 18 October 2017. These releases are available on Battery Minerals' website & ASX.

- Battery Minerals Limited released a vanadium mineral resource on 29 April, 2019. All material assumption underpinning this mineral resource continue to apply at the date of this release and have not materially changed.

## Important Notice

- This ASX Announcement does not constitute an offer to acquire or sell or a solicitation of an offer to sell or purchase any securities in any jurisdiction. In particular, this ASX Announcement does not constitute an offer, solicitation or sale to any U.S. person or in the United States or any state or jurisdiction in which such an offer, tender offer, solicitation or sale would be unlawful. The securities referred to herein have not been and will not be registered under the United States Securities Act of 1933, as amended (the "Securities Act"), and neither such securities nor any interest or participation therein may not be offered, or sold, pledged or otherwise transferred, directly or indirectly, in the United States or to any U.S. person absent registration or an available exemption from, or a transaction not subject to, registration under the United States Securities Act of 1933.