

The Top 5 graphite miners to watch in 2022 as battery materials' prices rise

2021 has seen key electric vehicle ("EV") and battery metals lithium, cobalt, nickel, and neodymium/praseodymium (NdPr) prices all rise strongly. But what about graphite?

It is starting to look like graphite will be next and 2022 will be graphite's year. As reported on December 15, 2021 by Reuters:

"China EV, battery makers grapple with graphite squeeze.....Chinese producers have their work cut out keeping up with global demand for graphite, which has surged along with rapid growth in the battery market in recent years....Consultancy Benchmark Mineral Intelligence [BMI] sees a roughly 20,000 tonne graphite deficit in 2022, versus a similar-sized surplus last year....Top global EV battery maker Contemporary Amperex Technology Co Ltd (CATL) (300750.SZ) is "desperate" to secure supply of key ingredients such as graphite to keep up with rising orders, said a person with knowledge of the matter."

Top 5 graphite miners to watch in 2022 (in alphabetical order)

1. Leading Edge Materials Corp.
2. NextSource Materials Inc.
3. Syrah Resources Limited
4. Talga Group Ltd.
5. Triton Minerals Limited

Leading Edge Materials Corp. (TSXV: LEM | OTCQB: LEMIF)

Leading Edge Materials Corp. ("Leading Edge") is a Canadian company focused on developing a portfolio of critical raw

material projects located in the European Union.

Leading Edge 100% owns the producing Woxna Graphite mine and processing plant in Sweden. Woxna has a Total Resource estimate of 10.7 Mt Measured & Indicated @ 7.75% graphite plus 2.51 Mt Inferred @ 8.16% graphite.

Leading Edge plans to build a vertically integrated mine to anode material production capability, by producing coated spherical purified graphite anode material. The Company has completed a PEA (June 2021 PEA) on the mine to anode material project. The post-tax NPV8% is US\$248 million with a post tax IRR of 37.4%, over a 15 year mine life. Initial CapEx is US\$121 million. The 2021 PEA is based on 159,967 tpa of graphite production and 7,435 tpa of coated spherical purified graphite ("CSPG") production. Leading Edge states: "Operating cost per tonne of coated spherical purified graphite (CSPG) of \$2,519 after revenue credit from micronized graphite product vs forecasted selling price of \$10,000 per tonne."

Interestingly, Leading Edge 100% own the Norra Kärr REE Rare earths project (dysprosium, terbium, and neodymium/praseodymium (NdPr)) in Sweden which has a PEA completed. Plus they own 51% (option to increase to 90%) of the Bihor Sud Nickel Cobalt exploration stage project in Romania.

Leading Edge trades on a market cap of only C\$56 million. Significant potential upside if they can succeed in their plans.

NextSource Materials Inc. (TSX: NEXT | OTCQB: NSRCF)

NextSource Materials Inc. ("NEXT") is rapidly developing its 100% owned Molo Graphite Project in Madagascar. Financially boosted by serious investors and new Chairman Sir Mick Davis, NEXT's Molo Graphite Project is fully funded to stage 1 production. The Project is designed with a modular approach in mind with the first stage production target of 17,000 tpa of

flake graphite. Stage 1 construction is underway with mine commissioning expected in Q2 2022. NEXT has a 10 year 35,000 tpa binding-offtake deal with Thyssenkrupp Materials Trading.

Stage 2 expansion is undergoing a Technical study to assess a production capacity of at least 150,000 tpa.

NEXT is also working on a three-way collaboration to build a Battery Anode Facility ("BAF") with a targeted commissioning for Q4 2022. Companies in the collaboration have supply links to Panasonic-Tesla.

NEXT trades on a market cap of C\$296 million and certainly could be the "next" graphite producer.

Syrah Resources Limited (ASX: SYR)

Syrah Resources ("Syrah") 100% own the world's largest and lowest cost graphite mine known as the Balama graphite mine, located in Mozambique. It has a 50+ years expected mine life. The past year's low graphite prices forced the mine to dramatically reduce output but in their September 2021 Quarterly Report Syrah stated: "Balama delivered excellent monthly operational performance for September 2021 with 15kt natural graphite produced at 85% recovery and C1 cash costs (FOB Nacala) of US\$430 per tonne....Strong growth in sales order book with more than 50kt of natural graphite sales orders in the December 2021 quarter, demonstrating robust underlying demand conditions and forward contracting." So, production is ramping back up again and demand is now running in excess of supply.

Syrah is also working to become a vertically integrated producer of natural graphite Active Anode Material ("AAM"). Syrah has built a pilot AAM facility at Vidalia, Louisiana, USA. The facility has produced initial product samples that are being tested by potential off-takers. The initial stage plan is to ramp up to 10,000 tpa of AAM with discussions ongoing about a larger ramp.

Syrah Resources trades on a market cap of A\$640 million. Certainly not a huge market cap for the world's premier graphite producer. It looks like there are better times ahead for Syrah Resources.

Talga Group Ltd. (ASX: TLG)

Talga Group ("Talga") 100% own a number of graphite projects located in northern Sweden. Their three advanced projects are Vittangi, Jalkunen and Raitajärvi. Combined they contain JORC resources of 55.3Mt @ 17.5% Cg for 9.7Mt total contained natural graphite. Permitting is underway at their leading Vittangi Project.

Talga has also developed a coated natural graphite anode product (Talnode®-C) and a graphene silicon composite electrode additive (Talnode®-S).

Talga has signed a non-binding LOI with LKAB and Mitsui for a potential JV and development partnership in the mine-to-anode production operation.

Talga Group trades on a market cap of A\$472 million. One to watch.

Triton Minerals Limited (ASX: TON)

Triton Minerals ("Triton") 100% own the Ancuabe Graphite Project in northeast Mozambique. The Ancuabe JORC Ore Reserve is 24.9Mt at 6.2% TGC for 1.544 million tonnes of contained graphite. The December 2017 PFS was based on 60,000 tpa production supporting a mine life of 27 years. The pre-tax NPV10% is US\$298 million, and pre-tax IRR is 36.8%. Pre-production CapEx is estimated at US\$99.4 million.

In 2019, China's Jigao International Investment Development Co (a subsidiary of Jinan Hi Tech) invested \$19.5 million into Triton Minerals to become a strategic partner. Ancuabe has received final approval for development (mining concession

granted and environmental approval), and has ~50% of anticipated Ancuabe production secured by binding off-take agreements. Jigao is assisting with further off-take and Project funding.

Triton plans next to build a commercial Pilot Plant which can be ramped up into production in the near term to produce commercially viable quantities of concentrate to prove the viability of the Project.

Triton Minerals trades on a market cap of A\$38 million. Triton did have a problem at their other project called Balama North Project (Nicanda Hill) (lost their lease) which may have hurt sentiment for the stock. Still looks very cheap with strong Chinese support and a low initial startup CapEx.

Other graphite related stocks to watch in 2022

- **NEO Battery Materials Ltd. (TSXV: NBM | OTCQB: NBMFF).** Silicon anode and graphite-silicon anode company. You can read about NEO [here](#).
- **Magnis Energy Technologies Limited (ASX: MNS)** – Graphite development project plus Li-ion battery factories on the way.
- **Zentek Ltd (TSXV: ZEN)** (formerly ZEN Graphene Solutions). A dynamic graphene/ nanotech/ health company. You can read a recent article [here](#) that discusses their amazing progress.

Closing remarks

2022 looks like being 'graphite's time to shine' after many tough years. Assuming EV sales continue to grow strongly in 2022 then a graphite shortage looks likely. If this occurs, then it would not be hard to see graphite prices tripling in 2022, just as lithium prices have increased 5x in 2021.

The graphite producers with low costs, ability to rapidly scale production, and ideally offer value-added products

should perform best. The graphite juniors that can rapidly progress their projects can also do very well.

Disclosure: The author is long Leading Edge Materials (TSXV: LEM), Syrah Resources (ASX: SYR), and Triton Minerals (ASX: TON).