

Jack-in-the-Stox: Why Graphite's Real Value Begins After the Mine

written by Jack Lifton | August 19, 2026

In his ongoing Jack-in-the-Stox series, [Jack Lifton](#) comments on public companies, technologies, capital markets, supply chains and geopolitics. He is not a licensed investment adviser, and his views are provided for informational purposes only. Nothing in this column constitutes investment advice or a recommendation to buy, sell or hold any security.

Investors have been trained to think of graphite as the material in a pencil or, more recently, as another battery mineral. Both descriptions are true, but neither is adequate. Graphite is an industrial form of carbon whose value comes from a rare combination of properties: it conducts electricity and heat, withstands high temperatures, resists many chemical attacks, and lubricates because its atomic layers slide over one another. Those properties have made graphite indispensable to steelmaking, foundries, electric motors, friction materials, lubricants, batteries, and some nuclear reactors.

The sudden enthusiasm for graphite is being driven by the lithium-ion battery. But the first rule for investors should be the same one I apply to rare earths: a deposit is not a product, and a product is not a qualified component. Graphite ore does not go directly into a battery cell, a reactor core, or an electric-arc furnace. Each market requires different

forms, particle sizes, purities, morphologies, consistencies, and qualification histories. There is no single graphite market, and there is no single graphite price.

That distinction is the beginning of graphite economics. It is also the reason that a company announcing a large graphite resource has told us much less than it thinks it has. The question is not merely, "How much carbon is in the ground?" It is, "What saleable graphite product can be made, at what yield, at what cost, in what jurisdiction, and who has qualified it?"

The Battery Demand is Real – but the Anode is the Business

In a conventional lithium-ion cell, lithium ions move between the cathode and the anode. The cathode chemistry may be lithium iron phosphate, nickel manganese cobalt, or another formulation, but commercial anodes remain overwhelmingly graphite based. Silicon is increasingly blended into graphite to raise energy density, yet silicon's expansion and cycle life problems mean that it is more often an additive than a wholesale replacement. Graphite remains the host structure into which lithium ions are reversibly inserted.

An electric vehicle battery can require roughly 50 to 100 kilograms of graphite, depending on pack size, cell design, and anode formulation. More important than the exact number is the scale relationship: by weight, an EV battery commonly contains more graphite in its anode than lithium in the entire cell. Grid storage, consumer electronics, power tools, and hybrid vehicles add to that demand. The International Energy Agency reported that graphite demand grew 6-8% in 2024 and projects, under stated policies, that total demand could approximately double by

2040. In a more aggressive net-zero case, the increase is much larger.

Natural flake graphite must be mined, concentrated, purified, rounded into spherical particles, classified, coated, and tested before it becomes active anode material. The spheronization step can discard a substantial portion of the original flake unless the fines find another buyer. Chemical purification may involve hydrofluoric acid or alkaline processes. Coating and heat treatment affect first-cycle efficiency, rate capability, and life. Every step affects yield and cost.

Synthetic graphite follows another route. Petroleum coke or other carbonaceous feedstock is formed, baked, and graphitized at temperatures approaching 3,000 degrees Celsius. It is generally more consistent and can offer excellent performance, but it is energy-intensive and expensive. Battery makers often blend natural and synthetic graphite to balance cost, performance, fast charging, and supply security.

This is where the West's strategic problem lies. China is not important simply because it mines natural graphite. It dominates the purification, shaping, coating, and graphitization capacity that converts carbon into a qualified anode product. Building mines without building those intermediate and downstream capabilities reproduces the familiar Western mistake: counting resources while China controls the value-added form.

Nuclear Graphite is a Separate and Exacting Market

Graphite has served nuclear technology since the beginning of the atomic age because high-purity carbon can slow fast neutrons without absorbing too many of them. In graphite-moderated

reactors, it is also a structural material and, in some designs, part of the fuel matrix. The new generation of high-temperature gas-cooled reactors uses machined graphite blocks or graphite pebbles with channels or spaces for helium coolant and TRISO fuel. Some molten-salt reactor concepts also use graphite as moderator and structure.

This is not battery-grade natural graphite sold under a more impressive label. Nuclear graphite is normally an engineered, synthetic product made from carefully selected coke and pitch, formed and heat-treated, purified to extremely low levels of neutron-absorbing impurities, and qualified for dimensional stability, strength, thermal conductivity, irradiation behavior, and oxidation resistance. Reactor designers qualify a particular grade and manufacturing route; substitution is neither quick nor casual.

A graphite-moderated power reactor can embody hundreds or even thousands of tonnes of nuclear graphite, depending on design. That can be strategically important, particularly if high-temperature reactors are deployed at scale. But nuclear demand should not be added indiscriminately to forecasts for mined flake graphite. It is a smaller, slower, specification-driven market, and much of its feedstock and manufacturing know-how is held by the synthetic graphite industry. The opportunity is valuable precisely because qualification barriers are high; it is not a convenient destination for any concentrate that assays at high carbon purity.

The Older Industries have Not Disappeared

Long before the electric vehicle, graphite was already an industrial necessity. Refractory bricks, crucibles, continuous-

casting components, and furnace linings exploit its resistance to heat and thermal shock. Synthetic graphite electrodes conduct enormous currents into electric-arc furnaces, where scrap steel and direct-reduced iron are melted. Steelmaking is therefore both a major established graphite market and a reminder that graphite demand is tied to industrial production, not only to batteries.

Foundries use graphite in facings, coatings, and carbon additions. Steelmakers use it as a recarburizer. Powder metallurgy uses graphite as both a carbon source and a process aid. Carbon brushes transfer current in motors and generators. Brake linings, clutch facings, and other friction products use graphite to control friction and heat. Expanded graphite becomes flexible foil, seals, gaskets, heat spreaders, and fire-resistant materials. High-purity graphite is used in semiconductor crystal growth equipment, electrical discharge machining, fuel cells, and numerous high-temperature chemical processes.

Lubrication remains a genuine, if less glamorous, use. The weak bonding between graphite's atomic layers gives it low shear strength, allowing the layers to slide. Graphite powders, dispersions, greases, and solid lubricant components are used where temperatures, loads, vacuum, or chemical conditions defeat ordinary oils. Its performance depends on environment and formulation – graphite is not universally the best dry lubricant – but its industrial role is durable.

These conventional markets matter to investors for two reasons. First, they provide outlets for products and by-products that do not meet anode specifications. Second, they are not automatically high-margin markets. A credible project needs a product distribution, recovery assumptions, and customers for the entire output, not merely a slide showing that battery-grade

material commands the highest quoted price.

The InvestorNews Graphite Watchlist: What Is Actually Being Offered?

InvestorNews currently [follows](#) a broad graphite field. It includes miners, mine developers, anode-material developers, synthetic graphite manufacturers, graphene businesses, and diversified exploration companies. They should not be valued by one common multiple because they are not doing the same thing.

The most advanced natural-graphite supply-chain stories begin with companies that have actually produced material. [Syrah Resources Limited](#) (ASX: SYR) has the very large Balama mine in Mozambique and the Vidalia active anode material facility in Louisiana. Its importance is obvious: it connects a world-scale non-Chinese mine to American downstream processing. Its weaknesses are equally obvious: operational interruptions, political and security risks in Mozambique, weak graphite pricing, and the capital demands of ramping up Vidalia. Syrah is strategically significant, but strategic significance does not repeal cash-flow arithmetic.

[Northern Graphite Corporation](#) (TSXV: NGC | OTCQB: NGPHF) owns the operating Lac des Iles mine in Quebec and the Okanjande project in Namibia while pursuing downstream battery-material plans. [South Star Battery Metals Corp.](#) (TSXV: STS | OTCQB: STSBF) has moved Santa Cruz in Brazil into production and is developing BamaStar in Alabama. [NextSource Materials Inc.](#) (TSX: NEXT | OTCQB: NSRCF) has built the Molo mine in Madagascar and is developing battery-anode facilities, including a planned plant in Abu Dhabi. These companies deserve attention because they have crossed, or are attempting to cross, the difficult boundary from resource promotion to physical production.

Investors must still examine utilization, product sales, working capital, logistics, and whether the output is qualified at economic yields.

[Nouveau Monde Graphite Inc.](#) (NYSE: NMG | TSX: NOU) is developing an integrated Quebec chain from the Matawinie mine to coated spherical purified graphite at Bécancour, supported by important relationships with Panasonic Energy, General Motors, Mitsui, and Quebec institutions. In 2026, NMG completed a US\$309.5 million equity-financing package, confirmed a final investment decision for the Phase 2 Matawinie mine, and moved from development planning into construction and execution. It remains one of the more coherent Western plans because it begins with identifiable customers and a low-carbon power advantage. The central risks have shifted from proving financing interest to controlling construction costs, meeting schedules, commissioning the facilities, qualifying products, and generating commercial cash flow.

[Graphite One Inc.](#) (TSXV: GPH | OTCQX: GPHOF) proposes an integrated American chain based on Graphite Creek in Alaska and an advanced-materials plant in Ohio. Federal grants and financing interest confirm Washington's strategic enthusiasm. The deposit is large, but the schedule, Arctic logistics, permitting, capital requirements, and the long distance between the mine and the factory remain real. Government support improves the probability of financing; it does not by itself prove operating economics.

[Westwater Resources, Inc.](#) (NYSE American: WWR) is building the Kellyton graphite processing plant in Alabama around the Coosa deposit and planned anode products. It is a particularly useful test of whether the United States can turn policy support and customer qualification into sustained commercial production.

[International Graphite Limited](#) (ASX: IG6 | FWB: H99) is building

downstream graphite-processing capacity in Western Australia and Italy while retaining the Springdale deposit as a potential long-term source of feedstock. [Talga Group Ltd.](#) (ASX: TLG) seeks to combine the unusually high-grade Vittangi resource in Sweden with European anode production, but permitting and project execution remain decisive.

[Leading Edge Materials Corp.](#) (TSXV: LEM | OTCQB: LEMIF) offers the Woxna graphite asset in Sweden, along with other critical mineral projects. [Falcon Energy Materials plc](#) (TSXV: FLCN | OTCQB: FLCNF) should no longer be described as actively advancing the Lola graphite project in Guinea. Following the loss of its Guinean assets, Falcon initiated a damages claim against the Republic of Guinea and shifted its development emphasis to pilot-scale and proposed commercial production of coated spherical purified graphite in Morocco. These companies may possess geological, jurisdictional, or technological attractions, but none should be credited with a finished supply chain before it is financed, built, commissioned, and commercially qualified.

The remaining international names require particularly careful qualification. [Triton Minerals Limited](#) remains associated with the Ancuabe graphite project in Mozambique and the ASX symbol TON, but its securities have been suspended from quotation since August 4, 2026. The proposed sale of a 70% interest in its Mozambique graphite assets has also encountered unresolved completion issues, making ownership, financing, and project control important matters for investors to monitor.

[Mineral Commodities Ltd](#), formerly ASX: MRC, sold the Skaland Graphite Project in March 2026 and was removed from the ASX official list on June 19, 2026. It should therefore no longer be described as an ASX-listed owner of the Skaland operation. Any continued inclusion on a graphite watchlist must be based on its

remaining assets and current corporate status rather than its former ownership of Skaland.

[Transoceanic Investments Inc.](#) (TSXV: OCEN | OTCQB: OCEEF) no longer owns the Lac Guéret property in Quebec. The company sold the property, now associated with Nouveau Monde Graphite's Uatnan Mining Project, to NMG in 2024 in exchange for NMG shares and the right to a contingent C\$5 million payment when commercial production begins. Its graphite exposure is therefore indirect rather than direct project ownership.

[Battery Mineral Resources Corp.](#) (TSXV: BMR | OTCQB: BTRMF) is primarily a polymetallic business, and its inclusion should not lead investors to mistake it for a dedicated graphite producer. [Elcora Advanced Materials Corp.](#) (TSXV: ERA) has promoted graphite and battery-material opportunities, but investors should demand current evidence of operating scale, audited economics, and a clear path to customers rather than rely on the breadth of a corporate presentation.

The downstream and technology names require a different yardstick. [NOVONIX Limited](#) (NASDAQ: NVX | ASX: NVX) is scaling synthetic graphite anode production in Tennessee. In April 2026, it divested its non-core battery technology solutions business to sharpen its focus on synthetic graphite, meaning it should no longer be presented principally as a battery-cell testing company. Its investment case depends on executing energy-intensive manufacturing at scale, meeting long-term customer specifications, and maintaining competitive production costs.

[GrafTech International Ltd.](#) (NYSE: EAF) is an established producer of graphite electrodes for electric-arc furnaces, making it an industrial graphite company rather than a mine-development speculation. Its fortunes follow steel cycles, electrode pricing, production costs, trade policy, and the

strength of its balance sheet.

[NanoXplore Inc.](#) (TSX: GRA | OTCQX: NNXPF) is principally a graphene producer and composites technology company. [Zentek Ltd.](#) (TSXV: ZEN | NASDAQ: ZTEK) combines graphene-related intellectual property with its Albany graphite deposit, whose unusual material has produced very high-purity samples. High-purity laboratory results are interesting, especially for nuclear or specialized applications, but qualification, repeatability, scale, and customer acceptance determine value. [Volt Carbon Technologies Inc.](#) (TSXV: VCT | OTCQB: TORVF) is pursuing air-classification and battery-material technology on a much smaller scale. These are technology propositions, not conventional mining comparisons, and should be judged by commercial revenues, reproducible processes, intellectual-property positions, and customer adoption.

The [InvestorNews Graphite Watchlist](#) is therefore useful as a map, not as a ranking. It contains operating assets, credible integrated projects, early-stage developments, diversified explorers, advanced-materials ventures, and some companies whose graphite exposure or corporate status has changed materially. The proper comparison is by stage, intended product, ownership, and current operating status. Placing them all under the heading “graphite company” without that separation would be like comparing an iron ore explorer with a specialty steelmaker.

What I Would Ask Before Buying a Graphite Story

I would begin with the customer and work backward. What exact product has been specified: refractory flake, recarburizer, expandable graphite, spherical purified graphite, coated active anode material, synthetic electrode material, graphene

feedstock, or nuclear grade? Has a customer qualified it, or has a laboratory merely measured purity? What is the mass yield from ore to final saleable product? Who buys the fines and off-specification material? Where will purification, shaping, coating, and graphitization occur? What reagents and energy are required? What is the waste-disposal obligation?

Then I would ask the financial questions that promotional literature tends to postpone. Is the quoted graphite price attached to the company's actual specification, location, volume, and contract term? Is it a mine-gate concentrate price or a downstream product price burdened with downstream costs? How much capital remains to be raised? How much dilution will be required? Can the business survive Chinese prices long enough to qualify with an OEM?

Graphite's future is substantial because it serves both the old industrial economy and the new electrochemical one. Batteries will be the principal growth engine. Nuclear graphite could become an important, high-specification niche if advanced reactors are built in numbers. Steel, refractories, foundries, friction products, electrical equipment, sealing, thermal management, and lubrication will continue to provide the industrial base.

But the winners will not necessarily be the owners of the largest deposits. They will be the companies that can reproducibly make a qualified product, at scale and at a competitive cost, and sell the whole production stream. In graphite, as in rare earths, value is added after the mine. Follow where value is added.