

# Why Graphite Could be the Next Critical Mineral to Rise Steeply in Price

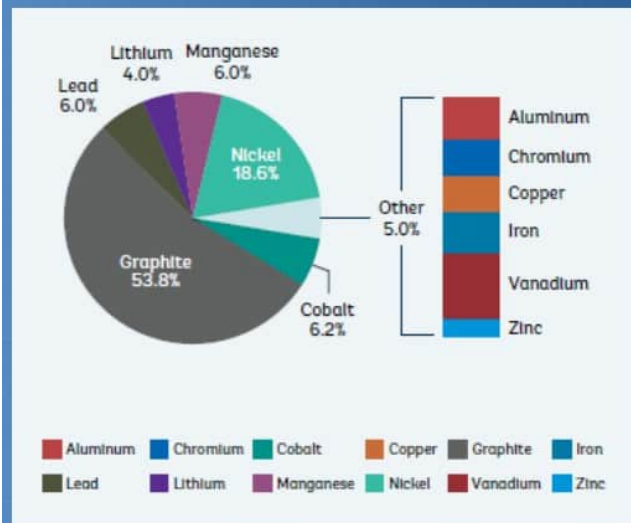
written by InvestorNews | March 9, 2023

Last July and August, I did a 6-part series called the “[Dean’s List](#)” which looked at North American explorers and miners that could benefit from government commitments to critical minerals, like the Inflation Reduction Act. This is especially important given how many of those materials are controlled, either through mining, ownership, or processing by China, which isn’t exactly “singing from the same hymn book” as the United States and many of its allies these days. Despite the current global tensions, it also comes down to math. There just isn’t enough of many of these commodities at present to meet the explosive growth being projected in the various segments of the “green” revolution.

One of [the articles](#) from last year’s series focused on graphite. I consider graphite to be one of the least publicized critical minerals, especially given this anode material is the single largest component (by weight) of lithium-ion batteries used in EVs (up to 48%) and energy storage technologies. On top of that, almost 80% of graphite mine production in 2021 came from China, while China makes almost 100% of the graphite anode material. Lastly, graphite also requires the largest production increase of any battery mineral in order to meet forecast demand.

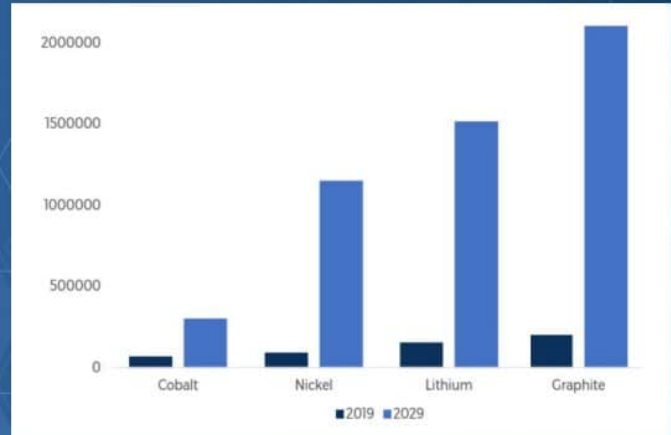
## Graphite Growth Requirements for Battery Demand Forecasts

## GRAPHITE REQUIRES THE LARGEST PRODUCTION INCREASE OF ANY BATTERY MINERAL



SHARE OF MINERAL DEMAND FROM ENERGY STORAGE  
SOURCE: IEA

- Battery raw material demand will grow between 5x and 13x to feed the megafactories



SOURCE: BENCHMARK MINERAL INTELLIGENCE

Source: Northern Graphite [Corporate Presentation](#)

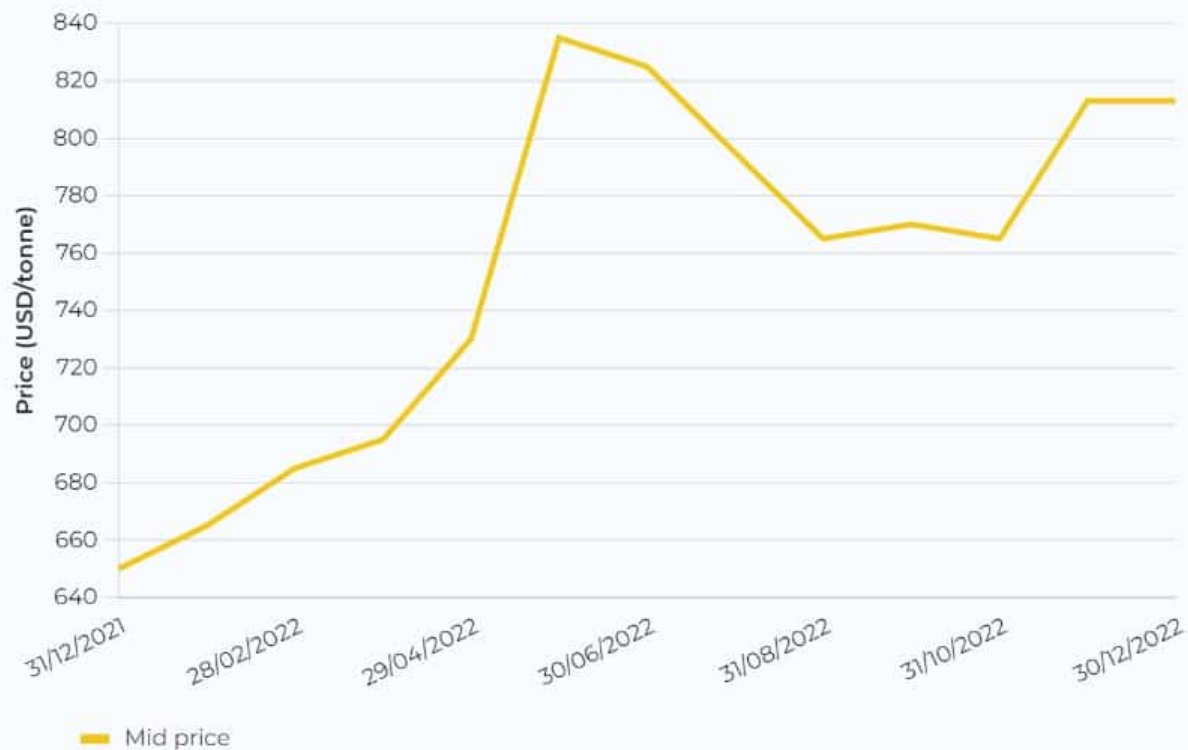
Naturally one would expect that the price of graphite would be following a similar path as lithium, which was the second best-performing commodity in 2022, and despite coming off its recent highs, lithium is still triple its three-year average. However, it appears graphite is not following suit, despite all the table pounding about the growing supply/demand imbalance, at least not yet. Although there is a slight caveat to this comment as there are no standardized prices for natural graphite and there are no fungible spot or futures markets.

## Flake Graphite Price – 2022



## Flake graphite prices rose 25% in 2022

Flake graphite -100 mesh 94-95% C



SOURCE: BENCHMARK GRAPHITE PRICE ASSESSMENT

BENCHMARK

Source: [benchmarkminerals.com article](https://benchmarkminerals.com/article)

## Graphite Prices

There are a couple of reasons that graphite prices haven't taken off like lithium prices and I'll try to provide some clarity on that. But as we go through this it will begin to appear that it's only a matter of time before graphite sees its time to shine. Unless of course, you are a consumer of graphite, then you might want to start working on how you will explain to Elon Musk why dropping all the prices of his Tesla models might not be a great idea.

Historically, industrial uses of graphite have always been the main driver of demand. Currently, steelmaking is still the

largest source of demand for graphite, but another interesting use, at least in the U.S., is over 7% of annual demand in 2021 came from brake linings. Graphite production for these well-established industrial uses has helped keep the market well supplied, reducing price volatility. In fact, weakness in steelmaking demand, along with a return to more normal graphite production post-COVID (remember that China didn't open up their economy until well after the rest of the world) is the primary reason for graphite prices to have come off the boil.

## Synthetic Graphite

The second reason graphite prices haven't taken off (yet) has to do with the fact that anode manufacturers have an alternative, a synthetic graphite derived from petroleum coke (a carbon-rich, solid material that comes from oil refining). I could talk for hours about [petcoke](#) from my previous career but I think that would only be interesting to me and maybe one other person I know. As noted earlier, there are a lot of opaque corners in the world of graphite, but I was able to find the following comment: *"Today, synthetic graphite anodes dominate in terms of market share, accounting for approximately 57 percent of the anode market"* which is attributed to Benchmark Mineral Intelligence but it might be behind their paywall. I also found this quote in an [article](#) on the Benchmark Mineral website: *"Synthetic graphite anode supply grew by more than 30% during 2022, and is anticipated to even surpass that in 2023, given a supply deficit developing for natural graphite feedstock."* It appears a lot of the growing anode demand for graphite is being supplied by fossil fuels and not natural graphite.

## The Time for Natural Graphite

My interpretation of all this information is that it is simply a matter of when, not if, graphite prices start to rise as we have

[seen with lithium](#). The reasons are multi-faceted and thus it could make for a slow and steady rally or if all factors coalesce at one time it could become a parabolic rise.

1. As anode demand becomes a more material component of overall graphite demand it removes any previous flexibility from the supply side. If steel making or any other industrial use for graphite returns to historic levels it will quickly put pressure on the rapidly growing anode component of the demand equation. The first graph above shows how just anode growth alone will impact the overall demand outlook, let alone any other industrial uses. In the grand scheme of things, I don't see steel consumption going to zero anytime soon freeing up that graphite supply.
2. The synthetic graphite derived from petroleum coke is going to be influenced by oil prices. If oil prices go back over \$100/bbl that is going to have a material impact on synthetic graphite prices. Granted, oil prices could just as easily go back to the \$50-\$60/bbl range and partially offset the overall graphite price rise due to general demand growth, but my personal opinion is that we'll see \$100/bbl before we see \$50/bbl (perhaps an article for another day).
3. But the biggest impact could come from the ESG side. *"The production of synthetic graphite can be four times more carbon intensive than that of natural graphite"*, another interesting fact attributable to Benchmark Mineral Intelligence that I could only find in [this article](#). Kinda makes you think we can't see the forest for the trees when you are making decisions like this in an effort to reduce carbon emissions. If battery makers demand low carbon anode material we could see a step change in prices, literally overnight, as natural graphite becomes the only

option.

It would appear now might be a very good time to be developing a natural graphite deposit outside of China.

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# Who are the graphite mining leaders as analysts forecast a tight graphite market in 2023 and beyond

written by Matt Bohlsen | March 9, 2023

Reports continue to emerge that the graphite market may be next to boom. This is due to accelerating strong demand from the EV battery sector and limited new supply in the pipeline.

The 2021 [International Energy Agency \(“IEA”\) report](#) highlighted that the world will need between **8 and 25x more flake graphite** from 2020 to 2040. This is supported by my recent Trend Investing [forecast](#) of a **17x increase in flake graphite demand** from 2020 to 2037.

In December 2022 Fastmarkets [stated](#): “An impending graphite shortage, driven by phenomenal demand growth from the EV battery sector and delays to new capacity....will all lead to significantly higher graphite prices in the coming years.”

**Trend Investing v IEA demand forecast for EV metals**

### Increase in metal demand 2020 to 2037 (100% EV and sustainable energy world)

	Trend Investing (f) to 2037	IEA (f) to 2040		
Lithium demand	35	13 --42		
Cobalt demand	5.7	6--21		
Nickel demand	2.8	7--19		
Manganese demand	1.7	3--8		
Flake Graphite demand	17	8--25		
NdPr demand	5.9	3--7		
Copper demand	2.3	2--3		

Source: [Trend Investing](#) & [IEA](#)

### The graphite mining leaders

There are a number of leading Chinese graphite mining companies (Aoyu Graphite Group, BTR New Energy Materials, Qingdao Black Dragon, National de Grafite, Shanshan Technology, and LuiMao Graphite); however, they are not typically accessible to most western investors.

**Syrah Resources Limited (ASX: SYR | OTC: SYAAF)** is the leading western graphite producer. They source their graphite from their 100% owned and massive Balama graphite mine in Mozambique. Syrah is currently constructing their active anode materials (“AAM”) plant at their Vidalia facility in Louisiana, USA. The facility has initial plans for 11.25ktpa of AAM and then to expand to 45ktpa AAM. The first stage 11.25ktpa AAM is targeted to start production in the September quarter of 2023. Tesla (NASDAQ: TSLA) signed an off-take agreement for an initial 8ktpa of AAM which was recently expanded to an additional 17ktpa AAM of off-take (see [Dec. 23, 2022 news](#)).

**Other graphite producers** include Ceylon Graphite Corp. (TSXV: CYL | OTCQB: CYLYF) with production in Sri Lanka, **Mineral Commodities Ltd. (ASX: MRC)** who own 90% of Skaland Graphite which operates the highest grade flake graphite operation in the world and largest producing mine in Europe, **Tirupati Graphite**

**PLC's (LSE: TGR)** project in Madagascar, and **Northern Graphite Corporation** (TSXV: NGC | OTCQB: NGPHF) with their Lac des Iles producing graphite mine in Quebec and the Okanjande graphite deposit/Okorusu processing plant in Namibia.

### **Some junior graphite miners**

There are several junior graphite miners but those with the more advanced stage projects are **NextSource Materials Inc.** (TSX: NEXT | OTCQB: NSRCF), **Talga Group Ltd.** (ASX: TLG), **Westwater Resources Inc.** (NYSE: WWR), **Nouveau Monde Graphite Inc.** (NYSE: NMG |, TSXV: NOU), **Triton Minerals Limited** (ASX: TON), (TSXV: LEM | OTCQB: LEMIF), [Lomiko Metals Inc.](#) (TSXV: LMR | OTCQB: LMRMF), and **Renascor Resources** (ASX: RNU).

### **Closing remarks**

The graphite miners have not yet taken off due to subdued graphite prices and ample supply in recent years; however, this looks set to start changing from 2023 onwards especially if the EV boom continues to do well. The flake graphite miners that can also move to make valued added active anode materials (spherical graphite) look set to capture even greater profits. There is also the synthetic graphite producers such as **Novonix** (ASX: NVX) (Nasdaq: NVX), the future graphite recycling companies such as [Elcora Advanced Materials Corp.](#) (TSXV: ERA | OTCQB: ECORF), and the graphene companies such as [Zentek Ltd.](#) (NASDAQ: ZTEK | TSXV: ZEN).... but that's for another discussion next time.

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# NextSource's Brent Nykoliati on their 'game-changing' modular mine model

written by InvestorNews | March 9, 2023

March 15, 2018 – “This has never been done before in mining where the full mine has been built in a modular form. This is game changing to us because this can be applied in any jurisdiction, any commodity.” states Brent Nykoliati, Senior Vice President of Corporate Development at [NextSource Materials Inc.](#) (TSX: NEXT | OTCQB: NSRCF), in an interview with InvestorIntel's Peter Clausi.

**Peter Clausi:** We are talking about Madagascar and we are talking about NextSource Materials, which has a graphite deposit in Madagascar. Let me set the scene. People come in to talk about mining. I ask about 43-101s. We did this before the interview and you told me you actually had a full feasibility study and you are in development for your mill now.

**Brent Nykoliati:** Yes. The mine right now, we are raising the money. We have been in Madagascar 10 years, done 2 feasibility studies, recently updated our feasibility study in June, which we announced to the market we are building the world's first fully modular mine.

**Peter Clausi:** Pause there. The old one called for \$200 million of capex.

**Brent Nykoliati:** Correct.

**Peter Clausi:** The modular mines calls for?

**Brent Nykoliati:** \$20 million. Now the volume is 50,000

originally. We are bringing it down to 17 as a Phase 1. Phase 2 will be the full 50,000 tons a year, which makes even a 17,000 ton mine still probably the fourth largest in the world. This is very high-quality. All our graphite has been tested already by end-users. It has been verified. Our stage right now is to raise the \$20 million dollars U.S. to build the mine. We can have it up and running in 9 months' time. How we can do that is because it is modular. It is being built off-site. It will then be sent to Madagascar, constructed, reassembled in about 30 days' time.

**Peter Clausi:** Your labor cost is less, housing cost is less.

**Brent Nykoliati:** Yes, we do not have to house all these expensive— It is 1,500 people was original to bring them down to Madagascar; feed them, sanitation, house them. Now we can build it off shore in a first world country. People go home to their families at night. Then it gets shipped. This is incredibly, incredibly efficient. That is one of the biggest savings for us is to be able to have it sent. It is basically connected like a Lego set. This has never been done before in mining where the full mine has been built in a modular form. This is game changing to us because this can be applied in any jurisdiction, any commodity. It is a derisking exercise. It is a proof of concept. When we build this phase then we intend on using it to do our other opportunities, which are vanadium. We have the big vanadium deposit as well 10 kilometers away from our graphite...to access the complete interview, [click here](#)

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