



# Q1 2021 Quarterly Activities Report

21 April 2021

Shaun Verner – Managing Director & CEO



**SYRAH** RESOURCES

# Important notice and disclaimer

This presentation is for information purposes only. Neither this presentation nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction. This presentation may not be distributed in any jurisdiction except in accordance with the legal requirements applicable in such jurisdiction. Recipients should inform themselves of the restrictions that apply in their own jurisdiction. A failure to do so may result in a violation of securities laws in such jurisdiction. This presentation does not constitute financial product advice and has been prepared without taking into account the recipient's investment objectives, financial circumstances or particular needs and the opinions and recommendations in this presentation are not intended to represent recommendations of particular investments to particular persons. Recipients should seek professional advice when deciding if an investment is appropriate. All securities transactions involve risks, which include (among others) the risk of adverse or unanticipated market, financial or political developments.

Certain statements contained in this presentation, including information as to the future financial or operating performance of Syrah Resources Limited (Syrah Resources) and its projects, are forward-looking statements. Such forward-looking statements: are necessarily based upon a number of estimates and assumptions that, whilst considered reasonable by Syrah Resources, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies; involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward-looking statements; and may include, among other things, Statements regarding targets, estimates and assumptions in respect of metal production and prices, operating costs and results, capital expenditures, ore reserves and mineral resources and anticipated grades and recovery rates, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions. Syrah Resources disclaims any intent or obligation to update publicly any forward looking statements, whether as a result of new information, future events or results or otherwise. The words “believe”, “expect”, “anticipate”, “indicate”, “contemplate”, “target”, “plan”, “intends”, “continue”, “budget”, “estimate”, “may”, “will”, “schedule” and other similar expressions identify forward-looking statements. All forward-looking statements made in this presentation are qualified by the foregoing cautionary statements. Investors are cautioned that forward-looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

Syrah Resources has prepared this presentation based on information available to it at the time of preparation. No representation or warranty, express or implied, is made as to the fairness, accuracy or completeness of the information, opinions and conclusions contained in the presentation. To the maximum extent permitted by law, Syrah Resources, its related bodies corporate (as that term is defined in the *Corporations Act 2001 (Cth)*) and the officers, directors, employees, advisers and agents of those entities do not accept any responsibility or liability including, without limitation, any liability arising from fault or negligence on the part of any person, for any loss arising from the use of the Presentation Materials or its contents or otherwise arising in connection with it.

## Investor Relations

Viren Hira

T: +61 3 9670 7264

E: [v.hira@syrahresources.com.au](mailto:v.hira@syrahresources.com.au)

## Media Enquiries

### NWR Communications

Nathan Ryan

T: 0420 582 887

E: [nathan.ryan@nwrcommunications.com.au](mailto:nathan.ryan@nwrcommunications.com.au)

## Syrah Contact Information

Level 28, 360 Collins Street

Melbourne, Victoria 3000

T: +61 3 9670 7264

E: [enquiries@syrahresources.com.au](mailto:enquiries@syrahresources.com.au)

W: [www.syrahresources.com.au](http://www.syrahresources.com.au)

# Syrah's Value Proposition



## Electric Vehicles require graphite

- Electric Vehicle ("EV") adoption is gaining momentum
- Anodes in lithium-ion batteries used in EVs are made of graphite



## Graphite is a strategic critical mineral

- Global anode supply chain is currently 100% reliant on China
- Graphite is designated as a strategic critical mineral in USA, EU, Japan & Australia



## Balama Graphite Operation: A Tier 1 asset

- Long life (>50 years<sup>1</sup>) and high grade (16% TGC<sup>2</sup>)
- Largest integrated natural graphite mine and processing operation globally
- Significant vanadium resource at Balama is a valuable option<sup>3</sup>



## Vertical Integration in USA

- Balama to be vertically integrated with AAM<sup>4</sup> facility at Vidalia, USA
- Large scale ex-Asia AAM supply option that is ESG verifiable

Syrah's vision is to be the world's leading supplier of superior quality graphite products, working closely with customers and the supply chain to add value in battery and industrial markets

1. Life of mine based on current 108Mt Graphite Ore Reserves being depleted at 2Mt throughput per annum. Refer to 2020 Annual Report released to ASX 29 March 2021 for Reserve as at 31 December 2020. All material assumptions underpinning the Reserves and Resource statement in this announcement continue to apply, other than as updated in subsequent ASX releases.

2. TGC = Total Graphitic Carbon.

3. Scoping study on potential to refine vanadium as per ASX release 30 July 2014.

4. AAM = Active Anode Material.

# Syrah's positive ESG profile



## Leading health and safety standards

- ✓ ISO:45001 and ISO:14001 certification at Balama
- ✓ Vidalia being developed to ISO operating standards



## Best practice sustainability frameworks

Sustainability frameworks guided by:

- ✓ Global Reporting Initiative (GRI)
- ✓ United Nations Sustainable Development Goals
- ✓ ICMM 10 Principles for Sustainable Development



## Low carbon footprint

- ✓ Lower carbon footprint (Life Cycle) of natural versus synthetic graphite<sup>1</sup>
- ✓ Implementing initiatives to lower carbon footprint further



## Auditable back to source

- ✓ Fully integrated by Syrah from mine to customer
- ✓ Anode material from Vidalia will have a single chain of custody back to the source

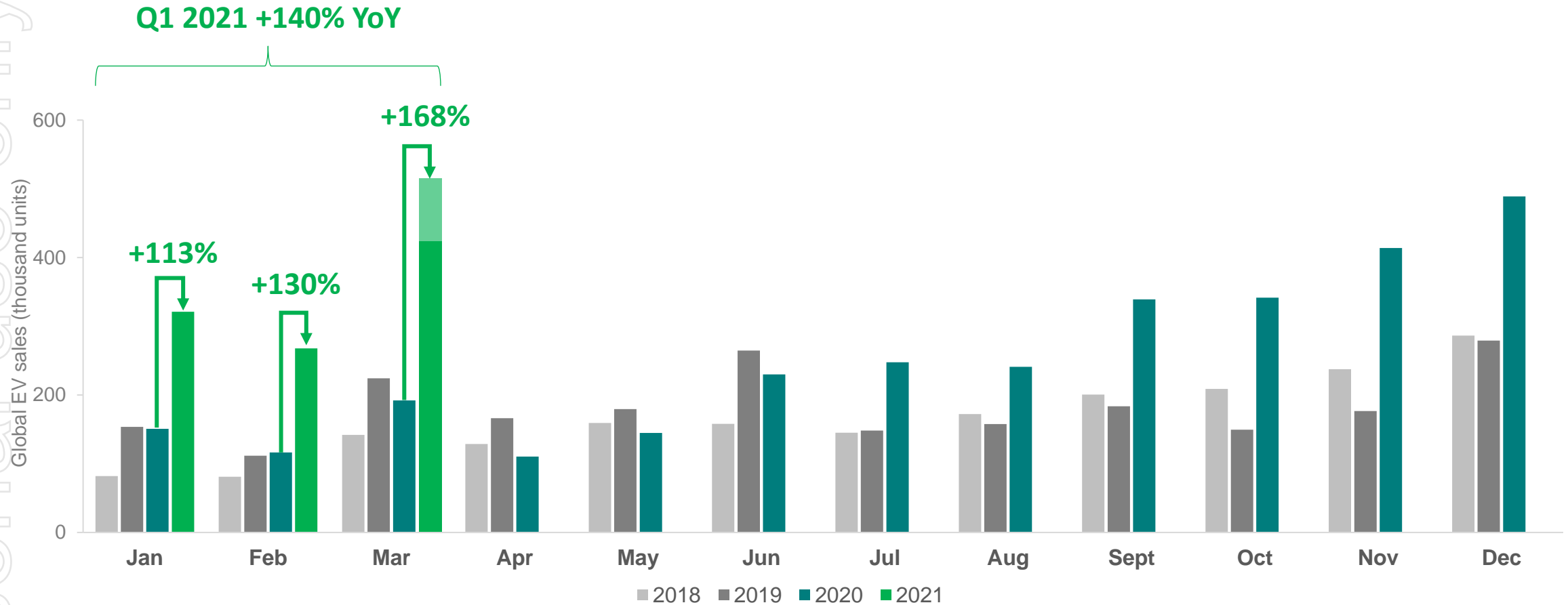
1. Benchmark Minerals Intelligence.

# Q1 2021: Highlights

Health and Safety	<ul style="list-style-type: none"> <li>Balama quarter end Total Recordable Injury Frequency Rate (“TRIFR”) was 0.0</li> <li>Ongoing focus on compliance with Government directives and Syrah’s COVID-19 protocols</li> </ul>
Market	<ul style="list-style-type: none"> <li>Strong level of EV sales continued during the quarter, with 140%<sup>1</sup> growth in Q1 2021, versus Q1 2020, to over 1.1 million units</li> </ul>
Balama Graphite Operation	<ul style="list-style-type: none"> <li>Ramp-up progressing according to plan with positive grade and recoveries</li> <li>Balama production recommenced ahead of schedule – 5kt produced and 2kt of prior sales shipped from product inventory in the quarter</li> <li>Increasing plant utilisation and production volumes as labour contingent reinstated</li> <li>Completed transfer of quota for 5% Mozambique Government in Balama in accordance with the Mining Agreement<sup>2</sup></li> </ul>
Vidalia AAM Project	<ul style="list-style-type: none"> <li>Furnace installed and commissioned – fully integrated commercial scale AAM facility enables further delivery of on-specification AAM to potential customers for qualification</li> <li>Product qualification ongoing with multiple potential customers</li> <li>Completed FEED and transitioned to initial Detailed Design for expansion of production capacity to 10ktpa</li> </ul>
Corporate	<ul style="list-style-type: none"> <li>Share Purchase Plan closed significantly oversubscribed, raising A\$18 million<sup>3</sup></li> <li>Elected not to issue Series 2 Convertible Note<sup>4</sup>. Option retained to issue Series 3 Convertible Note for A\$28 million (US\$22 million) before 30 June 2021<sup>5</sup></li> <li>Quarter end cash balance of US\$78 million</li> </ul>

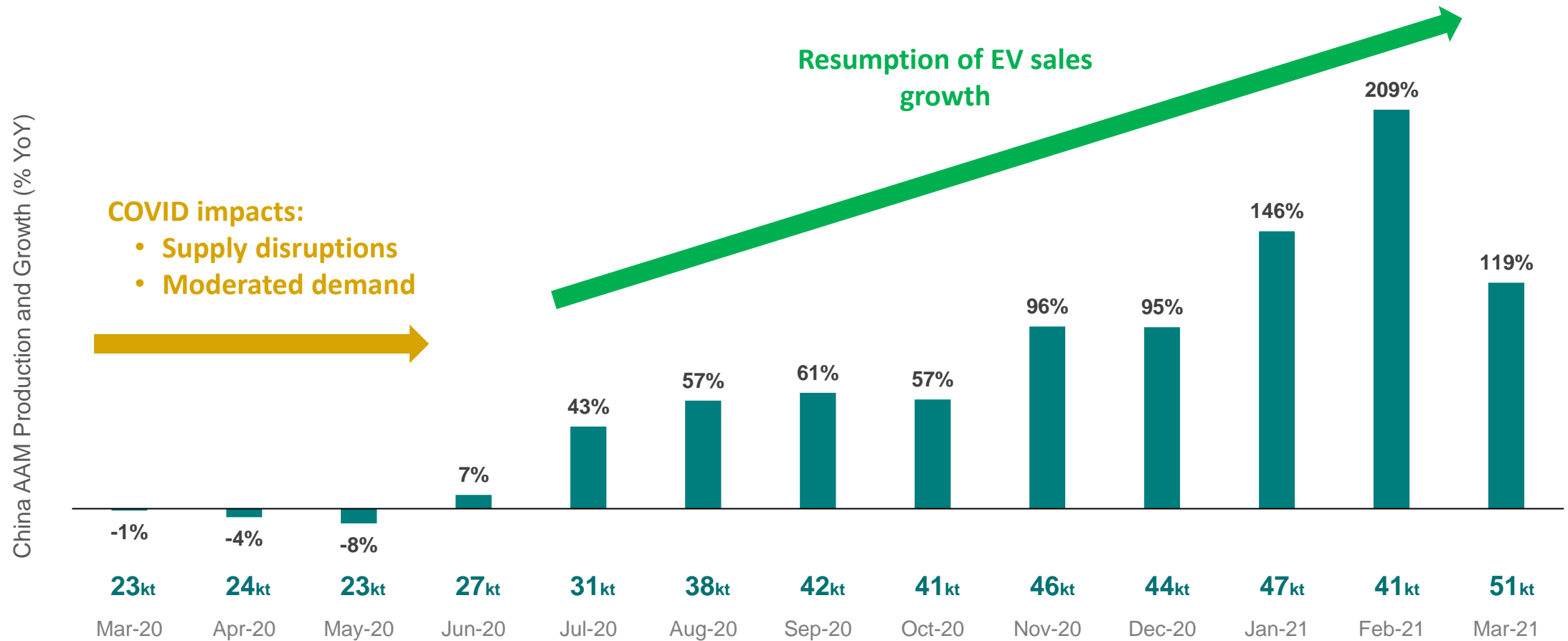
1. Based on data from EV Sales (<http://ev-sales.blogspot.com>) for January 2021 and February 2021, data for actual EV sales for China / top 10 Euro countries for March 2021 and Syrah estimates for the rest of the world for March 2021.
2. Refer ASX release 27 September 2018.
3. Refer ASX release 25 January 2021.
4. Refer ASX release 30 March 2021.
5. Subject to approval of Syrah’s ordinary shareholders if issued after 25 May 2021. Syrah proposes to seek such approval at its Annual General Meeting on Friday, 21 May 2021. A\$ converted into US\$ based on the USD/AUD exchange rate of 0.78 as of 20 April 2021.

# Increased natural graphite demand from EV sales growth supports Balama restart



Source: All data except March 2021 from EV Sales (<http://ev-sales.blogspot.com/>). March 2021 data based on actual EV sales for China / top 10 Euro countries and Syrah's estimate for EV sales in the rest of the world (shown in lighter shade).

# Strong growth in AAM production volumes



Source: ICCSino.



# Q1 2021: Balama Graphite Operation

- Production recommenced at Balama in March 2021 ahead of schedule<sup>1</sup> with restart decision guided by:
  - Easing of COVID-19 restrictions
  - Strengthening natural graphite market conditions
  - New enquiries and commitments from established customers
- Product quality (mix and grade) and plant recovery progressing according to the ramp-up plan
- Produced ~4.7kt and shipped ~2.3kt of prior sales from product inventory to established customers
- Using campaign plant operations to build product inventory while labour contingent and logistics capacity is restored
- Increasing plant utilisation and production volumes as labour contingent reinstated and considering market demand
- Restructure implemented during 2020 temporary production suspension targeting yield unit cost reduction as operations ramp-up<sup>2</sup>
- Completed transfer of quota for 5% Mozambique Government in Balama in accordance with the Mining Agreement<sup>3</sup>
- Significant vanadium resource is a valuable option<sup>4</sup>

1. Refer ASX release 16 March 2021.  
2. Refer ASX release 23 July 2020.  
3. Refer ASX release 27 September 2018.  
4. Refer ASX release 30 July 2014.





# Balama is the largest integrated natural graphite mining/processing operation globally with project capital fully invested

## Asset Overview

Location	Southern Cabo Delgado Province, Mozambique
Reserve & Resource <sup>1</sup>	108Mt (16% TGC) Graphite Ore Reserve 1,422Mt (10% TGC) Graphite Mineral Resource
Life of Mine <sup>2</sup>	~50 years
Mining	Simple open pit mining, low strip ratio
Processing	Conventional – includes crushing, grinding, flotation, filtration, drying, screening and bagging
Plant Capacity	2Mtpa ore throughput yielding ~350ktpa; 274kt produced since 2018
Product	94% to 98% fixed carbon graphite concentrate
C1 Cost <sup>3</sup>	Forecast US\$430-460/t at ~50% capacity Forecast ~US\$330/t at full capacity

## Key Dates

Mar 2021	<b>Production recommenced at Balama</b>
Mar 2020	Temporary suspension of production at Balama
Sep 2019	In response to drop in flake graphite prices, production moderated
Mar 2019	Graphite Mineral Resources and Ore Reserves updated
Jan 2019	Commercial production declared, with quarterly production of 33kt
Dec 2018	Balama produced >100kt in 2018
Sep 2018	Mining Agreement finalised with Government of Mozambique
Jan 2018	Balama transitions to operations, global sales commenced
Nov 2017	First production of natural graphite
Jul 2016	Balama process plant construction commenced
May 2015	Feasibility study completed

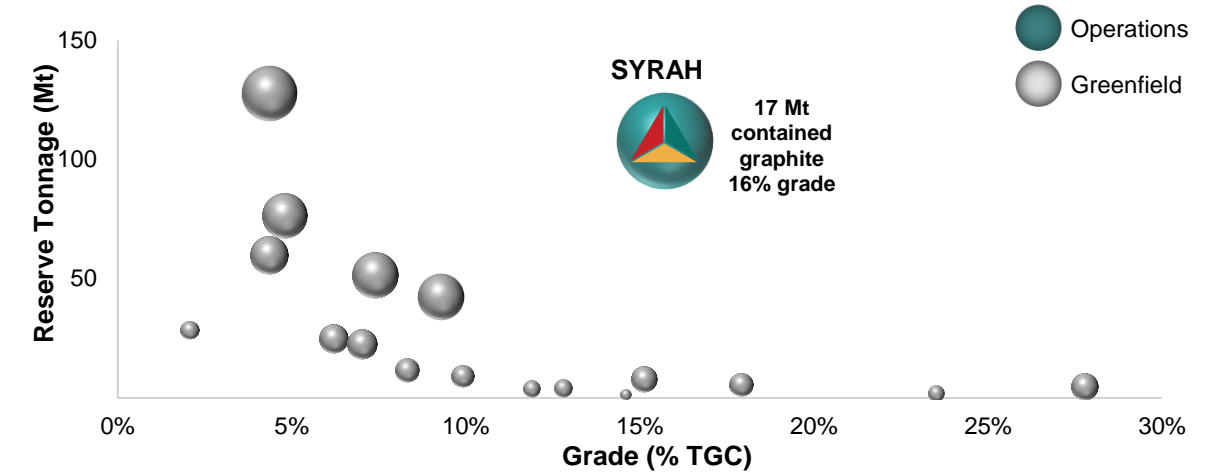
1. As at 31 December 2020.

2. Life of Mine based on Ore Reserves being depleted at 2Mt per annum of mill throughput.

3. Cash operating cost Free on Board (FOB) Nacala, excluding government royalties and taxes. ~50% of C1 costs are fixed at ~50% capacity utilisation.

4. Source: Company filings; Notes: Selected ASX/TSX-listed graphite projects with declared Reserves only and excludes Chinese producers. Bubble size reflects contained graphite content.

## Ex-China Natural Graphite Reserves<sup>4</sup>



## Balama Graphite Operation



# Q1 2021: Vidalia AAM Project

## Operations and Production

- Furnace commissioned to complete fully integrated commercial scale AAM facility at Vidalia<sup>1</sup>
- On-specification AAM to be produced from furnace and dispatched to potential customers from Q2 for ongoing product qualification processes
- Progressing optimisation work on milling lines and purification plant

## Customer Engagement and Product Qualification

- Engaged extensively with potential battery manufacturer and OEM customers on product qualification with positive feedback on quality and performance received to date
- Half-cell testing of toll treated AAM confirmed electrochemical performance consistent with or superior to benchmark AAM
- Commencing full-cell testing of toll treated AAM in Q2

## Expansion Project

- Completed FEED and transitioned to initial Detailed Design for 10ktpa expansion of production capacity
- Preferred construction contractor and contracting model to be selected in Q2
- Final Investment Decision planned for H2 2021, subject to customer commitments and strategic / financial partnerships

<sup>1</sup>. Refer ASX release 22 March 2021.





# Q1 2021: Vidalia AAM Project

## Construction Funding

- Progressing evaluation of potential strategic and financial partnership options, including customer commitments and funding for construction
- Greenhill & Co appointed as financial advisor to assist in this process

## Product Development

- R&D program for future product performance and cost
- Participating with the FBICRC in the Super Anode Project<sup>1</sup> targeting more efficient production processes for anode precursor material and higher energy density anodes

## Market

- Continuing Government / private sector recognition of the strategic importance of a USA battery raw materials supply chain
- American Jobs Plan US\$174bn investment allocation towards inducing USA EV market
- LG Energy and SK Innovation ITC settlement stabilises USA battery supply chain growth path

1. The Super Anode Project is led by the University of Melbourne, with other participants including the Queensland University of Technology, CSIRO, Syrah, AnteoTech Ltd, Calix Limited, EcoGraf Limited, Minerals Research Institute of Western Australia, and Talga Group Ltd.



# Vidalia expansion is de-risking

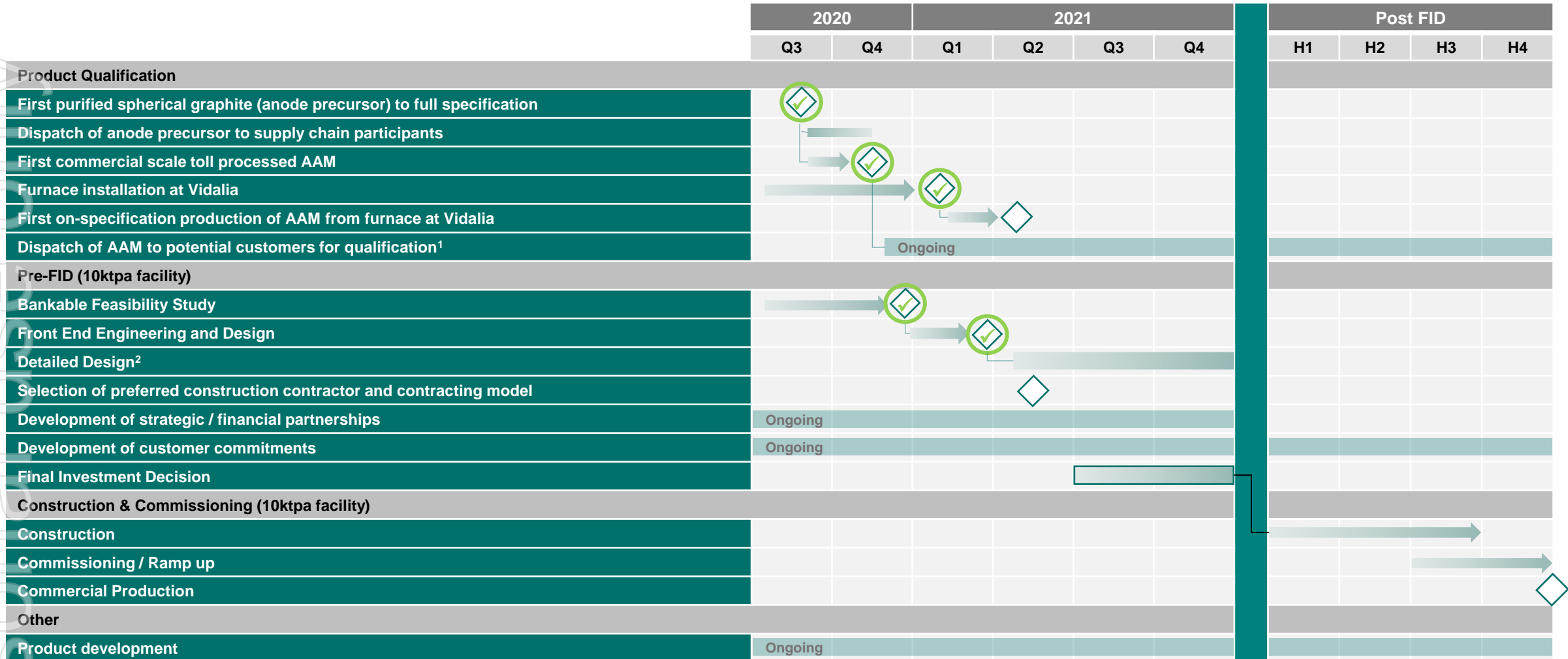
Date	De-risking Milestones
Mar 2021	✓ Transition to initial Detailed Design for 10ktpa AAM facility at Vidalia
Mar 2021	✓ Installation and commissioning of furnace at Vidalia
Dec 2020	BFS confirms robust economics for large scale AAM production at Vidalia
Nov 2020	Dispatched AAM (toll treated) for product qualification by customers
Oct 2020	First production of AAM (toll treated) using anode precursor from Vidalia
Jul 2020	First production of purified spherical graphite to battery specification from Vidalia
Dec 2018	First production of unpurified spherical graphite at Vidalia
Sep 2018	Phase 1 study completed for large scale AAM production at Vidalia
Aug 2018	Vidalia site purchase completed
Mar 2018	Benchmarking of AAM produced from Balama graphite completed
Nov 2016	Syrah announces plans to establish commercial scale facility in Louisiana
Apr 2016	Pilot test work program initiated in China (milling and purification)

Q1 2021  
Milestones  
Achieved





# Progressing to become an integrated natural graphite AAM producer



1. Evaluation by potential customers is an iterative process of product quality and performance assurance. Production of AAM samples will be ongoing post initial production volumes to support this process.
2. Project development pathway beyond detailed design to be informed by strategic/financial partnerships and end customer commitments.



# BFS confirms attractive margins at current AAM prices

## BFS key outcomes

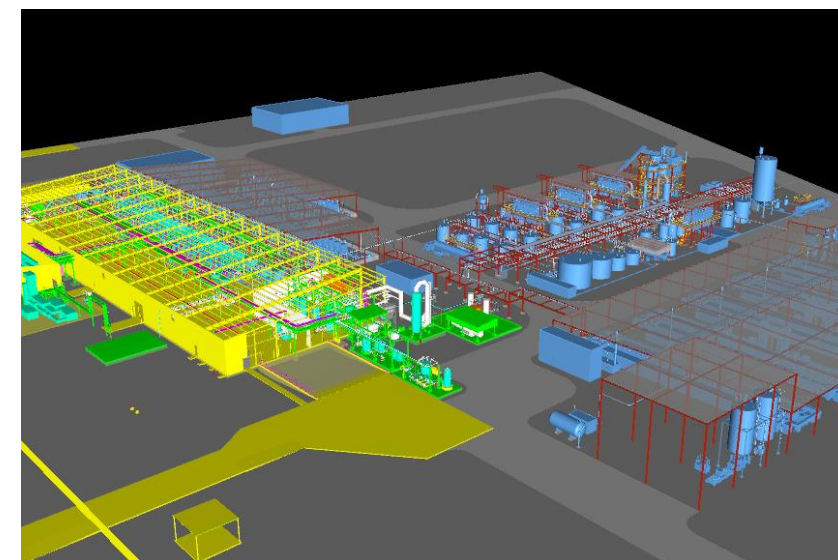
Metric	Units	10ktpa Facility	40 ktpa Facility
Annual processed graphite	ktpa	18	73
AAM production	ktpa	10	40
By-product production	ktpa	8	33
By-product price	US\$/t	250	250
Capital cost estimate <sup>(1)(2)</sup>	US\$m	138	477
Operating cost estimate (all-in) <sup>(2)(3)</sup>	US\$/t AAM	3,149	2,704

## Operating cost – US\$/t AAM

Observable natural graphite spot AAM price<sup>4</sup>:  
US\$5,479/t



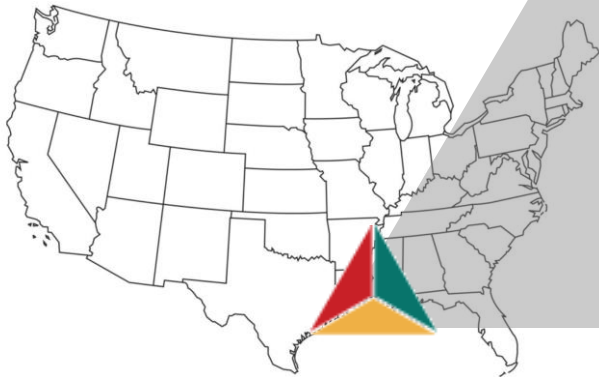
## 3D BFS model (10ktpa facility)



1. Exclusive of: owners' costs associated with the expansion to 10ktpa, estimated at approx. US\$4m to first production for 10ktpa facility; working capital; and, ongoing cost associated with product qualification and technical product development activities.
2. Capital and operating cost estimates to accuracy of ±15% and ±30% for 10ktpa and 40ktpa, respectively.
3. The operating cost is an estimate delivered all-in cost. The operating cost estimates assume natural graphite cost of US\$400/t (FOB Nacala), which reflects an approximate all-in cost of production at Balama at full plant utilisation. All-in cost of Balama production (FOB Nacala) is an approximation based on next 30 years of the mine plan at Balama and full utilisation of the processing plant at design capacity.
4. Price is the midpoint of "domestic/mid-range" natural graphite anode material price reported by China Industrial Association of Power Sources as of 30 March 2021 - <http://www.ciaps.org.cn/>. Prices converted at 6.57 USDCNY as of 31 March 2021.

# Vidalia is well located for large-scale AAM production

- ✓ Proximity to potential customers
- ✓ Access to key utilities
- ✓ Options to expand facility size
- ✓ Direct barge/port access to Mississippi river
- ✓ Supportive government relations
- ✓ Access to key consumables (HF, HCL, Caustic)
- ✓ Capable workforce



Images clockwise from left: Overview of Syrah's Vidalia property and surrounds; Syrah's Vidalia facility Northeast looking southwest; Syrah's Vidalia facility south looking north

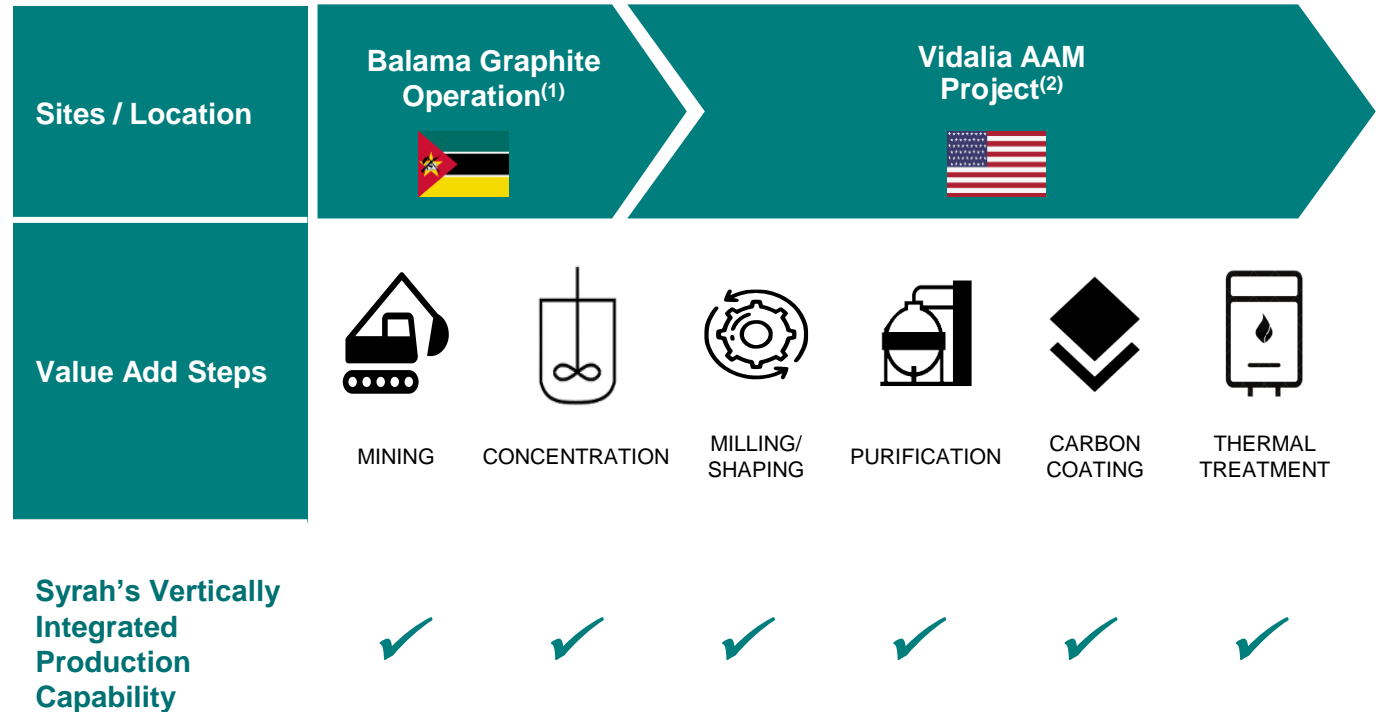
# Vertical integration through to AAM in USA will be a key differentiator for Syrah as the market matures

## Benefits of vertical integration to Syrah:

- Margin capture / cost protection
- Attractive financial returns
- Enhanced channel to market and customer diversity

## Benefits of vertical integration to battery makers / auto OEMs:

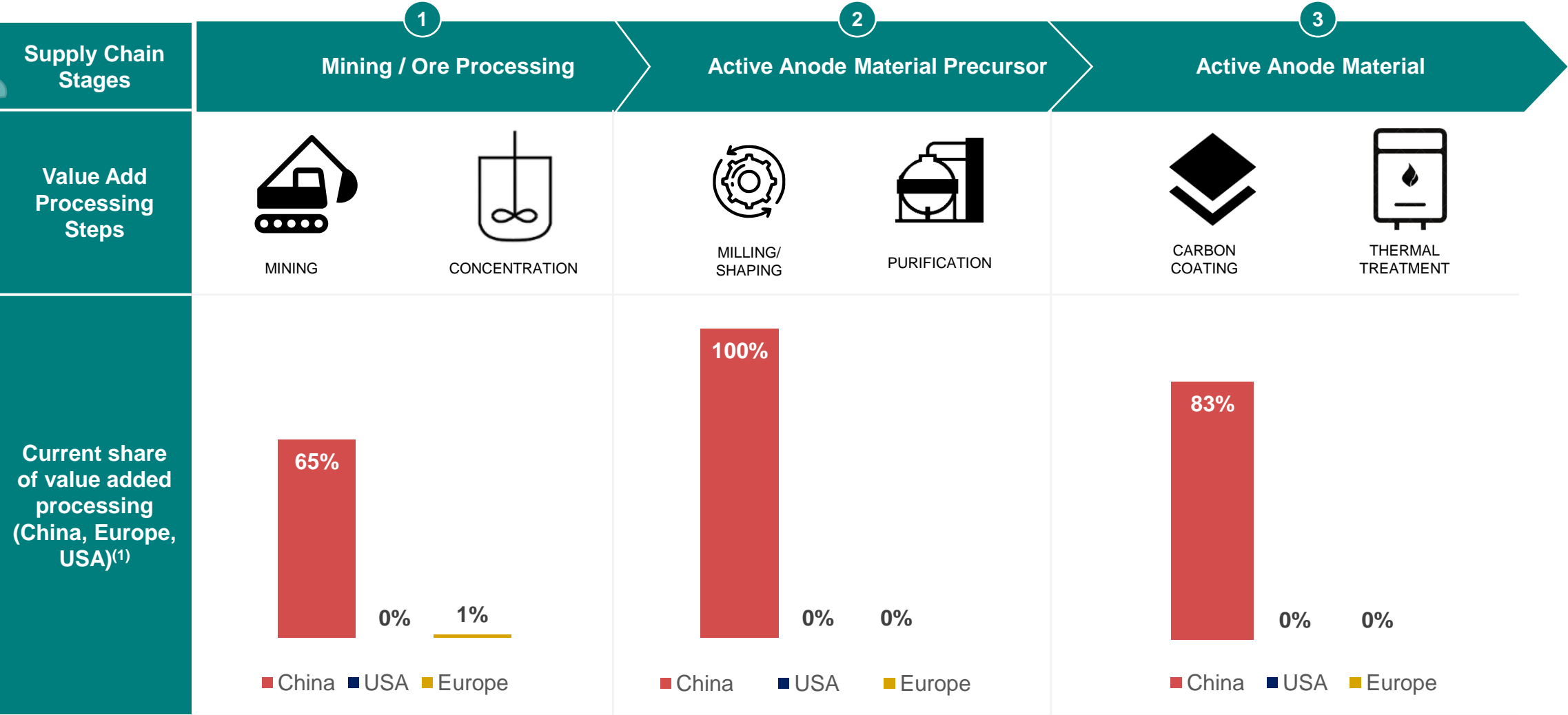
- Security of supply
- Optimisation of supply chain management
- Single chain of custody / full ESG auditability



1. Balama has capacity to produce 350ktpa natural graphite. Syrah has the option to use 3rd party natural graphite concentrate for toll feed at Vidalia subject to feed being appropriately qualified.

2. With the installation of the furnace, Vidalia has capacity to produce AAM on-site for ongoing product qualification. Bankable Feasibility Study (ASX release dated 1 December 2020) assessed options to expand the AAM facility to 10ktpa and 40ktpa AAM production capability.

# USA and Europe are significantly underinvested in anode capacity



1. Syrah Resources analysis, data from Benchmark Minerals Intelligence.

# Vertically integrated anode production, co-located with planned USA battery factories

## Planned 2030 GW Planned Capacity in USA



## Battery capacity in USA

Company	Size (GWh)	Location	Status / Start
Panasonic (PENA)	35	NV	Operating
Tesla	10	CA	Pilot / Operating
LG	5	MI	Operating
AESC Envision	3	TN	Operating
Tesla	100	TX	Under construction / 2022
GM / LG (Ultium Cells 1)	35	OH	Under construction / 2022
GM / LG (Ultium Cells 2)	TBC	TN	Planning / TBC
SKI	10 + 12	GA	Under construction / 2022
LG (Green Field Project)	2 x 35	TBC	Planning / From 2025
Farasis	8-16	TN / AL	Planning / 2023-4

- Battery manufacturers/OEMs are constructing and have committed to significant new capacity in North America – North American capacity is forecast to grow to ~145GWh by 2024 and ~375GWh by 2030
- 10kt AAM capacity at Vidalia equates to 10-15% of total natural graphite AAM required to support forecast 2024 North American capacity



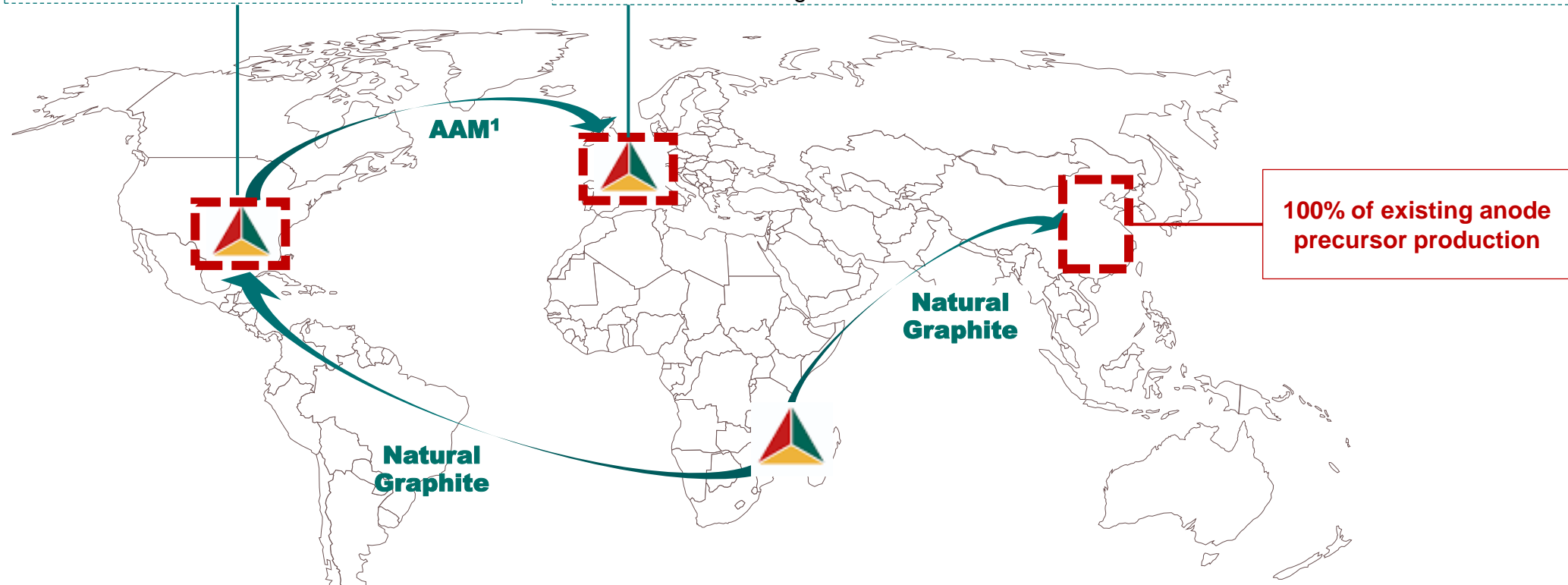
# Syrah is a near term AAM supply option for USA and European markets

## Vidalia Battery Anode Material Project

- Establishing USA-based AAM production vertically integrated with Balama

## Export Markets

- Potential for Syrah to export from USA to ex-USA markets
- Potential to provide ex-China supply chains with alternate and complimentary source of AAM versus existing sources



1. AAM: Active Anode Material.

# Summary and Outlook

## Balama

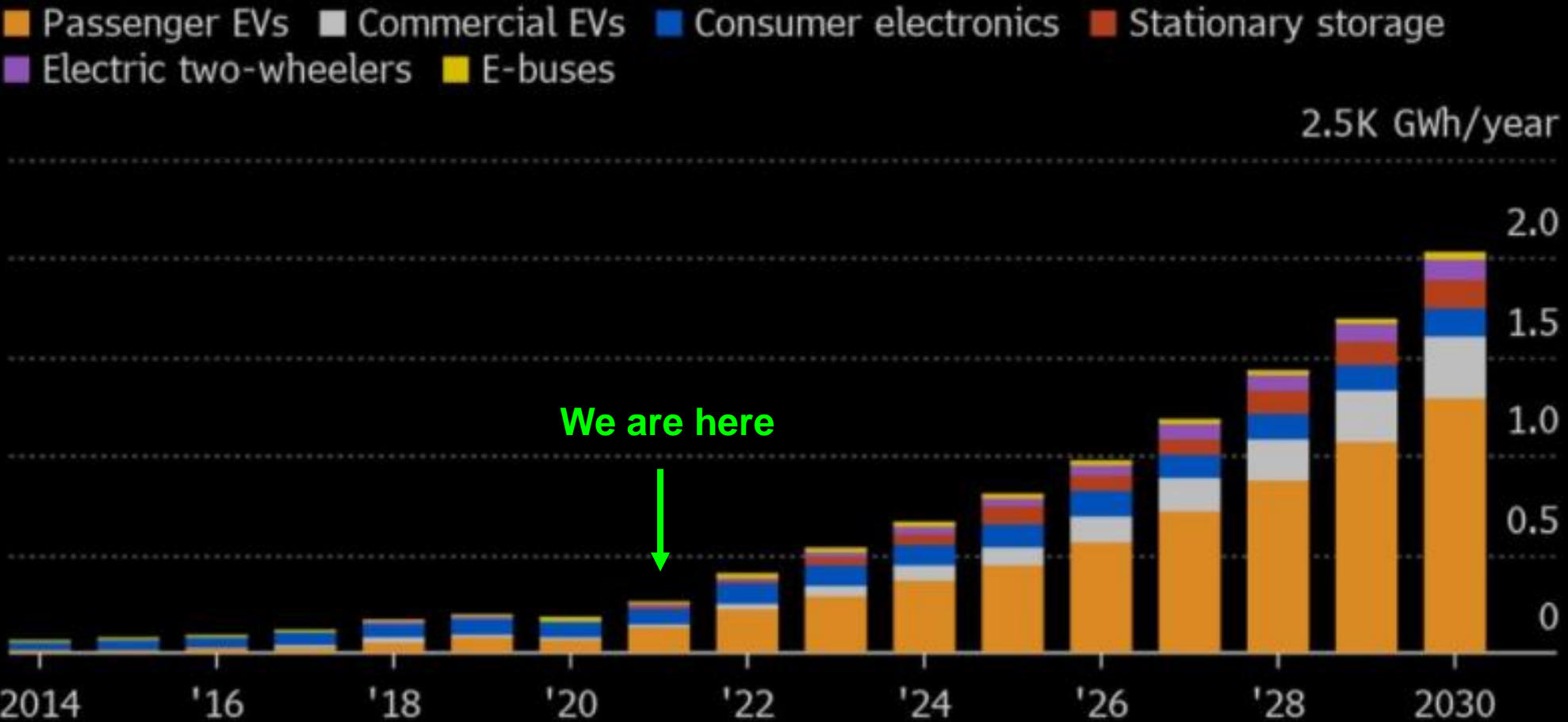
- Successfully recommenced production at Balama ahead of schedule with improving market balance and customer demand conditions
- Reinstating the full contingent of labour and logistics/contractor capability at Balama
- Increasing plant utilisation and natural graphite production towards 15kt per month subject to continued market demand strength
- Monitoring COVID-19 / security setting and adapting operations accordingly

## Vidalia

- Syrah advancing strongly to become a vertically integrated producer of natural graphite AAM to supply ex-Asia markets
- Furnace commissioned and to produce first on-specification AAM in Q2
- Transitioned to initial Detailed Design for 10ktpa expansion of production capacity
- Preferred construction contractor and contracting model to be selected in Q2
- Advancing product qualification with potential battery manufacturer and OEM customers
- Progressing evaluation of strategic / financial partnership options, including customer commercial commitments and funding

# APPENDIX

# Battery demand in early stages of growth – driven by EV adoption

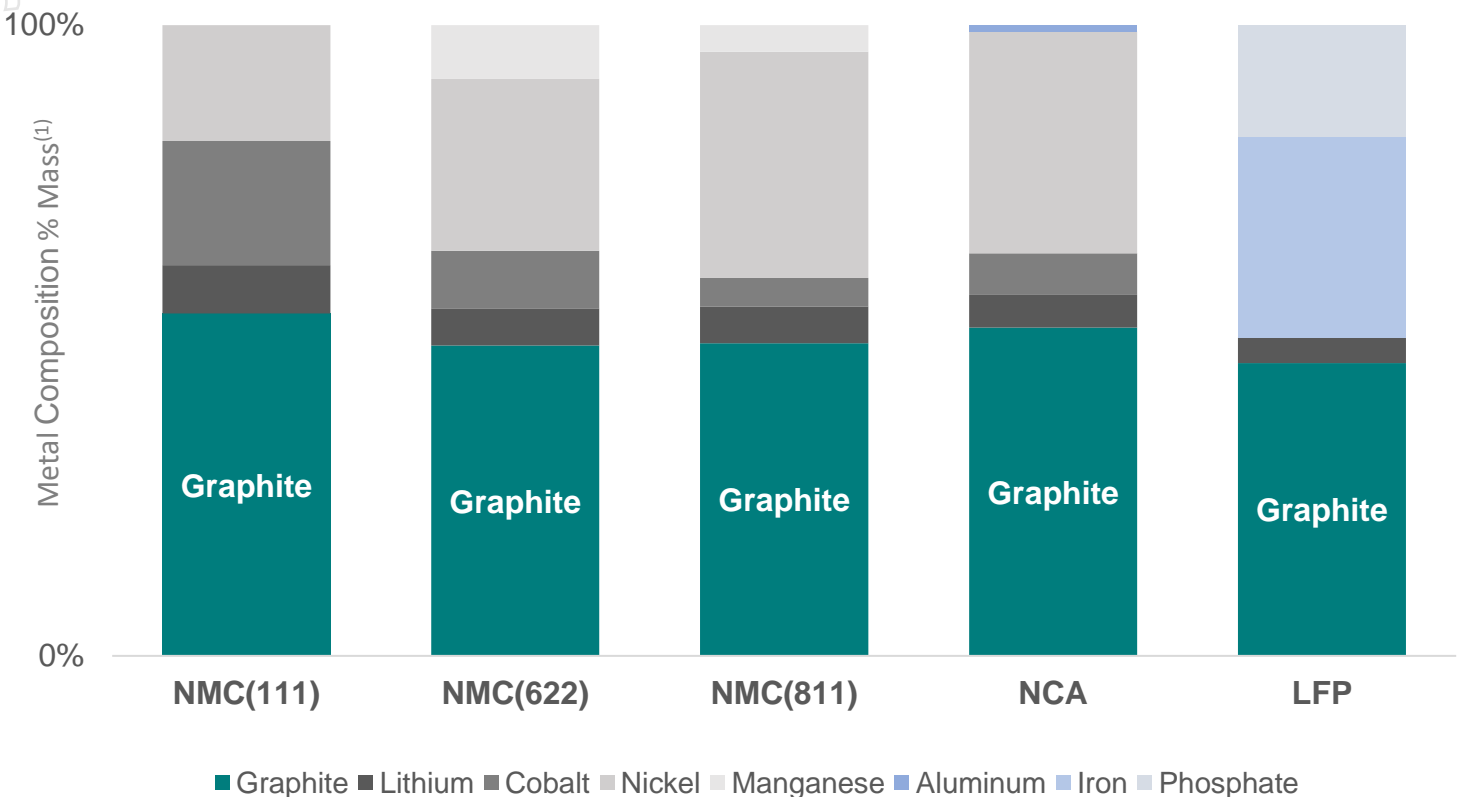


Source: BloombergNEF

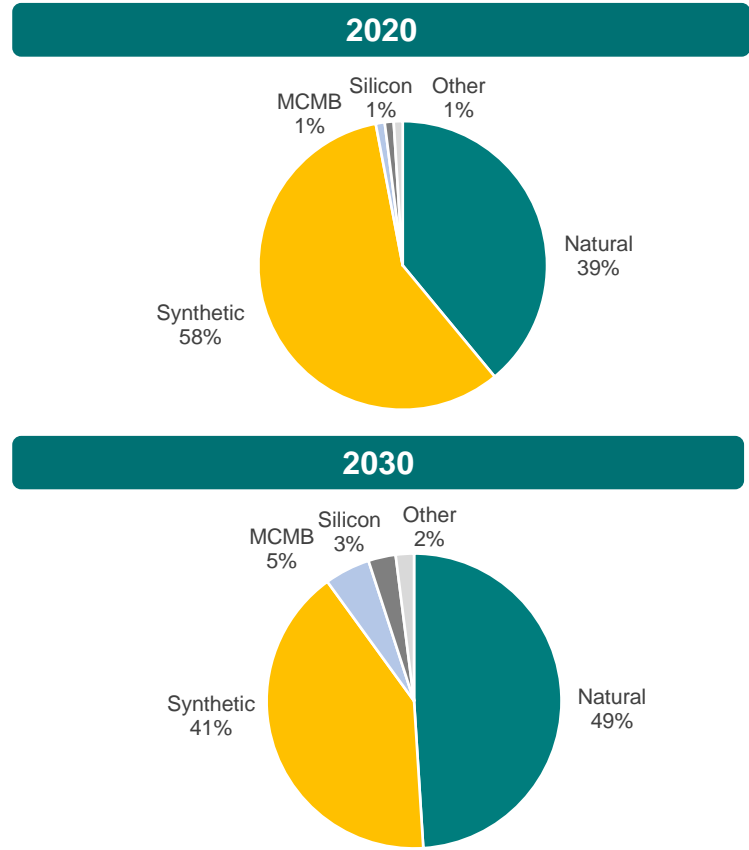
Bloomberg

# Graphite has high intensity of use in batteries used in EVs – costs/emissions expected to drive shift towards natural graphite

Battery Mineral Composition of Batteries



Natural Graphite Demand for Batteries



Source: Syrah Resources analysis, data from Gaines, L., Richa, K., & Spangenberg, J. (2018) Key issues for Li-ion battery recycling (excludes oxygen), Benchmark Minerals Intelligence.  
NMC: Lithium nickel manganese cobalt oxide battery.  
NCA: Lithium nickel cobalt aluminium oxide battery.  
LFP: Lithium iron phosphate battery.  
1. Shown as percent of the total sum by elemental mass featured in the analysis for each battery chemistry, excludes oxygen (cathode).

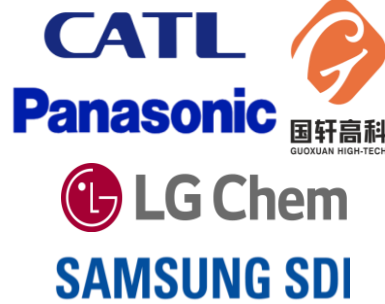


# EV makers committed to LiB technology for expansion plans - significant advances are required to enable any commercial transition to Solid State

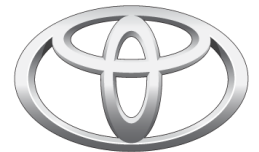
EV  
Manufacturers



Current  
Battery  
Supplier



Future  
Battery  
Supplier



Transition  
Plan

LiB → LiB

LiB → LiB (AG anode)  
SSB from 2025

LiB → LiB

LiB → LiB  
SSB from 2023

LiB → LiB

LiB → LiB  
SSB from 2025

# Syrah's global business to supply growing battery anode demand

