



SYRAH RESOURCES

The World's Pre-eminent Graphite Resource

BMO Capital Markets – 26th Global Metals & Mining Conference

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What is graphite?

- ❑ Graphite is a grey **crystalline** allotropic form of **carbon** and is known for its electrical **conductivity**, **lubrication** and **resistance** to corrosion and high temperatures.
- ❑ Graphite ore is mined and then processed via simple **flotation** before being **dried** and **classified** into a **high grade concentrate** for sale to end users
- ❑ **Natural graphite** is beneficiated **graphite concentrate** (typically 90% to 95% total graphitic carbon) that is then sized and screened into various mesh sizes (large flake and fine flake) for **industrial applications**
- ❑ **Spherical graphite** is fine flake concentrate that is milled into spherules, purified to at least 99.95% carbon and then coated with a layer of carbon for **battery anode applications**

Traditional and developing markets for graphite offer a multi-channel marketing opportunity

Traditional markets

- ❑ **Refractories** – act as protective insulating materials in industrial processes which involve extremely high temperatures, corrosive and abrasive environments
- ❑ **Lubricants** – used to reduce friction between moving surfaces e.g. additive in petroleum oil or aerosol
- ❑ **Industrial products** – devices, shapes and products e.g. brake pads, pencils and graphite foils
- ❑ **Recarburisers** – carbon additive used to increase the carbon content of steel up to the required specification for different applications
- ❑ **Lead acid batteries** – used in the electrodes as an electrically conductive additive to help extend the battery's life-cycle and improve the charging process

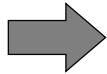
Developing markets

- ❑ **Expandable graphite** – used as a fire retardant and to prevent oxidation and heat loss in metallurgical application
- ❑ **Battery anode materials** – coated spherical graphite is used manufacture the anodes in lithium ion batteries for electric vehicle and energy storage applications

Syrah's integrated supply chain will service traditional industrial and growth battery markets from start up

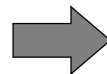


**Balama ore
(Mozambique)**

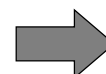


Processing

- Grinding
- Flotation
- Screening
- Bagging



Export



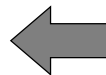
Traditional markets

- Refractory
- Expandable graphite
- Recarburisers

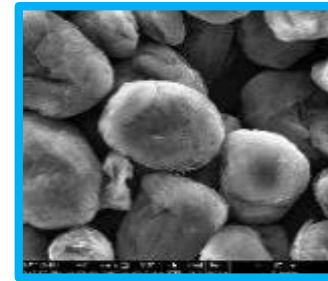


Lithium ion battery

- Electric vehicles
- Grid storage



**Direct sales to spherical
graphite producers**



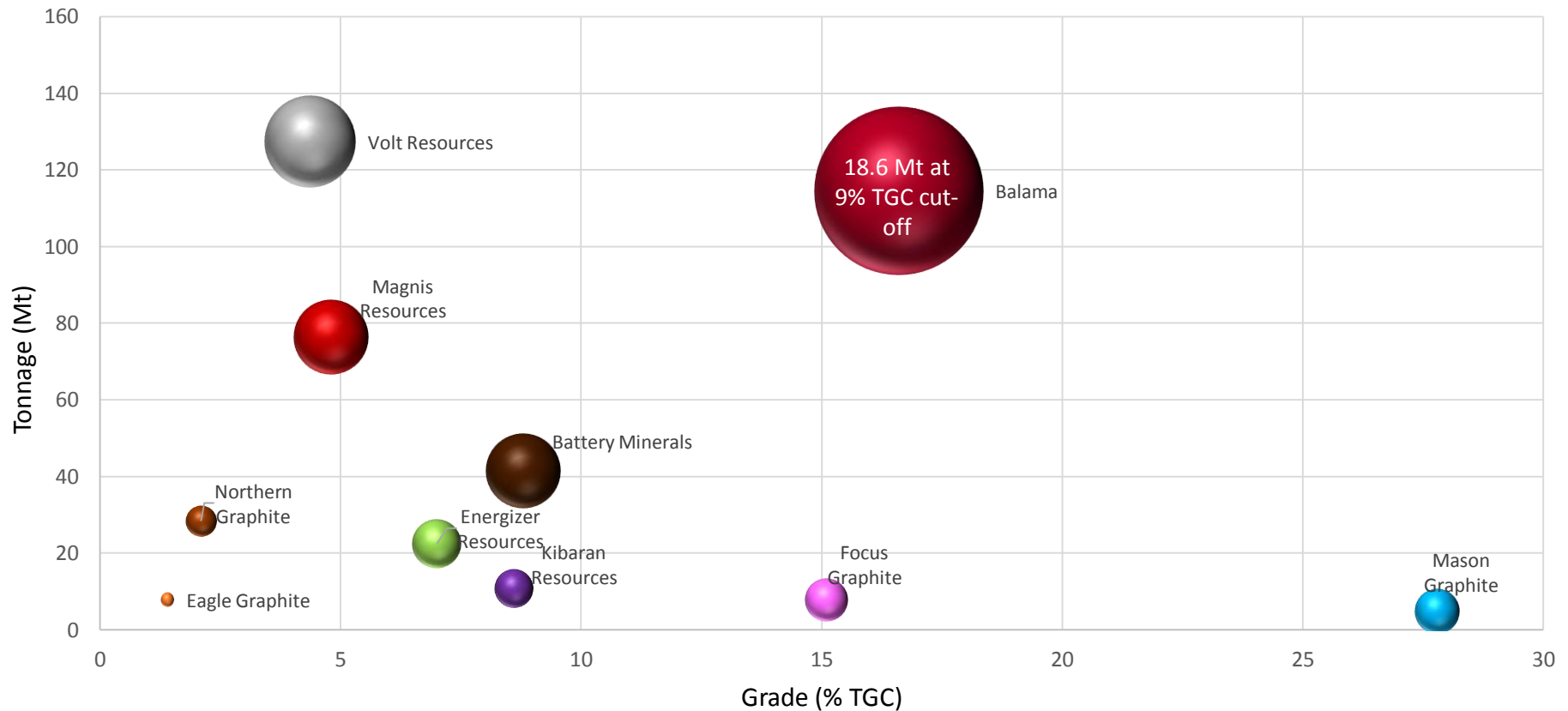
**Battery Anode Material
(BAM) Commercial Facility
(Louisiana)**

- Spheroidisation
- Purification
- Coating



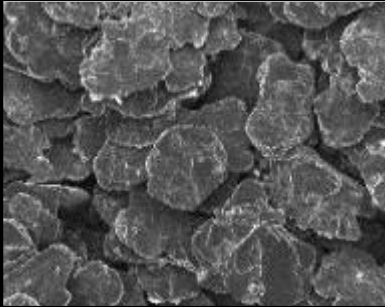
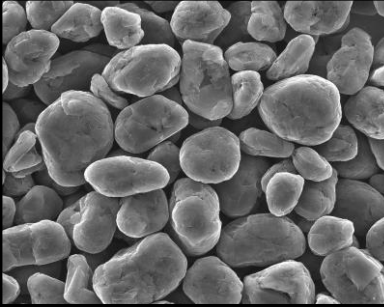
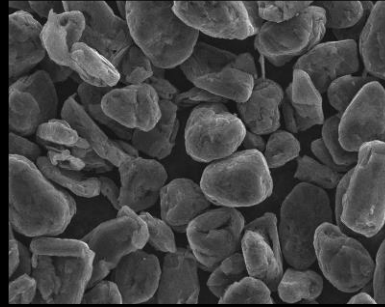
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Balama Ore Reserves exceed listed¹ projects by grade and volume



- (1) ASX and TSX listed projects only and excludes Chinese producers
- (2) Cut-off grade for Northern Graphite is 1% TGC
- (3) Cut-off grade for Energizer Resources is 4.5% TGC
- (4) Cut-off grade for Kibaran Resources is 5% TGC
- (5) Cut-off grade for Battery Minerals is 4.4% TGC
- (6) Cut-off grade for Focus Graphite is 3.1% TGC
- (7) Cut-off grade for Mason Graphite is 6% TGC
- (8) Cut-off grade for Volt Resources is 1.3% to 1.8% TGC
- (9) TGC = Total graphitic carbon

Across the graphite value chain, a consistent, high quality supplier can capture attractive margins

	Flake Graphite	Uncoated Spherical	Coated Spherical
Products			
Cost	US\$300/t	US\$2,300/t ⁽¹⁾	US\$3,200/t ⁽²⁾
Price	US\$600/t - US\$1,200/t ⁽³⁾	US\$3,000/t - US\$4,500/t ⁽⁴⁾	US\$7,000/t - US\$10,000/t ⁽¹⁾
	Mozambique	Louisiana	

Syrah's strategy is to **capture enhanced value** by positioning itself as the **leading, high quality and consistent** supplier to the **high growth technology markets**.

- (1) Based on Syrah's market inquiries
- (2) Syrah internal economic assessment – refer to ASX announcement dated 18th June 2015 for coated figures
- (3) Based on Benchmark Minerals 2016 price data
- (4) Based on Benchmark Minerals 2016 price data for 15µm (D50) spherical graphite product

Balama is fully funded and imminent commissioning allows customers to establish baseload supply

	2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Balama Graphite Project, Mozambique								
Balama Plant Construction	█	█	█					
Commissioning			█	█				
First Ore & Production Ramp Up				█	█	█	█	█
Full Production Capacity							█	█

- ❑ Rapidly developing the **world class** Balama Project located in **Mozambique**
- ❑ Balama Project remains **on schedule** for **commissioning** in **Q2 2017**
- ❑ **First production** in **Q3 2017**

*Balama will be the **solution** for end users demanding a **consistent** and **high quality** source of supply.*



Balama Project is progressing to schedule

- ❑ Overall **construction progress** of the **Balama process plant** is **52.4%** as at 31 December 2016:
 - All **principal equipment** on site
 - **Mining fleet** mobilised
- ❑ **Attrition cells** have been added to the Balama process plant:
 - Increases **product quality** (>98% TGC across all flake sizes)
 - Reduces **downstream processing costs** of BAM production
- ❑ Project **capital costs** increased to **US\$200 million**:
 - increase in the project budget will be **funded** from the Company's **existing cash reserves**
 - Progressing **US\$50 million debt facility** for **Balama** and **general corporate activities**, as a conservative contingency

*Significant progress in the development of the Balama Project has **materially de-risked** the construction of this asset, positioning Syrah to deliver on its **advantage** as the **early mover** in the sector.*

The image shows a large-scale industrial facility, specifically a pilot plant for Syrah production. The machinery is painted a distinctive green color and is composed of several large vertical tanks or columns connected by a network of pipes and structural steel beams. Some pipes are curved, while others are straight. The facility is housed within a large, open hall with a high ceiling supported by a complex network of steel trusses. In the background, other parts of the plant and some workers can be seen, though they are out of focus. The overall impression is one of a large, complex industrial operation.

BAM strategy

Syrah Pilot Plant, Guangzhou, China

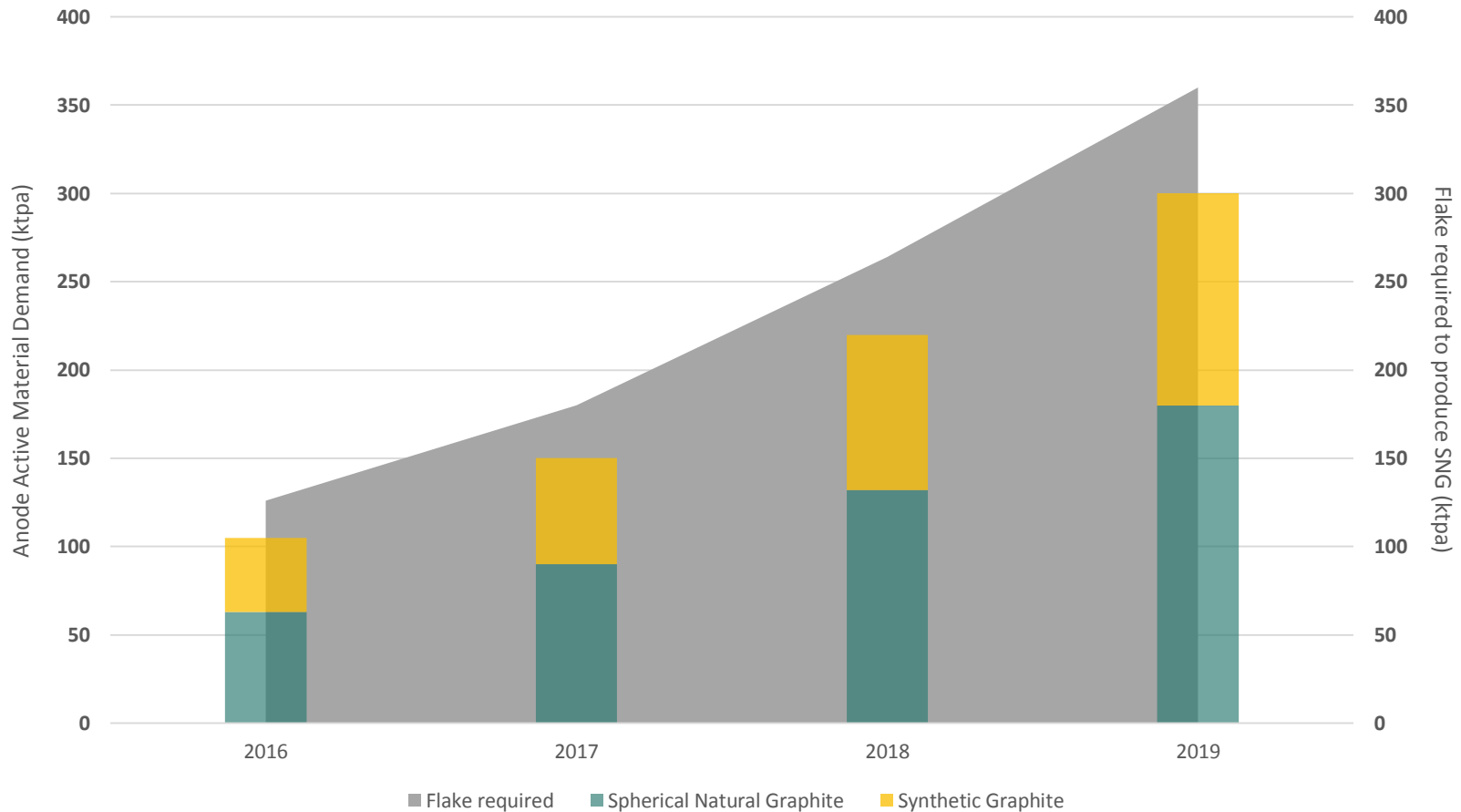
A vertically integrated strategy to capture and shape the market opportunity quickly

- ❑ Syrah will pursue a **multi-channel sales strategy** with a presence in **flake** and **battery anode material** markets
- ❑ Develop a **Commercial BAM Plant** to supply the battery anode market:
 - Initial 20ktpa Louisiana, **Commercial Plant** for a **60ktpa** capacity, using **proven technology** and **processes**
 - **Leading Engineering Firm** appointed to provide technical and engineering support for a **Product Qualification Plant** in **Louisiana** to accelerate sales and cash flows from the Commercial Plant
 - **Approvals** and **permitting** processes **underway**
- ❑ Currently conducting **test work** and generating **BAM product samples** at a **Pilot Plant** in China
- ❑ Subsequent **discussions** with **customers** and **industry participants** have identified a number of **new** and **value enhancing options** which are **currently under review**

*This strategy **accelerates cash flows** and **profitability** from downstream processing whilst **minimising risk**.*



Battery anode material (BAM) demand projections far exceed supply; 117kt shortfall (or 234kt of flake graphite) by 2019



- (1) Benchmark Minerals 2016
- (2) 1 tonne of anode material = 1 tonne of spherical graphite
- (3) 2 tonnes of flake graphite is required to produce 1 tonne of spherical graphite

Timetable recap

	2017								2018							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Balama Graphite Project, Mozambique																
Balama Plant Construction	█	█	█	█												
Commissioning			█	█	█											
First Ore & Production Ramp Up					█	█	█	█	█	█	█	█	█	█	█	█
Full Production Capacity													█	█	█	█
BAM - Commercial Plant, Louisiana USA																
Development					█	█	█	█	█	█	█	█	█	█	█	█
Production																█
<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">↔ BFS ↔</div> <div style="margin-right: 20px;">↔ \$ ↔</div> </div>																
BAM - Qualification Plant, Louisiana USA																
Development					█	█	█	█	█	█	█	█	█	█	█	█
Customer Product Qualification											█	█	█	█	█	█
BAM - China / Perth																
China Pilot Plant	█	█	█	█	█											
Perth Technology Centre						█	█	█	█	█	█	█	█	█	█	█



Summary

- ❑ **World's largest high quality graphite resource** – low cost and baseload supply
- ❑ Planning to **capture value** through an **integrated supply chain**
- ❑ **Balama Project** scheduled for **first production** in **Q3 2017**
- ❑ Focussed on the development of an initial **Commercial Plant** in Louisiana for a **60ktpa capacity**
- ❑ A **Product Qualification Plant** will **accelerate** the pathway to **sales** and **cash flows** by allowing product qualification to occur prior to production from the Commercial Plant

