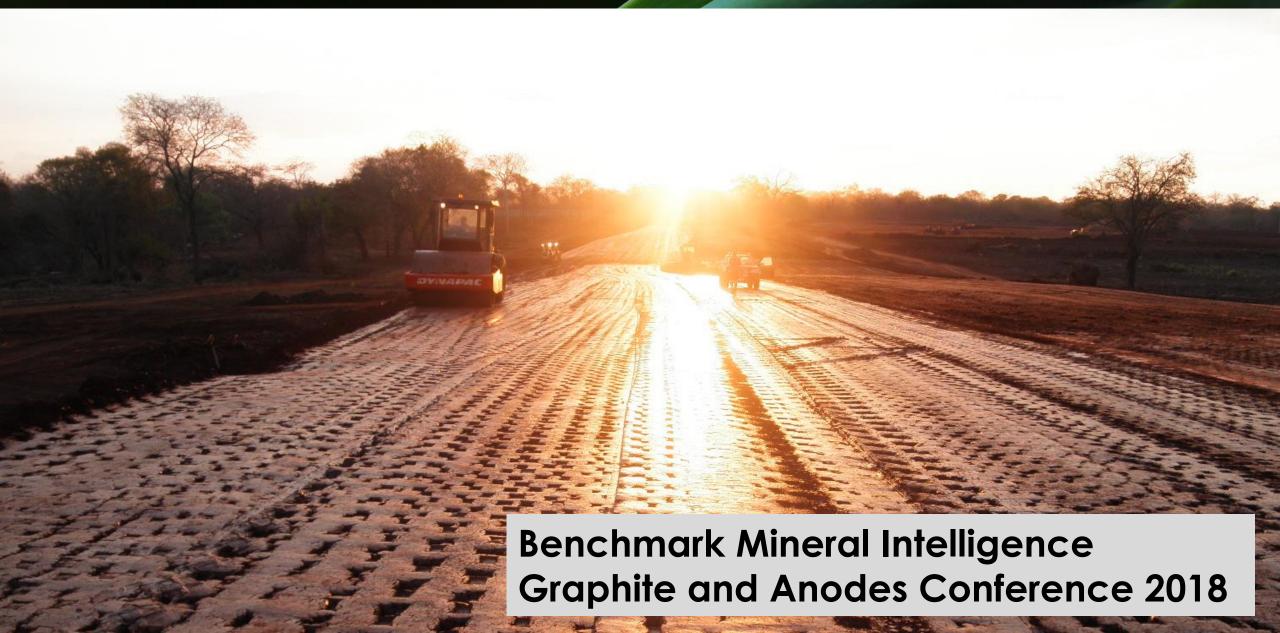
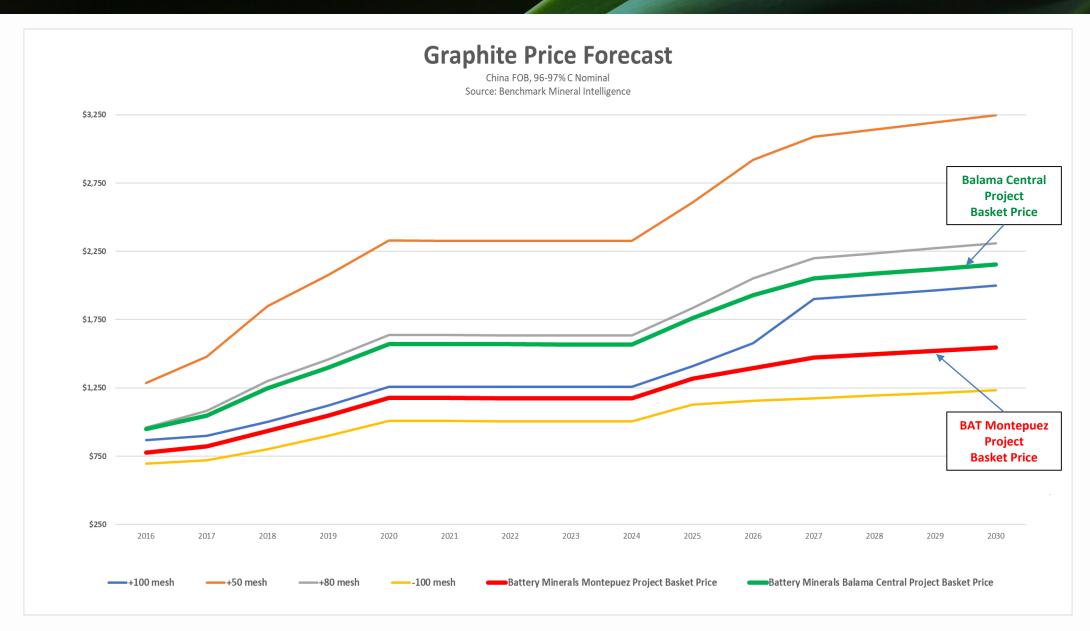
# Mozambique – Real Opportunity





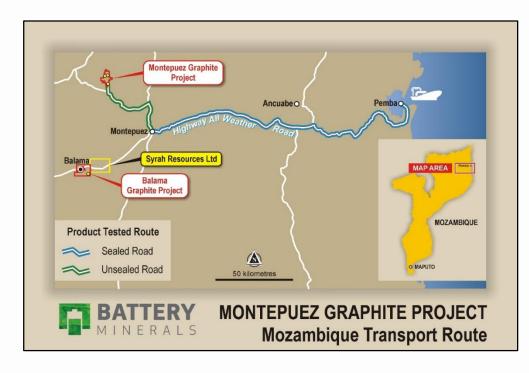
## Graphite Price Forecast - Benchmark Mineral Intelligence





#### Project 1 Montepuez





Montepuez Graphite Project <sup>2</sup>	VES (First Module)
Annual graphite production	45,000 - 50,000pa
Capex (pre-production)	US\$51.2 M
Opex (concentrate/t) <sup>7</sup>	US\$378/t
Grade processed	12% TGC
Plant Type and Scale	Modular, ~500ktpa
Projected Payback	~2 years <sup>5</sup>
Net Operating Cash Flow	~US\$20 Mpa <sup>5</sup>
Metallurgical Recovery	>80%
Mine Life <sup>3</sup>	+10 years <sup>4</sup>
Graphite Concentrate purity	96-97% TGC
-	<u> </u>



- Timing: Mining Licence granted, First Exports 12 months from finance completion
- Proven Logistics: bulk sample delivered to port in 2017, 260km logistics chain tested and proven
- Port Allocation approved: at Pemba Port for 100,000tpa of graphite concentrate
- Expansion to 100ktpa: USD 25-29M for additional 45-50,000tpa
- Indicated & Inferred Resource: 119.6Mt @ 8.1% TGC @ 2.5% cut-off<sup>1</sup>, Target for additional 3-400Mt at 5-10% TGC<sup>6</sup>
- Proven and Probable Reserve: 41.4Mt @ 8.8% TGC @ 4% TGC cut-off<sup>1</sup>

Wontepacz: - Hake Graphite Concentrate Sizing				
Flake size	Flake size (mesh)	Flake size (micron)	% of concentra	TGC grade
Fine	-100 Mesh	0 - 150	71.9%	97.0%
Medium	+100 Mesh	+150 -180	10.2%	96.0%
Large	+80 Mesh	+180 -300	13.5%	96.0%
Jumbo	+50 Mesh	+300	4.4%	96.0%

<sup>.</sup> See ASX announcement on 15 February 2017 for DFS outcomes. See ASX announcement dated 18 October 2017 for VES outcomes. See ASX announcement dated 18 October 2018 for Mineral Resource upgrade and CP sign-off

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

Based on Ore Reserves (see ASX released dated 15 February 2017) 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
Mine life of +10 years at 12% TGC plus 10+ years at 7-8% TGC

<sup>5.</sup> BAT has used US \$798/t FOB Pemba as a long term basket price for it's concentrate in the Feb 2017 DFS. Current Independent market commentators supported by our detailed market analysis indicates long term pricing in a range US \$847-950/t FOB Pemba.

<sup>6.</sup> The potential quantity and grade is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource and that it is uncertain if further exploration will result in the estimation of a Mineral Resource.

Operating costs are sensitive to movements in diesel price. A 30% increase in diesel price would deliver an increase in operating costs of approximately 10%

# May 2018 Satellite Image Elephant Deposit Buffalo Deposit Plant Site Camp Warthog Prospect Tailings dam Haul Road

# Permanent Camp Construction - on track





# Montepuez Project Camp Commissioning - on Track

























# Plant Site Earthworks - on track





# Tailings Storage Facility (TSF)- on track



























# Community Engagement - on track





















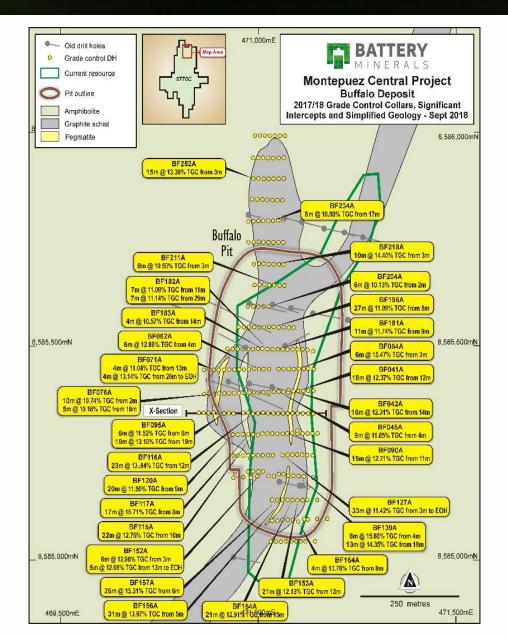


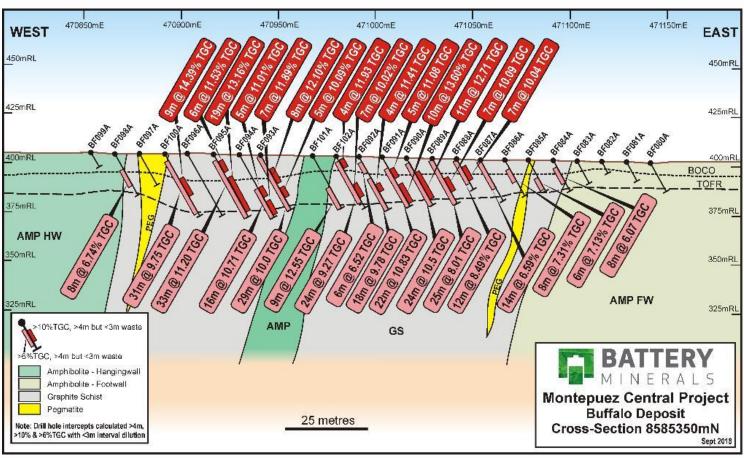




## Buffalo Deposit - RC Grade control - complete

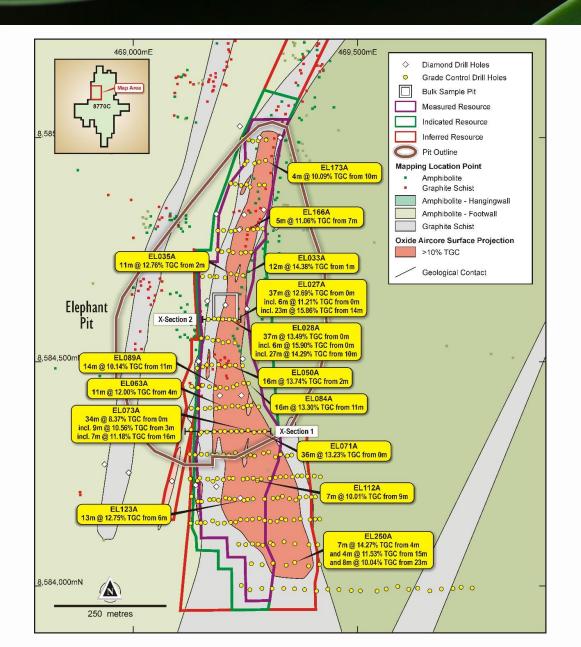


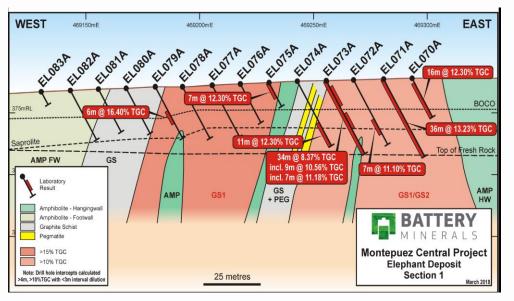


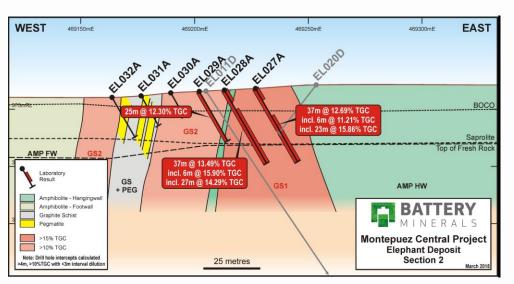


#### Elephant Deposit - RC Grade Control - complete



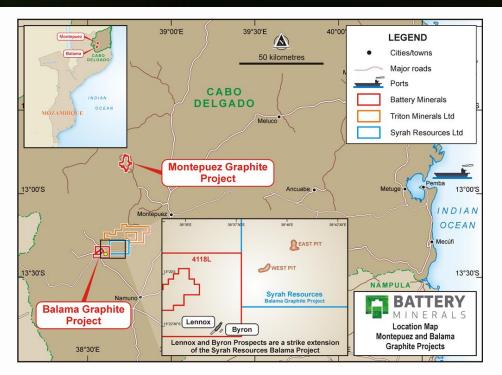






## Project 2 Balama Central Graphite Project





Balama Central Graphite Project <sup>2</sup>	Scoping Study
Annual graphite production	50,000 - 55,000pa
Capex (pre-production)	US\$50 M
Opex (concentrate/t) <sup>6</sup>	US\$372/t
Grade Processed	10.6% TGC
Plant Type and Scale	Modular, ~550ktpa
Projected Payback	<1.5 years <sup>5</sup>
Net Operating Cash Flow	>US\$30 Mpa <sup>5</sup>
Metallurgical Recovery	>93%
Mine Life <sup>3</sup>	+10 years <sup>4</sup>
Graphite Concentrate purity	96-97% TGC

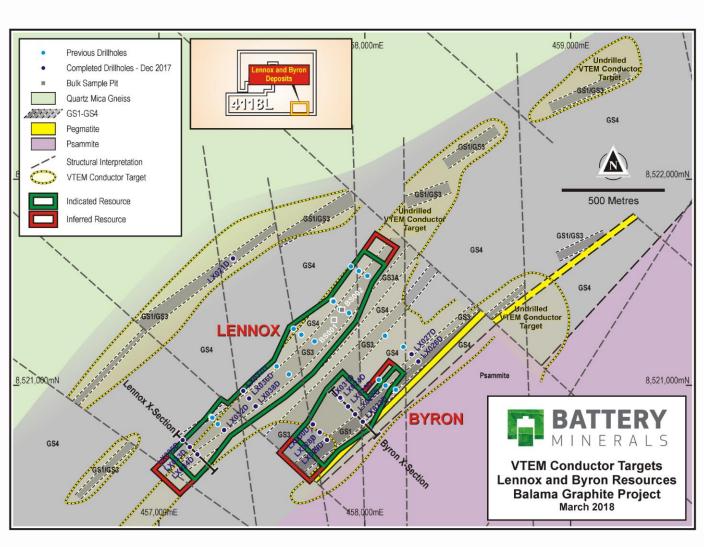


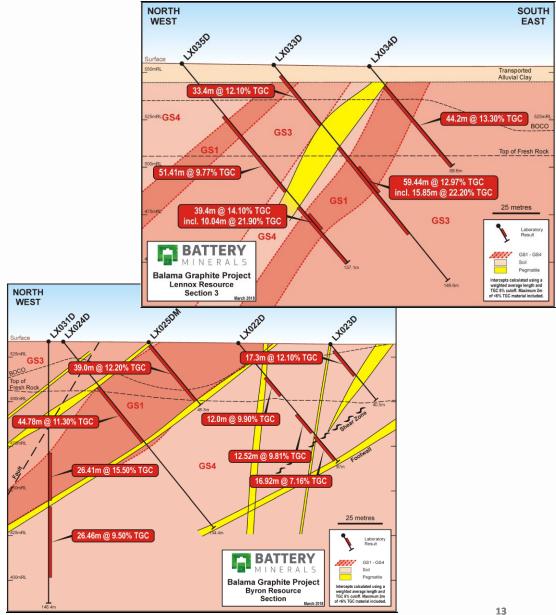
- Timing: Feasibility Study conclude in December 2018 Quarter
- Logistics: Bulk sample delivered to port in 2017, 260km logistics chain tested & proven by Montepuez bulk sample
- Port Allocation: Discussions on allocation ongoing, capacity is available to cater for Battery Minerals exports of 200ktpa
- Expansion to 100ktpa: USD 30-35M for additional 50-55,000tpa
- Resource <sup>3</sup>: Total Mineral Resources of 32.9Mt at 10.2% TGC (6% TGC cut off), Indicated Mineral Resources 26.6Mt at 10.3% TGC, includes indicated resources of 11.8Mt at 14.8%TGC (8% TGC cut off)
- Feasibility Study to consider processing grade parameters of 10.26% 15.95% TGC (see Appendix for grade tonnage curve)
  - See ASX announcement dated 1 March 2018 for Balama Central Scoping Study outcomes. All material assumptions underpinning the production target in that announcement continue to apply and have not materially changed Excludes National Ownership (anticipated to be -5%) and 32% tax rate
  - See ASX announcement dated 29 March 2018 entitled "Resources double at Balama Central graphite project in Mozambique" for full details. Please refer to additional details on slide entitled Disclaimer & Competent Persons Statement.
  - 4. Mine life of +10 years based on 2016 Indicated Resources only
  - BAT has used US \$1,100/t as basket price FOB Pemba for it's Balama Central concentrate. The current market basket price for it's Balama Central concentrate is greater than US \$1,100/t FOB Pemba.
    - Operating costs are sensitive to movements in diesel price. A 30% increase in diesel price would deliver an increase in operating costs of approximately 10%

Balama Central Flake Graphite Concentrate Sizing					
Flake size	Flake size (micron)		% of conc.	TGC grade	
Fine	-100 Mesh	0 - 150	37.0%	97.0%	
Medium	+100 Mesh	+150 -180	9.0%	96.0%	
Large	+80 Mesh	+180 -300	25.0%	96.0%	
Jumbo	+50 Mesh	+300	29.0%	96.0%	

#### Balama Central Deposit

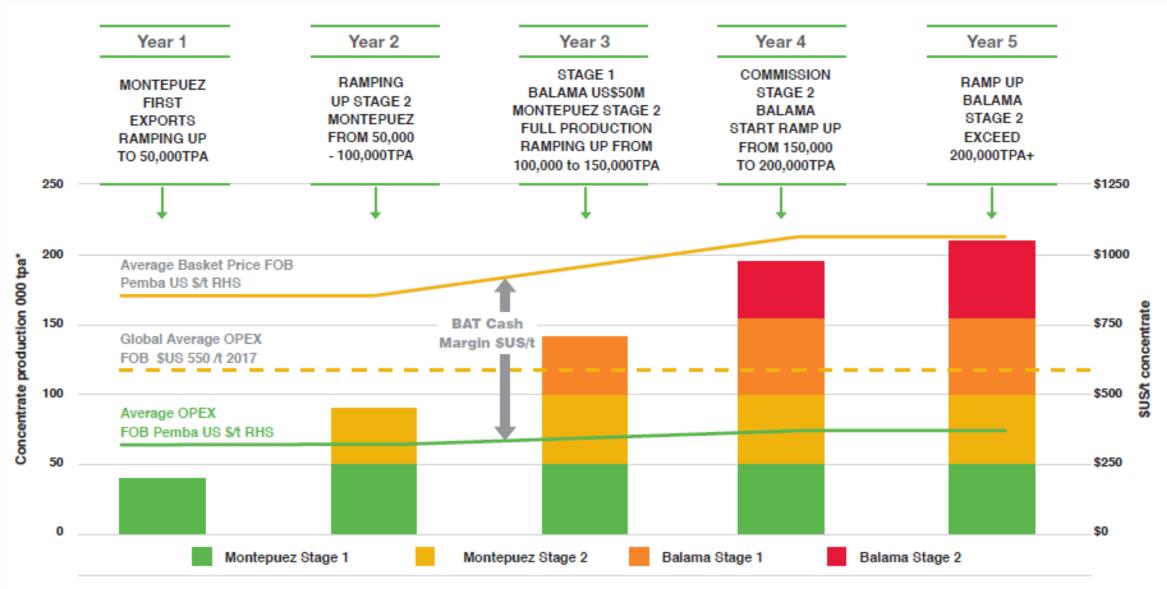






# Production Profile - Significant opportunity





<sup>&</sup>quot;Assumes ramp-up of each additional stage in the first quarter

#### PURIFICATION AND SPHEROIDIZATION TESTWORK



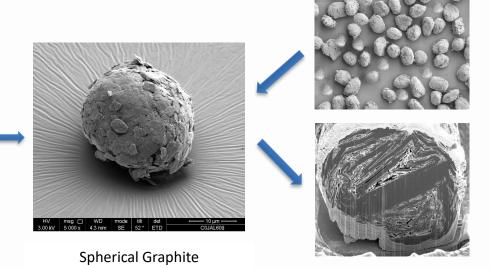
- Testwork programme undertaken by
- URBIX

- **Progress todate** 
  - 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 2018
- Graphite Concentrate @ ± 95%TGC
  - Urbix proprietary innovative purification and spheroidization technology
  - Purified Spherical Graphite @ +99.95% TGC
- Flake Concentrate

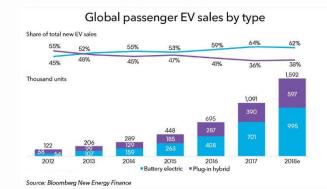
- Montepuez flake identified with high crystallinity, ultra low Boron content, unique flake morphology and URBIX Purification technology together opening potential new markets
  - Nuclear, Concrete, Composites, and military applications
- Montepuez flake used by URBIX in US Department of Energy Grant for Nuclear Grade Graphite Development
- **Urbix Pilot Plant:** 
  - Capacity 24,000 tpa+ Purified Flake Graphite
  - High overall recoveries +75% for PSG



# Graphite Demand - Large growing market



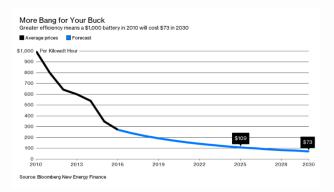








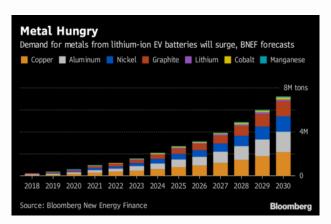
















#### Next Steps



- 1. Complete Montepuez project finance
- 2. Award remaining construction contracts
- 3. Urbix, Anode and other downstream Scoping Study
- 4. Reserve update
- 5. Balama Feasibility Study Results
- 6. Start mining processing and exporting
- 7. Investigate Vanadium and other opportunities



















#### **APPENDICES**



- Current Projects Summary
- Mineral Resources, Reserves,
- Competent person statements
- Historical Prices for Vanadium
- Disclaimer

## Current Projects

Description

Feasibility Study due Dec Qtr 2018

Project

100,000tpa

**Processing** 

**Exploration** 

**Downstream Graphite** 



rioject	Description	Status
Montepuez Graphite Project stage 1 50,000tpa, planning for expansion to 100,000tpa (stage 2)	Produce 50,000tpa @ >96% TGC OPEX cost FOB Moz USD \$378/t CAPEX remaining @ Jan 1, 2019 USD \$38M Target mine life 30 years at 12% TGC run of mine grade	<ul> <li>DFS, VES, Detailed eng., Camp, Roads and plant site CPL Oct 2018</li> <li>Tailings Dam wall and earthworks will be complete by December 2018, providing sufficient water for construction, commissioning, and operations</li> <li>Extensive community consultation</li> <li>Granted Mining Licence, Env. Appr., Port export allocation</li> <li>Offtake agreements</li> <li>Project Financing; Origin Capital+Morgans+Hartleys</li> <li>Origin Capital have appointed DD team to act on behalf of prospective lenders. Detailed project review, site visit, graphite market analysis - well advanced.</li> </ul>
Balama Graphite Project Stage 1 50,000tpa, planning for subsequent expansion to	Produce 50-55,000tpa @ >96% TGC BMI Basket price FOB Moz >USD \$1100/t Scoping Study Mar 2018 (SS) OPEX cost FOB Moz USD \$372/t SS CAPEX ~ USD \$50M SS Expansion CAPEX USD \$35M	<ul> <li>Scoping Study (SS) Completed</li> <li>Feasibility Study Underway due for reporting Dec Qtr 2018</li> <li>Mining Licence Application and Environmental approvals process is due to commence in Dec Qtr 2018</li> </ul>

Status

Results due in December Quarter 2018

New resource estimates are also pending for Montepuez

Results are due in December 2018

- MOU with URBIX and work programme now well advanced on demonstrating viability of low cost, production of purified spherical graphite (PSG)
- The Company's tenements are highly prospective for additional graphite resources. The Company has completed extensive infill, strike extension and exploration drilling during 2018. Opportunity to significantly increase run of mine grade, mine life and production while also lowering costs.
- The Company has completed initial test work and is currently engaging with parties to earn either project or corporate equity as part of completing an initial scoping study • The objective of the test work is to establish that a vanadium rich concentrate can
- Current Graphite resources contain vanadium. The vanadium entirely reports to Vanadium the tailings and presents a commercial opportunity. Opportunity 98% V2O5 current price USD >\$20/lb be generated as a by product and sold at a profit.

#### 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
  - Note; the Ore Reserve Statement predates the updated Mineral Resource Statements. The Company is currently completing a
     Maiden Mine Plan for Balama Central and an updated Ore Reserve for the Montepuez Graphite Project.
- <u>Total Mineral Resource</u> As of October 2018 for the Montepuez and Balama Central Projects is **152.6Mt** @ **8.5% TGC for 13.03Mt** of graphite reported at a 2.5% and 6% TGC cut-off respectively.
- 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.<sup>1</sup>

#### Group Mineral Resource Statement



Total Mineral Resource As of October 2018 for the Montepuez and Balama Central Projects is **152.6Mt @ 8.5% TGC for 13.03Mt** of graphite reported at a 2.5% and 6% TGC cut-off respectively.

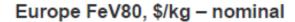
 $^{1}\textsc{Battery Minerals Group MRE}$  Group Mineral Resource Estimate (2.5% - Montepuez, 6% - Balama TGC Cut-off)

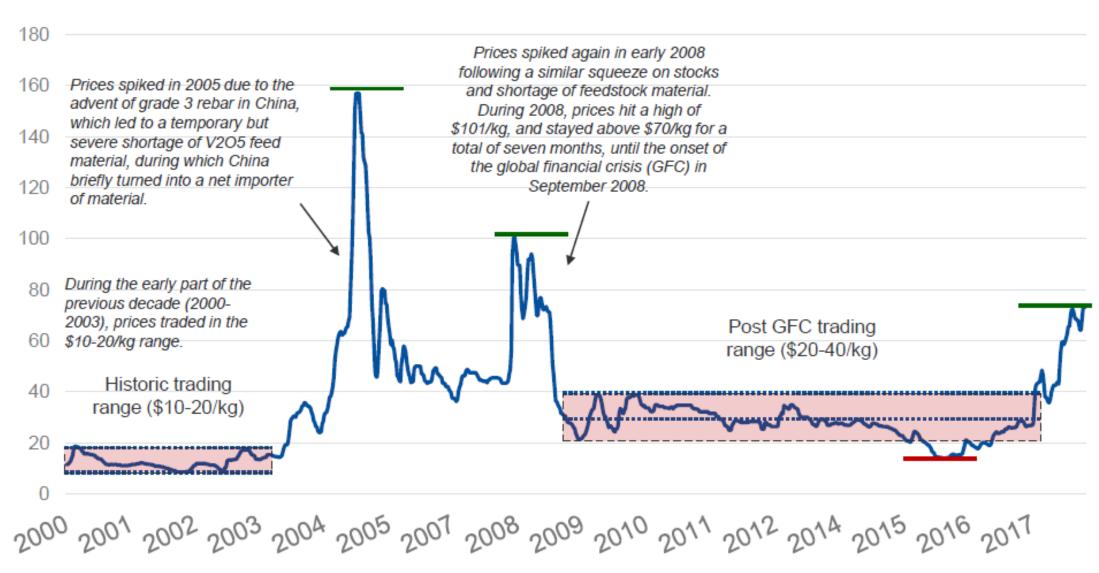
		Group Total Mineral Resource - Weathered		
Project	Deposit	Tonnes	TGC	Cont. Graphite
		Mt	%	kt
Montepuez	Elephant	6.6	7.0	460
Montepuez	Buffalo	3.7	8.7	330
Balama Central	Lennox	4.8	10.9	520
Balailla Celitiai	Byron	2.6	10.4	270
To	tal	17.7	8.9	1,580
		Group Total Mineral Resource - Primary		
Project	Deposit	Tonnes	TGC	Cont. Graphite
		Mt	%	kt
Montepuez	Elephant	70.3	7.3	5,150
Wiontepuez	Buffalo	38.9	9.6	3,720
Balama Central	Lennox	17.2	10.0	1,720
Dalailla Celitiai	Byron	8.4	10.2	850
Total		134.8	8.5	11,440
		Group Total Mineral Resource		ource
Project	Deposit	Tonnes	TGC	Cont. Graphite
		Mt	%	kt
Montepuez	Elephant	76.9	7.3	5,620
- Montepuez	Buffalo	42.6	9.5	4,050
Balama Central	Lennox	21.9	10.2	2,230
Dalailla Celitral	Byron	11.0	10.2	1,120
Total		152.5	8.5	13,030

<sup>1.</sup> Note: See ASX Announcements dated 18<sup>th</sup> October 2018 entitled *Group Resources Update* for full details and CP signoffs.<sup>1</sup>

## Vanadium pricing last 20 years - CRU







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#### Disclaimer & Competent Persons Statement



#### **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.

#### **Competent Persons Statement**

- 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.
- 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 also 15 February 2017 entitled 'Montepuez Graphite Project Mineral Resource and Ore Reserve Estimate and DFS and VES information is extracted from the ASX announcement entitled 'Lithium Ion Battery anode PFS and Montepuez Graphite DFS confirm robust economics' dated 15 February 2017 and VES results of 18 October 2017, both of which are available at Battery Minerals website in the ASX announcement page.
- See ASX announcements on the Balama Central Scoping Study dated 1 March 2018 and the Concept Study dated 26 October 2017 for details, Table 1 and Competent Person Statement
- Balama Central Preliminary metallurgical testwork: The information in this Presentation that relates to Metallurgy is based on and fairly represent information reviewed by Mr. Sean Richardson, who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr. Richardson is an independent consultant. Mr. Richardson has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activities undertaken. Mr. Richardson consents to the inclusion in the Announcement of the matters based on his information in the form and context in which it appears.
- 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 website at 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.

