

# Q1 2020 Quarterly Activities Report

22 April 2020 Shaun Verner – Managing Director & CEO



SYRAH RESOURCES

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# **Investment highlights**

Balama: A Tier 1 asset	<ul> <li>Long life asset, with over 50 years of mine life<sup>1</sup> and 350kt per year of graphite concentrate production capability<sup>2</sup></li> <li>Balama is the largest integrated natural graphite mine and processing plant globally as measured by annual flake concentrate prod</li> <li>Balama's large Reserve and Resource allows for future plant expansion, potentially representing a low capital intensity option to r demand</li> </ul>
Exposure to High Growth Lithium-ion Battery Markets	<ul> <li>Graphite is a key component of lithium-ion batteries used in electric vehicles and energy storage, both rapidly growing markets</li> <li>Balama's high quality product mix and product specifications are suited for use in these markets</li> <li>Strategic importance of natural graphite as a critical battery mineral is recognised by major EV production regions (China, Europe,</li> </ul>
Positive ESG Profile	<ul> <li>Natural graphite has superior environmental credentials compared to synthetic graphite which is derived from oil refining and coal be Leading practice standards applied with ISO:45001 Occupational Health and Safety Management Systems and ISO:14001 Environment certification at Balama</li> </ul>
Uniquely positioned to supply anode material to ex-Asia end user markets	<ul> <li>Anode battery supply chain currently concentrated in Asia, with 100% of anode precursor material manufactured in China</li> <li>BAM project value added processing of flake graphite to active anode material by Syrah is enabled by long mine life at Balama</li> <li>Syrah's downstream processing site in Louisiana (USA) aims to provide an alternate to existing Asia supply chain for battery anot USA and Europe markets</li> </ul>
Vanadium Optionality at Balama	<ul> <li>Balama contains a significant vanadium by-product Resource which presents a potential value-accretive opportunity that Syrah will Study</li> <li>Vanadium, a by-product which is liberated during the graphite production process, could potentially be refined into a saleable pr material currently reporting to tailings at Balama</li> </ul>

1. Life of mine based on current 108Mt Graphite Ore Reserves being depleted at 2Mt throughput per annum. Refer to 2019 Annual report released to ASX 31 March 2020 for Reserve as at 31 December 2019

2. Refer to ASX announcements dated 29 May 2015

3. Refer ASX announcement dated 30 July 2014

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product  $(V2O5)^3$  via processing of



# Building a position in the anode supply chain

## Leveraging the globally significant Balama asset to develop an integrated battery anode material and industrial products business



**Balama a globally** significant resource leading practice ESG

Size of Balama ore Reserve, > 50 year mine life<sup>1</sup>, and high Reserve grade (16% total graphitic carbon) enables participation in long term EV growth



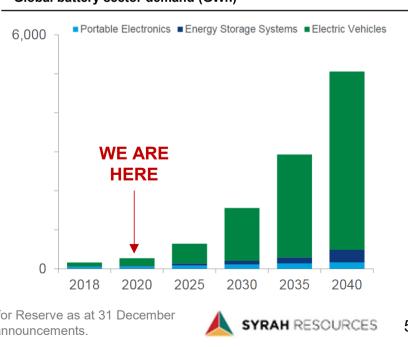
Value added processing of flake graphite to active anode material by Syrah enabled by long mine life at Balama

Syrah's downstream processing of flake graphite in Louisiana



Decarbonisation of the transport sector, via Lithium-ion battery powered electric vehicles (EV), is gaining momentum

## Global battery sector demand (GWh)<sup>2</sup>



## **Balama Open Pit Mining Operation**





- Life of mine based on current 108Mt Graphite Ore Reserves being depleted at 2Mt throughput per annum. Refer to 2019 Annual report released to ASX 31 March 2020 for Reserve as at 31 December 2019. All material assumptions underpinning the Reserves and Resource statement in this announcement continue to apply, other than as updated in subsequent ASX announcements.
- 2. Source: Wood Mackenzie (Jan 2020)

## **Global mega trend**

# Where Syrah participates in the global anode supply chain

## A global business to service the growing demand for natural graphite - a critical battery raw material



TGC = Total Graphitic Carbon

Life of mine based on current 108Mt Graphite Ore Reserves being depleted at 2Mt throughput per annum. Refer to 2019 Annual report released to ASX 31 March 2020 for Reserve as at 31 2. December 2019.

• Balama graphite product mix and specifications are suited for

· Capability to produce purified spherical graphite for product

• Sales and marketing support provided by contract sales liaison



# Summary Q1 2020 Performance



## Photo: Balama Graphite Operation Processing Plant

# Q1 2020: Key Points

Production suspended due to impacts from COVID 19, 2020 production guidance suspended	<ul> <li>Natural flake graphite production guidance for 2020 suspended from 19 March due to operational and market uncer of COVID 19<sup>1</sup></li> <li>Production at Balama (Mozambique) and BAM (USA) temporarily suspended from 28 March due to impacts of COV Government imposed restrictions on the free movement of Balama workforce<sup>2</sup></li> <li>State-wide "Stay at Home Order" by the Governor of Louisiana, USA<sup>3</sup></li> </ul>
Optionality maintained to promptly restart production	<ul> <li>Operations suspended at Balama with focus on:</li> <li>Supporting Mozambique to contain the advance of COVID 19 and maintaining a respectful relationship with employees and their families, Government, the community, contractors and suppliers</li> <li>Maintaining health and safety of our employees, environmental controls and where possible the continuity of ke</li> <li>Suspension of production in an orderly manner, retention of key personnel and capability to dispatch sales orde</li> <li>Preserving cash and maintaining optionality to promptly restart operations</li> </ul>
Heightened focus on strategic importance of battery raw materials and supply chains	<ul> <li>USA and European reliance on Asia battery raw material supply chains highlighted by supply side interruptions from</li> <li>Continued government focus on policy support for Electric Vehicle adoption support in key regions (Asia, Europe and</li> <li>Continued commitments by supply chain participants for battery capacity build-out</li> </ul>
Company well capitalised to navigate near term uncertainty. Operational review in progress	<ul> <li>Cash of US\$64.7m at end Q1 2020</li> <li>Available liquidity and the recently implemented companywide cost restructure positions the company well to r uncertainty</li> <li>Operational review in progress to assess options to further preserve cash for a range of near term market demand a</li> <li>Syrah remains confident in the medium to long term value of its unique asset.</li> </ul>

- 1. Refer to ASX announcements dated 19 March 2020
- 2. Refer to ASX announcements dated 27 March 2020
- 3. Refer to ASX announcements dated 24 March 2020

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# Coordinated response to date. Focused on near-term actions

Early preparedness and a coordinated initial response	<ul> <li>In January 2020, Syrah's Crisis and Emergency Management Teams were activated in a preventative manner to possible, minimise the impact of COVID 19 on employees, the business and key stakeholders</li> <li>By the time the World Health Organisation subsequently declared COVID 19 a global pandemic on 11 March 202 implemented strict protocols and mitigation measures across the Group.</li> <li>The health, wellbeing and safety of employees and contractors remains Syrah's highest priority and the Company is in conjunction with Government advice at a minimum, and further where we can, in order to mitigate the risk of C workplaces or the communities in which we operate.</li> </ul>
Ongoing near term operational actions / focus areas	<ul> <li>Operational review is in progress to assess options to further preserve cash for a range of ongoing market demand a Focus on trade-offs of retaining option to promptly re-start production against maximising cash preservation</li> <li>Cost reduction beyond the recently implemented company wide cost restructure ongoing, including assessment of procurement options for structural cost reductions</li> <li>Natural graphite market development, including increasing market share and product range outside China, value balance inside China</li> <li>BAM product and technology development, ongoing focus on product cost reduction and performance specification</li> <li>Supply chain engagement with project developers, anode producers, battery cell manufacturers, and auto n development focus ongoing</li> </ul>

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# Summary Q1 2020 business performance

## <u>Balama</u>

- Total Recordable Injury Frequency Rate ("TRIFR") of 0.6 at Balama at the end of Q1 2020
- Production of 12kt natural graphite (prior quarter: 15kt), driven by prevailing market demand which was negatively impacted by COVID 19 supply chain disruptions
- Temporary suspension of operations from 28 March due to impact of COVID 19 on the domestic and international mobility of the Balama workforce<sup>1</sup>
- Pre-existing target of 20% to 25% cost reduction (at 15kt per month production rate)<sup>2</sup> achieved, with reductions of 20% implemented and realised
- Options to further reduce cash outflows during period of temporary suspension of production and for a range of ongoing market scenarios are being assessed

## Sales and Marketing

- Graphite sold and shipped of 7kt (prior quarter: 17kt), lower quarter on quarter sales predominately due to supply chain disruptions in China due to COVID 19
- Quarter end finished product inventory 19kt<sup>3</sup>
- Weighted average selling price (CIF) of US\$478/t (prior quarter: US\$458/t), increase versus prior quarter predominately due to geographic split of sales

## BAM

- Dispatch of qualification samples to potential end customers during the quarter impacted by longer than planned process and product specification optimisation
- Feasibility Study for the scale-up of the Vidalia facility post product qualification remains ongoing during period of suspended operations

## <u>Cash</u>

• Cash balance at 31 March 2020 US\$64.7m versus forecast of US\$64.6m<sup>4</sup>

1: See ASX announcement 24 March 20203: Includes s2: See ASX announcement 18 October 20194: See ASX

3: Includes saleable inventory at Balama, Nacala and USA4: See ASX announcement 22 January 2020

Metric	Units	Q1 2020 31 Mar 2020	Q4 2019 31 Dec 2019	Q3 2019 30 Sep 2019	Q2 2019 30 Jun 2019	Q1 2019 31 Mar 2019
TRIFR		0.6	0.6	0.3	0.3	0.6
Plant Feed	Tonnes ('000)	96	115	326	335	378
Plant Feed Grade	TGC⁵	18%	19%	19%	19%	18%
Recovery	%	67%	68%	69%	66%	69%
Graphite Produced	Tonnes ('000)	12	15	45	44	48
Fines/Coarse Mix	-	86/14	91/9	84/16	88/12	86/14
Average Fixed Carbon	%	96%	96%	96%	95%	95%
Graphite Sold and Shipped	kt	7	17	45	53	48
Sales Revenue	US\$ million	3	8	18	24	23
Weighted Average Price (CIF)	US\$/tonne	478	458	391	457	469

5: TGC = Total Graphitic Carbon



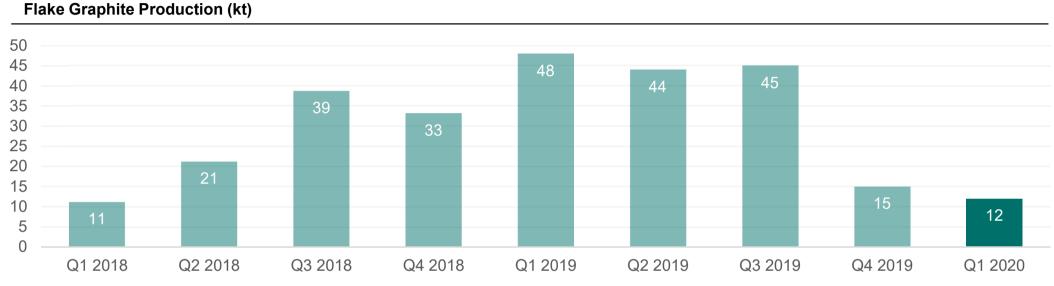
# Ongoing production moderation, product quality maintained

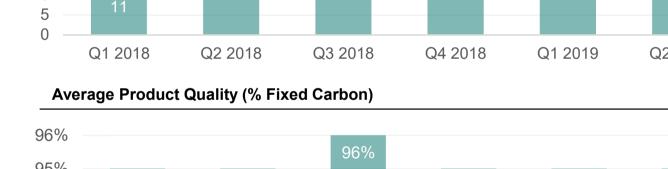
## Production at Balama temporarily suspended with optionality retained to promptly restart operations, operational review in-progress

- Production of 12kt of natural graphite during the quarter (prior quarter: 15kt), driven by prevailing market demand which was negatively impacted by COVID 19 supply chain disruptions
- Average fixed carbon levels of production of 96% maintained during Q1 2020 (prior quarter: 96%)
- Production guidance withdrawn during the quarter due to the near-term demand and supply shock impacts of COVID 19<sup>1</sup>
- Within Mozambique, international and domestic travel restrictions due to COVID 19 constrained mobility of the Balama workforce during the quarter, leading to temporary suspension of production from 28 March 2020<sup>2</sup>
- Production has been suspended with the optionality maintained to promptly restart operations



2. Refer to ASX announcements dated 27 March 2020





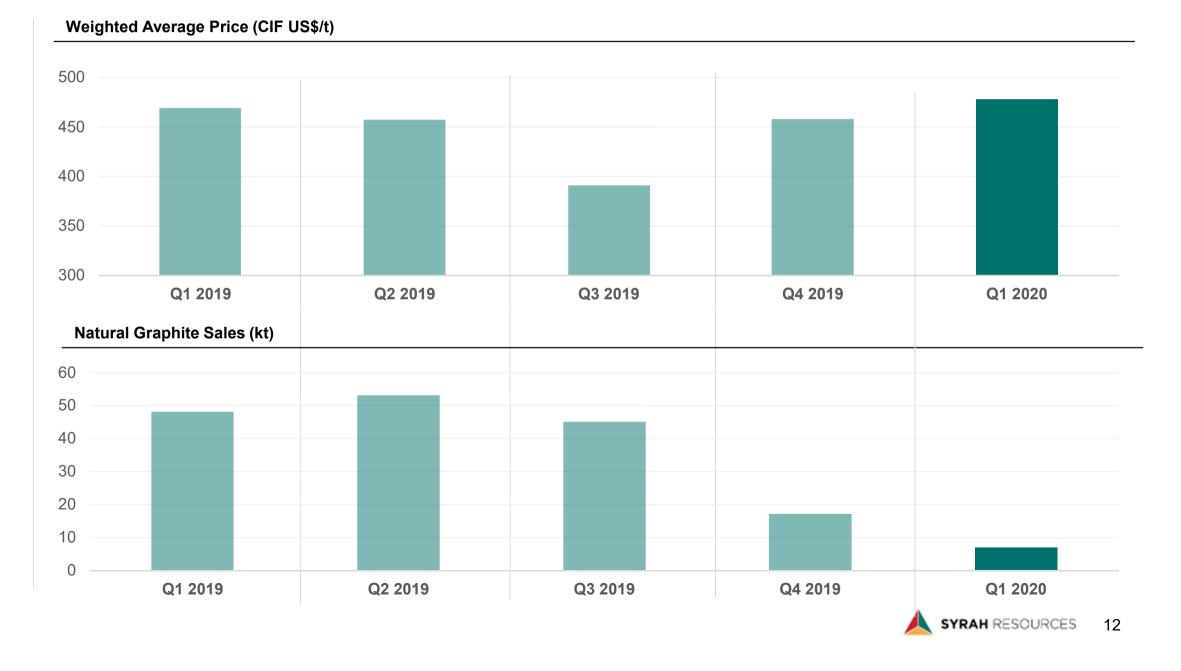




# Natural flake graphite prices and sales

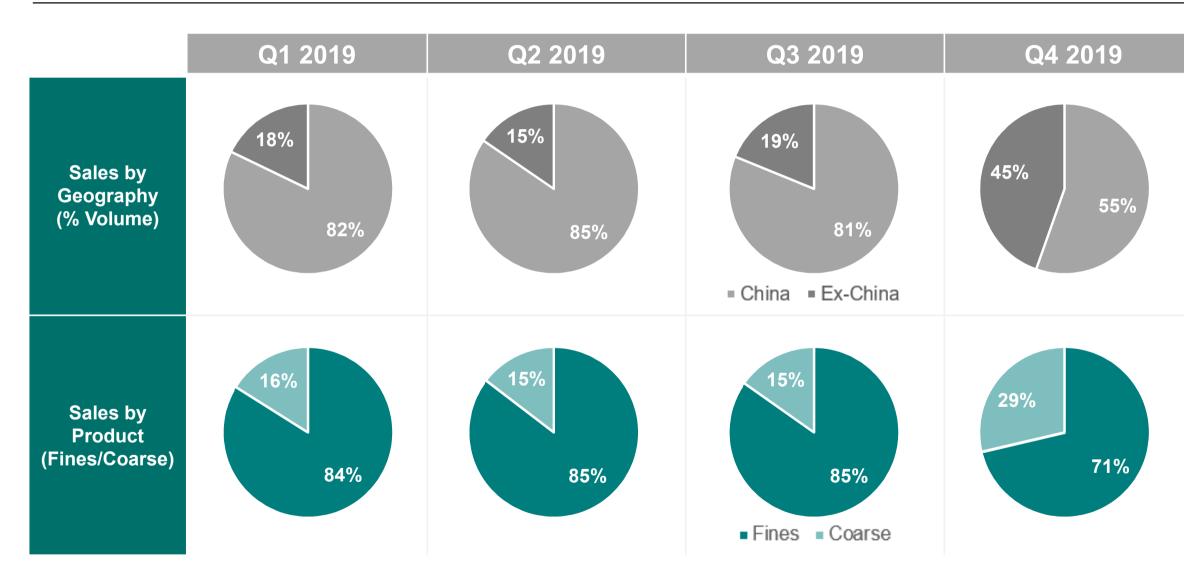
## Lower Q1 2020 sales in line with moderated production strategy and impacted by China supply chain shut downs due to COVID 19

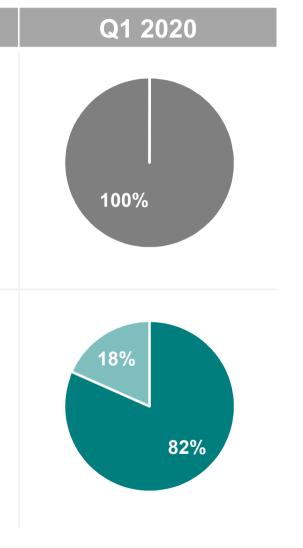
- Q1 2020 average price was US\$478 per tonne versus Q4 2019 US\$458 per tonne.
- Higher Q1 2020 versus Q4 2019 price driven by positive price impact from geographic mix of sales
- Q1 2020 natural graphite sales of 7kt versus Q4 2019 17kt
- Lower Q1 2020 versus Q4 2019 sales in-line with strategy for prevailing demand to drive Q1 2020 production and sales. Demand negatively impacted by supply chain disruptions and end user demand impacts of COVID 19
- Sales from finished product inventory will continue to the extent product movements up to and through the Port of Nacala remain possible



# Natural graphite geographic and product sales mix summary

## Sales into the China fines battery market in Q1 2020 impacted by COVID 19





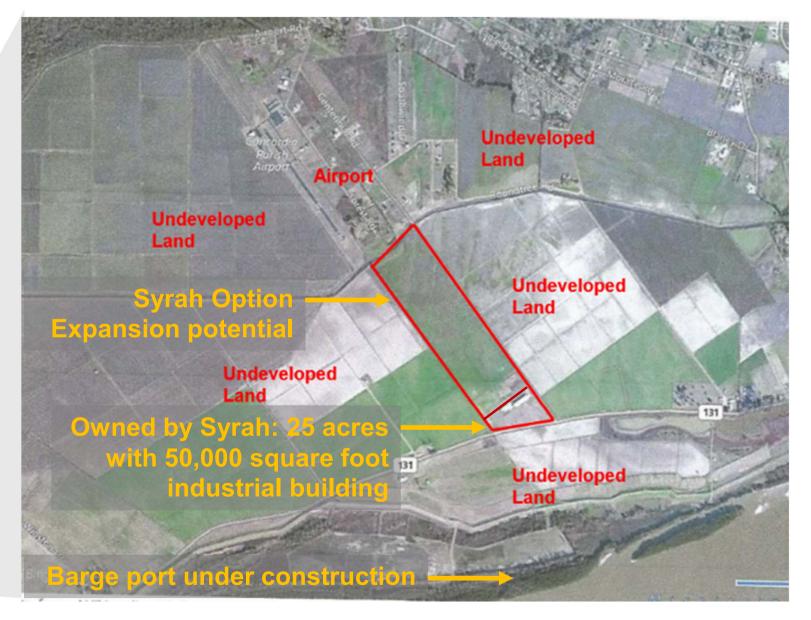


# Syrah's site in Vidalia (USA) is de-risked for anode material production

## Vidalia site owned by Syrah has all the key requirements for large scale Active Anode Material production

- Access to key utilities (Water/Gas/Power)
- Confirmed compliance with water and air discharge requirement from large scale commercial facility
- Options to expand facility size
- Direct barge/port access to Mississippi river
- ✓ Supportive government relations
- Access to key consumables (HF, HCL, Caustic)
- Capable workforce initial production team in place and proximity to skilled workforce from petrochemical industries



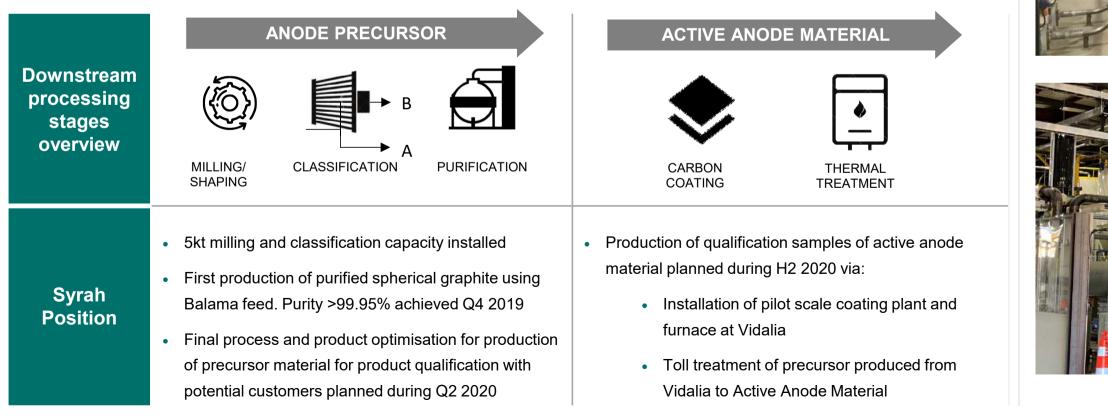




# Battery Anode Material (BAM) plant in Vidalia (Louisiana, USA)

## Aiming to be the first major integrated ex-China producer of natural graphite active anode material

- Operations at Vidalia suspended during Q1 2020 due to State-wide "Stay at Home Order" by the Governor of Louisiana, USA.<sup>1</sup> ٠
- Dispatch of gualification samples from Vidalia to potential end customers during the guarter impacted by minor equipment issues during ٠ process optimisation. Rectification of equipment issues were in progress prior to suspension of operations and completion is subject to recommencement of operations, currently scheduled for the beginning of May
- Assuming re-commencement of operations at the beginning of May, final process and product optimisation for production of precursor material for product qualification with potential customers is planned during Q2 2020
- Feasibility Study for the scale-up of the Vidalia facility post product gualification remains ongoing during period of suspended operations







Vidalia purification circuit



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# Outlook

## Near term market impact of COVID 19 remains uncertain, review of options to further preserve cash is ongoing

Balama	<ul> <li>Production at Balama likely suspended for duration Q2 2020, accounting for ongoing disruptions to global battery sup travel restrictions and end user demand impacts of COVID 19</li> <li>Initial focus in Q2 2020 on preserving cash whilst also maintaining optionality to promptly restart production</li> <li>Operational and market review in progress to assess options to preserve cash in a range of ongoing market demand and market review in progress to assess options to preserve cash in a range of ongoing market demand and market review in progress to assess options to preserve cash in a range of ongoing market demand and and and and and and and and and</li></ul>
BAM	<ul> <li>State-wide "Stay at Home Order" by the Governor of Louisiana currently earmarked to be lifted at the beginning of Material Assuming Syrah operations in Vidalia (Louisiana) re-commence at the beginning of May 2020:</li> <li>final process and product optimisation for production of precursor material for qualification with potential currently 2020; and,</li> <li>production of qualification samples of active anode material planned during H2 2020. Initially via toll treatment Vidalia to Active Anode Material and later from installation of pilot scale coating plant and furnace at Vidalia.</li> <li>Feasibility Study for the scale-up of the Vidalia facility post product qualification remains ongoing during period of susp</li> </ul>
Corporate	<ul> <li>Forecast Q2 2020 group net cash outflow is ~US\$12 million for the quarter, down from US\$16 million cash outflows in</li> <li>Balama net operating expenditure and sustaining capital outflows of US\$9.1m, down from US\$12.5 million in</li> <li>BAM cash outflows of US\$1.9 million, down from US\$2.0 million in the prior quarter; and,</li> <li>cash outflows from general corporate and administration activities net of interest income of US\$1.0 million, down prior quarter.</li> <li>Forecast cash balance as at end of Q2 2020 is ~ US\$53 million</li> <li>Operational scenarios being considered could significantly reduce cash outflows in subsequent quarters depending or</li> </ul>

upply chains, Balama workforce

and product pricing scenarios

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down from 1.5 million in the

on market conditions



# **Environmental, Social, and Governance (ESG)**



# Syrah remains focused on positively contributing to our community

# Supporting the **Economy**

>US \$54M paid in salaries in Mozambique to date

# **Employment &** Training

~1,018 direct and contract roles for Mozambicans

# **Balama Health** Program

Improving workforce and community health and wellbeing

# **Local Development Programs**

**Delivering sustainable** development initiatives across our Host Communities



Mozambique significant exporter award recipient



96% of Syrah's direct employees at Balama are Mozambican



Mental health awareness



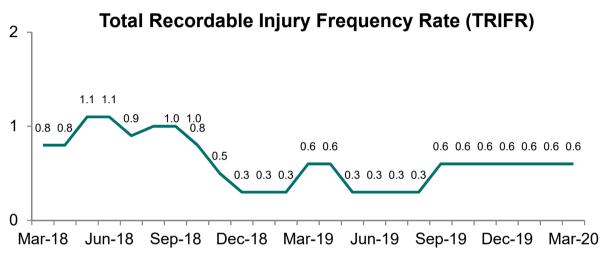
Local Development Committee meeting with Community, District & Provincial Government representatives



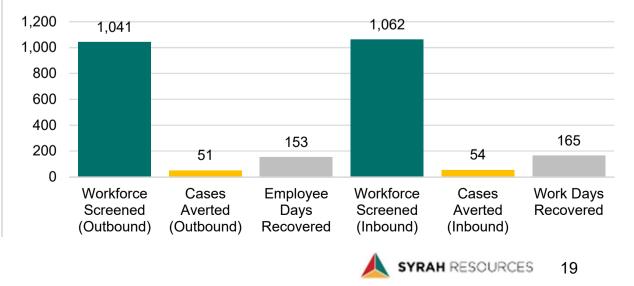
# Health, Safety and Environment

## Syrah continues to commit to leading practice standards with ISO:45001 Occupational Health and Safety Management Systems and **ISO:14001 Environmental Management Systems certification**

- In January 2020, Syrah's Crisis and Emergency Management Teams were activated in a preventative manner to assess, manage and where possible, minimise the impact of COVID 19 on employees, the business and key stakeholders
- The World Health Organisation subsequently declared COVID 19 a global pandemic on 11 March 2020, the Company had already implemented strict protocols and mitigation measures across the Group
- Continued strong safety record during the guarter with TRIFR of 0.6 at guarter end
- 5 year Environmental Licence renewal obtained, with continued Environmental Monitoring Program in line with over 200 licence conditions with zero significant environmental incidents to date
- Malaria Screening Program continued with 2,103 inbound and outbound tests conducted, 105 presymptomatic malaria cases treated / averted and 318 days recovered throughout the quarter
- Ongoing focus on water stewardship with total raw water consumption at Balama below 30% of monthly average licenced volumes in Q1
- 1,600 native seedings cultivated at the Balama Nursery donated to Host Communities to commemorate International Day of Forests and promote reforestation in the Balama District
- The Company continues to monitor the security situation in Cabo Delgado province. There has been no impact on Syrah's operations, movement of people, or transport, and appropriate security protocols are in place
- Post guarter end, Syrah donated 15 beds and other supplies to the local community to assist in their response to COVID 19



## Malaria Screening Program Results - 2020 YTD



# **People Community and Stakeholder Engagement**

## Stakeholder engagement is central to open communication and mutual benefit

- At quarter end, 96% of Balama's direct employees are Mozambican nationals with 49% employed from the local Host Communities and 21% female employment
- Construction commenced to build a primary school in Host Community in line with local development commitments
- Development Livelihood Program continued throughout the quarter in partnership with Mozambique's Institute of Agricultural Research to improve crop yields and promote food security in Host Communities
- Mine Open Doors Program affords local stakeholders an opportunity to visit Balama to better understand mine operations and to gain insights into the Company's sustainable development programs







Primary school construction ground breaking ceremony





# **Sustainability & Community**

## Local Development Committee provides a framework to ensure Syrah is deploying resources responsibility and efficiently

- Syrah adopts a risk and opportunities based approach to managing material sustainability matters across the business, with all relevant information captured under the Company's Risk Management Framework
- Asset-level sustainability reporting is guided by the Global Reporting Initiative (GRI), the United Nations Sustainable Development Goals, the International Council on Mining & Metals (ICMM) 10 Principles for Sustainable Development and other internationally recognised standards to assess and report sustainability performance in line with industry benchmarks
- In June 2017 Syrah established a Local Development Agreement ("LDA") with the Company's eight Host Communities and the Balama District Administration.
- The LDA required the formation of a Local Development Committee ("LDC") consisting of Company, Host Community, District and Provincial Government representatives to ensure fair and transparent stakeholder oversight / input into local development projects and associated expenditure.
- LDC provides a frame work for defining and deploying contributions from Syrah to the local community. Significant LDC sanctioned initiatives to date include:
  - Grain storage unit construction;
  - Visits from Agriculture specialists from Mapupulo Agrarian Research Centre (CIAM) to the Vegetable Project to provide advice in relation to soil management and pest control techniques; and,
  - The Beekeeping Project, with more hives being built using recycled materials from the Balama Graphite Operation.





Beekeeper training with the Host Communities

Grain storage units being handed over to community members



# **Balama Professional Training Centre (BPTC)**

## Syrah aiming to maintain commitment to BPTC and other community programs through period of temporary suspension of production

- Syrah built and runs the Balama Professional Training Centre
- Purpose to provide technical training to community to enable employment opportunities not necessarily by Syrah
- Training commenced at the BPTC in January 2019. Syrah has prepared all training material in conjunction with the National Institute of Professional Training & Labour Studies ("IFPELAC") and will continue to develop the BPTC training curriculum over the coming years in line with community needs
- 110 Host Community members were successfully trained at the BPTC in 2019. This is consistent with Syrah's commitment to train a minimum of 500 members of the local community over the five years to the end of 2023 in areas of health and work readiness and basic mechanical and electrical disciplines. BPTC selection criteria requires that women hold a minimum representation of 30% on each training cohort
- Syrah was named AAMEG Africa Awards 2019 Winner Best Innovation in Corporate Social Development for the design, construction and operation of the BPTC







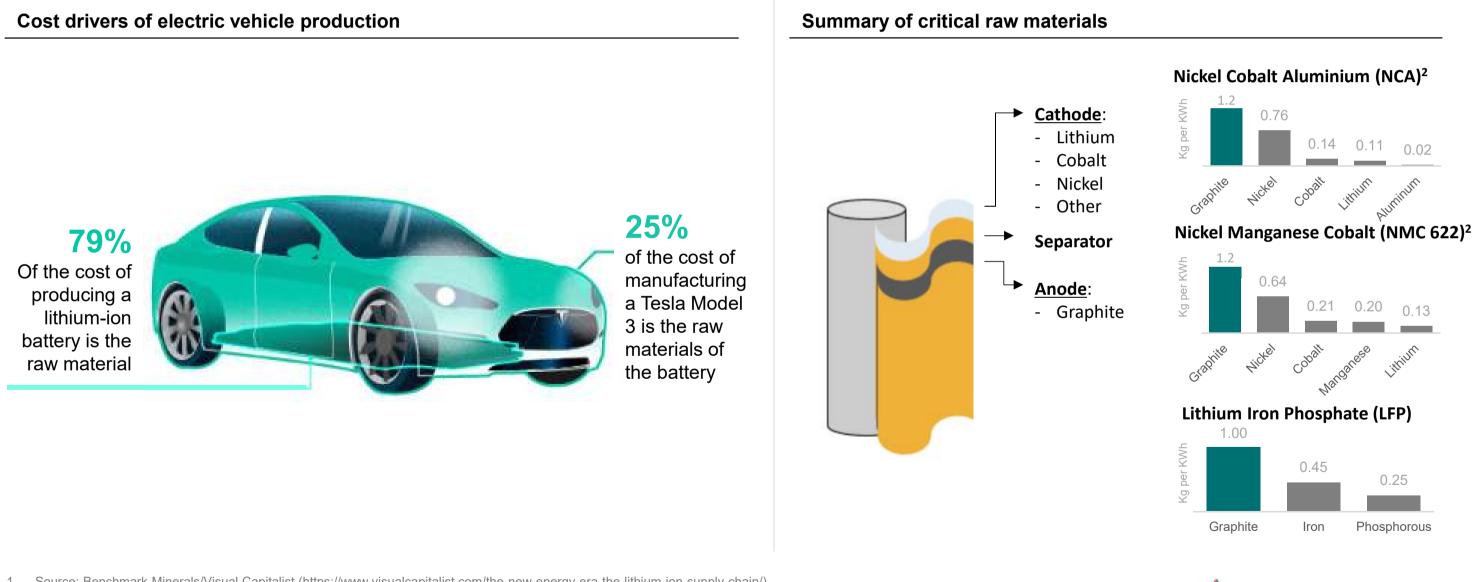
# **Battery Anode Material Market Overview**





# Batteries are the largest cost driver of an electric vehicle

## The cost of critical raw materials account for 79% of the total battery cost<sup>1</sup>



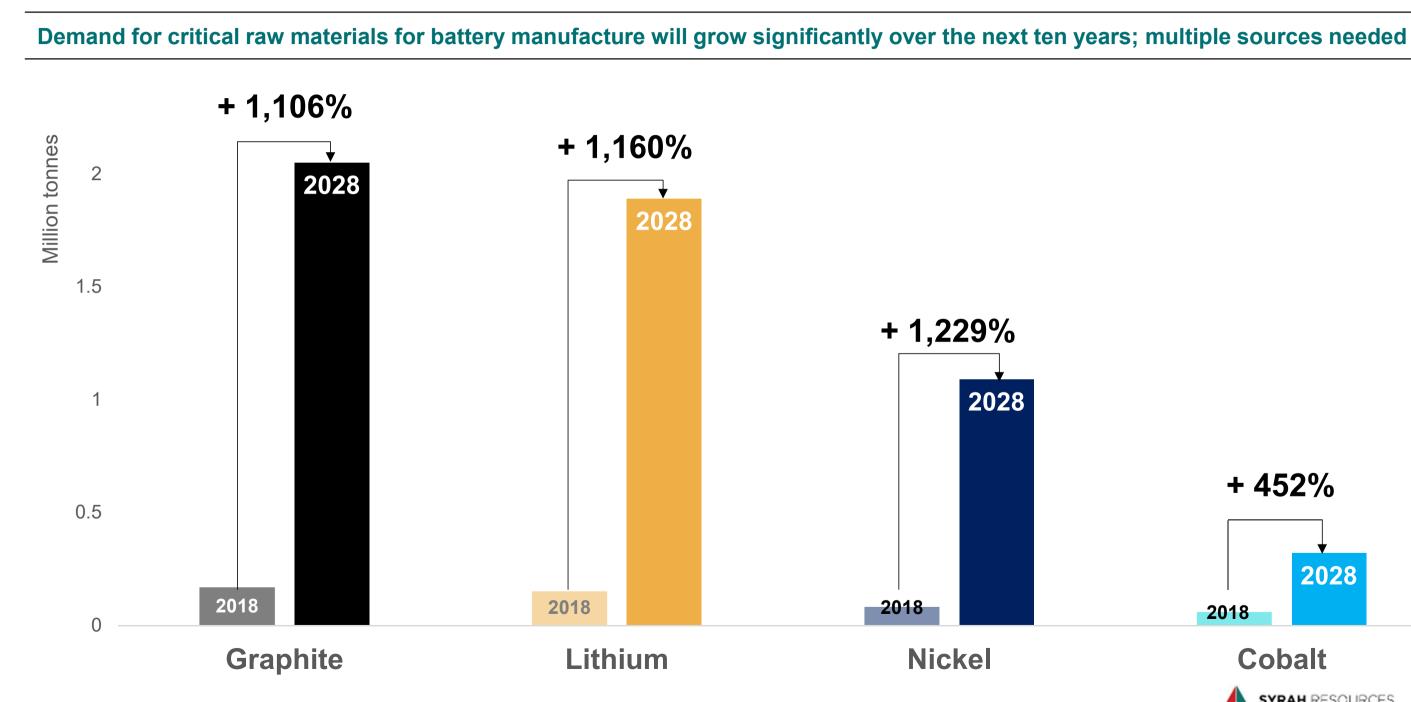
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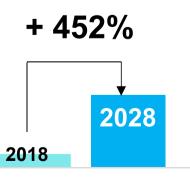
Source: Benchmark Minerals/Visual Capitalist (https://www.visualcapitalist.com/the-new-energy-era-the-lithium-ion-supply-chain/) 1.

Source: Syrah Resources analysis, data from Olivetti et al. (2017) Lithium-Ion Battery Supply Chain Considerations: Analysis of Potential Bottlenecks in Critical Metals. 2.

# A major increase in battery raw material production volume is required in future



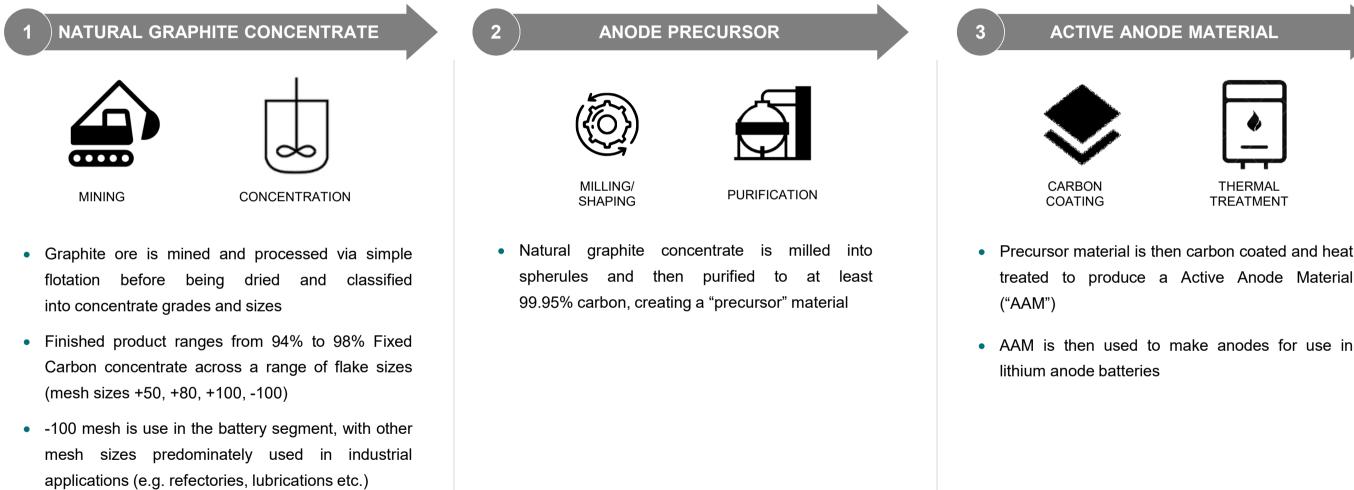
Source: Syrah Resourcess analysis, data from Benchmark Minerals/Visual Capitalist (https://www.visualcapitalist.com/the-new-energy-era-the-lithium-ion-supply-chain/)





# Stages of anode material production from natural graphite

## Syrah is aiming to be the first major integrated ex-China producer of natural graphite active anode material



### Notes

- The mesh size refers to the number of openings in a one inch screen. A 100 mesh screen has 100 openings etc. Minus (-) and plus (+) signs refer to particle size with reference to a mesh size. For example, -100# means that all particles have passed through 100 mesh, +100# means all particles have been retained over 100 mesh
- The above is a simplified representation of the anode production stages from natural graphite. Anodes can also be produced from needle coke or coal tar pitch which are by-products of oil refining and coal coking process respectively



# China produces 100% global anode precursor

China manufactured precursor is used domestically and exported to Japan and South Kora to manufacture Active Anode Material (AAM)









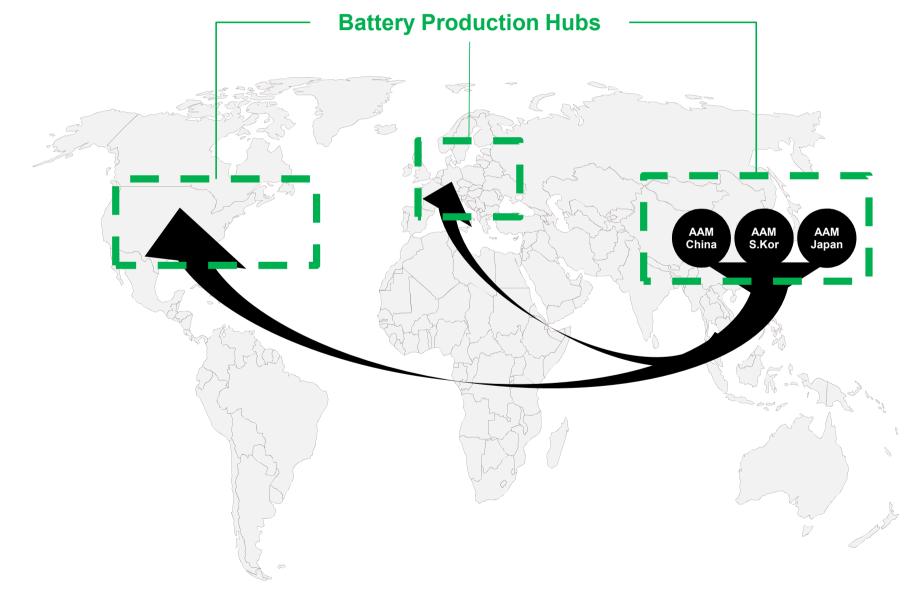
PURIFICATION



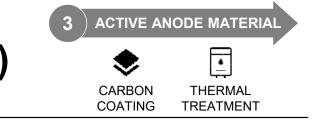


# Trade flows are reliant on Asia for Active Anode Material (AAM)

USA and European battery production supply chains are currently 100% reliant on supply of AAM from Asia



Source: Syrah Resources Internal Analysis

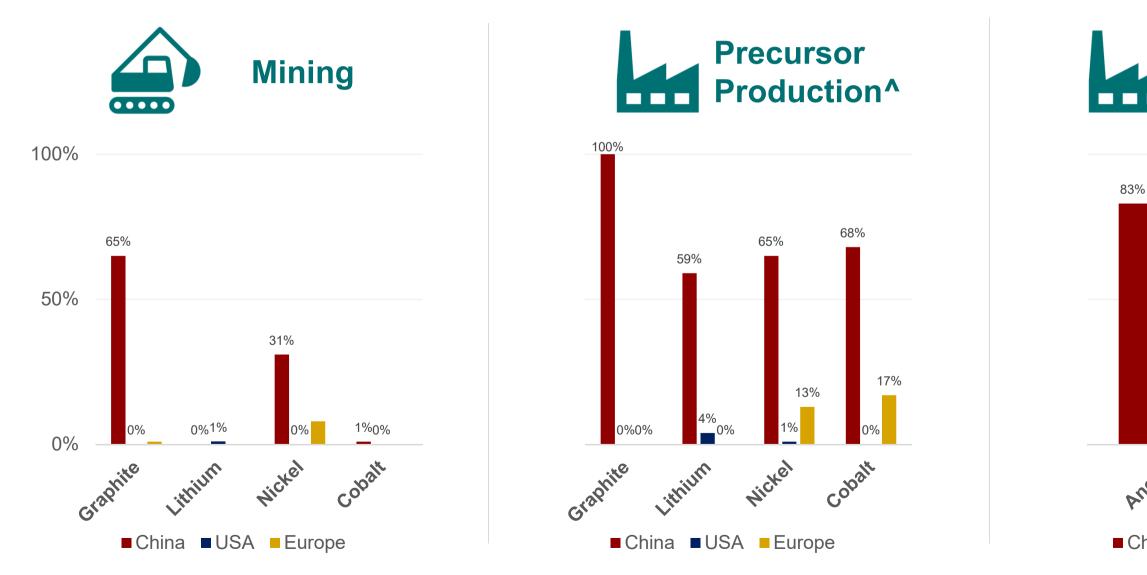




# Global battery supply chain overly exposed to China supply – EU and USA diversification important for independence and risk mitigation

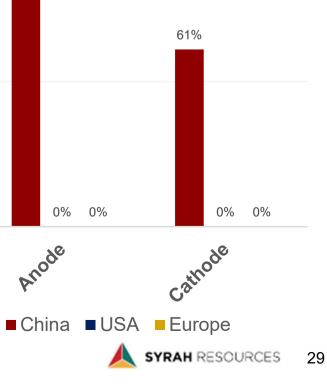
Syrah vertically integrated Vidalia facility plans to provide emerging USA battery cell manufacturers with a domestic source of anode material supply

Summary of current China, USA and Europe anode and cathode supply chain position



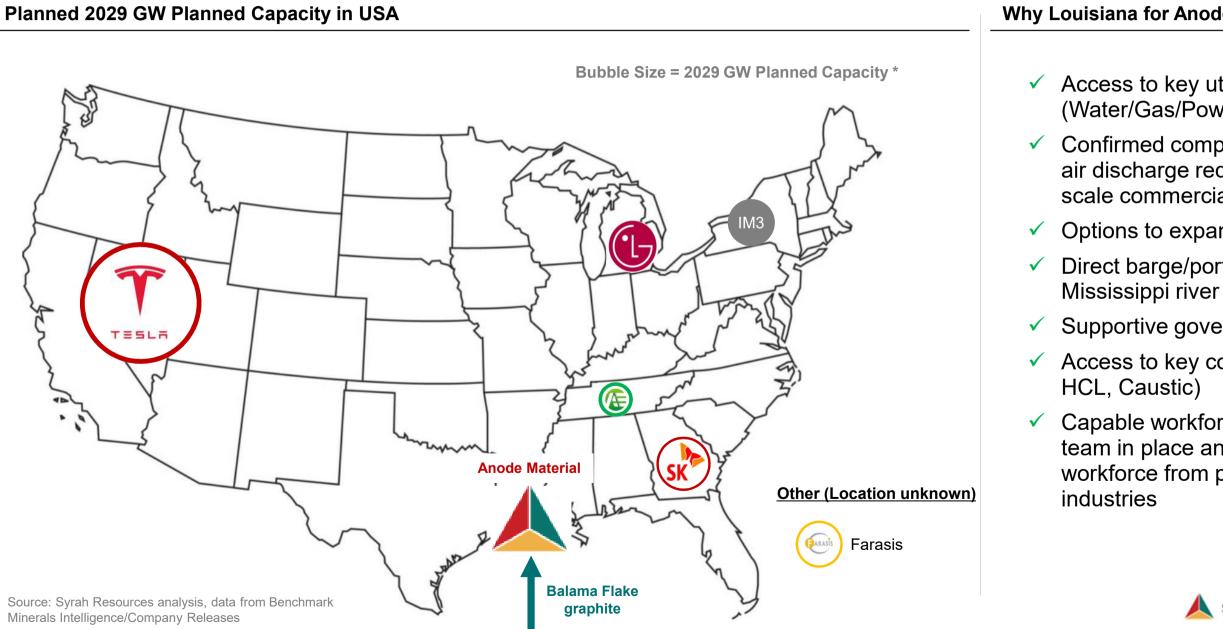
Source: Syrah Resources analysis, data from Benchmark Minerals Intelligence ^: Chemical processing or refining

# **Anode/Cathode Production**



# **Co-location with planned USA battery factories**

# Syrah plans to provide a co-located and ESG verifiable source of anode material supply to the USA battery supply chain



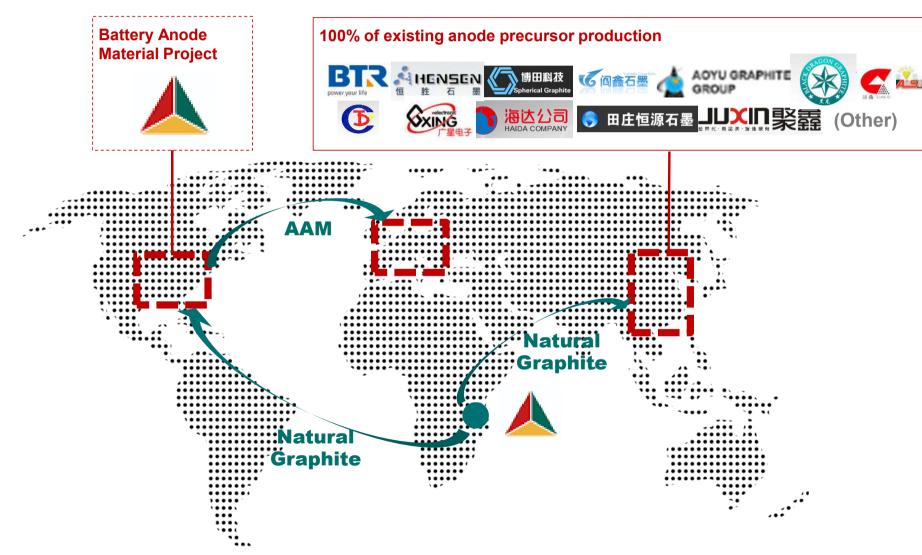
## Why Louisiana for Anode Material Production

- Access to key utilities (Water/Gas/Power)
- Confirmed compliance with water and air discharge requirement from large scale commercial facility
  - Options to expand facility size
  - Direct barge/port access to
  - Supportive government relations
- Access to key consumables (HF,
  - Capable workforce initial production team in place and proximity to skilled workforce from petrochemical



# Syrah an alternate supply proposition for battery supply chain participants

Syrah aims to provide a complementary and alternate supply proposition to existing domestic China supply to meet growing demand







# Governments recognise the strategic importance of battery raw materials



## The Central People's Government of the People's Republic of China<sup>1</sup>

"Accelerating the cultivation and development of energy-saving vehicles ... a strategic measure to accelerate the transformation and upgrading of the automobile industry, foster new economic growth points and international competitive advantages"



## European Commission, Brussels, 9.4.2019 COM (2019) 176 final

"Driven by the ongoing clean energy transition, demand for batteries is expected to grow very rapidly in the coming years, making this market an increasingly strategic one at global level"



## Office of Energy Efficiency & Renewable Energy<sup>2</sup>

"As we look to the opportunity of domestic battery manufacturing as this market grows, one challenge for the United States is that the United States is not a large producer of minerals such as lithium, manganese, cobalt, or graphite—all important components of today's lithium-ion batteries"

1. Source: Notice of the State Council on Printing and Distributing the Development Plan for Energy Saving and New Energy Vehicle Industry (2012-2020) Guofa [2012] No. 22

2. Source: https://www.energy.gov/eere/articles/advancing-us-battery-manufacturing-and-domestic-critical-minerals-supply-chains



# Government policy continue to be supportive of EV adoption

Regions	2025/2030 Targets	Policies	
★ ** **	25% EV penetration by 2025	<ul> <li>Direct subsidies for passenger vehicle and tax exemptions for manufacturers to</li> <li>Guangzhou and 3 other cities announces extended subsidy for 2020 EV sales<sup>2</sup>,</li> </ul>	
German policy only <sup>3</sup>	35% EV + PHEV penetration by 2030	<ul> <li>2020:         <ul> <li>4,000 EUR (4,348 USD) for EV</li> <li>3,000 EUR (3,262 USD) for PHEV</li> </ul> </li> <li>2021 till 2025:         <ul> <li>6,000 EUR for EV costing &lt; 40k EUR 50% Increase on 2020 subsidies</li> <li>5,000 EUR (5,441 USD) for EV costing ≥ 40k EUR 25% Increase on 20</li> <li>4,500 EUR (4,897 USD) for PHEV 50% Increase on 2020 subsidies</li> </ul> </li> <li>2030:         <ul> <li>1mn charging stations</li> </ul> </li> </ul>	
	(California) 15% EV penetration by 2025	<ul> <li>\$7,500 consumer tax break each for the first 200,000 vehicles an automaker sel every 6 months</li> </ul>	

<sup>1.</sup> Source: <u>https://www.spglobal.com/China extends subsidies</u>

2. Source: https://www.electrive.com/2020/03/17/four-chinese-cities-are-offering-their-very-own-ev-grants/

3. Source: Government websites

## to be **extended till 2022**<sup>1</sup> s<sup>2</sup>, in addition to national subsidies

es 2020 subsidies

sells. After which the tax credit halfs



# Chinese firms commit US\$26 billion to battery value chain investments<sup>1</sup>

Several examples of China public market capital raisings during Q1 2020 with use of proceeds for ongoing build-out of battery supply chains

Company	Capital Raise	Use of Proceeds
<b>ビビデモ にの に に に に に に に に に に に に に に に に に に</b>	2.5bn RMB (350mn USD) Private Placement	<ul> <li>150mn USD towards TWS earphone batterie</li> <li>42mn USD towards li-manganese batteries</li> <li>64mn USD towards capacity expansion and</li> <li>99mn USD towards working capital</li> </ul>
CATL	20bn RMB (2.8bn USD) Private Placement	<ul> <li>570mn USD towards Huxi plant expansion (</li> <li>780mn USD towards JV plant construction (</li> <li>420mn USD towards Sichuan plant construct</li> <li>280mn USD towards battery chemistry R&amp;D</li> <li>780mn USD towards working capital</li> </ul>
<i>Lithium</i> Werks <sup>™</sup>	10.4bn RMB (1.5bn USD) Direct Investment	<ul> <li>20GWh capacity li-ion battery project</li> <li>Construction begin in Jiashan, Zhejiang in M</li> </ul>
SEMCORP POWER YOUR FUTURE	5bn RMB (710mn USD) Private Placement	<ul> <li>210mn USD towards Jiangxi separator plant</li> <li>280mn USD towards Wuxi new material plant</li> <li>210mn USDn towards working capital</li> </ul>

1: Gaogong Industry research Institute (GGII) https://www.gg-lb.com/art-40275.html

eries es to be used for TPMS nd R&D

(16GWh) (24GWh) uction (12GWh)

March

ant expansion lant expansion



# Battery supply chain investment ex-China ongoing

Significant commitments to build-out of battery supply chains in Europe and USA during Q1 2020

GROUPE	5bn EUR (5.44bn USD) investment into 64GWh of battery capacity by PSA
**** **** ***	3.2bn EUR (3.53bn USD) for battery tech R&D approved by European Com
<u>GM</u>	2.2bn USD investment for Detroit factory over 4 years to make electric truck
SAMSUNG SDI	917mn EUR (994mn USD) investment into Hungary Gigafactory by 2030.
<b>C</b> LG Chem	480mn EUR (520mn USD) loan to expand Polish battery plant. Est. overall o
īnoBat	100mn EUR (108.6mn USD) from Slovakian government for first phase of a
VOLVO	Begin production of their first pure electric car (XC40 Recharge) at 5000m <sup>2</sup> I

# and SAFT.

nmission.

ks, SUVs.

# cost at 1.5bn EUR.

a 10GWh Gigafactory.

Belgian plant.



# **COVID 19 caused global supply chain shutdowns**

## First China then US and Europe, shutdowns highlight the importance of diversification in creating resilient supply chains



## China OEMs now back online



Major battery makers also impacted



1. Source: KPMG, <u>https://home.kpmg/xx/en/blogs/home/posts/2020/03/covid-19-impact-on-the-automotive-sector.html</u>

2. Source: https://www.electrive.com/2020/02/10/lack-of-batteries-hinders-mercedes-and-halts-i-pace-production-at-jagauar/

3. Source: Survey by China Industrial Association of Power Sources (CIAPS)

 Initial China supply shutdowns impacted entire supply chain as 80%+ of world's auto supply chain is connected to China<sup>1</sup>. Jaguar, Audi, and Mercedes paused EV production as early as Feb due to LG Chem battery bottleneck<sup>2</sup>.

Comments

returned<sup>3</sup>.

raw materials.

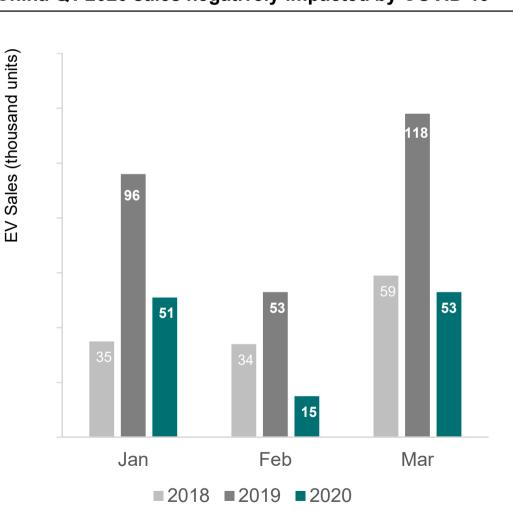
• By mid March 36.59% of Chinese EV value chain had fully returned to operations, 56.1% partially and 7.32% not yet

 As China returned to work from COVID 19 related lockdowns the rest of world initiated lockdowns to manage the spread of the virus, negatively impacting global end user demand for battery

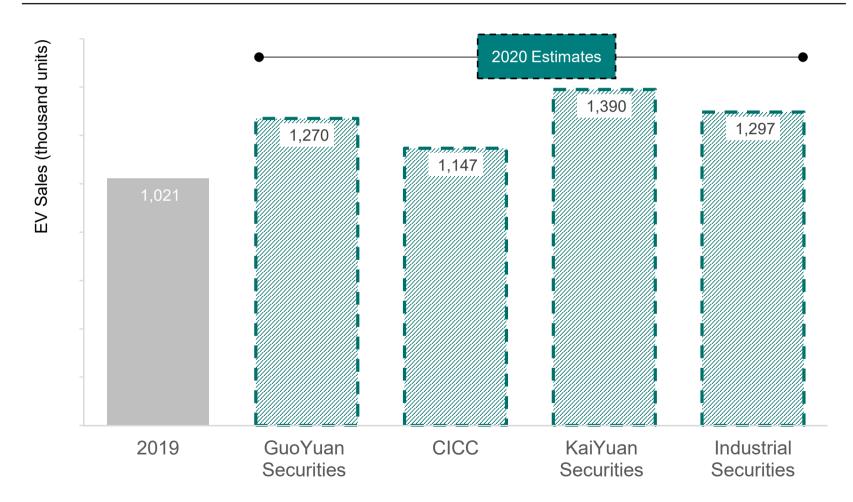


# China EV sales summary: Q1 2020 actuals and FY2020 forecasts

## China Q1 2020 EV sales significantly impacted by COVID 19. Many analysts currently forecasting a catch-up in sales through 2020



# China Q1 2020 sales negatively impacted by COVID 19



Source 2019 Actual: GGII

Source Forecasts: GuoYuan Securities 2 April 2020, CICC 26 March 2020, KaiYuan Securities 1 April 2020, Industrial Securities 13 April 2020 ^: passenger BEV and PHEV only

Source (all except March 2020): Data from EV Sales Source (just March 2020): Data from CAAM,

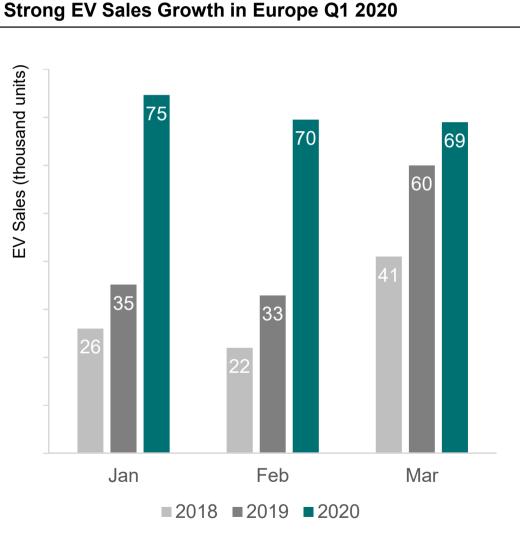


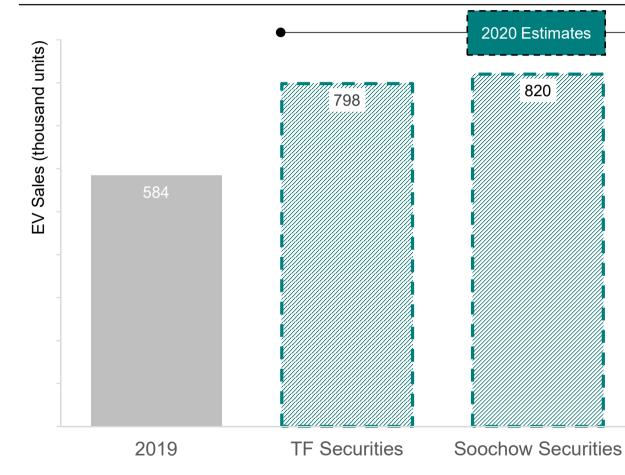
## Full year Passenger EV<sup>^</sup> sales growth in China expected to average 25.0% YoY

SYRAH RESOURCES 37

# Europe EV sales summary: Q1 2020 actuals and FY2020 forecasts

## Europe EV sales growth in Q1 2020 pre COVID 19 impacts. Full year uncertain, some analysts maintaining YoY growth for full year





## Potential for full year EV sales growth in Europe remains, although uncertainty exists

Source (all except March 2020): Data from EV Sales Source (just March 2020): Data from Marklines

Source 2019 Actual: SNE

Source Forecasts: TF Securities 18 March 2020, Soochow Securities 6 April 2020, Western Securities 7 April 2020



# 800

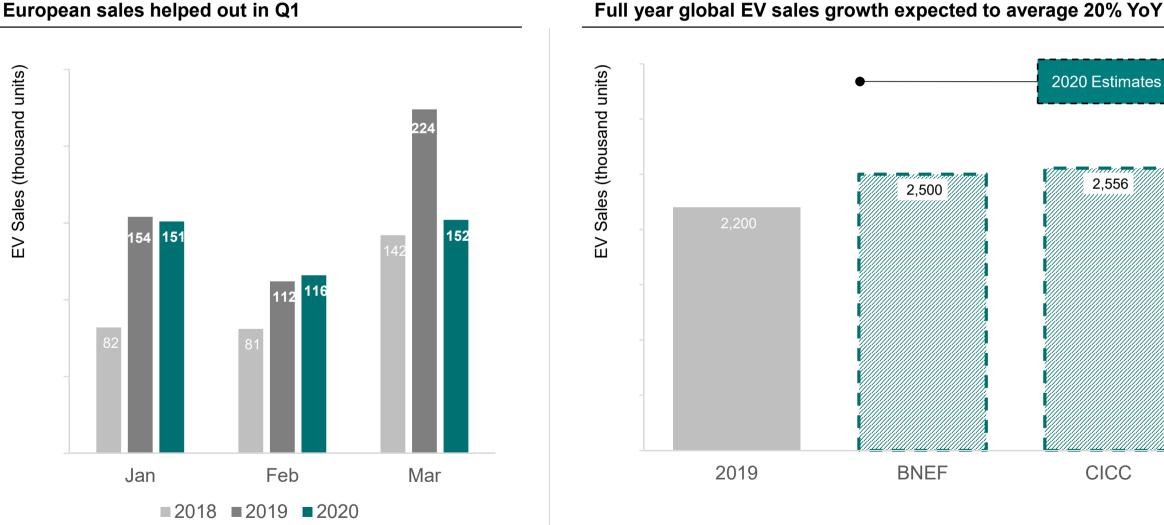
## Western Securities



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# Global EV sales summary: Q1 2020 actuals and FY2020 forecasts

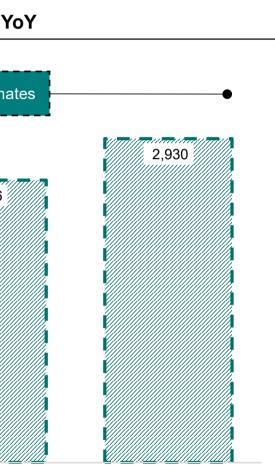
## Some analysts maintaining YoY EV sales growth for 2020



Full year global EV sales growth expected to average 20% YoY

Source (all except March 2020): Data from EV Sales Source (just March 2020): Syrah Resources estimate Source 2019 Actual: GGII

Source Forecasts: BNEF 16 January 2020, CICC 26 March 2020, HuaTai Securities 17 March 2020

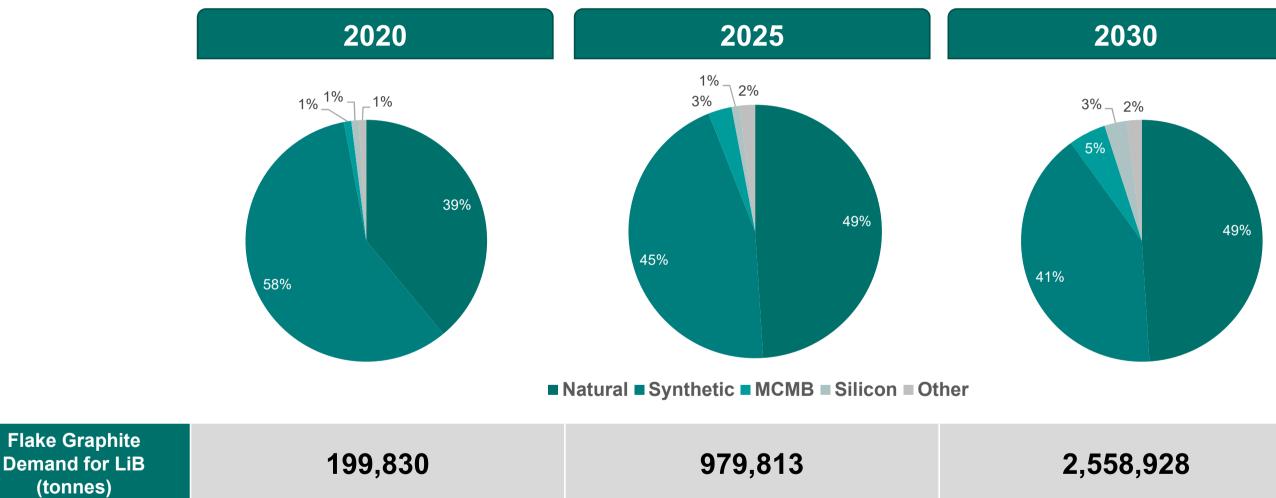


HuaTai Securities



# **Anode Evolution**

## Significant expected long term growth in natural graphite driven by Electric Vehicles and an increasing share of the anode mix

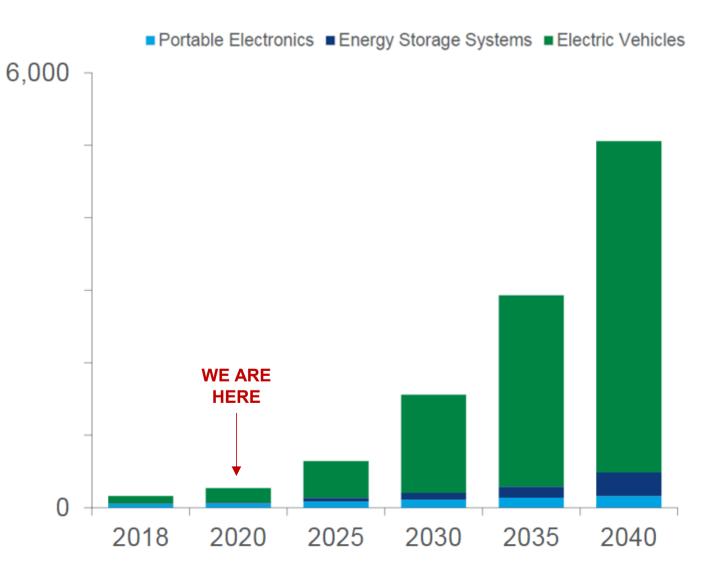




# Long term of growth in EVs remains intact, COVID 19 a near term challenge

## Decarbonisation of the transport sector, via battery powered EV remains ongoing – near term growth will be impacted by COVID 19

## Long Term global battery sector demand (GWh)



## **Comments**

- Natural graphite is a key component of lithium-ion batteries used in electric vehicles and energy storage, both rapidly growing markets
- Near term uncertainty exists due to supply and demand impacts of COVID 19
- Medium to longer term, the trend of decarbonisation of the transport sector, via battery powered EV remains intact - EV adoption remains in it's early stages of growth
- Significantly more battery raw materials is expected to be required to meet long term end user demand from EVs
- COVID 19 has heightened the awareness of the strategic importance of battery supply chains and the current reliance on China
- Syrah aims to provide a complementary and alternate supply proposition to existing domestic China supply to meet growing demand
- The long mine life and high grade of deposit at Syrah's Balama Graphite Operation allows enables Syrah to take a long term view in participating downstream in the battery supply chain

Source: Wood Mackenzie (January 2020)

