



BENCHMARK MINERAL INTELLIGENCE

ANODE ASSESSMENT

May 2025 Assessment

www.benchmarkminerals.com



Anode prices hold steady as strong demand balances with oversupply

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Questions? Contact the analyst team at prices@benchmarkminerals.com

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- Total anode capacity to 2030 increases by 1.1% m-o-m to reach 17,034,988 tpa, tracking 439 facilities across 709 phases
- Robust anode demand, stemming from strong performing downstream markets, holds prices stable amidst structural overcapacity
- Vianode and Fortum Recycling establish strategic partnership to recycle graphite
- Talga Group secures supply partnership with Nyobolt
- Synthetic graphite anode capacity expansions persist in China

17,034,988 tpa

Anode Capacity 2030

1.1%

MoM Change



439

Number of Anode Facilities

1.6%

MoM Change



684,350 tpa

Sodium ion Anode Capacity 2030

0.0%

MoM Change



32

Number of Sodium ion Anode Facilities

0.0%

MoM Change



DEFINITIONS:

Tier 1: Qualified to supply the global EV market.
> 10,000 tonnes of annual production capacity, assessed every 3 months

Tier 2: Not yet qualified to supply the global EV market. Qualified to supply Chinese domestic EV market and non-EV sectors

Tier 3: New market entrants or producers not yet qualified to supply any EV end markets

ANODE GRADES:

SYNTHETIC GRAPHITE ANODE:

High Energy, DDP China, ≥99.97% C, 350-370 mAh/g
Medium Energy, DDP China, ≥99.95% C, 330-350 mAh/g
Low Energy, DDP China, ≥99.70% C, 310-330 mAh/g

NATURAL GRAPHITE ANODE:

High Energy, DDP China, ≥99.97% C, 360-370 mAh/g
Medium Energy, DDP China, ≥99.95% C, 360-370 mAh/g
Low Energy, DDP China, ≥99.90% C, 345-360 mAh/g

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ANODE PRICE ASSESSMENT

May 2025

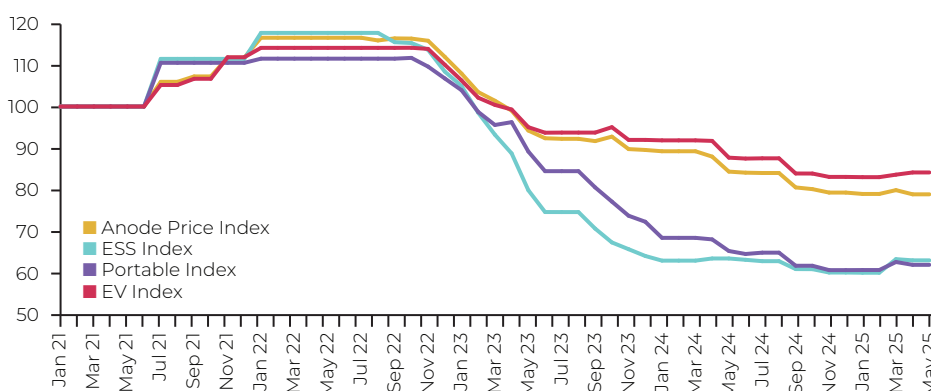
1 Prices

BENCHMARK SYNTHETIC GRAPHITE ANODE	LOW	HIGH	MID	LAST MID	RMB CHANGE
High Energy, ≥99.97% C, 350-370 mAh/g	RMB 43,500 (\$6,047)	RMB 61,500 (\$8,549)	RMB 52,500 (\$7,298)	RMB 52,500 (\$7,193)	0.0%
Medium Energy, ≥99.95% C, 330-350 mAh/g	RMB 25,500 (\$3,545)	RMB 32,500 (\$4,518)	RMB 29,000 (\$4,031)	RMB 29,000 (\$3,973)	0.0%
Low Energy, ≥99.70% C, 310-330 mAh/g	RMB 16,500 (\$2,294)	RMB 22,000 (\$3,058)	RMB 19,250 (\$2,676)	RMB 19,250 (\$2,637)	0.0%
BENCHMARK NATURAL GRAPHITE ANODE	LOW	HIGH	MID	LAST MID	RMB CHANGE
High Energy, ≥99.97% C, 360-370 mAh/g	RMB 44,000 (\$6,116)	RMB 52,000 (\$7,228)	RMB 48,000 (\$6,672)	RMB 48,000 (\$6,576)	0.0%
Medium Energy, ≥99.95% C, 360-370 mAh/g	RMB 26,000 (\$3,614)	RMB 36,000 (\$5,004)	RMB 31,000 (\$4,309)	RMB 31,000 (\$4,247)	0.0%
Low Energy, ≥99.90% C, 345-360 mAh/g	RMB 18,000 (\$2,502)	RMB 21,500 (\$2,989)	RMB 19,750 (\$2,745)	RMB 19,750 (\$2,706)	0.0%

0.0%

the change in the
BMI Anode Price
Index throughout
May 2025

Benchmark Anode Price Indices



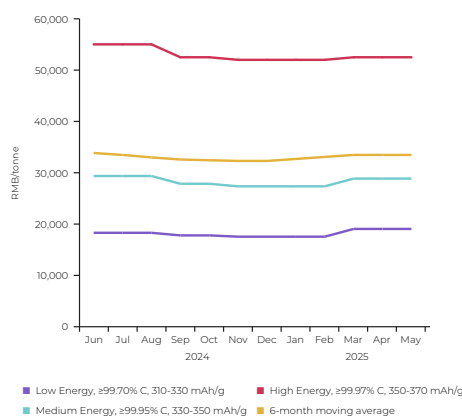
Source: Benchmark Mineral Intelligence

BENCHMARK	1M	Y-O-Y	YTD	TODAY	LAST
Anode Price Index	0.0%	-6.5%	-0.5%	78.88	78.88
EV Index	0.0%	-9.0%	1.3%	84.14	84.14
Portable Index	0.0%	-5.1%	2.1%	61.92	61.92
ESS Index	0.0%	-0.7%	4.9%	63.00	63.00

Synthetic graphite anode

BENCHMARK	1M	Y-O-Y	YTD	TODAY	LAST
High Energy, ≥99.97% C, 350-370 mAh/g	0.0%	-4.5%	1.0%	RMB 52,500	RMB 52,500

Synthetic graphite anode



Source: Benchmark Mineral Intelligence

Throughout late April 2025 and early May 2025, **Benchmark** assessed flat prices across all synthetic graphite anode grades. Strong EV demand and the release of fast charging battery products from major Chinese companies, drove strong demand for synthetic graphite anode material throughout late April and early May. Despite this, the market continued to experience structural overcapacity. This situation grants significant bargaining power to downstream buyers, enabling them to maintain low and stable prices. As such, high energy synthetic graphite anode prices remained stable m-o-m at an average of RMB 52,500/tonne (\$7,298) (DDP China), with transactions ranging between RMB 43,500-61,500/tonne (\$6,047-8,549). Similarly, medium energy synthetic graphite anode material prices remained stable m-o-m at an average RMB 29,000/tonne (\$4,031) (DDP China), with transactions recorded between RMB 25,500-32,500/tonne (\$3,545-4,518). Prices for low energy synthetic graphite anode material held steady m-o-m at an average of RMB 19,250/tonne (\$2,676) (DDP China), with transactions ranging from RMB 16,500-22,000/tonne (\$2,294-3,058).

BENCHMARK MINERAL INTELLIGENCE

ANODE PRICE ASSESSMENT

MAY 2025

1 Prices continued

Natural Graphite Anode

 BENCHMARK	1M	Y-O-Y	YTD	TODAY	LAST
High Energy, ≥99.97% C, 360-370 mAh/g	0.0%	-5.0%	0.0%	RMB 48,000	RMB 48,000

With the introduction of fast-charging battery products that exclusively use synthetic graphite anode material, the demand for natural graphite anode material has further decreased.

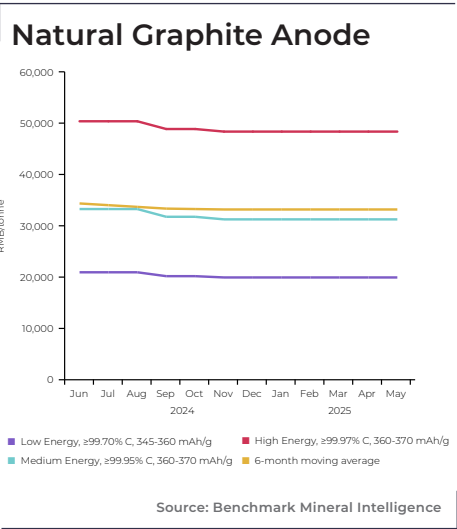
In comparison to the synthetic graphite anode market, the natural graphite market has a much smaller production capacity in China. According to the **Benchmark Anode Price Assessment**, natural graphite anode production capacity makes up just 22% of current production capacity in the country.

Despite reduced demand of this material, the comparatively low production capacity means the availability of natural graphite anode material remained relatively tight.

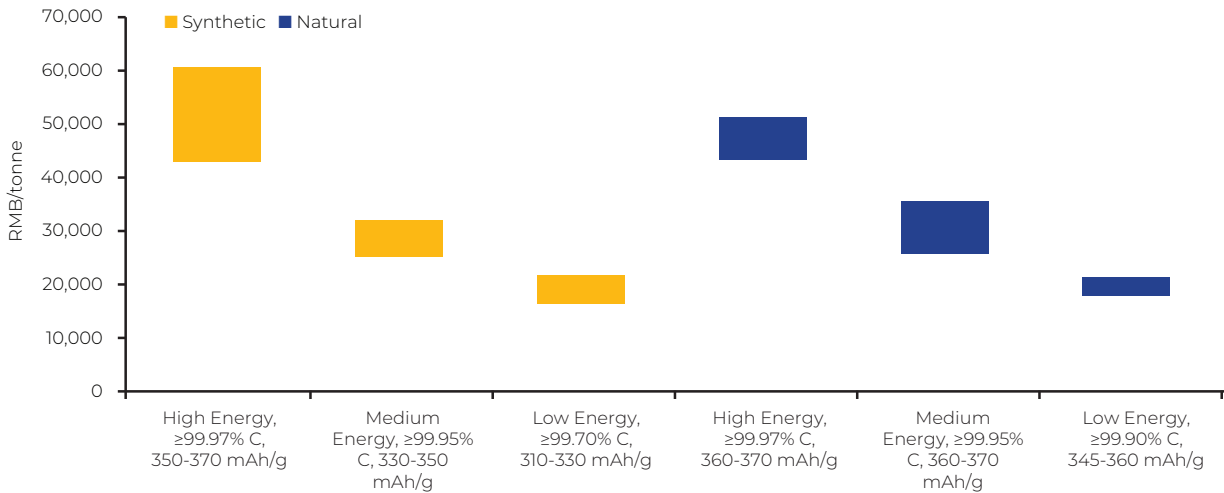
As such, high energy natural graphite anode remained stable at an average of RMB 48,000/tonne (\$6,672) (DDP China), with transactions ranging between RMB 44,000-52,000/tonne (\$6,116-7,228).

Prices for medium energy natural graphite anode also remained stable, maintaining an average price of RMB 31,000/tonne (\$4,309) (DDP China), with trading between RMB 26,000-36,000/tonne (\$3,614-5,004).

The price of low energy natural graphite also remained flat, holding steady at an average of RMB 19,750/tonne (\$2,745) (DDP China), with trading between RMB 18,000-21,500/tonne (\$2,502-2,989).



Price ranges: Anode Mid-Apr - Mid-May 2025



Source: Benchmark Mineral Intelligence



ANODE MARKET ASSESSMENT

May 2025

2 Anode capacity update

The Chinese EV market continues to perform strongly, characterised by robust demand and consistent vehicle production by OEMs. EV production throughout April remained high at 1,251,000 units, a y-o-y increase of 44%. Consequently, cell manufacturers have sustained a high output, with monthly cell production holding steady m-o-m at 118 GWh throughout April.

Additionally, major Chinese producers have recently launched fast-charging battery products. This development has led to increased demand for fast-charging anodes, which currently rely on solely synthetic graphite-based anode material.

Despite a positive outlook for demand, downstream players currently possess significant bargaining power over anode producers. This is primarily due to the existing market overcapacity, which has enabled OEMs and cell producers to keep prices subdued. Despite this, persistent announcements of synthetic graphite anode project developments in China continue to grow the capacity pipeline, which is estimated to reach almost 4,500,000 tpa in 2030, according to the **Benchmark Anode Price Assessment**.

For example, Ningxia Zhongtai Xinyuan Technology Co., Ltd. announced construction had begun at its 60,000 tpa nameplate capacity

facility in Wuzhong City, Ningxia Autonomous Region, China. Additionally, Zhongjian Huida (Jilin) Emerging Energy Co., Ltd. announced that it plans to construct a 100,000 tpa nameplate capacity facility in Shuangliao, Jilin Province, China. In the overseas market, Talga Group announced it had signed a four-year offtake deal with Nyobolt to supply 3,000 tonnes of anode material, commencing May 2025. Furthermore, Vianode announced a partnership with European recycler, Fortum Recycling, to aid the development of recycled graphite that could be used as feedstock material for its anode projects.

Vianode and Fortum Recycling establish strategic partnership to recycle graphite

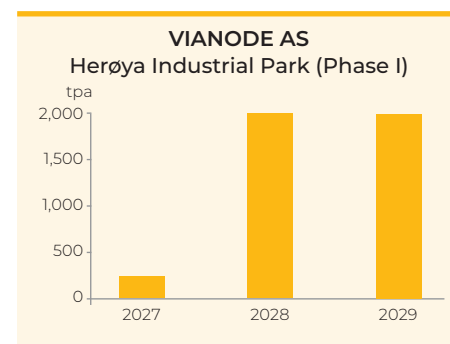
In mid-May 2025, Norwegian synthetic graphite anode producer, Vianode, and Danish recycler of critical minerals used in EVs, Fortum Battery Recycling, announced the signing of a Memorandum of Understanding. The collaboration aims to develop recycled graphite materials for use in Vianode's commercial anode production.

Due to the material's relatively low cost, graphite recycling hasn't seen as much commercial investment

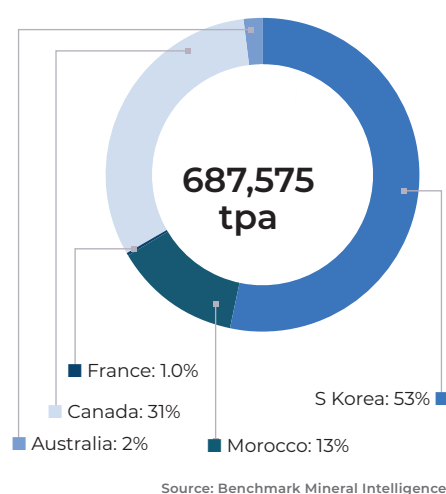
compared to active materials used in the cathode.

However, as demand for anode material grows, recycling graphite from end-of-life batteries or production scrap offers several potential benefits, including reduced reliance on primary graphite manufacturing. This shift would weaken reliance on a single country, China, from which 99% of global synthetic graphite supply is set to derive in 2025, according to the **Benchmark Synthetic Graphite Forecast**.

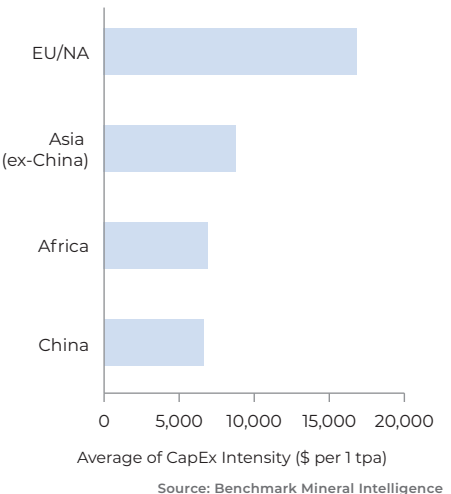
In addition, the two companies intend to assess and improve the performance of recycled graphite. This could significantly boost the economic feasibility of graphite recycling, which is currently a key challenge in the commercialisation of the material.



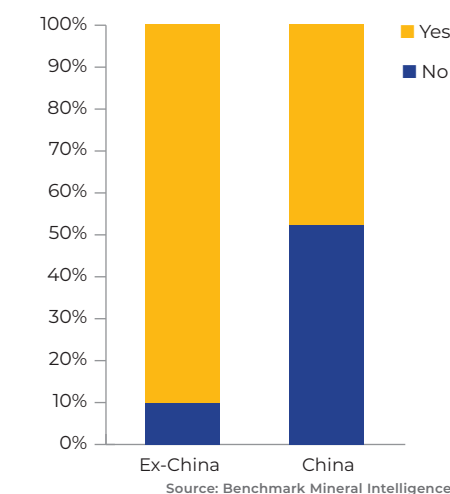
US FTA compliant material



CapEx by region



Vertical integration by region



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ANODE PRICE ASSESSMENT

MAY 2025

2 Anode capacity update

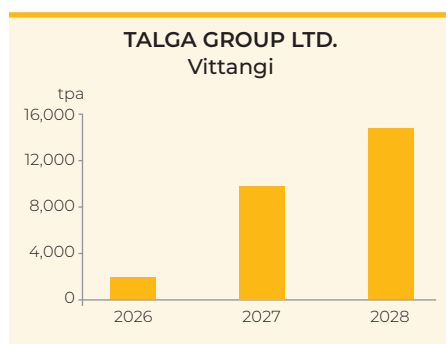
Talga Group secures supply partnership with Nyobolt

In mid-May 2025, Australian anode project developer, Talga Group, announced the signing of a multi-year offtake deal with UK-based battery manufacturer, Nyobolt.

The agreement stipulates that Talga will supply Nyobolt with 3,000 tonnes of anode material from its Vittangi project in Sweden for an initial term of four years commencing May 2025.

Talga will provide the initial supply from its anode demonstration plant in Luleå, Sweden. Following that, the remaining quantities will be fulfilled by their commercial plant, which is currently under construction and set to come online next year.

It has been reported that Talga continues to engage with several targeted customers to secure purchase commitments for the remaining production capacity of the Vittangi project, which has total nameplate capacity of 19,500 tpa.



Synthetic graphite anode capacity expansions persist in China

Two notable synthetic graphite anode projects were announced in China over the assessment period, both by new market entrants.

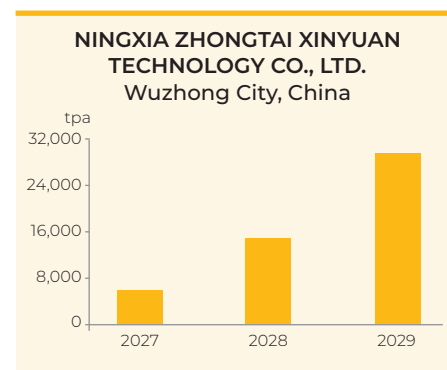
Firstly, Ningxia Zhongtai Xinyuan Technology Co., Ltd. announced construction had begun at its 60,000 tpa nameplate capacity facility in Wuzhong City, Ningxia Autonomous Region, China.

Benchmark predicts the company will target reaching operational status towards the start of 2026.

Secondly, Zhongjian Huida (Jilin) Emerging Energy Co., Ltd. announced that it plans to construct a 100,000 tpa nameplate capacity facility in Shuangliao, Jilin Province, China. It is anticipated that the project will go operation in the first half of 2027.

The two announcements highlight the continued capacity expansion of the synthetic graphite anode market. Although the market has seen robust demand throughout 2025, overcapacity has meant that prices have remained subdued.

The **Benchmark Anode Forecast** estimates that China currently has surplus of over 700,000 tpa of synthetic graphite anode material. This figure is only set to increase to the end of the decade, reaching almost 1,500,000 tpa by 2030.



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ANODE PRICE ASSESSMENT

MAY 2025

2 Anode capacity update

Geospatial update on BTR New Material's Kendall plant

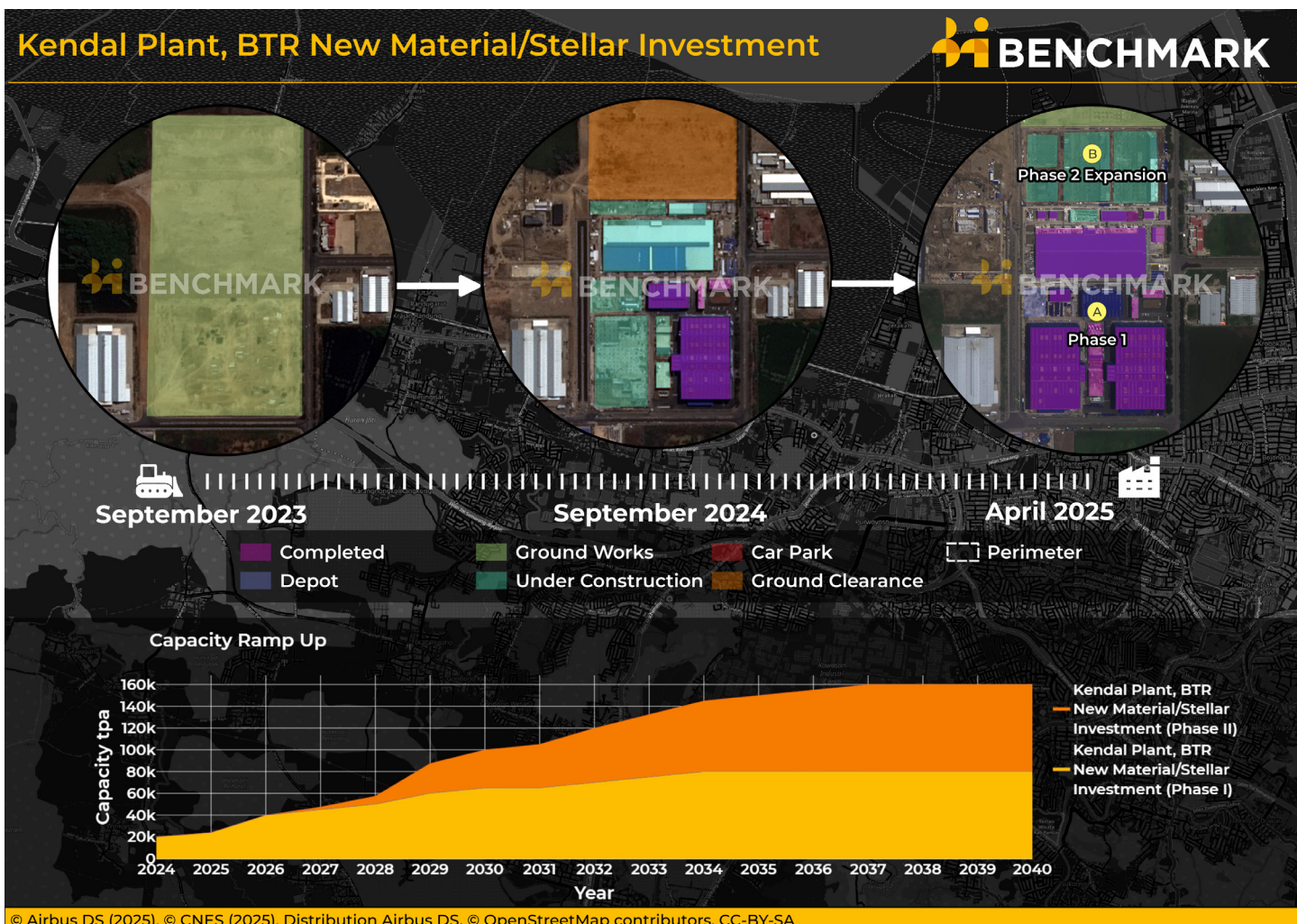
BTR's Kendall plant, located in the Kendall Industrial Park, Central Java, Indonesia, is being developed over two 80,000 tpa nameplate capacity phases.

Phase 1 reportedly began operations in August 2024, a fact supported by

satellite imagery. While the maximum capacity for Phase 1 is 80,000 tpa, **Benchmark** data indicates an initial startup capacity of 20,000 tpa, gradually scaling up to 80,000 tpa by 2030.

Currently, Phase 2 is under construction. Satellite imagery shows framing being erected, along with groundworks to the north of the

site. Although Phase 2 is scheduled for operation in 2027, the current construction progress suggests a potential earlier completion in late 2026, based on satellite observations. The Kendall plant represents BTR's first facility outside of China. By 2037, the combined maximum capacity of both phases is projected to be 160,000 tpa of anode material.



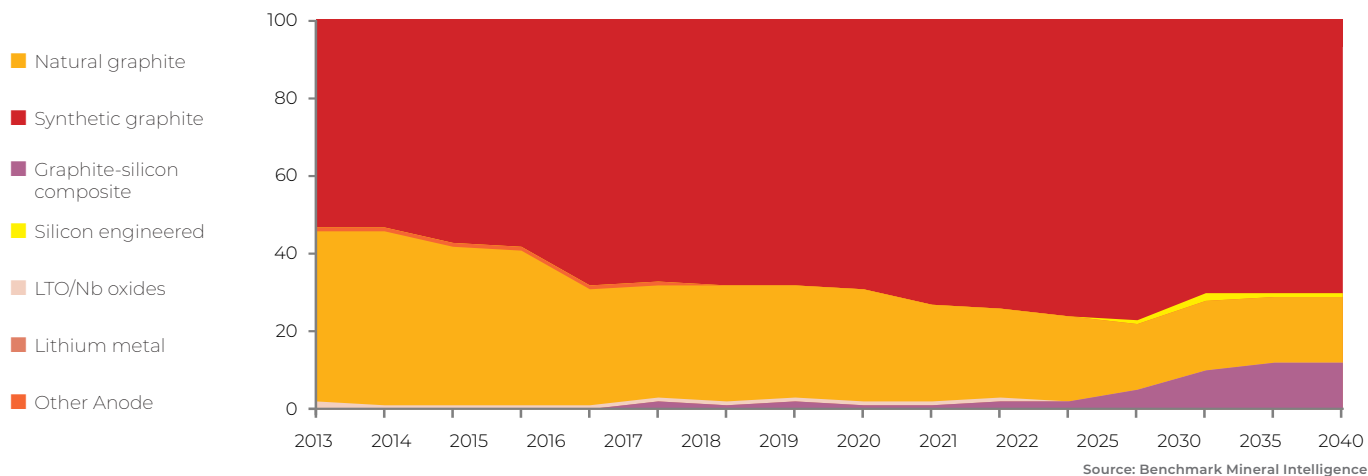
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ANODE PRICE ASSESSMENT

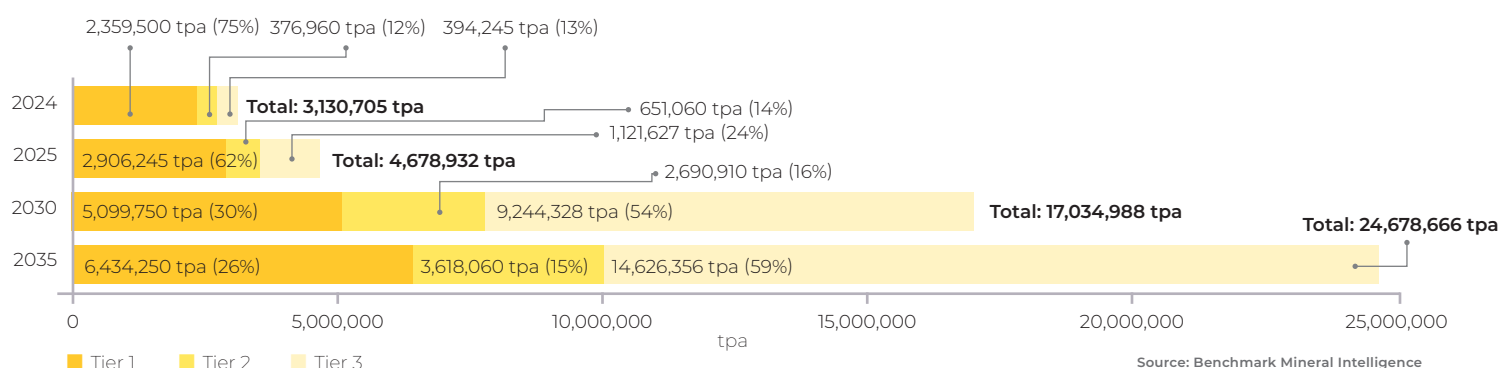
MAY 2025

3 Supply

Anode capacity by type



Capacity ramp up by tier

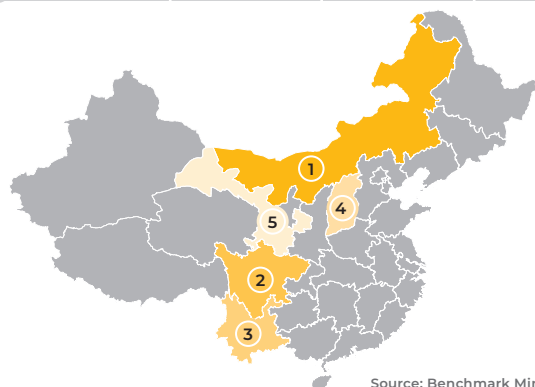


Anode capacity pipeline in China - Top 5 provinces

	Province tpa	Domestic share	Largest Provincial Manufacturer
① Sichuan	594,675	13.4%	BTR New Material
② Yunnan	523,500	11.8%	Ningbo Shanshan
③ Inner Mongolia	372,300	8.4%	Ningbo Shanshan
④ Shanxi	355,500	8.0%	Shijiazhuang Shangtai
⑤ Guizhou	314,500	7.1%	Hunan Zhongke
Other	2,288,950	51.4%	



	Province tpa	Domestic share	Largest Provincial Manufacturer
① Inner Mongolia	1,662,950	10.9%	BTR New Material
② Sichuan	1,570,750	10.3%	Shanghai Putailai
③ Yunnan	1,279,000	8.4%	Shijiazhuang Shangtai
④ Shanxi	1,239,000	8.1%	Gotion High-tech
⑤ Gansu	808,200	5.3%	Sunstone Development
Other	8,721,402	57.1%	



Source: Benchmark Mineral Intelligence

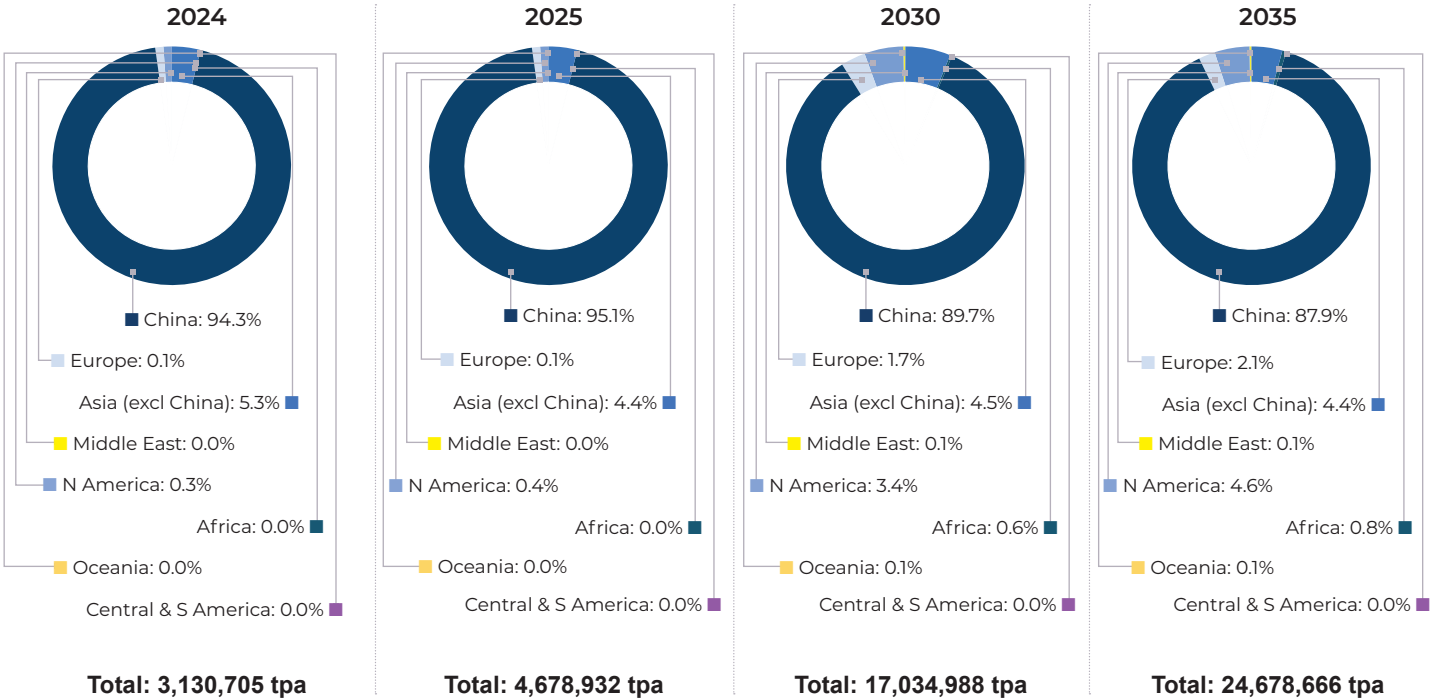
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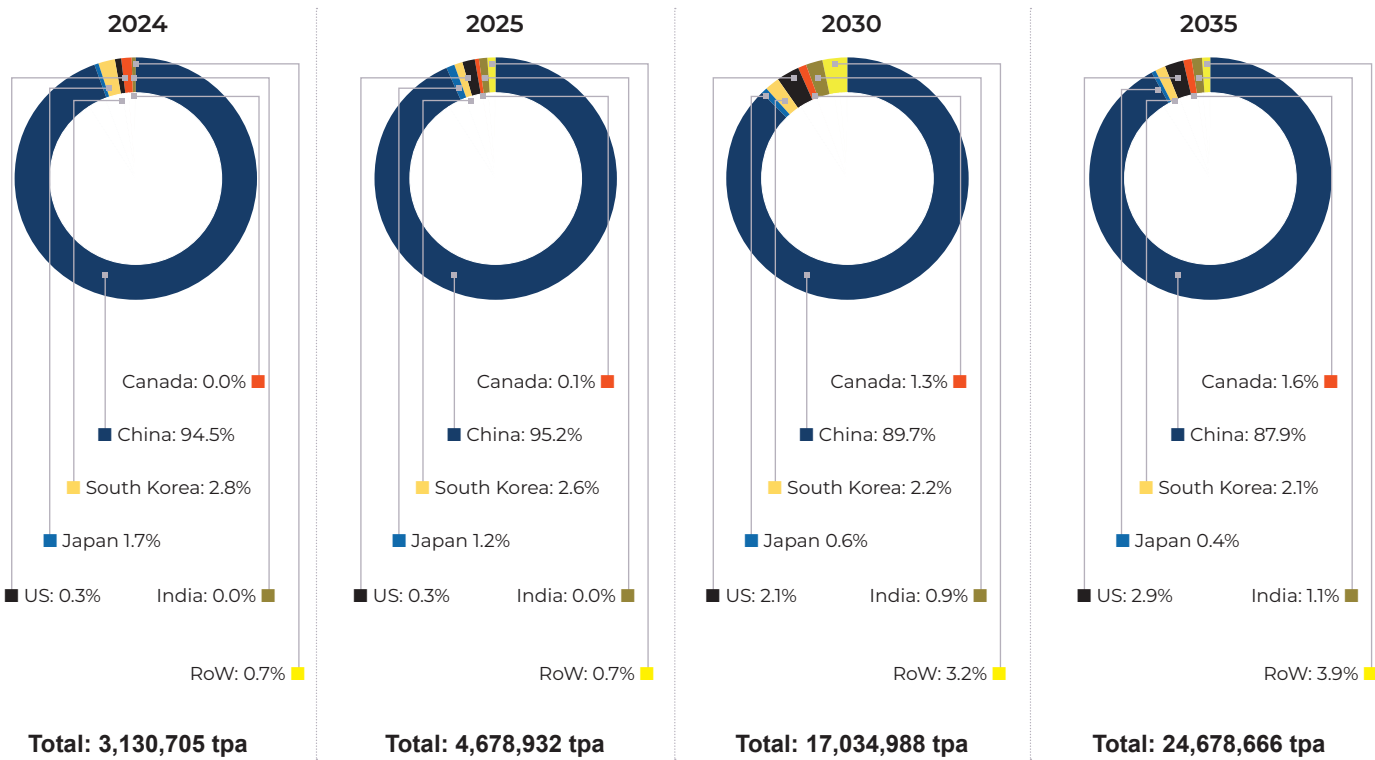
3 Supply

Anode capacity by region



Source: Benchmark Mineral Intelligence

Anode capacity by country



Source: Benchmark Mineral Intelligence

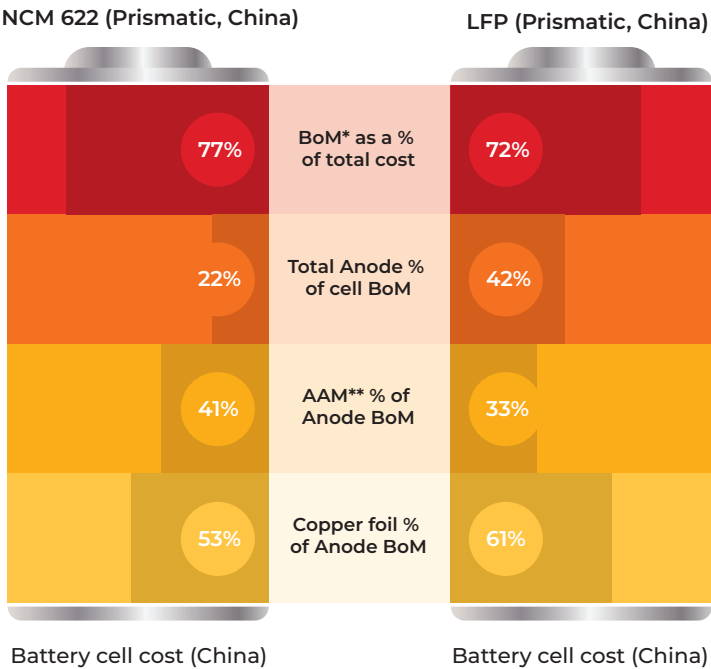
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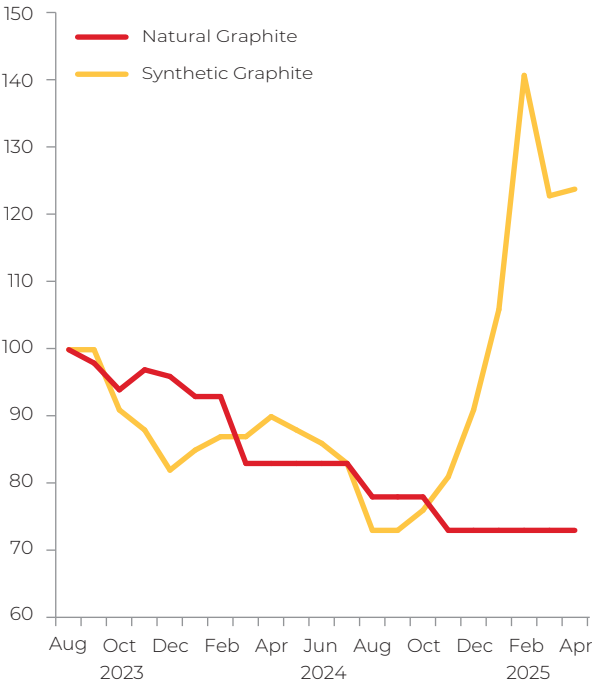
3 Supply

Anode costs



*BoM = Bill of materials ** AAM = Active Anode Material

Anode feedstock cost index



Source: Benchmark Mineral Intelligence

Country spotlight: USA

2030 Anode capacity global ranking: 3

- Company: Novonix Ltd.

Asset name: Riverside & Chattanooga (Phase I & II)

Primary chemistry: Synthetic Graphite

Nameplate capacity: 95,000 tpa
- Company: Ionic Mineral Technologies

Asset name: Provo Bay (Phase I, II & III)

Primary chemistry: Silicon-engineered

Nameplate capacity: 5,000 tpa
- Company: Westwater Resources Inc.

Asset name: Kellyton (Phase I & II)

Primary chemistry: Natural Graphite

Nameplate capacity: 50,000 tpa
- Company: Advano

Asset name: New Orleans, Advano (Phase I, II & III)

Primary chemistry: Silicon-engineered

Nameplate capacity: 20,000 tpa
- Company: Syrah Resources Ltd.

Asset name: Vidalia (Phase I & II)

Primary chemistry: Natural Graphite

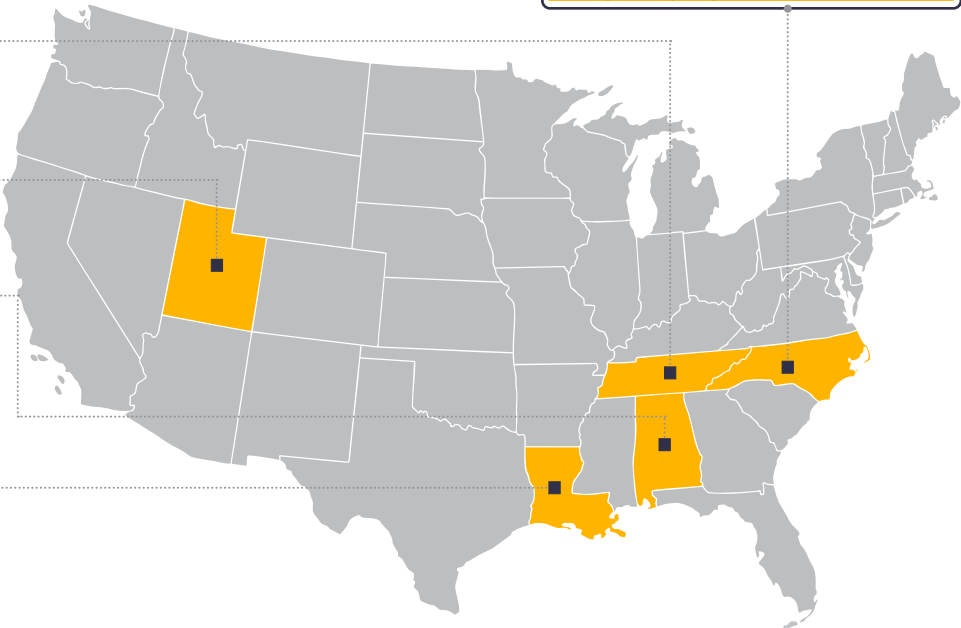
Nameplate capacity: 45,000 tpa

Company: Epsilon Advanced Materials Pvt., Ltd.

Asset name: Mid-Atlantic Industrial Park, Brunswick County (Phase I & II)

Primary chemistry: Synthetic Graphite

Nameplate capacity: 60,000 tpa



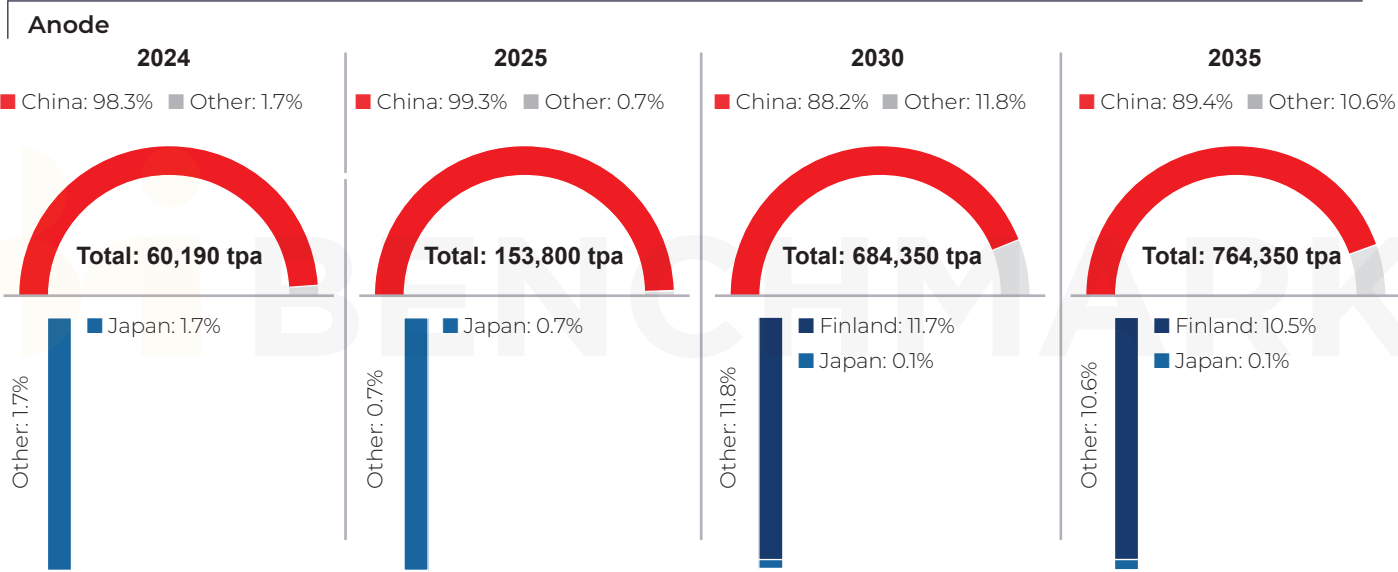
Source: Benchmark Mineral Intelligence

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ANODE PRICE ASSESSMENT

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Sodium ion anode capacity by region

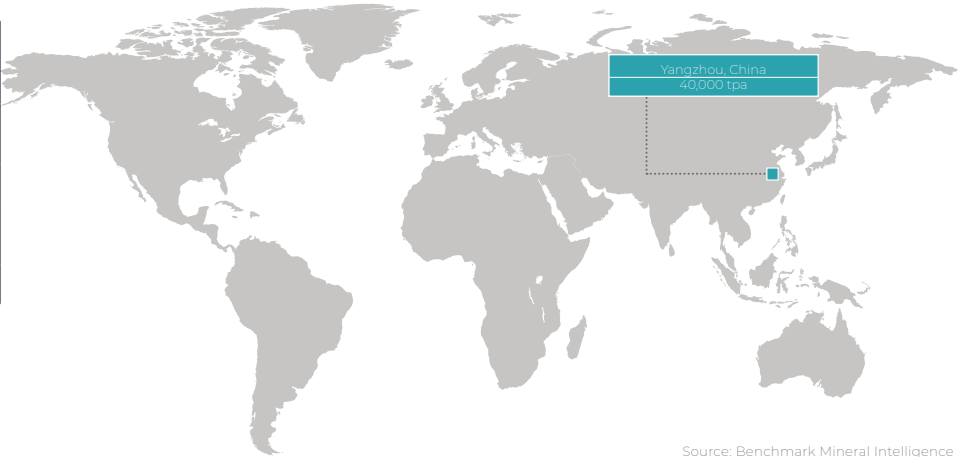


Technology: 2030 capacity



Company Spotlight: Jiangsu Chuanyi Sodium Electric Technology

Company	Jiangsu Chuanyi Sodium Electric Technology
Total Existing Capacity	5,000 tpa
Existing chemistries	Hard Carbon
Capacity in the pipeline	40,000 tpa
Future chemistries	Hard Carbon



Source: Benchmark Mineral Intelligence

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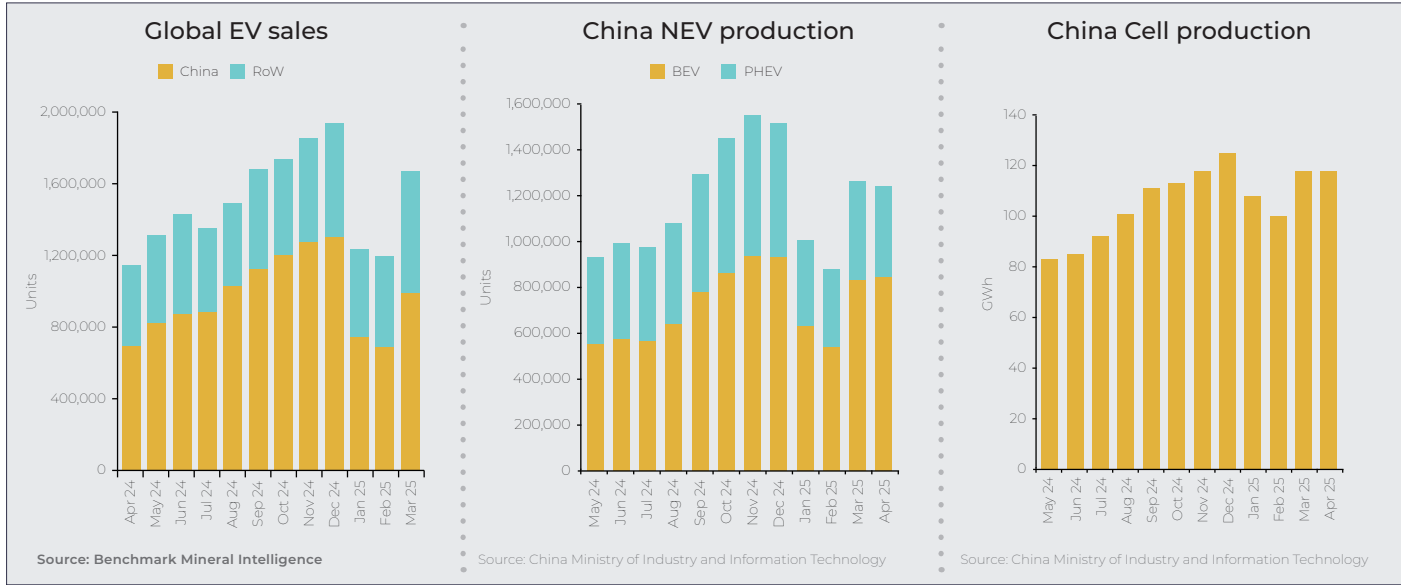
ANODE PRICE ASSESSMENT

MAY 2025

4 Demand indicators

		2024 (YOY)	Q1 2025 (QOQ)	FEB (MOM)	MAR (MOM)	APR (MOM)
CHINA						
EV SALES	BEV	7.8%	-31.7%	-0.3%	50.1%	-
	PHEV	50.5%	-41.7%	-18.2%	35.0%	-
EV PRODUCTION		34.8%	-30.3%	-12.6%	44.0%	-
GWH OUTPUT		46.6%	-8.2%	-7.0%	17.9%	-0.1%
GERMANY						
EV SALES	BEV	-33.8%	8.3%	2.8%	18.7%	-
	PHEV	-7.2%	8.2%	10.9%	37.5%	-
JAPAN						
EV SALES	BEV	-34.8%	-3.2%	-9.1%	31.3%	-
	PHEV	-29.8%	7.7%	-28.3%	94.8%	-
LI-ION BATTERY SALES		-20.6%	-	13.5%	-	-
LI-ION EXPORTS		-0.1%	-5.4%	34.8%	4.4%	-
SOUTH KOREA						
EV SALES	BEV	-14.6%	2.5%	531.1%	31.5%	-
	PHEV	-9.4%	11.0%	16.2%	7.0%	-
LI-ION EXPORTS		1.1%	-26.9%	14.5%	6.5%	-
USA						
EV SALES	BEV	-5.7%	-17.8%	10.9%	8.3%	-
	PHEV	-4.2%	3.8%	17.0%	17.3%	-

Source: Trading Economics; China Ministry of Industry and Information Technology; Battery Association of Japan; Intracen; Rho Motion



BENCHMARK MINERAL INTELLIGENCE

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5 Company data

STOCK PERFORMANCE*

OPERATOR	CURRENCY	MARKET CAP	SHARE PRICE	PREVIOUS SHARE PRICE	M-O-M PERFORMANCE
CHINA					
BTR NEW MATERIAL GROUP CO., LTD.	RMB	24.77b	22.25	20.52	▲
NINGBO SHANSHAN CO., LTD.	RMB	16.81b	7.50	6.44	▲
SHIJIAZHUANG SHANGTAI TECH' CO., LTD.	RMB	13.62b	51.98	52.00	▼
SHANGHAI PUTAILAI NEW ENERGY TECH' CO., LTD.	RMB	37.83b	17.13	17.29	▼
HUNAN ZHONGKE ELECTRIC CO., LTD.	RMB	10.62b	15.05	14.73	▲
SOUTH KOREA					
POSCO FUTURE M CO., LTD.	KRW	8.87t	114,500.00	129,200.00	▼
JAPAN					
MITSUBISHI CHEMICAL GROUP CORP.	JPY	1.14t	757.00	658.00	▲
EUROPE					
TALGA GROUP LTD.	AUD	191.26m	0.45	0.43	▲
NORTH AMERICA					
SYRAH RESOURCES LTD.	AUD	421.84m	0.41	0.23	▲

Source: Exchanges as listed - share prices recorded as on 17 May 2025

Company Spotlight: Ningbo Shanshan Co., Ltd.

Key customers:

CATL, PetroChina Petrochemical

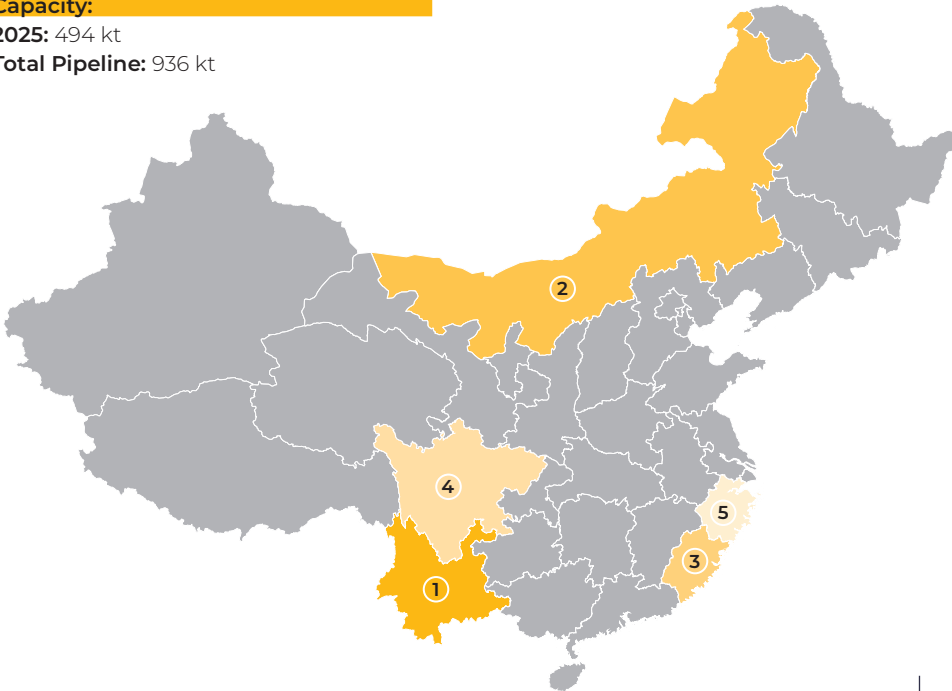
Capacity:

2025: 494 kt

Total Pipeline: 936 kt

2025 BTR Capacity by China Province

	kt
① Yunnan	198
② Inner Mongolia	100
③ Fujian	90
④ Sichuan	50
⑤ Zhejiang	35



Source: Benchmark Mineral Intelligence

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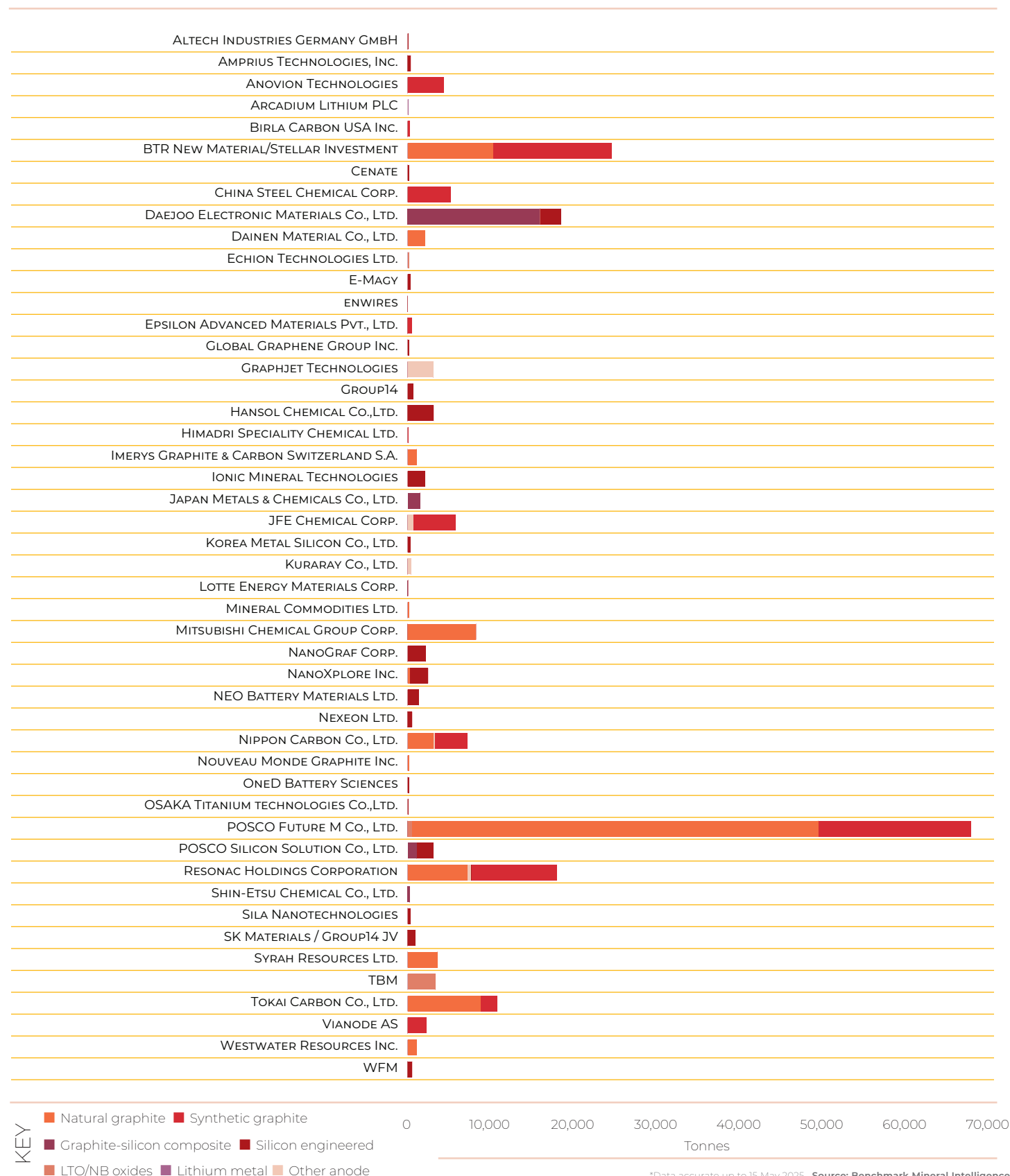
ANODE PRICE ASSESSMENT

MAY 2025

7 Chemistry index: Excluding China

A breakdown of manufacturer
capacity by anode chemistry in 2025

COMPANY 0 10,000 20,000 30,000 40,000 50,000 60,000 70,000 Tonnes



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ANODE PRICE ASSESSMENT



MAY 2025

7 Chemistry index: China

A breakdown of manufacturer capacity by anode chemistry in 2025

