



PRODUCTION OF BATTERY SPECIFICATION ANODE PRECURSOR MATERIAL

Syrah Resources Limited (ASX: SYR) (“Syrah” or “Company”) is pleased to announce the production of anode precursor material (purified spherical graphite) to battery specification from the Company’s Battery Anode Material (“BAM”) facility in Vidalia (Louisiana, USA). This is a key milestone for progression of the Company’s strategy to become the first ex-China vertically integrated producer of Active Anode Material (“AAM”) from natural graphite.

Key points:

- Anode precursor material to battery specification has been produced at Vidalia and will be dispatched to potential customers and supply chain partners for testing and qualification.
- China currently produces 100% of the natural graphite anode precursor material used for production of lithium-ion batteries in Electric Vehicles (“EV”), as well as other applications. Syrah believes the Vidalia operation is the farthest progressed alternate source of natural graphite anode precursor material ex-China.
- Anode precursor from Vidalia will be further processed to AAM via toll treatment and from a furnace to be installed at Vidalia over the coming quarters, which will further facilitate ongoing strategic, financial partnership, and end-customer interactions.
- Benchmarking of the physical and electrochemical properties of material produced at pilot scale demonstrates that planned products from the facility in Vidalia will deliver equivalent or superior performance to material supplied by major incumbent industry participants.
- Current installed plant at Vidalia is capable of 5kt per annum milling and commercial qualification scale of 200t per annum purification. An in-progress Bankable Feasibility Study (“BFS”) is assessing the economics of expanding the capacity of the existing facility to 10kt per annum of AAM production capability initially, and then scale up to 40kt per annum.
- The globally significant Balama Graphite Operation (“Balama”) provides a strategic ex-China source of natural graphite feedstock to vertically integrate with Vidalia, uniquely positioning Syrah to service ex-Asia anode supply chains, including the growing US and European markets.
- Accelerated by the impacts of COVID 19, localised supply chains are increasingly recognised as offering competitive advantage and security, and the strategic nature of critical battery minerals is growing in importance with both governments and supply chain participants.

Overview of Syrah’s BAM project

Development at the BAM project to date has been focused on establishing production lines that are of sufficient scale to demonstrate Syrah’s capability to supply ex-Asia markets with AMM that:

- has equivalent or superior physical and electrochemical properties to currently available material;
- is cost competitive with incumbent supply (currently 100% based in Asia);

- provides an environmentally superior alternative to existing AAM supply; and,
- is capable of supplying growing US and European markets

Syrah’s site in Vidalia is well located with access to key utilities (water/gas/power) and nearby barge/port access to the Mississippi river for potential barge transport of natural graphite feedstock to Vidalia from the Port of New Orleans in future. Proximity to established petrochemical industry provides access to key consumables (hydrofluoric acid, hydrochloric acid, caustic) and skilled workforce. The site has confirmed compliance with water and air discharge regulations for large scale commercial production of AAM.

The operating plant currently installed at Vidalia includes 5kt per annum capacity of graphite milling, batch scale purification capability (200t per annum capacity) and all ancillary plant required to demonstrate capability to scale the facility whilst maintaining product quality, environmental compliance and best practice health and safety procedures.

Procurement of a furnace is in progress, with installation expected to be completed in Q1 2021, which will enable qualification volumes of AAM from anode precursor to be produced at Vidalia. In the meantime, anode precursor is now available for qualification with existing AAM producers and will also be processed to AAM via toll treatment to accelerate ongoing strategic and financial partnership discussions and end customer interactions.

Learnings from operating the installed plant at Vidalia and ongoing product development work is being incorporated into an in-progress BFS which is assessing the economics of expanding the capacity of the existing facility to 10kt per annum of AAM production capability initially, and then scale up to 40kt per annum.

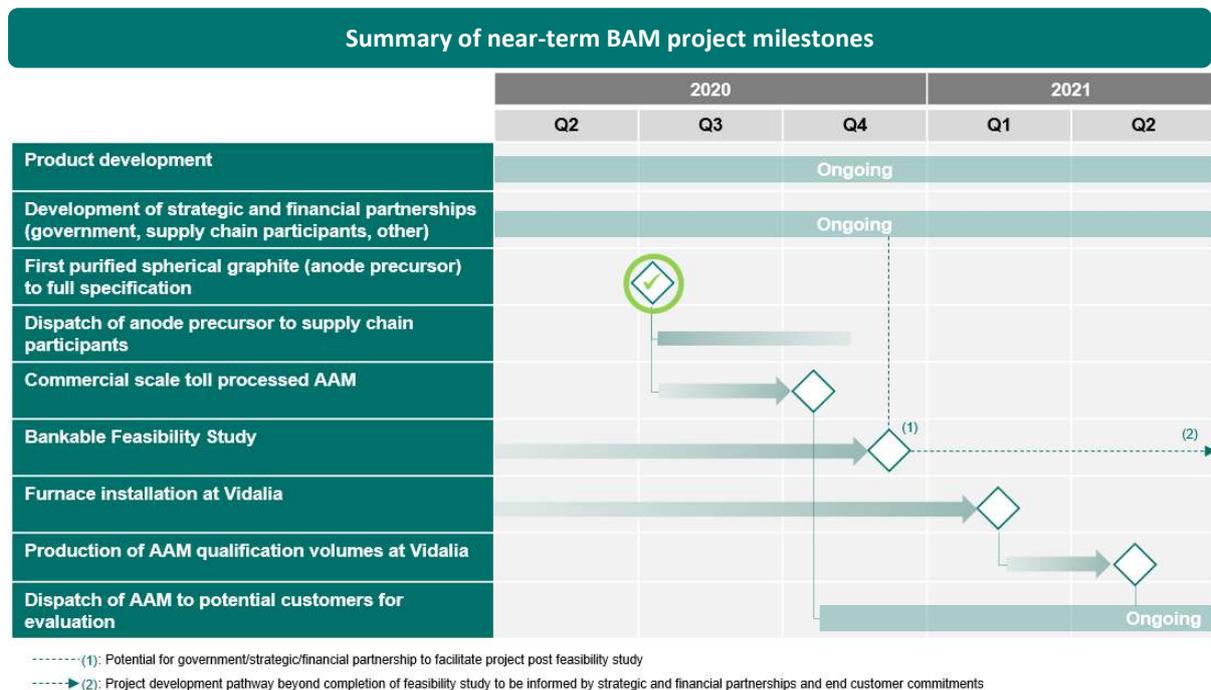


Figure 1: Summary of near-term project milestones

BAM Project



Figure 2: clockwise from top left - Milling; Milled graphite storage; Neutralisation; Environmental scrubber; Boiler and process water supply; Bagging; Purification

Product development

Prior pilot plant scale product development work demonstrates that AAM to be produced at scale from the facility in Vidalia will deliver equivalent or superior physical and electrochemical performance as material supplied by major incumbent industry participants.

Specifically, work to date has shown that:

- a) Anode precursor produced from Balama natural graphite has similar spherical shape and particle size distribution as industry leading precursor materials.

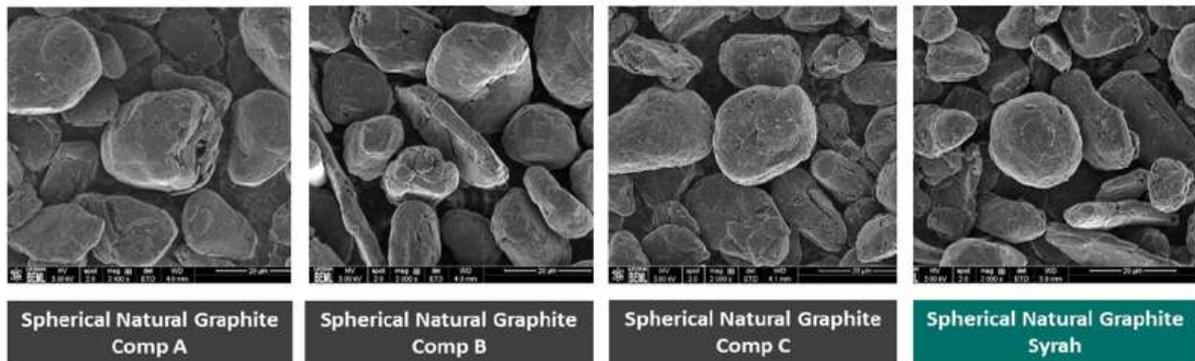


Figure 3: Particle size distribution benchmarking

- b) Benchmarking of electrochemical properties of Syrah products has shown comparable specific capacity to material supplied by the existing major incumbent industry participants.

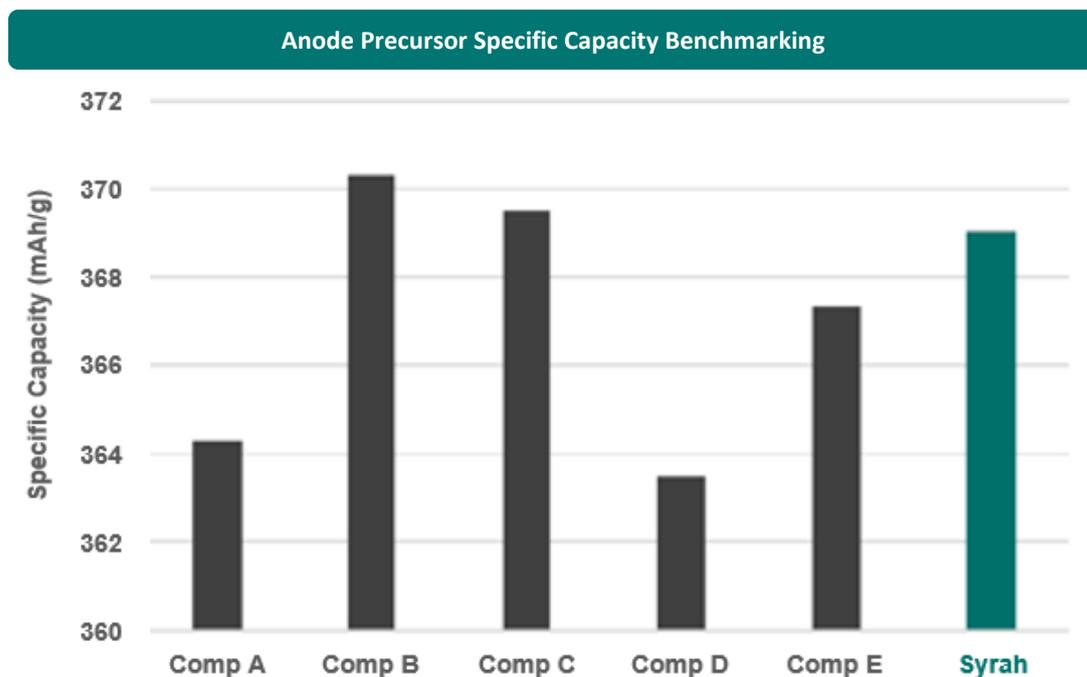


Figure 4: Specific capacity benchmarking

- c) Benchmarking of cycle life also compares favourably to current mainstream commercially available

anode materials.

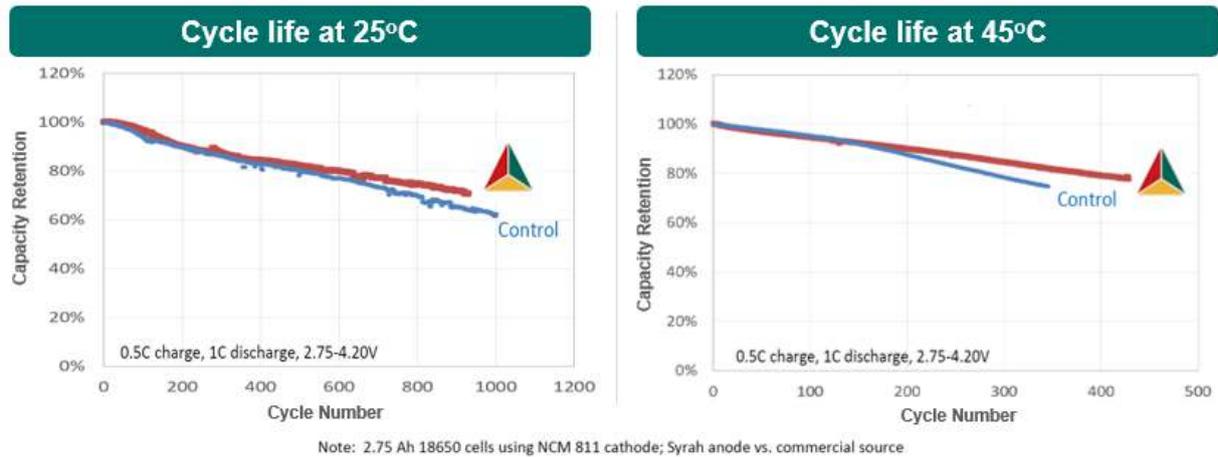


Figure 5: Cycle life benchmarking

Syrah plans to enter the AAM market with a mass market product that is of equivalent or superior purity, tap density, electrochemical performance and cost versus currently available material. Development of high-performance next generation AAM products is in-progress, with preliminary results able to substantiate patent application which is currently in progress.

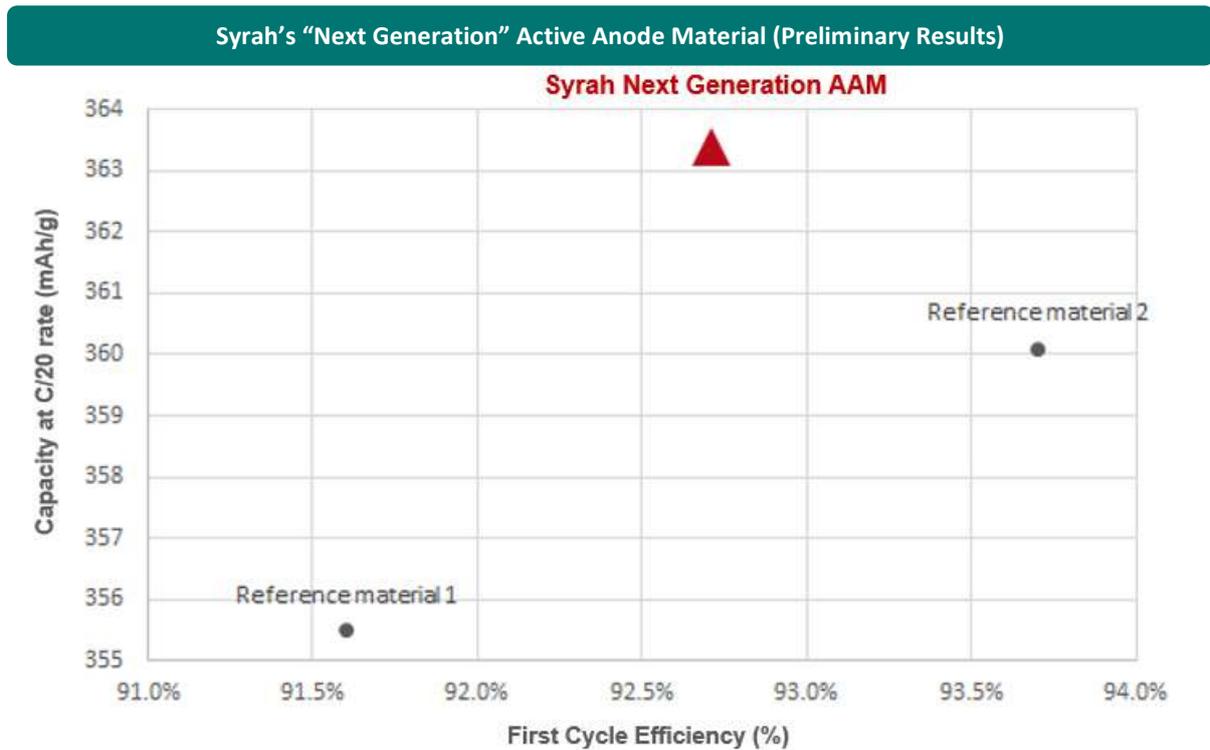


Figure 6: Electrochemical benchmarking based on testing of R&D samples of next generation Syrah materials

Natural versus synthetic graphite

Both artificial and natural graphite can be used as primary feedstock for production of anode precursor, each with unique advantages and disadvantages as summarised in Table 1.

Table 1: Natural vs Synthetic Graphite

	Advantages	Disadvantages
Natural Graphite	<ul style="list-style-type: none"> Higher capacity Lower cost 	<ul style="list-style-type: none"> Lower cycle and calendar life Higher volume expansion
Artificial Graphite	<ul style="list-style-type: none"> Better cycling stability / cycle life Lower swelling 	<ul style="list-style-type: none"> Higher cost Slightly lower energy density

Benchmark Minerals Intelligence estimate that natural graphite will account for approximately 39% of the total anode production volume in 2020 and expects that proportion to increase to 49% by 2025¹.

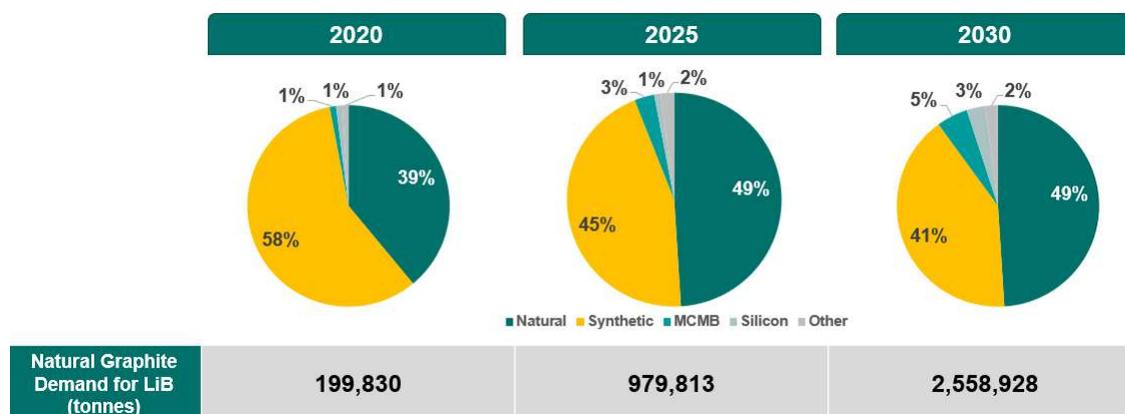


Figure 7: Benchmark Mineral Intelligence anode composition forecast – Q1 2020

Syrah's interaction with supply chain participants indicates the progression towards higher proportion of natural graphite used in battery anodes will be supported by its lower cost and superior environmental credentials. Environmental footprint of EVs will become increasingly important as EV penetration accelerates, noting that synthetic graphite is made from the by-product of energy intensive coking and oil refinery processes.

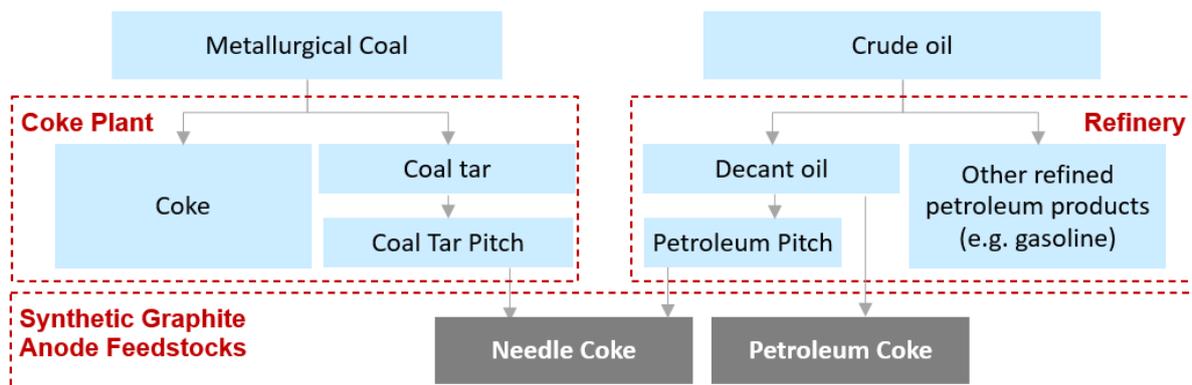


Figure 8: Simplified summary of key synthetic graphite anode feedstocks from energy intensive coal and petroleum refining processes

¹ Benchmark Mineral Intelligence Flake Graphite Forecast – Q1 2020

This ASX release was authorised on behalf of the Syrah Board by

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About Syrah Resources

Syrah Resources Limited (ASX code: SYR) is an Australian-based industrial minerals and technology company. Syrah owns and developed the Balama Graphite Project (Balama) in Mozambique. Balama transitioned to operations with sales and shipments to a global customer base including the battery anode producers, from the start of 2018. Syrah produced over 100,000 tonnes of natural graphite in 2018 and is the largest and first major new natural graphite operation developed outside of China. Balama will be the leading global producer of high purity graphite. Balama production is targeted to supply traditional industrial graphite markets and emerging technology markets. Syrah is also progressing its downstream Battery Anode Material strategy with first production of spherical graphite achieved in December 2018 from its plant in Louisiana, USA. Syrah has successfully completed extensive product certification test work with several major battery producers for the use of Balama spherical graphite in the anode of lithium-ion batteries.

Forward Looking Statement

This document contains certain forward-looking statements. The words "expect", "anticipate", "estimate", "intend", "believe", "guidance", "should", "could", "may", "will", "predict", "plan", "targets" and other similar expressions are intended to identify forward-looking statements. Forward-looking statements in this presentation include statements regarding: the timetable and outcome of the equity offer and the use of the proceeds thereof; the capital and operating costs, timetable and operating metrics for the Balama Project; the viability of future opportunities such as spherical graphite, future agreements and offtake partners; future market supply and demand; and future mineral prices. Indications of, and guidance on, future earnings and financial position and performance are also forward-looking statements. Forward-looking statements, opinions and estimates provided in this presentation are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions.

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