
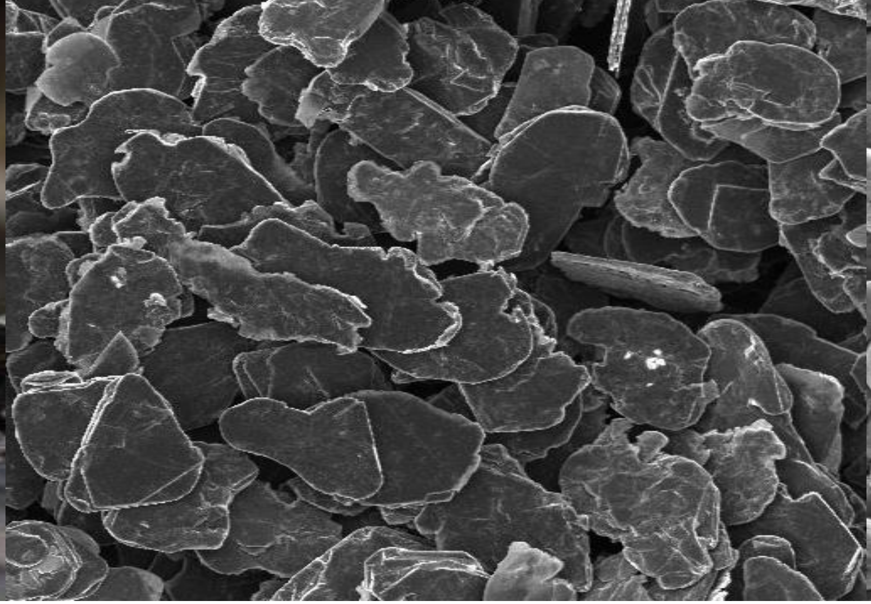
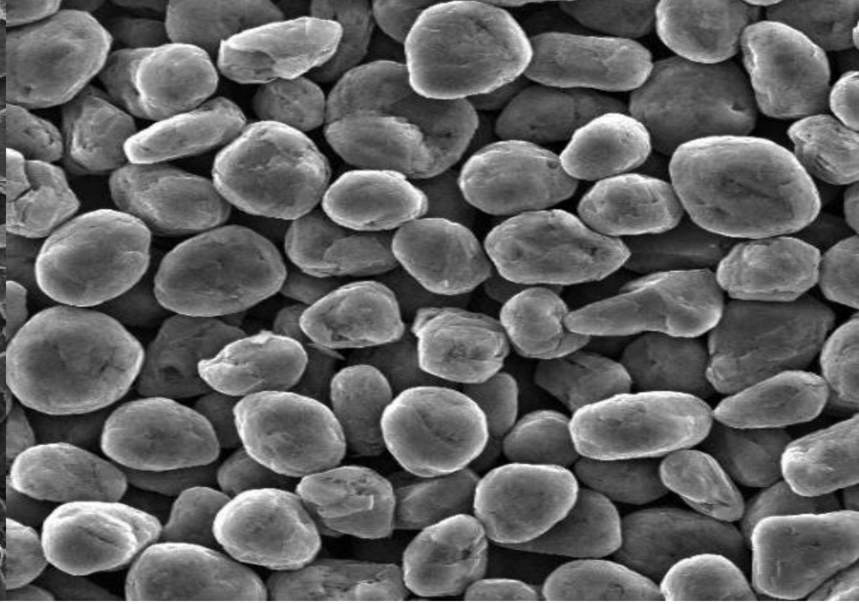

Syrah Resources

The changing dynamics of the graphite market

November 2018

Shaun Verner, Managing Director and CEO

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Syrah is strongly positioned to grow shareholder value as the world's largest natural graphite supplier

1. **Global mega trend, the decarbonisation of economic growth continues, despite short term politics**
   - Decarbonisation of the transport sector, via lithium ion powered electric vehicles (EV), is gaining momentum
2. **Demand for natural graphite is in growth phase to support the manufacturing of lithium ion batteries**
   - Market transition toward greater value for fines underway
3. **Syrah has built, commissioned and is now operating the largest natural graphite mine in the world**
   - Establishing position as key exporter of natural graphite globally, and first major exporter to China
4. **Supply of natural graphite market is in a phase of disruption as Syrah Resources ramps up**
   - Increasing demand for Syrah material, particularly in China expected to drive greater contract volumes
5. **Production of spherical products outside of China is strategically important for the EV supply chain**
   - Major environmental and cost advantage of starting with a higher grade fines product

Syrah Resources

Balama flyover

Balama established as the largest natural graphite producer

Balama Progress

- Excellent Health and Safety results **TRIFR = 1.0**
- Implementing strong processes & **operating discipline**
- Production **>70kt** 9M YTD, **>100kt FY18**
- Average ore grade presenting Q3 – **16%**
- Average finished product grade in Q3 – **96% FC;** low impurities
- Attrition cells operational, initial trials **98% FC product**; flotation produced (non-acid purified)
- Increased large flake **+50 and +80 mesh production**
- Logistics improvement and **inventory drawdown**

Market Progress

- Syrah's ramp up profile initially impacted contract volumes
- Battery and industrial market **qualification achieved**
- Sales contract volumes & **demand increasing**
- **Exporter** of graphite **to China,** volumes increasing
- Disruption of traditional market trade flows
- Product mix, grade and quality **improving price realisation**
- Grade **price differentials demonstrated** (value-in-use)
- **Environmental value** of higher grade product evident
- **Market in transition** toward greater value for fines

Syrah Resources is leveraging the Balama asset to develop integrated battery and industrial material options – BAM and Vanadium

Multi-generation asset

Over 50 year mine life[1]
High grade, low impurity, highly consistent product

One of the largest graphite mines in the world

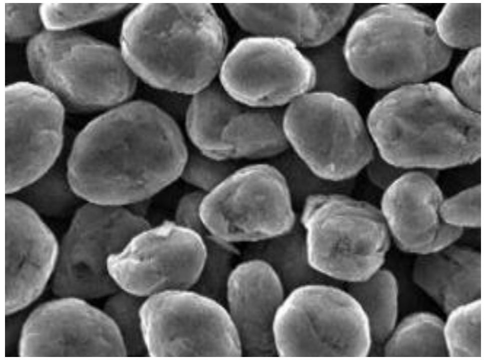
350ktpa[1] capacity, multiple times larger than other mines

Downstream Strategy

Production of Battery Anode Material (BAM) in USA

Option Value

Expansion of Balama and processing vanadium (currently reporting to tailings) potential[2]



Key Supplier

Sales into battery and steel markets achieved;

Major seller into China; a net exporter

(1) Refer to ASX announcements titled "Syrah finalises Balama Graphite study and declares maiden Ore Reserve" released on 29 May 2015, "Syrah increases Balama Reserves and awards Laboratory Contract" released on 15 November 2016. All material assumptions underpinning the production target in these announcements continue to apply and have not materially changed other than as updated in subsequent ASX announcements. Life of mine based on current 114.5Mt Graphite Ore Reserves being depleted at 2Mt of mill throughput per annum.

(2) Scoping study on potential to refine vanadium as per the ASX announcement dated 30 July 2014.

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Syrah is one of the largest resource sector employers in Mozambique and is having a meaningful and positive impact in the country

Supporting the Economy

>US$30 million in salaries paid in Mozambique to date

Employment

~1,400 direct and contract roles for Mozambicans

Health & Community

Programs to improve education, health and skills training facilities

Environment

World class environmental protection plan

Education and health funding

High skilled jobs

Skills training centre

Agricultural improvement program

Balama is a strategic asset for both the graphite and battery industries

Commodity	Flake Graphite	Copper	Iron Ore	Zinc
				
Largest mine	**Balama** Mozambique	**Escondida** Chile	**S11D (Carajas)** Brazil	**Rampura Agucha** India
				
Market share	~15% in 2018[1] 35 – 40% at full capacity[1]	~5% in 2017	~5% at full capacity	~5% in 2017

Source: Syrah Resources, CRU, Wood Mackenzie
(1) Based on FY18 production target 101kt to 106kt, 350ktpa capacity and page 6 footnote 1

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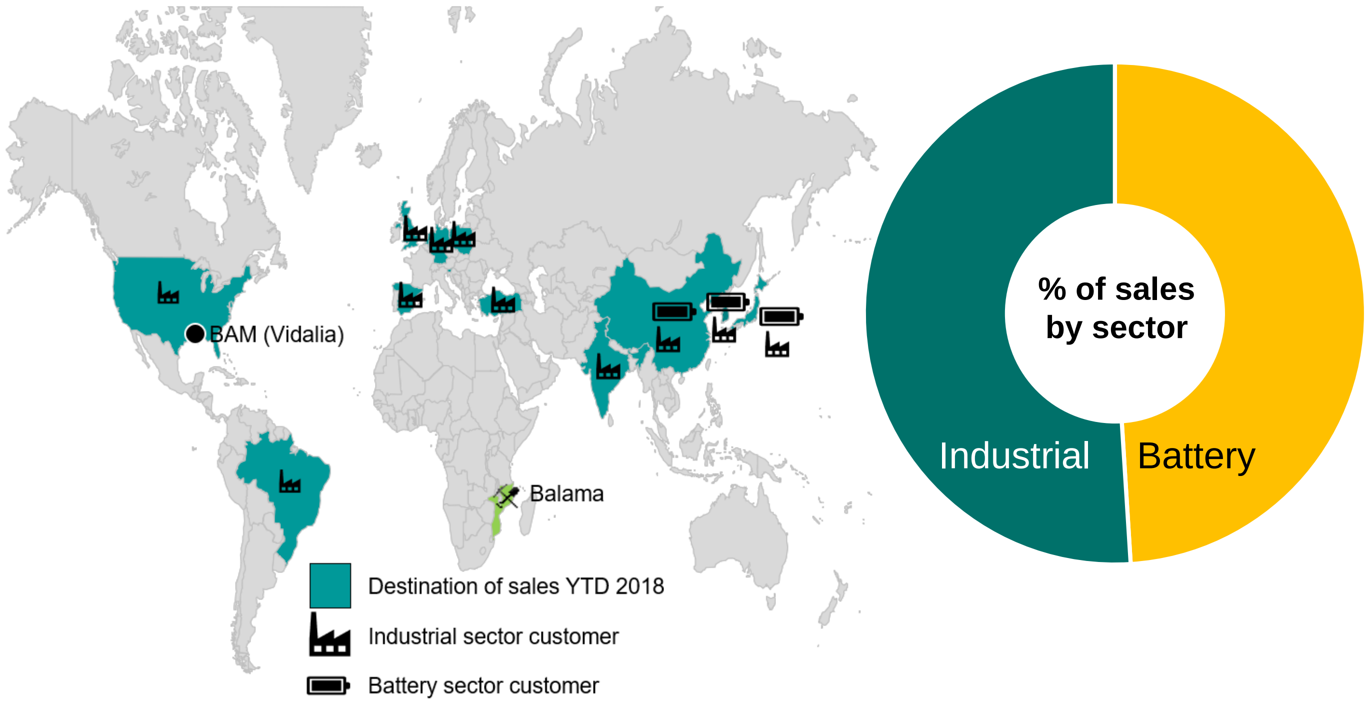
Syrah's diversification of customers across country, market sector and contract type provides regular and global price discovery

Sectorial and Geographical Sales Diversification



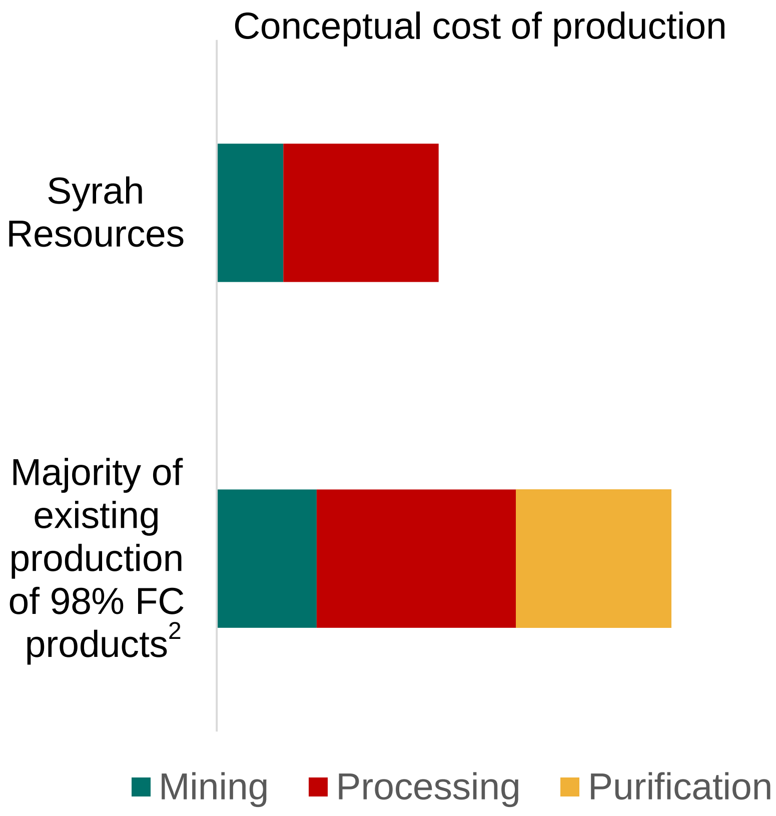
Global Price Discovery

Country	Number of customers	Contract Type	Pricing Mechanism	Products[1]
China	9	Term, Spot and Repeat Spot	Spot, quarterly and annual	Fines and Flake
India	8	Repeat Spot	Spot	Fines and Flake
Japan	6	Term and Repeat Spot	Spot	Fines and Flake
EU	5	Term and Repeat Spot	Fixed and Spot	Fines and Flake
USA	2	Term and Repeat Spot	Fixed and Spot	Fines and Flake
Brazil	2	Repeat Spot	Spot	Fines and Flake
South Korea	1	Term	Spot	Fines
Turkey	1	Repeat Spot	Spot	Flake

Source: Syrah Resources, Sales Jan – Aug 2018, pie charts reflective of sales volumes (tonnes)
(1) Flake mesh sizes range +50, +80 and +100. Fines mesh size -100; includes planned shipments for contracts under negotiation.

Production trials commenced to produce 98% fixed carbon product

Production trial of 98% Fixed Carbon products via standard flotation process



Value in Use advantages

- ✓ Reduced acid usage
- ✓ More efficient energy use
- ✓ Reduced environmental footprint

Higher selling prices expected

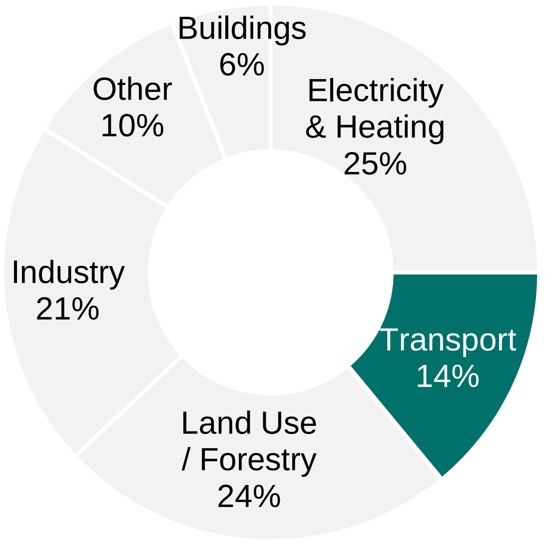
Cost differential ✚ Value in Use ➡ Expected price premium

(1) Current 98% Fixed Carbon grade product requires chemical purification

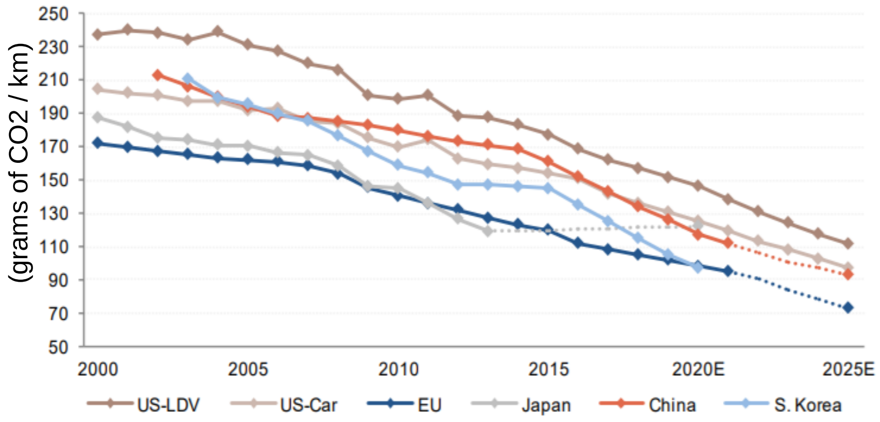
Macro Environment and Natural Graphite Market

Decarbonisation of the transport sector gaining profile and momentum

Global Carbon Emissions



Fuel Emission Standards



Country / Regional Targets

China	10% by 2019, 12% by 2020; no post-2020 targets, but 15-20% speculated by 2025
USA	1mn EVs by 2020 informal DoE target
California	ZEV goal 2% by 2018, 6% by 2020, 16% by 2025
UK	9% EV penetration by 2030 and a ban on new petrol and diesel cars by 2040
Germany	1mn EVs by 2020 and 6mn EVs by 2030
France	2mn EVs by 2020 and a ban on new petrol and diesel cars by 2040
Norway	50,000 EVs (30%) by 2020; 100% of EVs by 2025 (not yet formalized)

Source: United Nations Framework Convention on Climate Change, IPCC 2012, Bernstein

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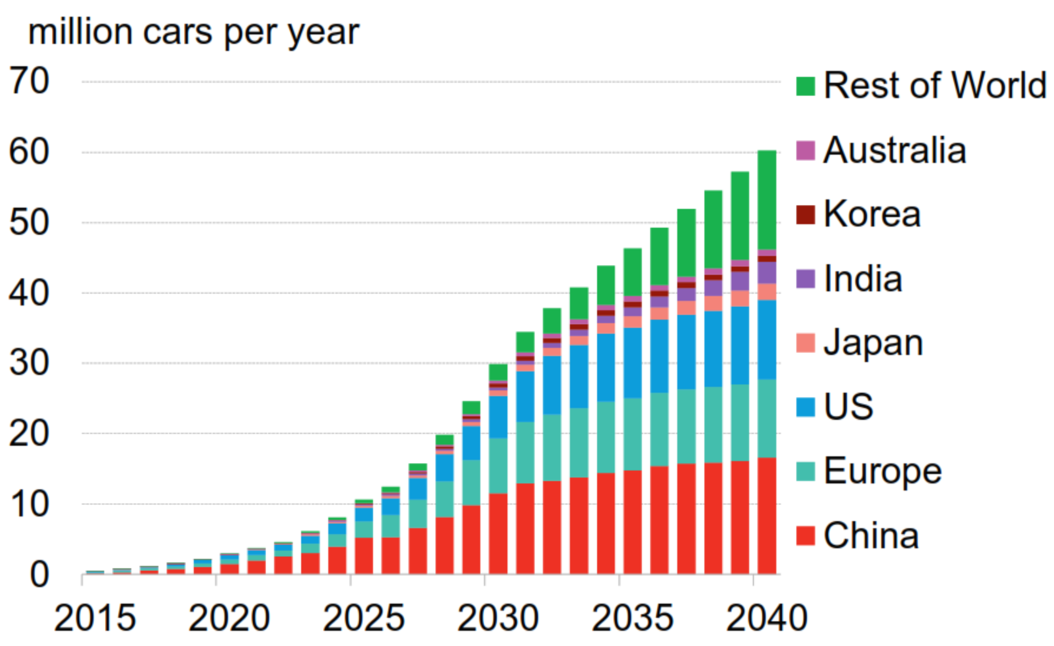
Auto sector is responding to government regulation and consumer demand

Region	OEM	Electric Vehicle Strategy
	BYD	500k units in 2020, from ~100k in 2017
	BAIC	500k units in 2020, no ICE engines by 2025
	SAIC	600k sales by 2020
	JAC	30% of fleet by 2025 (65k based on 2017 production)
	ZOTYE	60% of fleet by 2020 (185k based on 2017 production)
	CHERY	200k unit sales in 2020
	长安汽车 CHANGAN	300k unit sales by 2020, no ICE models by 2025
	GEELY	600k unit sales by 2020
	BMW	15-25% of fleet by 2025 (400-600k based on 2017 production)
	DAIMLER	25% of fleet by 2025 (600k based on 2017 production)
	VW	400k unit sales in China by 2020, 2-3 million globally by 2025
	JAGUAR	50% of fleet sales by 2020 (300k based on 2017 production)
	PEUGEOT	80% of models to be electrified by 2023
	FCA	EV models across all brands, no diesel by 2022
	TESLA	1 million units p.a. by 2020
	GM	150k unit sales in China by 2020, 500k by 2025
	Ford	70% of China sales by 2025
	NISSAN	25% of EU sales by 2020 (175k based on 2017 production)
	TOYOTA	10 new BEVs in early 2020s
	Honda	65% of fleet sales by 2030 (3 million based on 2017 production)
	HYUNDAI	300k unit sales by 2020

Source: Company announcements, Bloomberg New Energy Finance

Annual passenger EV sales by region



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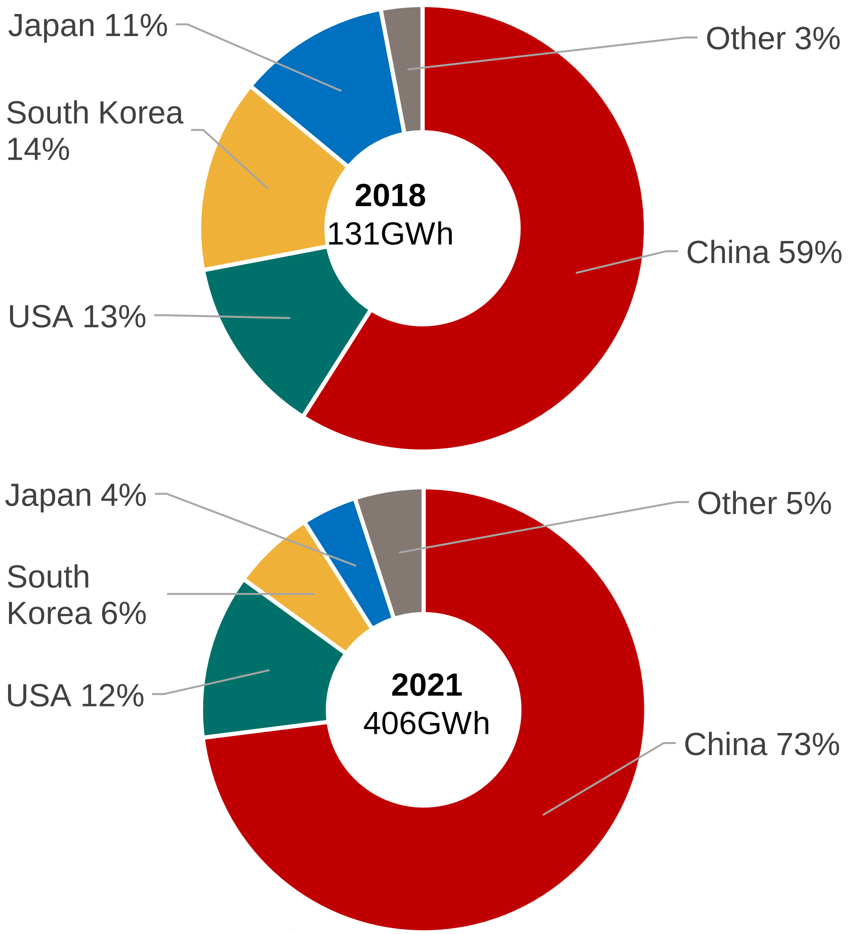
Battery manufacturing expansion will facilitate greater EV production

Origin	OEM	Electric Vehicle Batteries	Major Customers
	CATL	12GWh produced in 2017, 50GWh planned by 2020	BAIC, BMW
	BYD	3.5GWh produced in 2017, 16GWh planned by 2020	BYD
	Gotion	5.5GWh current capacity, 2.5GWh planned by 2020	BAIC, JAC
	LISHEN	1.5GWh produced in 2017, 20GWh by 2020	HYUNDAI
	Boston POWER	4GWh current capacity, 4GWh added in 2019	
	A123 SYSTEMS	1GWh current capacity	
	OptimumNano	12GWh current capacity, targeting 20GWh by 2020	
	CALB	<1GWh produced in 2017, targeting 15GWh by 2020	
	BAK	<1GWh produced in 2017, targeting 15GWh by 2020	ZOTYE
	microvast	11GWh under construction, capacity to reach 15GWh by 2020	FCA
	FARASIS	1GWh produced in 2017, 10GWh planned by 2020	BAIC
	Automotive Energy Supply Corporation	8GWh capacity in 2017	NISSAN
	SAMSUNG	2.5GWh produced in 2017, 20GWh planned by 2020	BMW, VW
	LG Chem	10GWh capacity in 2017, 40GWh planned by 2020	Ford, GM
	SK innovation	Targeting 10GWh by 2020	DAIMLER
	Panasonic	10GWh produced in 2017, 50GWh capacity planned by 2020	TESLA, TOYOTA

Lithium ion battery manufacturing capacity market share for transport sector



Source: Bernstein, Company announcements, Bloomberg New Energy Finance

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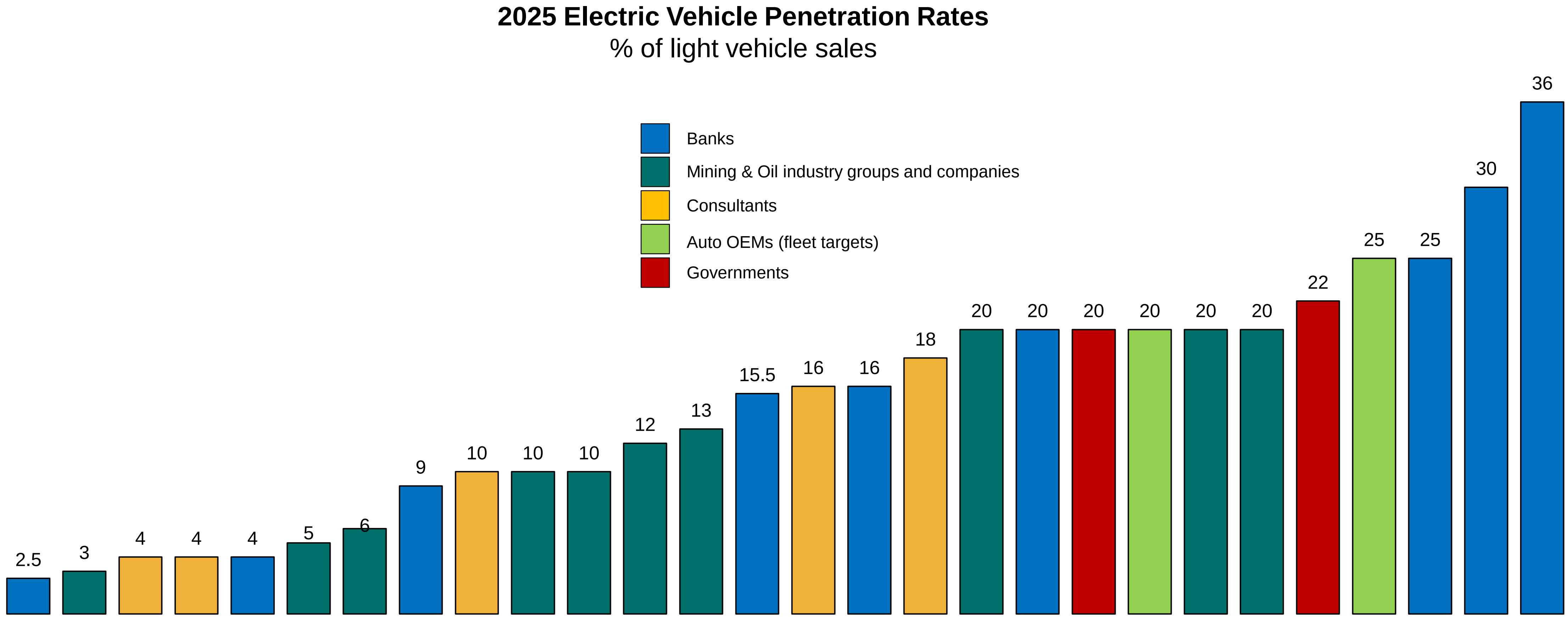
EV penetration forecasts vary widely, but EV growth is increasing rapidly



Source: Syrah Resources, company sources and reports
Notes: Range of forecasts include a mix of full battery electric vehicles, mild hybrids, plug in and non-plug in hybrid vehicles and low, mid and high scenarios for fleet, national and global markets

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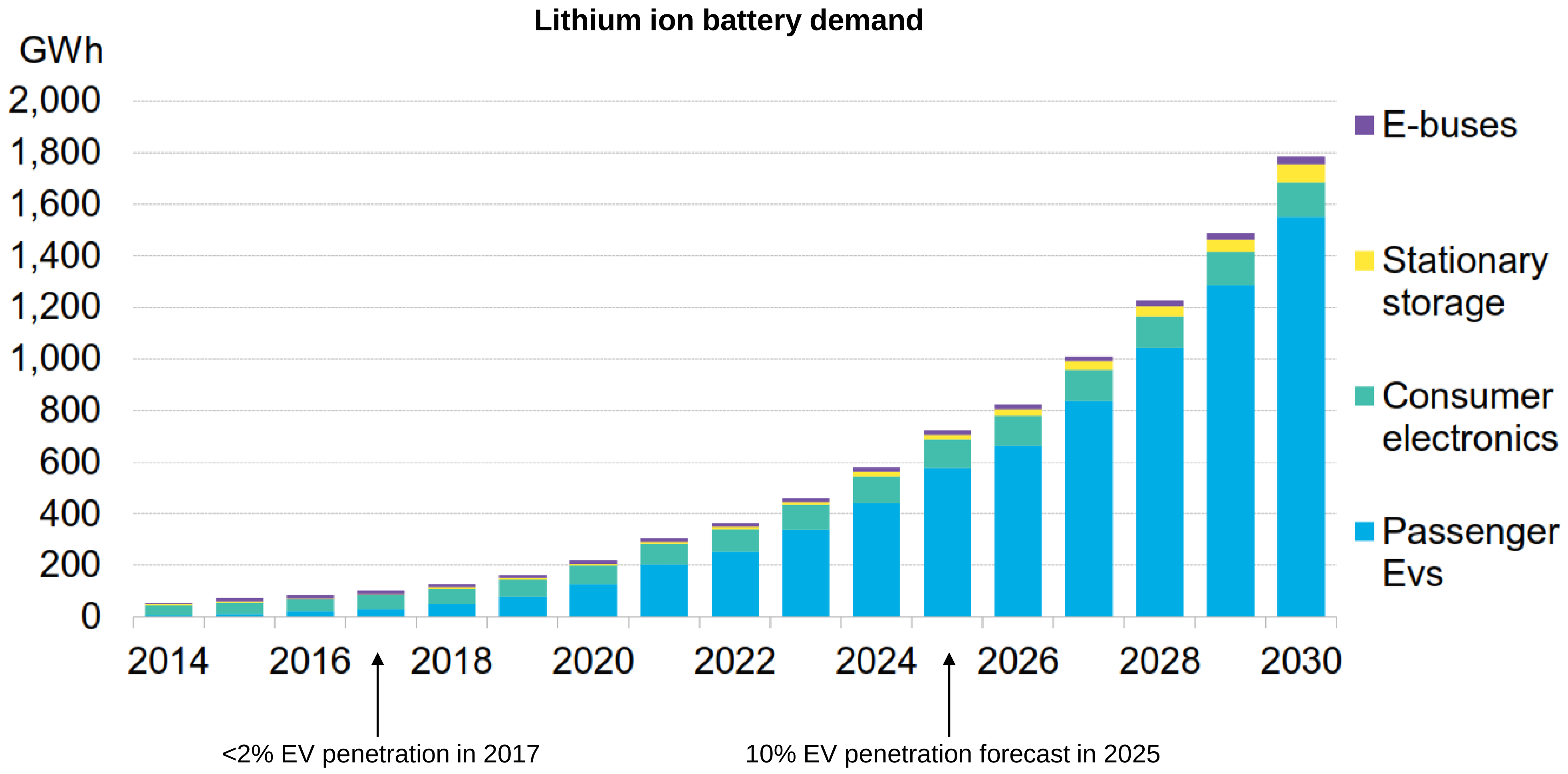
Electric vehicles expected to be the major driver of lithium battery demand



Source: Bloomberg New Energy Finance

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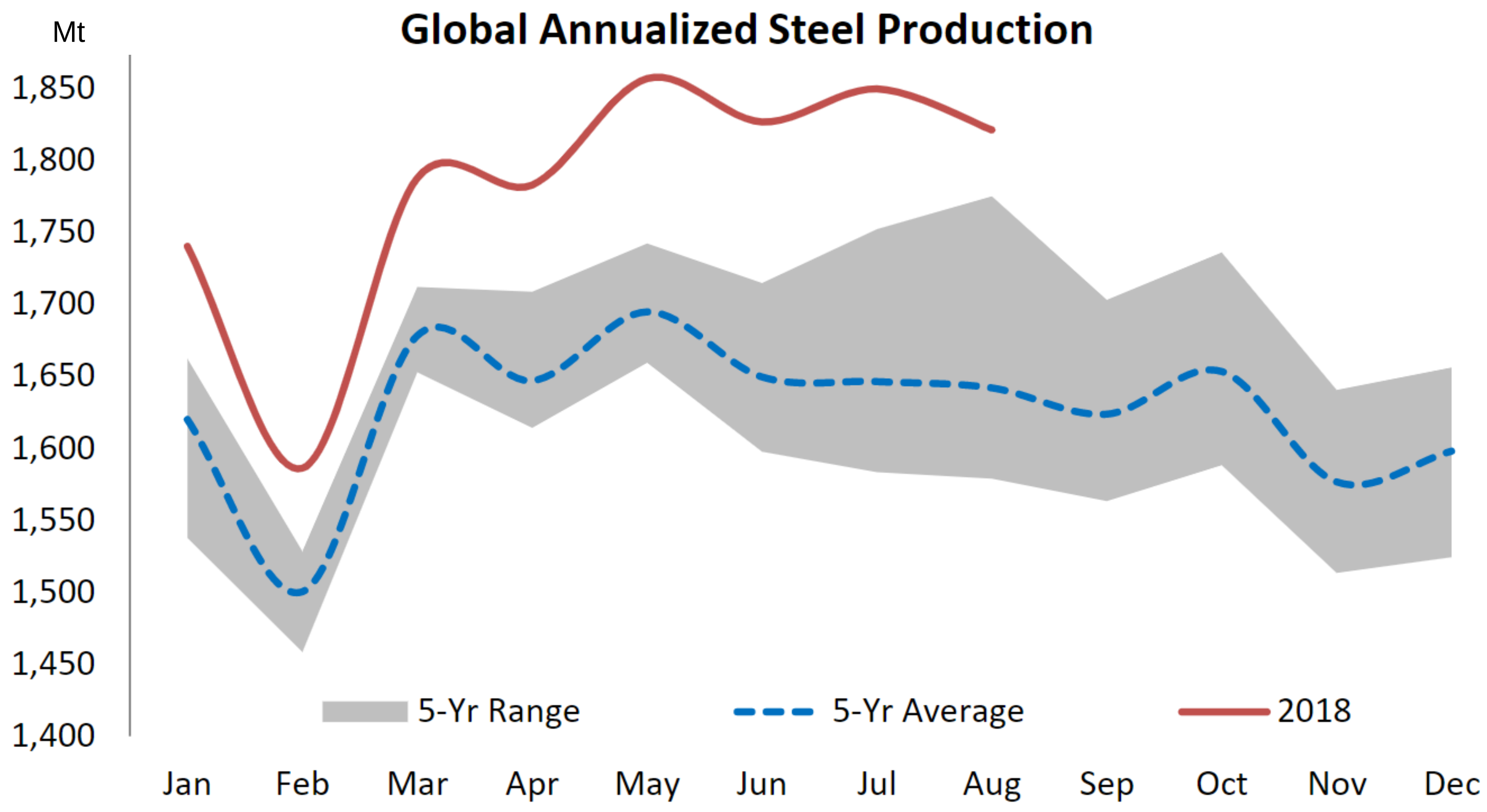
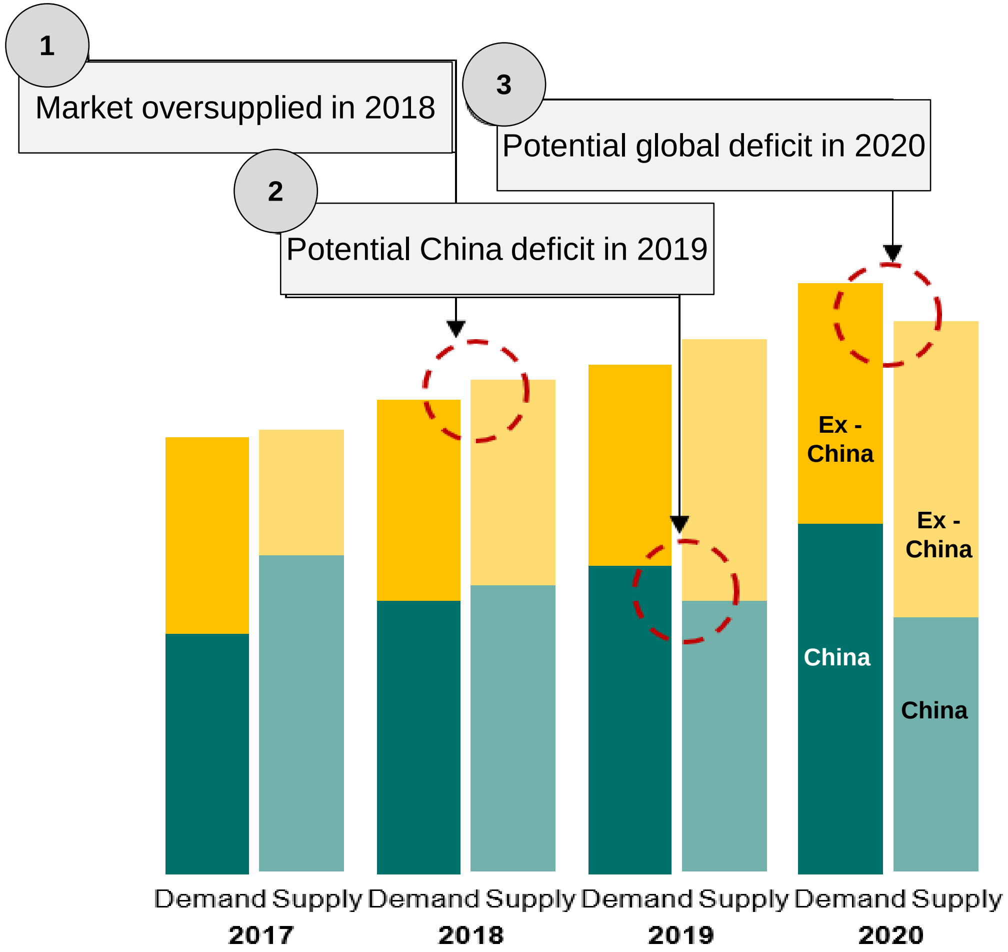
Steel production in 2018 has supported natural graphite demand



Source: Syrah Resources, World Steel Association, Morgan Stanley

Natural graphite market in structural transition, driven by battery demand

Global Natural Flake Graphite Market



Supply
- Majority of incremental global supply is from Syrah Resources to 2020.
- China's supply is expected to rationalise due to resource depletion, grade decline and environmental pressures; before stabilising around 2020.

Demand
- Almost all incremental demand growth comes from the lithium ion battery sector.
- Steel sector demand expected to be flat in the long run.
- Growth in applications such as expandable (flame retardant) are high value per tonne but low volume markets.

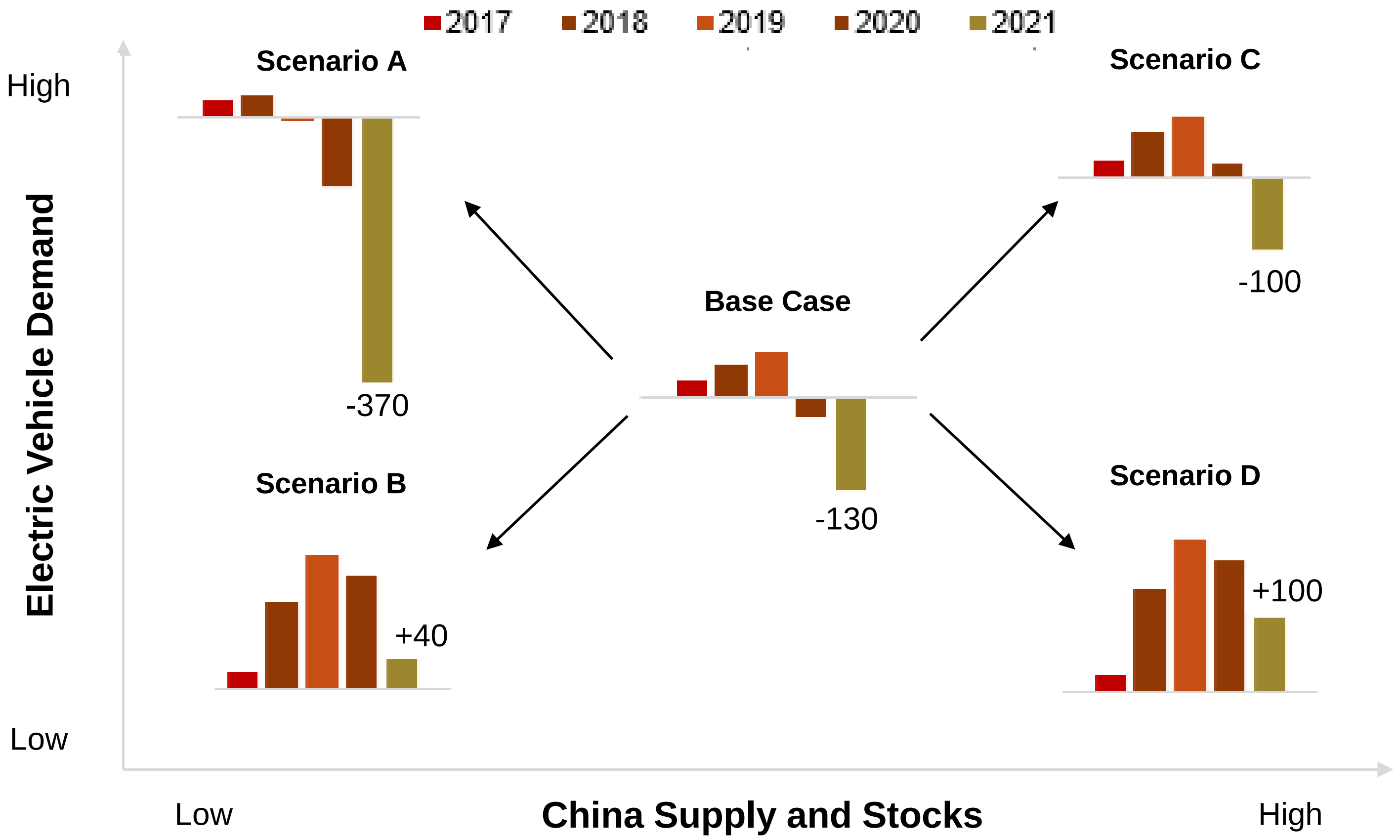
Trade
- Global trade flows expected to structurally change as Chinese anode production grows, domestic consumption increases, and China becomes a net importer.
- Ex-China users sourcing graphite from China will require alternative sources.

Price
- Syrah expects China's movement from a net exporter to importer to support fines prices.

Source: Syrah Resources

Even with Syrah at full capacity, scenario analysis highlights multiple market balance outcomes; significant potential for a global deficit ~2020

Global Flake Graphite Market Balance Scenarios



Market Analysis

Demand scenarios driven by:

- electric car, bus, truck unit sales
- larger lithium ion batteries
- natural graphite proportion in anode
- steel sector growth

Energy storage not expected to be significant driver of demand <2021

Supply scenarios driven by:

- environmental pressure on China supply
- grade decline of China supply
- stock depletion in China

Low likelihood of new major greenfield supply before 2021; funding remains a challenge for projects under development

Source: Syrah Resources

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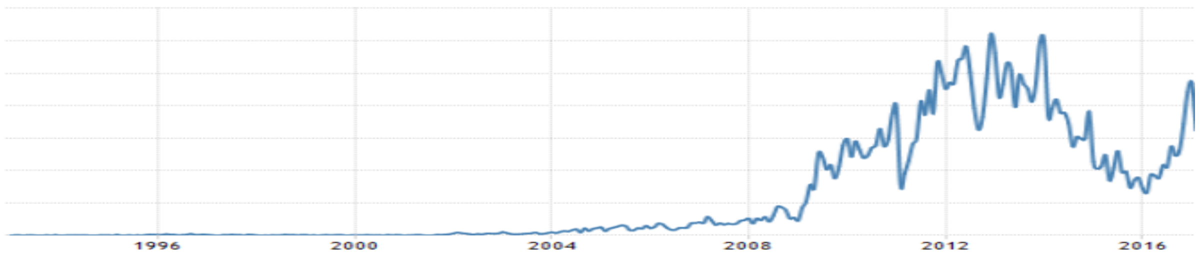
China has structurally changed the trade flow of commodities before; natural graphite is poised to follow as China's anode production rises

China's import value of key commodities

Thermal Coal



Iron Ore

- China is ~50% of global supply, #1 global producer
- Moved from a net exporter to net importer in 2009
- **Preference for higher grade imports**

- China is #2/3 usable ore producer globally
- #1 importer of iron ore; volumes have grown ~300% since 2006
- **Preference for higher grade imports**

Despite having its own significant natural endowment of iron ore and coal, China has a preference for higher grade imported material.

Syrah expects natural graphite to follow this trend

Source: Syrah Resources, Trading Economics, IEA
Notes: value of imports

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Battery Anode Material (BAM) Development

Graphite is expected to maintain dominance in anode composition; natural graphite expected to increase market share as cost pressures increase

Artificial Graphite xEV, grid	Natural Graphite xEV, grid, portable electronics	Silicon Alloy Anodes Emerging but currently still a graphite dominant mix
more energy →		
← better cycle life		
Key issues • High cost • High graphitization energy use	**Key issues** • Low temperature performance	**Key issues** • Cycle life • Electrode expansion/cell dimensional stability • Low first cycle efficiency • Cost
Mitigating solutions • Mix with natural graphite • Develop low cost graphitization	**Mitigating solutions** • Surface coating/modification	**Mitigating solutions** • Si-nano-particles composite • Mix with larger percentage of • natural and/or artificial graphite • Limit discharge cut-off voltage

Source: Cadenza Innovation

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Syrah BAM strategy underpinned by Vidalia BAM plant development; installation progressing to plan

Strategic Context

Rapidly evolving market	Syrah's BAM strategy reflects: • Evolving Battery Anode Material (BAM) market • Opportunity for accelerated final anode product entry • Value chain relationships and potential co-operation
Maximising Syrah's competitive advantage	• Ongoing Syrah BAM product development investment is demonstrating potential for differentiated cost and product characteristics • Comparison performance of Syrah coated and uncoated spherical graphite shows comparable performance to existing market leading material[1] • Rapid production of a BAM qualification product is critical to demonstrate quality, refine product options, accelerate strategic options and establish significant supply chain position

Installation progress at Vidalia, Louisiana BAM facility[2]

(1) Based on results of laboratory testing conducted by Cadenza Innovation, refer to ASX announcement dated 30 April 2018.
(2) Plant in Louisiana will initially have 5kt per annum of milling capacity and batch scale purification capability.

Syrah strongly positioned to grow shareholder value as ramp up continues and demand from lithium ion batteries increases

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