

ASX Announcement

21 January 2019

**December 2018 Quarterly Activities Report**

**Project construction well advanced; good progress towards finalising funding**

**Updated studies show Montepuez is set to generate substantial EBITDA from robust margins and low capex**

**HIGHLIGHTS**

**Updated Resources, Reserves and Mining Plan for Montepuez Graphite Project**

- Mineral Resources of 119.6mt @ 8.1% Total Graphitic Carbon (TGC)<sup>1</sup>
- Ore Reserve estimate<sup>2</sup> of 42.2Mt at 9.3% TGC
- Mine life at production rate of 50ktpa is +50 years at 11.0% TGC
- Average C1 Cost for the first 10 years USD \$360.9/t FOB Pemba
- Current price estimates for Montepuez 96% TGC concentrate is USD\$1,064/t
- Project CAPEX spend remaining USD \$39.5M
- Permanent 100 person mine village, tailing storage facility and processing plant earthworks complete

**Balama Central Feasibility Study completed<sup>2</sup>**

- Ore Reserve estimate<sup>2</sup> of 19.7Mt at 11.1% TGC
- Mine life of 27 years at production rate of 58ktpa at 96% TGC
- Average C1 Operating Cost for the first 8 years of US\$363/t
- Current price estimates for Balama Central 96% TGC concentrate of US\$1,106/t
- Project CAPEX of US\$69.4M

**Corporate**

- Group Mineral Resource Total now 152.5mt @ 8.5% for 13.03mt of contained Graphite (Montepuez and Balama Central Projects)<sup>1</sup>.
- Project funding process progressing well with independent technical reports on the project and graphite market completed and available to potential project financiers.
- Battery anode test work in USA with Arizona based Urbix using Montepuez graphite continue to deliver outstanding purification results
- Cash on hand of \$7.2M at 31 December 2018

*Note 1: Mineral Resources - See announcement dated 18<sup>th</sup> October 2018 for full details and Competent Persons sign-off*

*Note 2: Ore Reserves - See announcements dated 4 and 12 December 2018 for full details and Competent Persons sign-off*

Battery Minerals Limited (ASX: BAT) is pleased to report on the strong progress it has made on its Montepuez and Balama Central Graphite Projects in Mozambique during the December Quarter, 2018.

All construction milestones at Montepuez were completed on budget and on time with excellent safety performance on site. There were zero lost time injuries.

During the December 2018 Quarter, a large earthworks programme was completed as part of the tailings dam construction and site works ahead of plant engineering. Mine village construction was also completed. This progress means Battery Minerals remains on track to export its first shipment of graphite concentrate within 12–15 months of project finance being concluded.

Battery Minerals Managing Director David Flanagan said the latest results and construction progress reinforced the outstanding technical and economic strength of Montepuez.

“The updated reserve and resource figures, combined with the financial studies, show Montepuez will generate outstanding returns,” Mr. Flanagan said.

“The project has low capital and operating costs, the margins based on today’s prices are exceptional and EBITDA will be very strong.

“This is all against a backdrop of the extremely strong outlook for graphite demand and prices on the back of the lithium battery boom.

“Project construction is now well advanced, the remaining capital expenditure bill is just US\$39 million and work to finalise funding is proceeding well.”

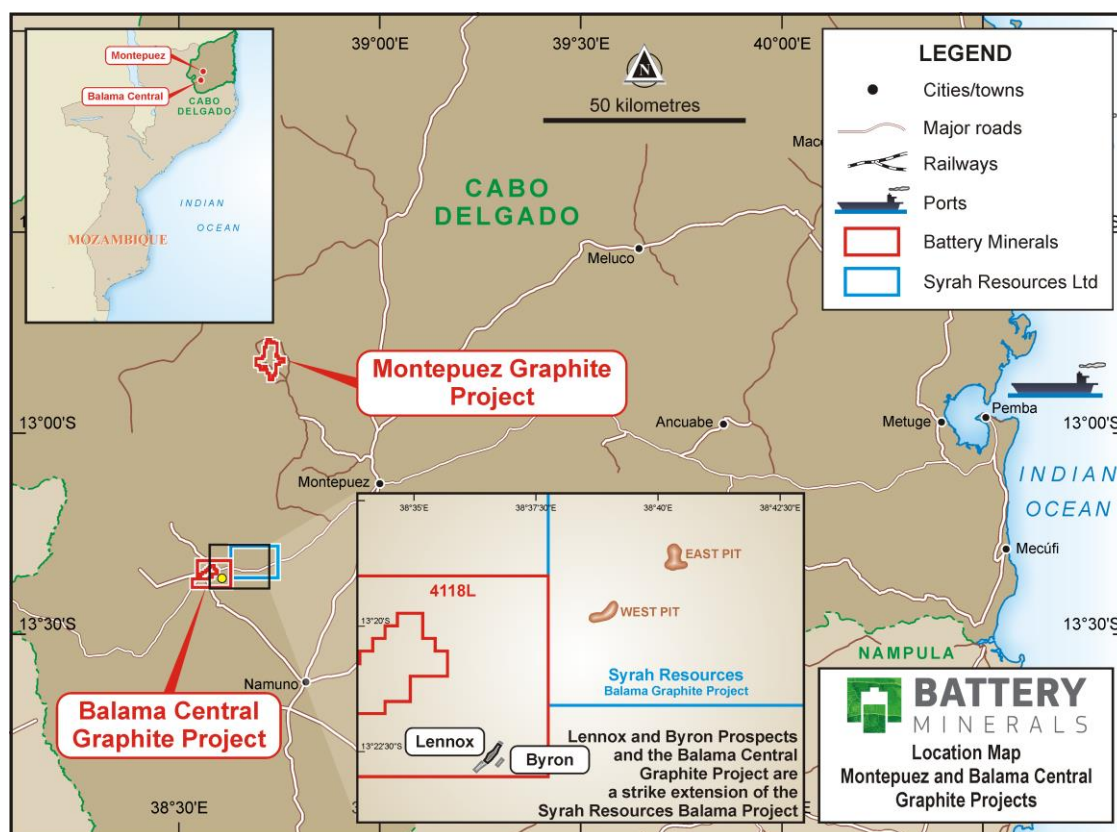


Figure 1 - Montepuez and Balama Central Graphite Projects in the Province of Cabo Delgado in northern Mozambique.

### Montepuez Graphite Project –Mine Plan economics – CAPEX and OPEX

During the December 2018 Quarter, Battery Minerals announced a significant improvement in the Montepuez Graphite Project's economics. The total estimated pre-production establishment capital cost outstanding for the project is US\$39.5M, including contingency, and the average operating cost for the first 10 years is US\$361/t (FOB Pemba) as detailed below:

CAPEX Area	Total Capex USD\$	Spent to end of Nov 2018 USD\$	Remaining Capex USD\$
Process Plant and Power	28,129,000	4,160,000	23,969,000
Mining Equipment and Light Vehicles	4,378,000	72,000	4,306,000
Camp infrastructure and fit-out	3,108,000	3,108,000	0
Earthworks, Tailings Storage Facility and Water Storage	3,834,000	3,491,000	343,000
Buildings, officers and workshops	1,814,000	62,300	1,751,700
Owners costs	4,747,000	1,772,000	2,975,000
Pre-production Costs	4,926,000	47,000	4,879,000
Freight	1,672,000	389,000	1,283,000
<b>Total</b>	<b>52,608,000</b>	<b>13,101,300</b>	<b>39,506,700</b>

The average C1 operating cost summary (FOB Pemba) for the project for the first 10 years is detailed below:

OPEX for years 1 to 10	USD\$ pa	USD\$/t conc
Mining	5,129,000	102.9
Processing	5,692,000	114.3
General and Administrative	2,545,000	30.7
Logistics	3,082,000	51.1
Maintenance	1,532,000	61.9
<b>Total C1 cost (FOB Pemba)</b>	<b>17,980,000</b>	<b>360.9</b>

Notes: 1) Above table excludes Government Royalties.

2) Above table based on average blended ore of 50,000 tpa TGC production rate and ~1.4Mtpa mined and process run of mine (ROM) ore at an average rate of ~500,000tpa at 12% TGC

### Montepuez Graphite Project: Ore Reserve

During the December 2018 Quarter Battery Minerals announced a significant increase in Ore Reserves at its Montepuez Graphite Project in Mozambique.

#### Montepuez Graphite Project November 2018 Ore Reserve Estimate

Deposit	Ore type	Class	Ore (Mt)	TGC (%)
TOTAL	Weathered	Probable	5.98	8.34
	Fresh	Probable	36.21	9.42
	<b>TOTAL</b>	<b>Probable</b>	<b>42.19</b>	<b>9.27</b>

Note: See announcement dated 4 December 2018 for full details and Competent Persons sign-off

### Montepuez Graphite Project Flake Size Classification

The Ore Reserve update and associated mine plan has had a positive impact on the Montepuez flake size classification. This relates to the inclusion of an increased quantity of fresh material, which contains a higher proportion of +150 micron flake.

Based on the 31 October 2018 Benchmark Mineral Intelligence (BMI) CIF China graphite prices, the basket price of Montepuez 96% TGC graphite concentrate has increased from US\$952/t to \$1,065/t. The life of mine flake graphite concentrate sizing is summarised below:

#### Montepuez Graphite Project Life of Mine (LOM) Flake Size Distribution

Montepuez – LOM Flake Graphite Concentrate Sizing				
Flake size	Flake size (mesh)	Flake size (micron)	% of concentrate	TGC grade
Jumbo	+50 Mesh	+300	11.0%	96%
Large	+80 Mesh	+180 -300	20.7%	96%
Medium	+100 Mesh	+150 -180	11.3%	96%
Fine	-100 Mesh	0 - 150	57.1%	96%

#### Montepuez Graphite Project Average Product Flake Size Classification

			Weathered	Fresh
Flake size	Flake size (mesh)	Sieve Size (micron)	% in Interval	% in Interval
Jumbo	+50 Mesh	>300	5.9	11.6
Large	+80 Mesh	180	3.5	22.5
Medium	+100 Mesh	150	13.6	11.0
Fine	-100 Mesh	-150	77.0	54.9

#### Montepuez Graphite Project – Camp and TFS Construction and Earthworks completed

During the December 2018 Quarter, the Company completed construction of the 100 person Permanent Camp and the Tailings Storage Facility Starter Wall Construction as well as Plant and Services earthworks and site roads and associated drainage.



Figure 2: Tailings Storage Facility wall complete





Figure 3: Camp accommodation complete



Figure 4: Access Road Culvert Construction



### **Montepuez Mining Agreement progress**

In March 2018, Battery Minerals secured a Mining Licence for its Montepuez Graphite Project. This, combined with the successful \$20M fund raising completed in early July 2018, paved the way for significant development activity during H2 2018.

During the December 2018 Quarter, Battery Minerals continued to progress government engagement in relation to the Mining Agreement. The Mining Agreement is not a condition precedent to production, exports and cashflows. The execution of a Mining Agreement is a right enshrined in the mining law that enables investing companies to obtain absolute clarity around the application of the legal framework to the project. The Mining Agreement also formalises the project's fiscal stability rights into a contractually binding document and provides an agreed dispute resolution process. The Company does not expect a material adverse variation in project economics in the Mining Agreement.

### **Community Investment**

The Company continues to work closely with nominated local representatives on selected community initiatives. During the December 2018 Quarter, as part of the Montepuez project's community support and development efforts, Battery Minerals completed the building a public school in the community of Nkewene, 7km from the Montepuez project site. In December 2018 a formal handover ceremony and a full day of community festival was held to celebrate our joint collaborations. In addition to the school construction, Battery Minerals has installed three water bores and pumping stations, renovated the local health clinic and supported a local inter village football competition.

As at the end of the December 2018, Quarter the Company has recruited 31 and 7 people from the villages around the Montepuez and Balama sites respectively.

### **Graphite Downstream Processing Testwork**

The Company has offtake and other agreements with Urbix Resources LLC (Urbix) (see ASX announcement dated 19<sup>th</sup> December 2017 "*Battery Minerals Signs Offtake Agreement*"). A key part of these agreements is to test and establish a relationship which maximises the opportunity of any downstream value-added characteristics of the Montepuez graphite concentrate.

Urbix's advanced technology includes a unique environmentally/cost conscious purification method as well as intellectual property developments in a wide range of applications such as proprietary lithium-ion battery cells, graphene products, lightweight concrete additives, and other composites and energy storage materials. Urbix's state-of-the-art laboratory is located in Mesa, Arizona and is establishing its initial commercial purification facility nearby.

Battery Minerals is committed to evaluating downstream opportunities and has elected to do so with a technology partner with technical experience and expertise as well as the financial capacity to participate in the project.

As at the end December 2018, purification and spheroidization testwork has been completed. Key testwork results include:

#### **Purification**

- Low temperature purification at 80°C
- Absence of highly toxic HF acids and similar
- No impact on graphite particle morphology in purification

- High graphite retention >95% in purification
- Industry leading low capex for 24ktpa pilot plant
- High purity achieved across all particle size specifications described below.

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

#### Spheroidization

- High overall product recoveries of up to 85% (industry norm is between 45% – 55%)
- Un-optimised shape factor of 0.95 (perfect shape has a shape factor of 1.00)

Unoptimised TAP densities for the testwork completed to date are shown in the table below

Size Fraction D <sub>50</sub> microns	TAP Density g/cm <sup>3</sup>	Industry Target g/cm <sup>3</sup>
12.5	0.97	1.00
16	1.08	1.00
20	1.12	1.00
22	1.10	1.00

**Note** TAP densities: The tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. The tapped density is obtained by mechanically tapping a graduated measuring cylinder or vessel containing the powder sample for a set number of taps.

Due to delays in pilot scale reactor installations and longer than anticipated detailed product analysis processes, it is expected the Urbix programme will be completed in Q2 of 2019 with scoping study level results to be reported early Q3, 2019.

#### Montepuez Project Funding

Battery Minerals has advanced its funding strategy following the appointment of Origin Capital as financial adviser in July 2018 and is now in the process of formally establishing expressions of interest from potential debt providers. Upon finalising a short list, Origin Capital will then assess the proposals and lead financing discussions on behalf of Battery Minerals.

As part of the funding process, independent technical adviser Bear Dolbear Australia has conducted a thorough independent technical review of the Montepuez Graphite Project. This review included a site visit and technical assessment. In addition, Benchmark Mineral Intelligence has conducted an independent market study and analysis. These reports will be made available to potential financiers with a view to helping accelerate the funding process. In late January and early February 2019, Battery Minerals is co-ordinating site visits for potential project funders and investors.

#### Montepuez Mineral Resource Update

During the December 2018 Quarter, the Company updated the Mineral Resource estimates that form the basis of the Montepuez Graphite project implementation mine plan.

### Montepuez October 2018 Mineral Resource Estimate (2.5% TGC Cut-off)

Type	Total Mineral Resource					
	Tonnes Mt		TGC %		Cont. Graphite kt	
	Oct 18	Historical	Oct 18	Historical	Oct 18	Historical
Weathered	10.3	13.0	7.7	7.9	790	998
Primary	109.2	92.9	8.1	7.7	8,870	7,066
<b>Total</b>	<b>119.6</b>	<b>105.9</b>	<b>8.1</b>	<b>7.7</b>	<b>9,660</b>	<b>8,064</b>

*Note: See announcement dated 18 October 2018 for full details and Competent Persons sign-off*

### Balama Central Graphite Project: Feasibility Study

During the December 2018 Quarter, Battery Minerals announced that a Feasibility Study had found that its second proposed graphite project in Mozambique, Balama Central will generate outstanding financial returns over a 27 year mine life at a production rate of 58,000tpa \*\*.

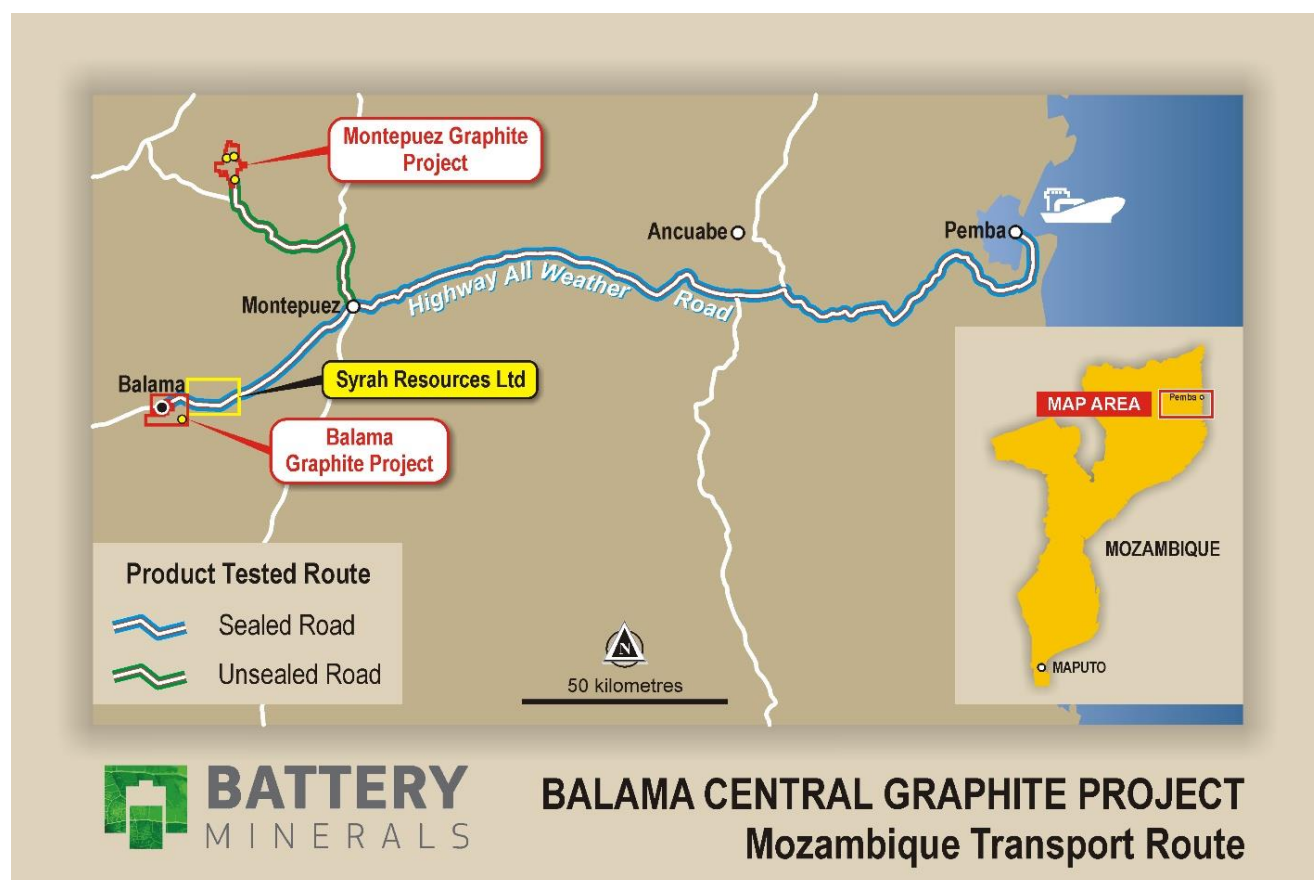


Figure 5. Infrastructure map showing the Balama Central Graphite Project relative to Montepuez and the nearest deep-water port of Pemba



Key Balama Central Feasibility Study findings	Feasibility Study findings***
Annual production at run of mine (ROM) ore at an average rate of 480,000tpa at over 12.2% TGC	58,000t of +96% TGC graphite concentrate
Life of Mine (LoM) sales revenue (net)	US\$2,962 million
LoM cash generation	US\$1,912 million *
Average EBITDA at BMI pricing****	+US\$35M per annum
Project pre-tax IRR	55%
Project payback period	2.3 years
Capex (pre-production)	US\$69.4 million
C1 LoM operating cash cost	US\$425/t of product (FOB Pemba)
First 8 years C1 operating cash cost	US\$363/t of product (FOB Pemba)
Waste to ore strip ratio	2.0

\*- Excludes National Ownership (anticipated to be ~5%) and 32% tax rate and royalties

\*\* - Based on Ore Reserves (see ASX released dated December 2018)

\*\*\* - Feasibility Study findings (+15%/-5%)

\*\*\*\* - Based on the latest BMI CIF China forecast graphite prices for 2022

### Balama Central Graphite Project: Ore Reserve Estimate

The Probable Ore Reserve was estimated to be 19.7Mt at 11.1% TGC for 2.2Mt of graphite.

#### Balama Central Graphite Project: November 2018 Ore Reserve Estimate

Pit	Ore type	Class	Ore (Mt)	TGC (%)
Total	Weathered	Probable	5.44	10.74
	Fresh	Probable	14.21	11.19
	<b>Total</b>	<b>Probable</b>	<b>19.66</b>	<b>11.06</b>

**Note:** See announcement dated 12 December 2018 for full details and Competent Persons sign-off

### Balama Central Graphite Project economics – CAPEX and OPEX

BALAMA CENTRAL CAPEX	USD
Process Plant	20,893,575
Non-Process Infrastructure	7,709,246
Mining	8,171,160
EPCM	3,200,000
Owner's Costs	9,221,324
Resettlement Action Plan (RAP)	4,132,600
Non-Mining Mobile Fleet	1,939,648
TSF and Bulk Water Storage	6,838,080
Freight	1,786,170
Contingency	5,534,083
<b>TOTAL</b>	<b>69,425,887</b>

The Weathered Ore and Fresh Ore C1 operating cost summaries (average blended ore) for the Balama Central Graphite Project is detailed below (FOB Pemba):

Weathered Ore OPEX CATEGORY	COST US\$/y	COST US\$/t feed	COST US\$/t product	Distribution
Labour	3,260,031	6.79	56.09	15.9%
Power	3,782,923	7.88	65.08	18.5%
Reagents & Consumables	3,720,950	7.75	64.02	18.2%
Maintenance Materials	615,404	1.28	10.59	3.0%
G&A	1,941,712	4.05	33.41	9.5%
Product Logistics	3,914,138	8.15	67.34	19.1%
Mining and Earthworks	3,215,479	6.56	55.32	15.7%
<b>TOTAL C1 Cost</b>	<b>20,450,636</b>	<b>42.06</b>	<b>351.84</b>	<b>100.0%</b>

Fresh Ore OPEX CATEGORY	COST US\$/y	COST US\$/t feed	COST US\$/t product	Distribution
Labour	3,260,031	6.79	56.09	13.9%
Power	3,782,923	7.88	65.08	16.1%
Reagents & Consumables	3,720,950	7.75	64.02	15.8%
Maintenance Materials	615,404	1.28	10.59	2.6%
G&A	1,941,712	4.05	33.41	8.3%
Product Logistics	3,914,138	8.15	67.34	16.6%
Mining and Earthworks	5,369,661	11.19	107.96	26.7%
<b>TOTAL C1 Cost</b>	<b>22,604,817</b>	<b>47.09</b>	<b>404.48</b>	<b>100.0%</b>

Notes: 1) Above tables excludes Government Royalties.

2) Above tables based on average blended ore of 58,000 tpa TGC production rate and ~1.7Mtpa mined and process run of mine (ROM) ore at an average rate of ~480,000tpa at 12.5% TGC

### Balama Central Flake Size Classification

The updated Ore Reserve and associated mine plan has changed the Balama Central Flake Size Classification materially with the inclusion of a significant quantity of fresh material, which contains a significantly higher proportion of +150 micron flake. The BMI CIF China forecast basket price for Balama Central product for 2022 is US\$1,106/t. The life of mine flake graphite concentrate sizing is summarised below:

#### Summary table of Product Size Distribution's for the Weathered and Fresh samples as derived from the BGRIMM Testwork

Product Description	Size Fraction	Weathered	Fresh
Jumbo	+300 µm	9.5%	26.0%
Coarse	+180 µm	5.3%	7.4%
Medium	+150 µm	22.5%	22.0%
Fines	-150 µm	62.7%	44.6%

### CORPORATE

As at 31 December 2018, the Company had cash and liquid assets of \$7.2M.

## Background Information on Battery Minerals

Battery Minerals Limited ("Battery Minerals") is an ASX listed Australian company with two world-class graphite deposits in Mozambique, being Montepuez and Balama Central. Battery Minerals has produced high quality graphite flake concentrate at multiple laboratories. Subject to completing project financing, Battery Minerals intends to commence graphite flake concentrate production from its Montepuez Graphite Project at rates of ~50,000tpa at an average flake concentrate grade of 96% TGC.

In December 2017 and January 2018, Battery Minerals signed four binding offtake agreements for up to 41,000tpa of graphite concentrate, representing over 80% of Montepuez's forecast annual production. In H1 FY2018, the Mozambican Government has granted Battery Minerals a Mining Licence and it has also accepted the Company's Environmental Impact Assessment (EIA) for the Montepuez Graphite Project.

As Battery Minerals executes subsequent expansions, subject to the completion of all necessary studies, permits, construction, financing arrangements, infrastructure access, it expects production to grow to over 100,000 tonnes per annum graphite flake concentrate from its Montepuez Graphite Project.

Battery Minerals has also now announced a feasibility study on its Balama Central project, which comprises a Stage 1 production rate of 58,000tpa (B1).

Combined with Montepuez and subject to continued positive economic, social and technical investigations, Balama Central provides scope for self-funded growth from a ~50,000tpa production-rate to at least 150,000tpa.

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## Competent Person's 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 Ore Reserve and Mineral Resource estimates should be read in conjunction with the competent person statements included in the ASX announcements referenced in this report as well as Battery Minerals' other periodic and continuous disclosure announcements lodged with the ASX, which are available on the Battery Minerals' website. For Mineral Resources - See announcement dated 18th October 2018 for full details and Competent Persons sign-off. For Ore Reserves - See announcements dated 4 and 12 December 2018 for full details and Competent Persons sign-off.

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 Report that relates to Montepuez Mineral Resources is extracted from the ASX Announcement titled 'Group Resource Update' dated 18 October 2018, where the Statement of Estimates of Mineral Resources was compiled by Mr. Shaun Searle who is a Member of the AIG. Mr. Searle has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he has undertaken to qualify as a Competent Person as defined in the JORC Code (2012). Mr Searle consented to the inclusion in that report of the matters based on his information in the form and context in which it appears.

**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.

**Forward Looking Statements**

Statements and material contained in this document, 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.

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.

## Appendix 1: Tenement Summary – 31 December 2018 <sup>1</sup>

<b>1. TENEMENTS HELD</b>				
<b>Tenement Reference</b>	<b>Location</b>	<b>Nature of interest</b>	<b>Interest at beginning of Quarter</b>	<b>Interest at end of Quarter</b>
<b>8770C</b>	Mozambique	Mining Licence Granted	100%	100%
<b>4118</b>	Mozambique	Exploration License Granted	100%	100%
<b>8555</b>	Mozambique	Exploration License Granted	100%	100%
<b>8609</b>	Mozambique	Exploration License Granted	100%	100%

Note 1: As advised in the March 2017 Quarterly Report, the Company has agreed to dispose of its interest in the tenement numbered 5572 in Mozambique. The transfer for the divestment of this tenement is currently being processed in Mozambique and is expected to be concluded in due course. The transfer is subject to approval by the Government of Mozambique.

Note 2: With respect to tenement's 8555 & 8609, an agreement was reached in December 2018 to dispose of these tenements through the sale of the Mauritian holding company which in owns 100% of the interest in the Mozambican company with title to these tenements. The agreement reached between BAT, its subsidiaries and Nedeel LLC, foresees the sale of the tenements for \$50,000 in cash and a 1% royalty (which may be sold for US\$1m up to the date of 730 days after the grant of a Mining Concession on either or both of the tenements). The change of ownership of these tenements are subject to the approval of the Mozambican Government.

### **2. MINING TENEMENTS DISPOSED NIL**

### **3. BENEFICIAL PERCENTAGE INTERESTS HELD IN FARM-IN OR FARM-OUT AGREEMENTS: NIL**

### **4. BENEFICIAL PERCENTAGE INTERESTS HELD IN FARM-IN OR FARM-OUT AGREEMENTS ACQUIRED OR DISPOSED: Nil**