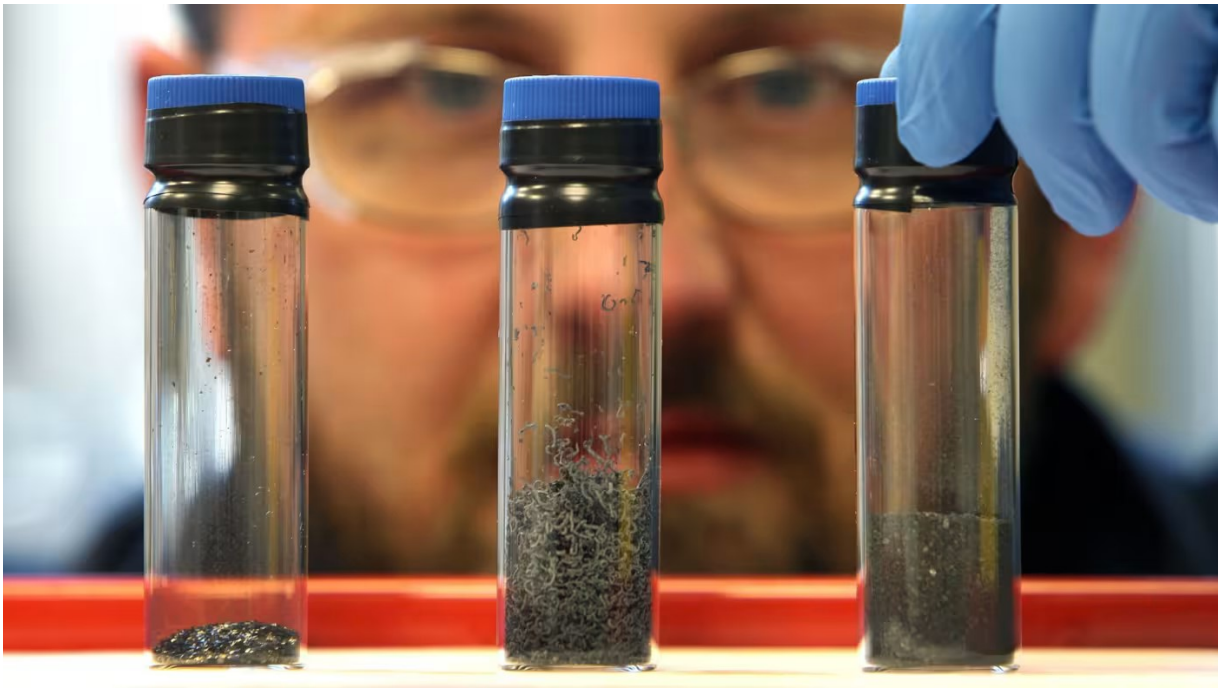
Commodities

The graphite fight: US tariffs trigger race to build non-Chinese supply chain

Key material for electric vehicle batteries has been neglected by industry to date, giving China almost 100% of market



While natural graphite — a form of carbon — is relatively abundant, almost all natural graphite processing and 98 per cent of synthetic graphite production for battery-grade anodes is currently conducted in China © Getty Images

Christian Davies in Seoul JUNE 8 2024

Graphite has become the latest resource to cause trade tensions between the US and China, with Washington putting pressure on EV and battery makers to build a new non-Chinese supply chain for graphite anodes, a crucial component in electric vehicle batteries.

The United States Trade Representative has announced that 25 per cent tariffs on natural and synthetic graphite anodes from China will be applied from this month, despite Chinese production accounting for 97 per cent of global anode output after years of under-investment in the material by the west.

The move follows the announcement in May of US tariffs of 25 per cent, due to kick in from 2026, on natural graphite — a form of carbon — processed in China.

That came soon after US officials granted a two-year waiver from January 2025 allowing vehicles with batteries containing Chinese graphite to continue to qualify for generous federal subsidies under the Inflation Reduction Act (IRA). President Joe

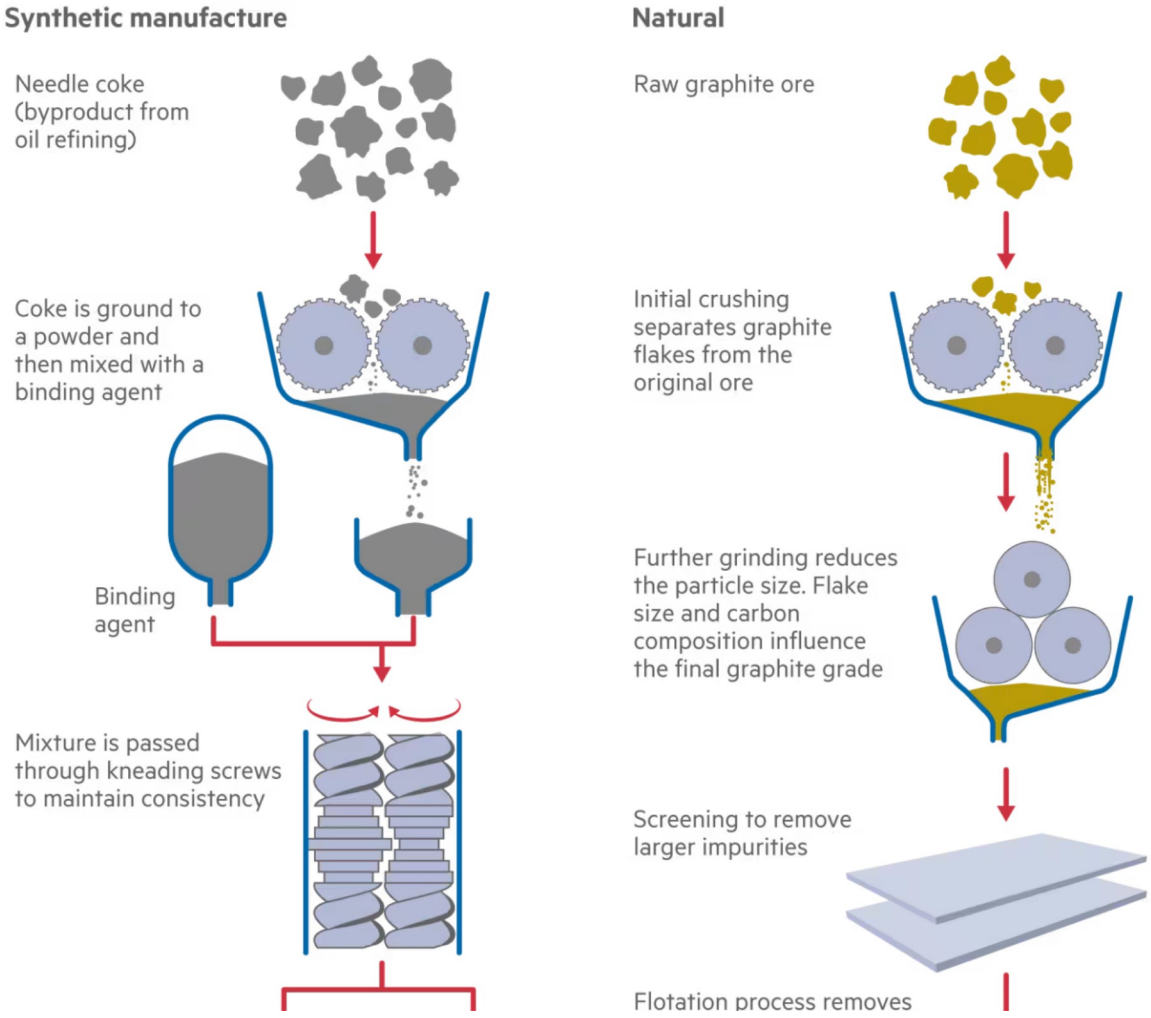
generous federal subsidies under the Inflation Reduction Act (IRA), President Joe Biden's flagship climate legislation, following warnings that the subsidy regime could collapse without an exemption.

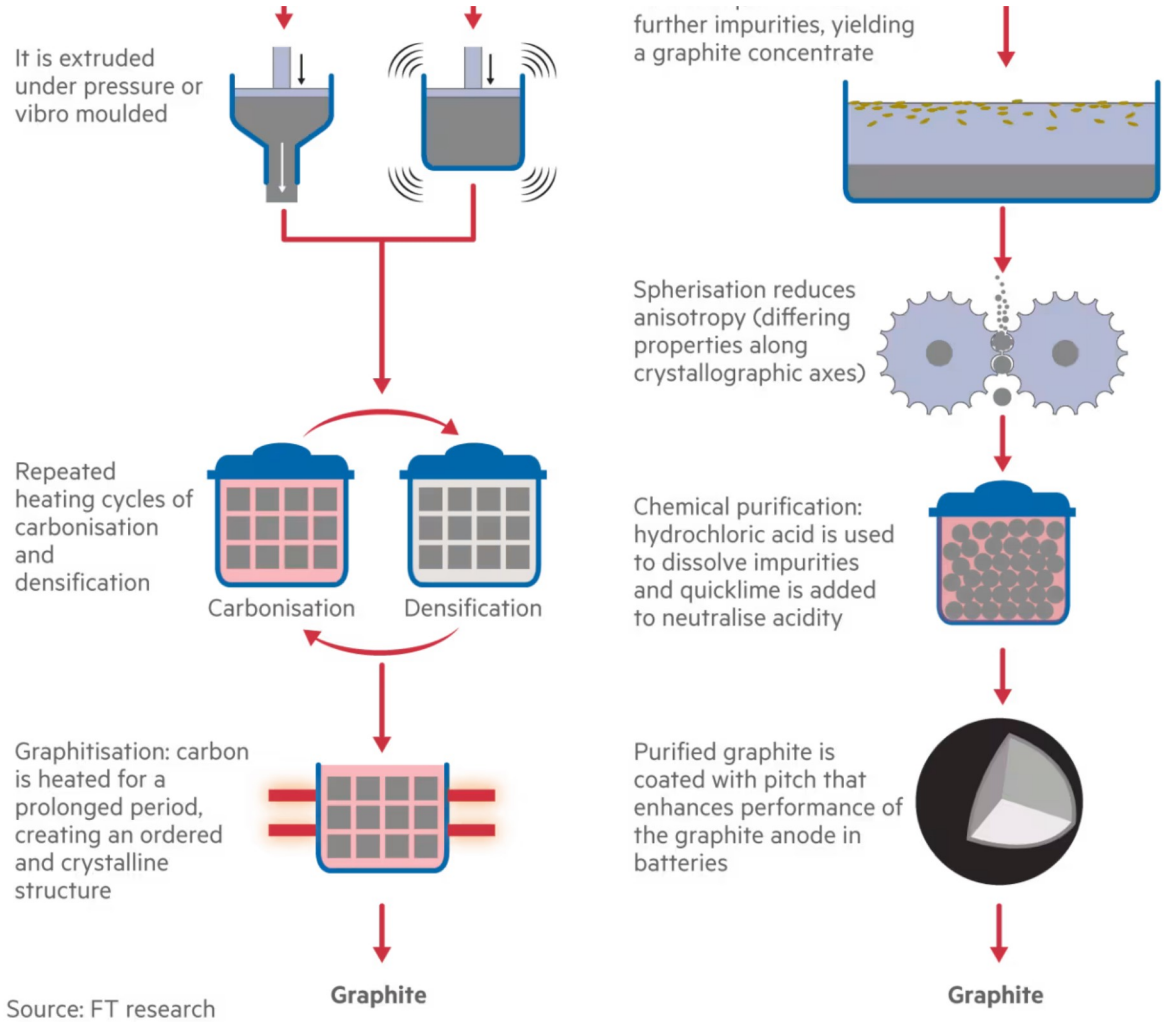
"Graphite has emerged as Washington's 'Achilles heel' in its trade confrontation with Beijing," said Georgi Georgiev, battery raw materials analyst at consultancy Fastmarkets.

"The US government was forced to acknowledge that battery makers need Chinese graphite in the short term if any vehicles are to qualify for the IRA tax credits," he added. "But it is firmly determined to close that loophole as soon as possible, giving companies just a few years to construct a brand new supply chain almost from scratch."

Powdered anodes, which store the charge in lithium-ion batteries, are most commonly made from a blend of mined natural graphite and synthetic graphite, which is produced by heating needle coke, a petroleum product, to temperatures of up to 3,000°C.

EV battery anodes contain a blend of natural and synthetic graphite





Source: FT research
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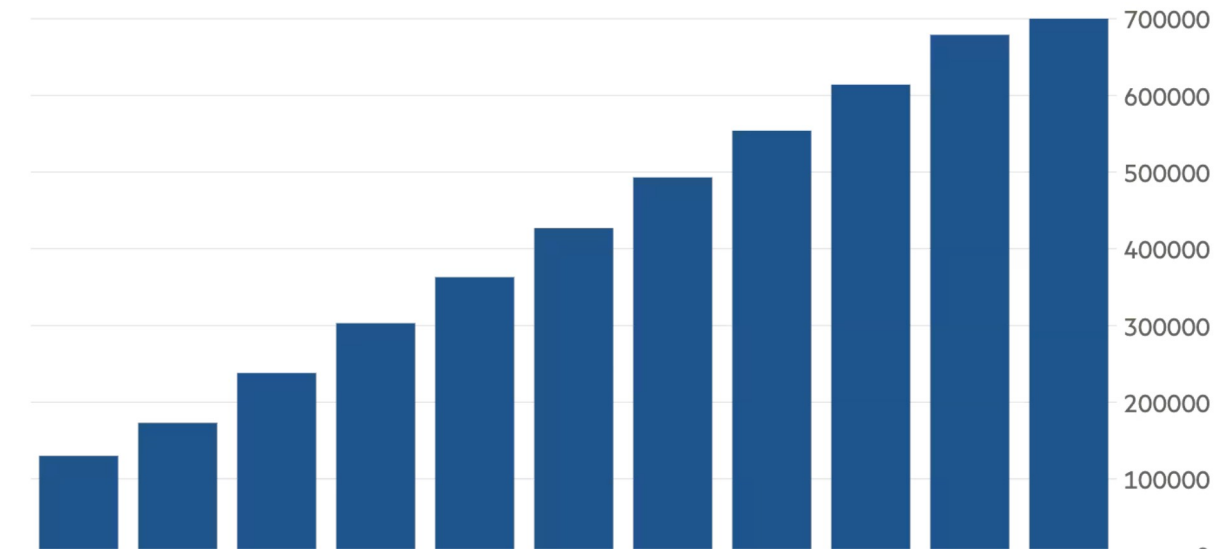
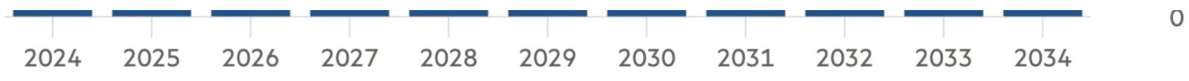
EV production in the US is expected to increase graphite demand

Projected graphite demand from US electric vehicle production (tonnes)





Source: Fastmarkets
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Ross Gregory, a Seoul-based partner of consultancy New Electric Partners, noted that anodes made up approximately 50 per cent of a battery cell's volume but only 10 per cent of the cost, meaning that companies seeking to build an IRA-compliant battery supply chain have focused instead on procuring higher-value minerals such as lithium, nickel and cobalt used in battery cathodes.

"Graphite anodes are a necessary component for all lithium-ion batteries, but there has been a perception that they are too cheap, too dirty, and too easy to secure from China to justify making the necessary investments," said Gregory.

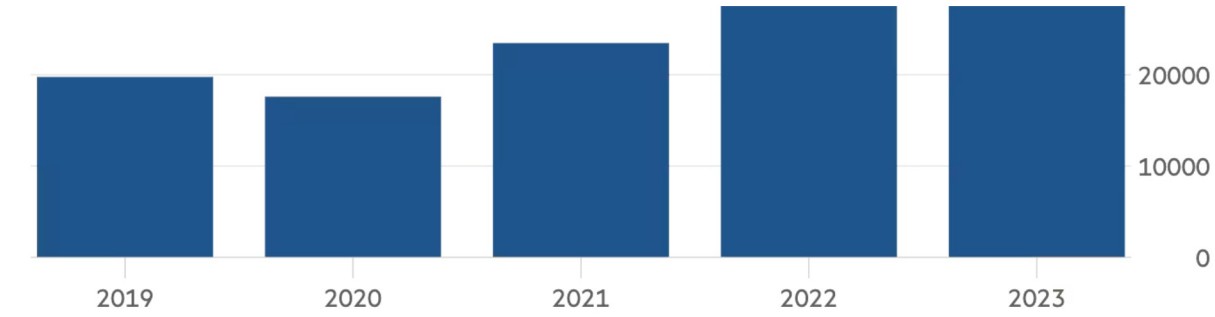
"As a result, the job of securing alternative sources was almost completely neglected by non-Chinese EV manufacturers, battery makers and battery material producers even after the IRA was passed in 2022," he added. "Now Washington is trying to force their hand with the tariffs and the threat of the graphite waiver expiring in a couple of years."

Analysts note the US is a net exporter to China of the needle coke used to make synthetic graphite and its industry should be able to convert existing facilities to produce battery-grade anode powders within three to four years. Optimists also note that natural graphite can be found across the world, with large deposits in Canada and Mozambique.

But very few analysts believe non-Chinese companies will come close to replicating China's graphite anode capacity by the time the US government's IRA graphite waiver is due to expire at the end of 2027, meaning that either the waiver will have to be extended or few vehicles will qualify for the credits, further hampering the country's EV transition.

US anode imports have jumped in the past two years

US anode imports (tonnes)



Source: Fastmarkets

Fastmarkets projects that even by 2030, just 40 per cent of US anode demand will be met by IRA-compliant projects.

"Two years is not enough," said Sam Adham, a battery supply chain expert at analysis firm CRU Group.

"Non-Chinese producers have a high barrier to entry: issues around financing, long lead times, the need to secure environmental permits, energy costs, and a lack of specialist knowhow when compared with their Chinese competitors," he added, noting that they will be expected to supply customers in Europe, South Korea and Japan as well as the US.

Tim Bush, a Seoul-based battery analyst for UBS, noted that non-Chinese EV manufacturers, battery makers and materials producers now faced the prospect of being forced to make huge investments in a new graphite anode supply chain just when they were trying to cut costs due to the lower than expected take-up of electric vehicles in the US and Europe.

"US automakers are making losses on EVs, while Korean battery companies and materials companies are cutting or considering cutting capacity," said Bush, noting that Posco Future M, the only Korean anode producer, received all of its processed graphite from China and recently halved its natural graphite expansion plan.

Eduardo Gonzalez, chief financial officer at Urbix, a US graphite refiner, said the reluctance of companies to invest in non-Chinese graphite had been "difficult to understand", but that "market dynamics will lead to an eventual scramble for these products".

Gregory added that in the meantime, Beijing had the ability to restrict graphite or anode exports in retaliation for US measures, or conversely to increase supply to bring down prices further, threatening the viability of non-Chinese projects. China fired a warning shot in October last year by introducing a requirement for special export permits for three grades of graphite.

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"Building a non-China, IRA-compliant anode supply chain needs to be done, and it will be done eventually," said Gregory. "But it will be done slowly and at a tremendous cost."