

An update on the graphite sector and what to expect in 2024 and beyond

written by Matt Bohlsen | December 20, 2023

2023 has been a rough year for all the EV metals and graphite was no exception. EV battery anodes contain a combination of spherical graphite (sourced from natural flake graphite) and synthetic graphite. Today we take a look at the key trends of 2023 and what we can expect in 2024 and beyond.

Greg Fenton on China's graphite export restrictions and Zentek's Albany graphite deposit in Ontario

written by InvestorNews | December 20, 2023

In a recent InvestorNews interview with host Tracy Weslosky, Zentek Ltd.'s (NASDAQ: ZTEK | TSXV: ZEN) CEO and Director, Greg Fenton, discussed China's recent move to restrict graphite exports and its potential impact on global supply chains and the electric vehicle (EV) industry.

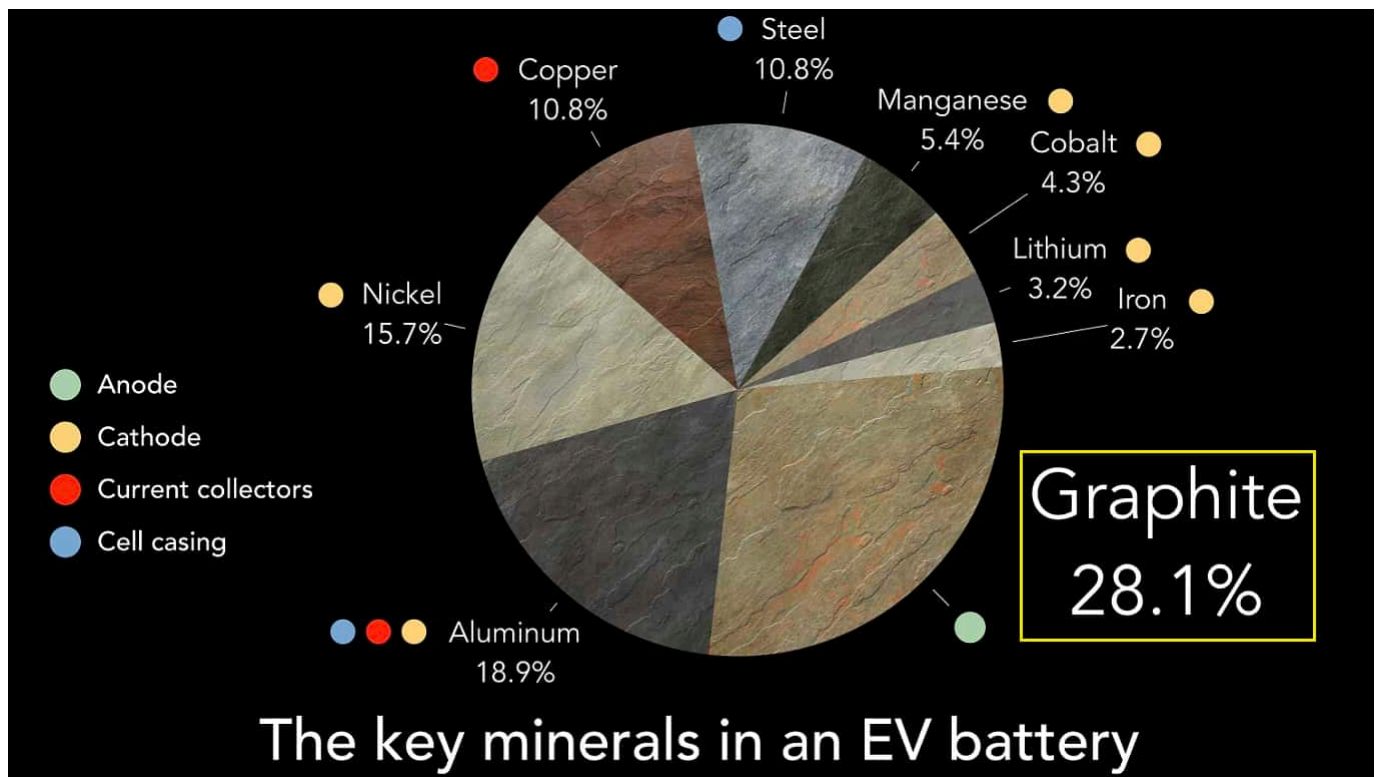
Can the Western graphite and anode industry rise to meet China's challenge?

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China to impose some graphite and processed graphite materials 'export permits' from December 1, 2023

Last week it was [reported](#) that China, the world's top graphite producer plans to curb exports of key battery material by implementing export permits for some graphite products from December 1 to protect national security. Another report [stated](#): "China graphite export restrictions could hinder ex-China anode development...if it lasts into the longer term, it is likely to accelerate the build-out of a localized graphite and battery anode supply chain outside China."

Graphite is the number one metal required for lithium-ion batteries making up about a 28% share. It is used in the anode.



The key metals and minerals in a battery of an electric vehicle

The world is very dependent upon China to supply processed graphite material and anodes for Li-ion batteries

The reason why this is huge news in the graphite world is that China produces [67% of global natural flake graphite](#) supply and refines more than [90%](#) of the world's graphite into active anode material (typically spherical graphite). If China were to deny or delay permits for spherical graphite it will cause major problems for anode manufacturers outside China, such as those in South Korea, Japan, or North America.

China currently produces [~77% of global lithium-ion batteries](#) and 75-80% of global electric cars, thereby completely dominating the industry. If the West is shut out from sourcing

processed EV battery materials from China then they will have a major problem producing their own EVs. China plans to prioritize EV battery materials for their own needs. This is why President Biden introduced the Inflation Reduction Act (IRA) and the EU introduced the EU Critical Raw Materials Act. Both are designed to address the shortages in the EV supply chain and the forecast shortages of future supply of critical raw materials. The problem is the IRA has done little to address the supply of raw materials and the EU Critical Raw Materials Act is [woefully inadequate](#) and targets fall way short of what will be needed.

Which western graphite companies can rise to meet the challenge to establish an ex-China graphite supply chain

The leading western graphite companies that are working to establish an ex-China supply chain for flake graphite, synthetic graphite, and spherical graphite include:

- [Syrah Resources Limited](#) (ASX: SYR) – Largest western flake graphite producer with their 350,000tpa flake graphite capacity Balama Mine in Mozambique. Currently constructing the Vidalia spherical graphite facility in Louisiana, USA with Stage 1 production plans to produce 11,250tpa of spherical graphite. Longer term they plan to expand to 45,000tpa in 2026 and then to >100,000tpa by 2030 with an Europe/Middle East facility. Syrah already has an off-take agreement with Tesla (NASDAQ: TSLA). Syrah's stock price has surged ~80% higher the past week following the release of the China export permits news.
- [Nouveau Monde Graphite Inc.](#) (NYSE: NMG | TSXV: NOU) – Is


rapidly progressing their plans for their Matawinie Graphite Mine and Bécancour Battery Anode Material Plant in Quebec, Canada. The company is [working with Panasonic](#) to qualify their graphite anode material. Panasonic supplies Tesla with batteries.

- [Northern Graphite Corporation](#) (TSXV: NGC | OTCQB: NGPHF) – Owns graphite producing and past producing mines in Quebec, Canada and Namibia. They also own the Bissett Creek graphite Project in Ontario, Canada. The Company [state](#) that they are “North America’s Only Significant Natural Graphite Producer”. The Company plans to develop one of the world’s largest battery anode materials facilities in Baie-Comeau Québec with [200,000tpa](#) of capacity.
- [NextSource Materials Inc.](#) (TSX: NEXT | OTCQB: NSRCF) – A new graphite producer from their Molo Graphite Mine in Madagascar with Phase 1 capacity of [17,000tpa](#) of flake graphite production and plans to expand to [150,000tpa](#). The Company’s short term plan is for [a Battery Anode Facility in Mauritius](#) and longer term for similar facilities in USA/Canada, UK, EU.
- [Magnis Energy Technologies Ltd.](#) (ASX: MNS | OTCQX: MNSEF) – Magnis aims to produce high performance anode materials utilising ultra-high purity natural flake graphite from their Nachu Graphite Project in Tanzania. Magnis’ partially owned U.S.-based subsidiary Imperium3 New York, Inc (“iM3NY”) operates a gigawatt scale lithium-ion battery manufacturing project in Endicott, New York.
- [Talga Group Ltd.](#) (ASX: TLG) – Own the integrated mine to anode Vittangi Graphite Project in Sweden. In September 2023 Talga broke ground on their [19,500tpa](#) anode facility, [stating](#) “the refinery is projected to be the first commercial anode production in Europe for electric vehicle Li-ion batteries”.


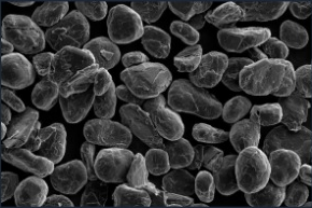


- [Novonix Limited](#) (NASDAQ: NVX | ASX: NVX) – Has a production capacity target of [up to 20,000 tpa](#) of synthetic graphite anode material from their Tennessee facility in the USA.
- [Anovion Technologies](#) (private) – The USA anode producer plans to invest US\$800 million to produce a [40,000tpa synthetic graphite anode material facility](#) in Georgia, USA with plans to expand to [150,000tpa](#) by 2030.

Syrah Resources leads the West's attempt to build an ex-China flake graphite and anode material supply chain

Our Position



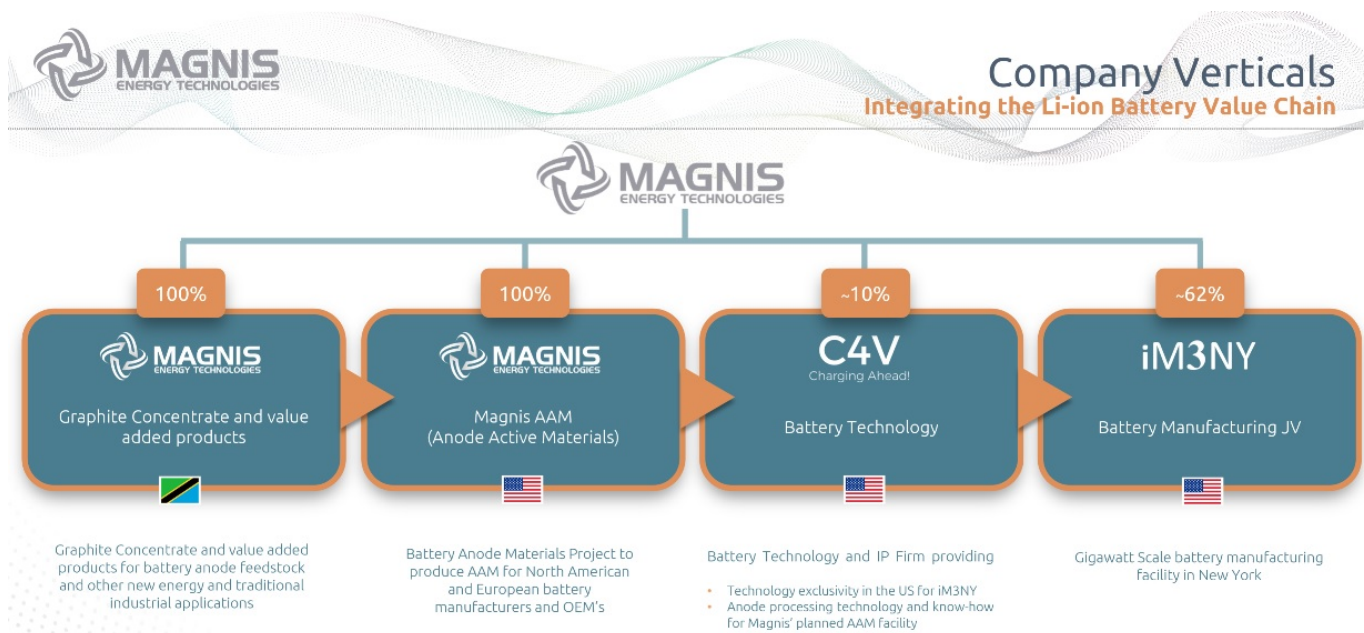
Syrah is a major ex-China natural graphite and active anode material (AAM) supplier for global customers, with upstream and downstream expansion potential underpinned by its world-class Balama resource

 <p style="margin-top: 10px;">Natural graphite and AAM demand will increase four and six times, respectively, over the next 10 years¹</p>	 <p style="margin-top: 10px;">Syrah is the only operating vertically integrated natural graphite AAM supplier outside of China</p>	 <p style="margin-top: 10px;">Balama is a 350ktpa graphite producer in Mozambique supplying global battery anode and industrial customers since 2017</p>	 <p style="margin-top: 10px;">Syrah is nearing completion of an 11.25ktpa AAM facility at Vidalia in the US with commercial sales arrangements in place with tier 1 customers</p>
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1. Source: Benchmark Minerals Intelligence Flake Graphite Forecast, Q3 2023. Note: AAM demand is for natural graphite AAM.

Source: [Syrah Resources September 2023 Quarterly Activities presentation](#)

Magnis Energy Technologies is working towards becoming a graphite producer, anode materials producer and is already a small scale JV battery producer in the USA



Source: [Magnis Energy Technologies company presentation](#)

Closing remarks

The Western world received a loud wake-up call the past week. The China graphite products 'export permits' may only serve to restrict or slow down some anode material supply from China, but it puts the West on notice of how dependent they are upon China.

Given the world is rapidly moving to electric vehicles, the West must urgently build up its EV materials supply chains or risk being left behind in the global EV race.

The USA is making some bold moves and the companies discussed in this article are moving in the right direction. Let's just hope that the western EV supply chain build out accelerates rather than stalls like [GM's latest electric pickup truck plans](#). I think Americans will want U.S.-branded electric cars and I know Europeans will want European branded electric cars. If we are not careful our only choice one day might be Tesla and Chinese electric cars. Stay tuned.

Following the Nouveau Monde Highway to Battery Graphite

written by InvestorNews | December 20, 2023

I have some recurring themes that I tend to write about. I have no idea if people like them or not so I will continue along in my own little vacuum and hope that at least some readers out there find the same things interesting that I do.

One of those themes I like to revisit is clean, sustainable resource acquisition. By that I mean, we can't just pillage the earth for all the critical battery metals we require simply because it's a means to an end...well, we can, and currently we do. But I feel that at some point in time, there will be as much scrutiny on how we source these materials as there is on phasing out fossil fuels and reducing overall carbon emissions. At least I'd like to think that's the case, but who knows if policymakers will take that next step. To me, it seems the end goal of a greener economy is kind of pointless if we don't look at the whole picture.

Bottom line, in my opinion, we need to be just as concerned about where and how we are acquiring all the copious amounts of raw materials required to transition to a cleaner, greener future or we're simply trading in one problem for another. Whether companies are recognized for this today, or not for some time to come, I strongly believe they will eventually be rewarded.

That brings me to [Nouveau Monde Graphite Inc.](#) (NYSE: NMG | TSXV: NOU), a Québec-based company striving to become a key

contributor to the sustainable energy revolution. The Company is working towards developing a fully integrated source of carbon-neutral battery anode material in Québec, Canada for the lithium-ion battery and fuel cell markets, and other value-added graphite products. With excellent ESG standards, the Company aspires to become a strategic supplier to the world's leading battery and auto manufacturers, providing high-performing and reliable advanced materials while promoting sustainability and supply chain traceability.

The Company's activities are focused on the planned [Matawinie graphite mine](#) and the planned commercial value-added [Bécancour Battery Materials Plant](#), both of which are progressing concurrently toward commercial operations.

The Matawinie graphite property, owned 100% by the Company, consists of 246 mining claims spanning 13,214 hectares, located around 120 km north of Montréal, Québec. An updated feasibility study for this property indicates an annual processing rate of 2.55 million metric tonnes and average annual graphite production of 103,328 metric tonnes. In 2018, the Company began operating a demonstration plant in Saint-Michel-des-Saints to validate the quality and processes of its graphite products, and to serve as a foundation for its Phase-2 battery material plants. Nouveau Monde has initiated steps towards making the Matawinie Mine one of the first all-electric open-pit operations globally, working in collaboration with Caterpillar and governments to achieve electrification in mining and aiming to reduce over 300,000 tonnes of CO₂ emissions over the mine's lifespan.

At the same time, Nouveau Monde is progressing with its Battery Material Plant Project, producing spherical graphite at its Phase-1 facility, and leveraging a proprietary thermochemical purification process to yield graphite with purity levels

surpassing 99.95%. The Company has a partnership with Olin Corporation for operational support and raw material supply, and has set up pilot plant purification modules at Olin's Bécancour, Québec facility. Nouveau Monde owns land in Bécancour to build its own manufacturing plant, projected to produce approximately 46,000 tpa of advanced graphite materials. This is further strengthened by the Québec Government's battery hub strategy, which has attracted significant industrial players to the area. The Company's current commercial plans for its Phase-2 Bécancour Battery Material Plant are being advanced in line with a recent Feasibility Study.

Nouveau Monde's latest [quarterly operational update](#) provides valuable insights into the progress being made on both fronts. The Company announced significant advancements in the development of its fully integrated value chain, with the aim of becoming one of the largest natural graphite sources in North America. As the company approaches its Phase-2 development, emphasis is being placed on securing optimal multiyear sales agreements, finalizing technical parameters for the Bécancour Battery Material Plant, enhancing commercial visibility, and ensuring long-term shareholder value. Collaborative testing is ongoing at the Company's Phase-1 plants alongside potential customers, aiming to optimize process efficiency, inform Phase-2 facility plans, and mitigate risks. Significant partnerships have been established, including a technology collaboration with Caterpillar and a potential long-term agreement with Panasonic Energy. The Company secured US\$22 million in a [bought deal financing](#) in April to finish Q2 with a cash position of C\$59.8 million, while continuing to engage with governmental agencies to optimize project financing.

Despite a slower start to EV sales in 2023, the market saw a 36% YoY increase with further growth expected in the latter part of 2023. Benchmark Mineral Intelligence forecasts the global

production capacity of lithium-ion batteries to reach 8,930 GWh by 2030, suggesting a significant growth in demand for battery materials, including graphite. Nouveau Monde's comprehensive production model and strategic advantages, such as carbon-neutrality and regional benefits, place the company in a favorable position to cater to Western markets looking to decrease dependence on Chinese suppliers. It's not just enough to supply a critical material anymore, it needs to be done sustainably.

Nouveau Monde Graphite Inc. trades at a market cap of C\$235 million.