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2,800,000

MARKET CAPITALISATION
A$73.7m at A$0.175

Mineral Commodities Ltd

Mineral Commodities Ltd (MRC) is an ASX listed (ASX: MRC) diversified mining, development and exploration company based in Perth, Western Australia.

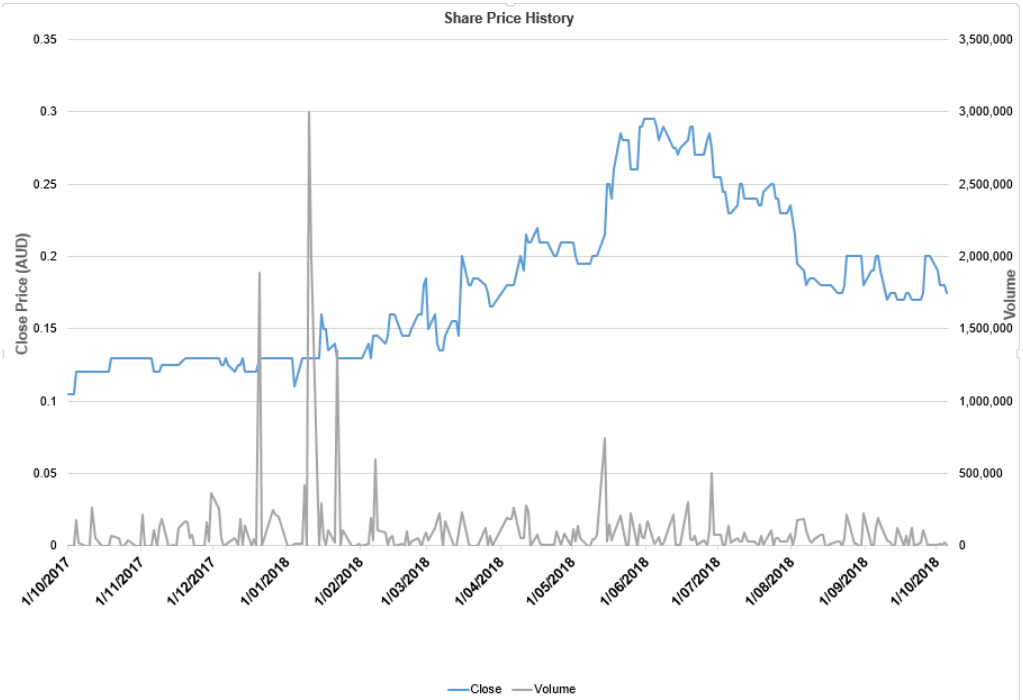
CEFC Presentation October 2018

Introduction to MRC

- Mineral Commodities Ltd (MRC) is an ASX listed (ASX: MRC) diversified mining, development and exploration company based in Perth, Western Australia.
- MRC have operations/projects in South Africa, Iran and Australia. The Tormin, South Africa mine currently has the highest grade mineral sands in the world. This is in addition to a Western Australian exploration prospects portfolio of lithium, gold, copper, iron ore and vanadium.
- The company has a highly experienced executive management team with over 155 years of combined mining experience.

2017 Results:

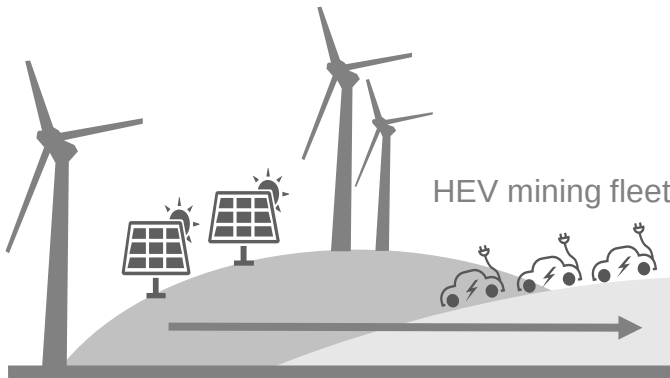
Total Revenue	↑ 131%	US$62.6 million 2016: US$27.1 million
Underlying Group EBITDA	↑ 75%	US$19.1 million 2016: US$10.9 million
Reported Earnings NPAT	↑ 161%	US$9.9 million 2016: US$3.8 million
Cashflow from Operations	↑ 409%	US$22.3 million 2016: US$4.4 million
Capital Expenditure	↓ 21.5%	US$5.4 million(1) 2016: US$6.8 million
Cash Balance	↑ 279%	US$11.0 million 2016: US$2.9 million
Borrowings	↓ 43%	US$4.2 million 2016: US$7.4 million
Earnings per Share	↑ 163%	US$2.45 cents 2016: US0.93 cents
Dividend	→	A$1.2 cents 2016: AU12 cents



Munglinup Graphite Project

Total project cost: AUD $52M

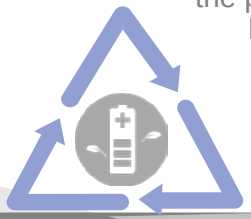
Targeting over 90% renewable energy powered processing operations



HEV mining fleet

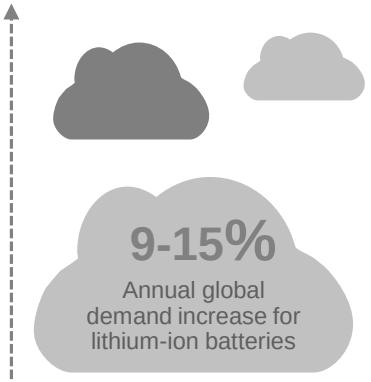
Completing the loop

Australia will become the first jurisdiction globally to produce all elements required for the production of batteries



43.3%

Of global battery anode material is sourced from natural graphite



9-15%

Annual global demand increase for lithium-ion batteries

54.8 ktpa

Graphite Concentrate produced

1.09 million tonnes CO_2 savings

Per annum, Per 500,000 Electric Vehicles produced*

Graphite Market

US$17 billion by 2020

120 construction jobs

100 ongoing jobs

Downstream opportunities:

- Graphene production
- Expandable graphite
- Battery Anode Materials
- High purity graphite (e.g. for lubricants, alkaline batteries)

The boom in battery energy capacities stimulates further growth in the graphite market with increases in demand for lithium-ion batteries.

Current global graphite production is 1.2 million tonnes per annum

Munglinup Graphite Project Overview

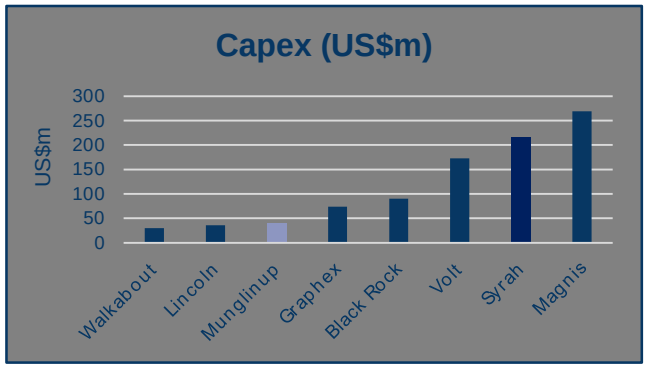
Project Overview

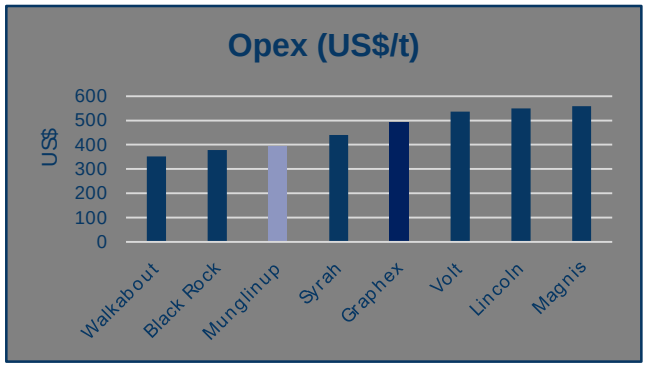
Project	The Munglinup Graphite Project will consist of the development of open pit-based graphite operations and associated **high-value processing** near Esperance in W.A. The project involves development of several small open pits with a subsequent high-value down-stream processing through a flotation plant to concentrate graphite ores. The mining lease is granted until 2031 on a designated mining reserve. Initial mine life has been calculated to be 9 years with expectations to exceed 20 years.
Location	Project is located 105 km west by sealed road from port of Esperance. Process water is available on site, grid power and South Coast Highway are within kilometres of the deposit. Water demands are estimated to average 1m3/t mill feed, under 14 litres per second.
Operations	High-value downstream processing occurs through a multi-cleaner flotation plant with a scrubber front end, a rougher, and attritioning between each cleaning stage. Nominal throughput of 400ktpa will produce an average of 54.8ktpa of **high-value, high-purity graphite concentrate**. (Measured and indicated resource of 3.6Mt at 15.3% Total Graphitic Carbon (TGC) (10% cut-off). Proved and probable reserve of 3.4Mt at 15.9% TGC). Processing plant operations targets the **utilisation of over 90% renewable energy** in the form of a 1.8MW solar array, wind turbines, and co-generated by diesel and/or flow battery as required.
Environment	Project has low environmental impact with no long term hazardous waste or acid, no toxic metals, and small environmental footprint.

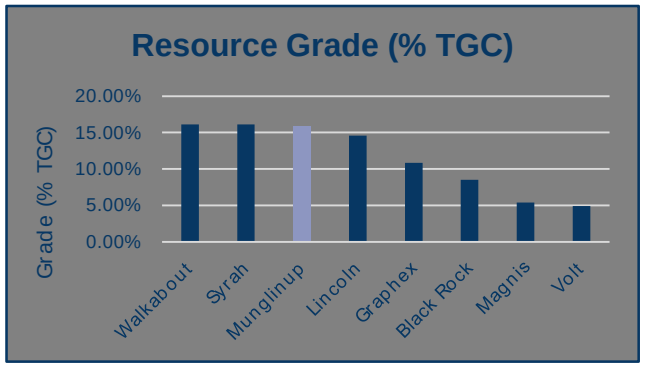
Pre-feasibility Study Outcomes

Prefeasibility for the project has been completed and indicates a low capital, and **low operating cost model in the first quartile** to **produce 54,800tpa of** high quality graphite over **9 years initial mine life, with expectations of mine life to exceed 20 years.**

A$**139m** Post-tax NPV(1)(2)	**48%** Post-tax IRR(1)	A$**52m** Total DEV CAPEX(1)(3)	**2 years** Capital PAYBACK PERIOD(1)	**9 years** MINE LIFE(1)	**54,800t** Average ANNUAL CONC. PRODUCTION(1)	A$**47.5m** Average ANNUAL EBITDA	A$**531/t** Average OPERATING CASH COST(1)







Source: published company data

(1) Refer to ASX release of 30 May 2018
(2) Discount rate of 8% real after tax
(3) Includes 15% EPC Costs (A$5.5m), 15% Contingency ($6m) and all owners costs (A$3m).
(4) Basket price of US$989/t used in PFS (refer to ASX release of 30 May 2018)

Munglinup Graphite Project - Benefits

Project Benefits

Short term

Job creation

≈ **120** construction jobs

≈ **100** direct FTEs

Targets of above 95% local community employees

ATSI support

ATSI-led Heritage Preservation Plan

Risk management & mitigation

Operational

Low environmental impact operations

Targets of 90% renewable energy powered minerals processing

Industry

Mobilising Australia's investment in energy efficiency

Graphite = High efficiency materials
• Reducing energy consumption
• Graphite foil • Graphene

Graphite = LiB anode
• Growing EV market
• Stationary storage growth • Offset peak grid-energy demand (duck curve) = Lower consumer costs.

Reduced global reliance on synthetic graphite

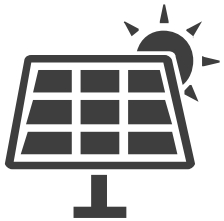
Munglinup Project's Wider Industry Contribution

'The largest source of carbon footprint for lithium batteries occurs in the production and transport'

- The Munglinup processing plant targets to be powered by over 90% renewable energy. Localised production of Graphite will also dramatically reduce supply chain costs for domestic and regional markets.

'On average, the Australian mining sector consumes 10% of Australia's energy'

- The Munglinup Project will be relying on renewable energy to power its operations in addition to a hybrid-electric mining fleet. This will further promote the uptake of renewable energy into mining operations, minimising energy use and reducing total carbon footprint.



'Graphene has high industry innovation potential due to its capabilities to produce flexible materials as a transparent conductive oxide'

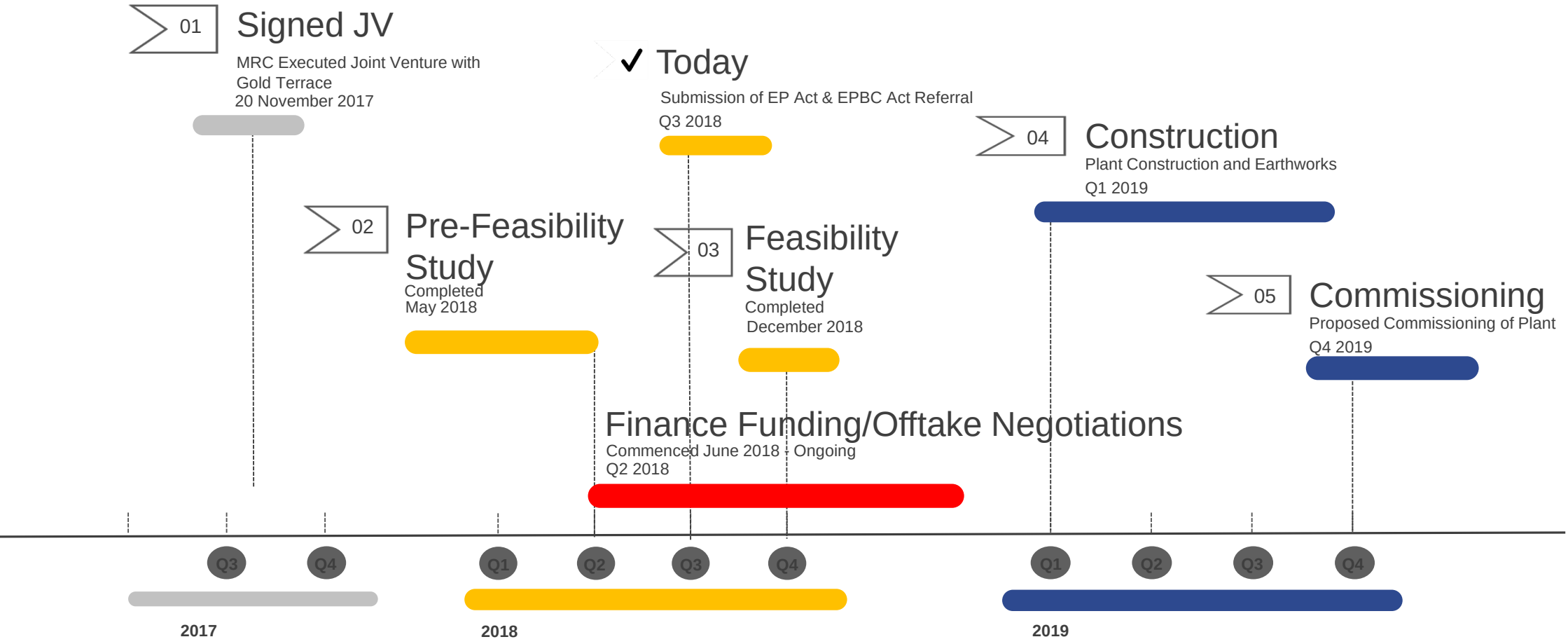
- MRC will collaborate with the University of Adelaide with proof of concept works and scale up test works are due in 2019. The project scope includes evaluating a range of usage methods for graphene and associated production methodologies

Munglinup will provide a domestic solution to the growing lithium-ion battery market

Munglinup will be a vertically integrated graphite mining and processing plant.

Munglinup will establish Australia as a leader in the international battery supply chain.

Munglinup Project Timeline



Battery compositions

Essential components within a Li-ion battery

1 Anode

Stores and releases lithium ions from the cathode, enabling currents to pass through an external circuit. The anode is predominantly sourced from **graphite.**

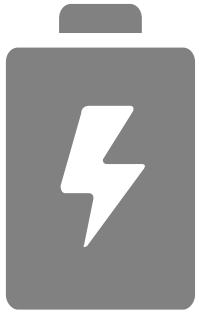
2 Cathode

Provides the source of lithium ions. The cathode can use a number of materials, and is often composed of **Lithium salts** in an organic solvent.

3 Electrolyte

Allows the movement of ions between the cathode and anode. This is made up of different material formulations depending on the required application. Examples include **Cobalt, Manganese, Nickel and Iron.**

Market share based on battery composition

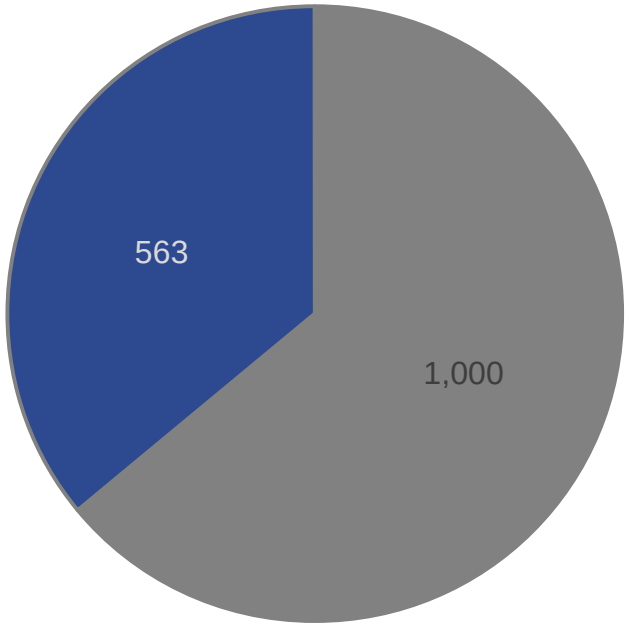


70% = Market share of Lithium-ion batteries when compared to the wider battery market

Sourcing battery anode material

65%	30%	5%
Natural spherical graphite	Synthetic graphite	Lithium tintate, silicon and tin

EV battery material consumption



*Quantities represent the total grams of material required to produce each kilowatt/hour of energy in a typical (EV) LiB

Graphite Market

Graphite comes in two forms with **the combined graphite market worth around $13 Billion, and forecasted to reach $17 Billion by 2020.**

The two forms of Graphite include:

- **Synthetic Graphite**

Manufactured product processed by high temperature treatment of amorphous carbon materials in an energy and time intensive process which requires graphitisation of petroleum coke.

Due to Chinese state regulations, synthetic graphite production will be restricted due to its environmental impacts. With this and similar trends likely to continue, the importance and reliance of natural graphite will grow into the future.

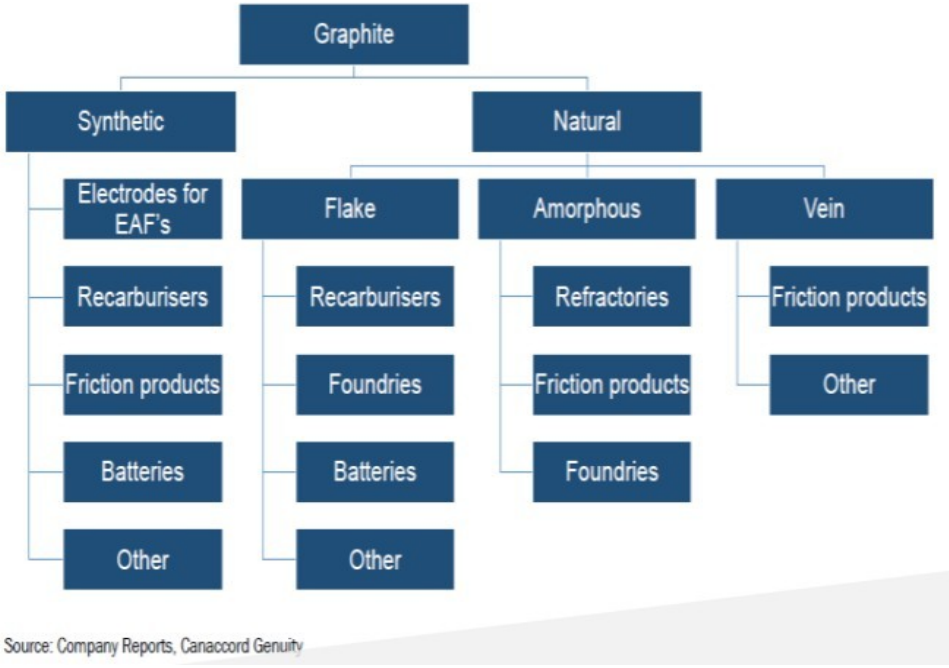
- **Natural Graphite**

Mined resource which is found in three types including Flake, Amorphous and Vein.

They are subsequently processed and treated relevant to their applications.

Consumption areas for graphite include:

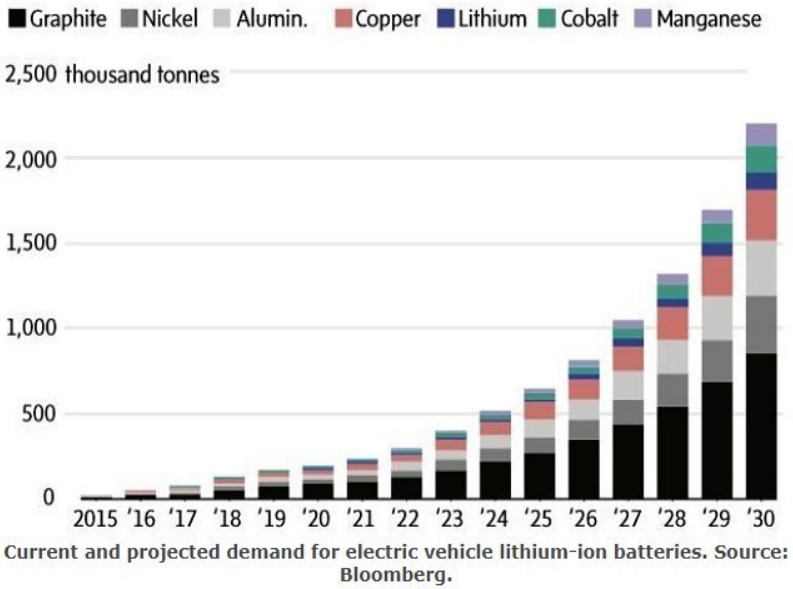
- Refractories
- Foundries
- Batteries
- Lubricants/metallurgy powders
- Building material (flame retardant and temperature regulation)
- High energy electronics (temperature regulation and energy efficiency)



Source: Company Reports, Canaccord Genuity

Market Analysis

"World graphite mine production in 2016 totalled 1.2 million tonnes, with forecasted growth to 4 million tonnes per annum to meeting rising steel and battery sector demands." US Geological Survey, Mineral Commodity Summaries. January 2017.



Current and projected demand for electric vehicle lithium-ion batteries. Source: Bloomberg.

Technological advancements and the drive towards electrification of cars will see exponential growth in the current graphite market with respect to extensions in battery technology.

Demand for spherical graphite will experience rapid growth due to required use in lithium-battery anodes.

Furthermore, increasing energy density and reduction of cost will be a significant factor in the future battery market. A rapid growth for graphite demand can lead to supply constraints if supply chain sustainability issues remain unaddressed.

The steel industry currently accounts for 70% of refractory consumptions, correspondingly steel and refractories account for 41% of the graphite market. **Expandable graphite will also contribute to growing graphite demand due to its varied applications in building materials.**

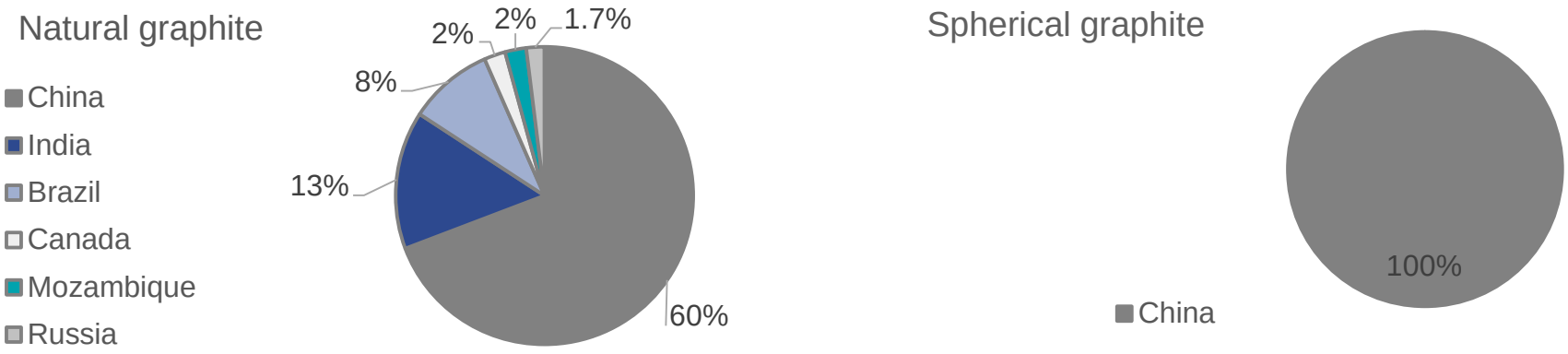
Market Drivers

Currently Germany & the US are the largest importers of graphite, with expected global demand growth driven by national and state policies. Combustion engines will not perform to set targets, meaning a gradual mandatory transition to battery and hybrid vehicles will occur:

- **EU Legislation sets mandatory emission reduction targets which specify CO_2 limits per kilometre for all new cars by 2021. The framework combines CO_2 targets for 2025-2030 with a technology neutral incentive mechanism for zero emission (battery powered vehicles) & low-emission vehicles (hybrids).**
- **California state regulations including the ZEV requirements, GHG Standards, and recent state commitments of 5 million ZEV (Zero Emission Vehicles) by 2030, set a market trajectory to full adoption of battery powered vehicles state wide.**

Market Analysis

Country of graphite processing and production



Electric Vehicles

- Estimates predict 19% of all light vehicles in Australia to be electric by 2037.[1]
- The global uptake of electric cars is predicted to increase to 16% by 2025.[2]
- China will account for 57% of the global EV market by 2020.[3]

Battery anode to market

Forecasted market potential has been quoted to increase 9-15% annually for lithium, this directly contributes to the increased demand on the combined graphite market. Correspondingly, the global market for graphite is predicted to increase at a CAGR of around 6% annually from 2018-2022.

The growing market for lithium-ion batteries has stimulated growth and demand for graphite, with expectations of higher production of downstream products such as spherical graphite and battery anode materials.

1. '2018 Electricity Forecasting Insights' March 2018. Australian Energy Market Operator (AEMO)
2. 'Global Auto Survey' August 2018. UBS Asset Management
3. Macquarie Group Asia Research – Electric Vehicles

Future Activity Areas

The Munglinup Graphite Project not only poses a great opportunity for the Australian graphite and battery industries, it also enables a number of additional market opportunities. These are summarised in the table below.

	Expandable Graphite	Battery Anode Material (BAM)	Graphene
Summary	MRC have undertaken preliminary investigation into the development of techniques and supporting infrastructure to produce expandable graphite. This has included: - Discussions with University of Adelaide regarding collaboration to develop new processes for high quality expandable graphite; - Collaboration with graphite consultancies, including: • Initial test work demonstrating high expansion volumes of MRC course flakes; • Preparation for a PFS, incorporating additional test work (expansion reagents, purification of coarse flakes and scalability processes) and PFS-level cost estimates; and - Discussions with global stakeholders within the expandable graphite logistics supply chain.	Future activity may include: - Development of new purification processing capabilities (R&D) to produce high purity graphite fines; - Development of new plant infrastructure to produce high grade spheroidised graphite; - Test work and PFS on purification, spheronisation and coating; - Partnership with major stakeholders within the battery supply chain (e.g. Panasonic, Samsung).	Preliminary research has indicated the viability of transforming Munglinup graphite concentrate into graphene. Research is continuing on potential end-use applications and assessing the potential to produce functionalised graphene and graphene oxide. MRC will look to develop processes for producing graphene and related products (such as graphene oxide and functionalised graphene) from its graphite concentrates, specifically targeting process routes that can achieve commercial scale production.
Potential outcomes	The development of new infrastructure and capabilities for expandable graphite production will enable MRC to participate in a number of expandable graphite markets. Identified opportunities include: - Application within various building materials, as both a flame retardant and measure for improving temperature regulation and energy efficiency; and - Application within high-energy electronics to improve the regulation of processing temperatures, and hence energy efficiency.	Outcomes may include: - Establishment of MRC within the global supply chain for battery development; and - Penetration of niche market areas such as dry lubrication (e.g. for titanium hips).	MRC have identified a range of potential downstream applications, including the development of many layer, few layer, pristine and graphene oxide for application within: - Electronics; - Biomedical products; - Energy storage; - Coatings; and - Composites and construction additives (green concrete).

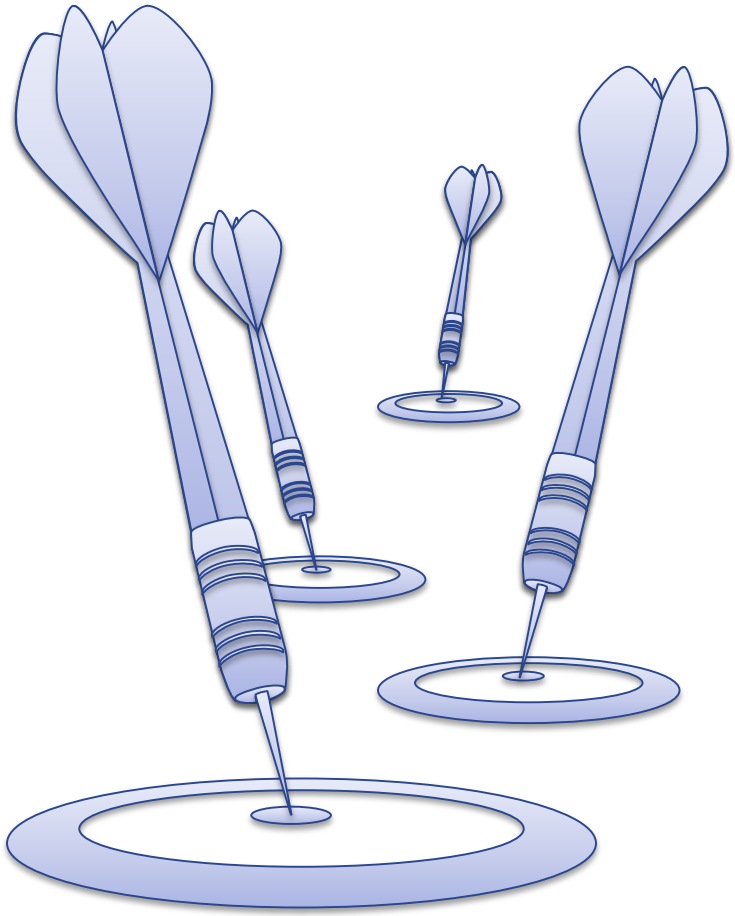
Alignment to CEFC mandate

Since its inception in 2012, the CEFC has been tasked with increasing the flow of finance into Australia's clean energy sector, often by providing financial assistance to commercialise renewable energy, energy efficiency or low emissions technologies.

By investing in the Munglinup Graphite processing facility, the CEFC will catalyse Australian produced natural flake graphite and set a precedent for renewable-powered mineral processing facilities in Australia, making Australia the first jurisdiction to have all battery material in production.

In turn, this will:

- **Facilitate the growth of renewable energy, energy efficiency and low emissions technologies for electric vehicles and stationery storage;**
- **Allow Australia to enter the global battery market as a graphite producer as there are no operational graphite mines in Australia;**
- **Trial a sustainable, market-first approach to renewables-based graphite mining operations with low environmental impact;**
- **Reduce national and global supply chain reliance on harmful synthetic graphite production,**
- **Create operations in the domestic Australian market with local community engagement.**



The CEFC Act and Investment Mandate

To achieve complying investment status, the CEFC must only make investments that follow the mandated Investment Constraints. The Munglinup Graphite Project is aligned to these criteria as outlined below.

Investment Constraint	Project Alignment
Are in "clean energy technologies" **Including businesses that supply goods or services needed to develop or commercialise, or are needed for use in, clean energy technologies**	Graphite is a building block for many clean energy technologies. For example, high grade spherical graphite is used as the anode component within Li-ion batteries. In addition, the project will look to power its facilities with targets of 90% renewable energy, promoting sustainable manufacturing in Australia.
Are not a prohibited technology	This project is not captured by section 62 of the CEFC Act as it does not require investment in technology for carbon capture or storage, nuclear technology or nuclear power.
Are solely or mainly based in Australia	This project is located in the Esperance Shire of Western Australia. MRC have engaged with the Traditional owners of the land and will further train and employ local and Indigenous Australians at the new facility.
Take the form of a financial asset	MRC will undertake discussions with the CEFC to ascertain the most appropriate structure of debt finance to satisfy both the MRC project, and CEFC investment criteria.
Have developed Australian Industry Participation Plans (where applicable)	Pending the outcome of project viability discussions, MRC will work collaboratively to develop an Australian Industry Participation Plan prior to any submission for funding.

Public Policy Objectives

Emissions Reduction and Environmental Benefits	Alignment with project outcomes
Technology expansion and development	Lack of domestic supply for renewable energy materials has contributed to a reliance on higher cost imports. In turn, this has created pricing barriers for Australian participants, and dramatically slowed research and development, commercialisation and market uptake of renewable energy technologies. This project will overcome the above issues by: • First project in Australia to provide domestic supply of high grade graphite concentrate; • Reducing import related logistics costs; and • Making Australia the first geography globally, to possess all required supply chain components for the production of Li-ion batteries.
Expansion of investor base	
Dispersion and uptake	Increasing supply and lowering raw material costs will encourage research and development activities. In turn, this will produce greater knowledge transfer, and consequently increase performance capacity of various renewable technologies (e.g. EV's, graphene, expandable graphite). Increased capacity, coupled with lower input costs being passed down to the technology consumer will result in greater market traction and acceptance.
Building industry capacity and sector skills	Graphite is a fundamental building block for many downstream market applications. This project will assist Australian industry by promoting the **Lithium Valley Initiative** and reducing supply costs for raw material inputs which are required for the development and commercialisation of: • Renewable energy technologies (Li-ion batteries and stationery storage); • Expandable graphite (building insulation to promote efficient temperature regulation); and • Graphene products (electrical components such as sensors, batteries, composites and ion-exchange membranes).

Public Policy Objectives

Emissions Reduction and Environmental Benefits	Alignment with project outcomes
Employment / economic growth	This project is anticipated to create: • 100 direct full-time contractors • 120 direct construction positions In 2017, Ravensthorpe (bordering LGA) was impacted by devastating floods, closing major tourist attractions which resulted in the loss of significant tourism revenue. In addition, the closure of Ravensthorpe nickel mine from September 2017 resulted in the loss of 250 employees and 250 contractors that contributed significantly to the jobs and economic activity delivered through Esperance Port. Finally, as a part of their pre-feasibility activity, Mineral Commodities Ltd worked closely with the region's Aboriginal and Torres Strait Islander community. This included working collaboratively to develop a Heritage Preservation Plan, as well as risk management and mitigation processes. These activities will encourage continual ATSI community involvement and employment throughout the life of the mine.
Community benefits	
Demonstration	This transaction will demonstrate the viability of, and introduce new supply chain opportunities, for the domestic production of graphite concentrate and downstream graphite products in Australia, as well as the use of renewable energy to power large scale manufacturing and processing facilities.
Industry diversity	**Australia currently does not produce graphite**. While a number of deposits are currently in the exploration stage, market penetration is largely restricted by Chinese producers. Significant opportunity exists to promote Australian industry in the booming global marketplace.

Questions and discussion

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COMPETENT PERSONS STATEMENT

The information in this presentation which relates to Mineral Resources for Munglinup is based on information compiled by Mr Adriaan du Toit who is a member of the AusIMM and an independent consultant to Gold Terrace Pty Ltd. Mr du Toit is the Director and Principal Geologist of AEMCO Pty Ltd and has over 26 years’ of exploration and mining experience in a variety of mineral deposits and styles. Mr du Toit has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined by the JORC Code (2012). The information from Mr du Toit was prepared under the JORC Code (2012). Mr du Toit consents to inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this presentation which relates to the Ore Reserve for Munglinup is based on information compiled by Mr Daniel Hastings, who is a Member of the AusIMM. Mr Hastings is an employee of Hastings Bell Pty Ltd and a consultant to the Company. Mr Hastings has sufficient experience relevant to the type of deposit under consideration to qualify as a Competent Person as defined by the JORC Code (2012). Mr Hastings consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.

The information in this presentation that relates to metallurgy, the process plant and infrastructure design for Munglinup is based on information compiled and reviewed by Mr David Pass, who is a Member of the AusIMM. Mr Pass is an employee of Battery Limits Pty Ltd. Mr Pass has sufficient experience relevant to process plant and infrastructure design thereof to qualify as a Competent Person as defined by the JORC Code (2012). Mr Pass consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.