

Leading Producers and Junior Miners Who Benefit as EV Boom Drives Cobalt Demand

written by Matt Bohlsen | March 1, 2023

Cobalt is a key component of the lithium-ion ("Li-ion") battery used in electronics and many types of electric vehicles ("EVs"). The EV boom is causing cobalt demand to surge higher.

In 2021, the International Energy Agency [forecasted](#) that cobalt demand could grow between **6x to 21x** from 2020 to 2040 depending upon various scenarios. The main driver is the forecast surge in sales of EVs. Our Trend Investing [forecast](#) is for a **5.7x** increase from 2020 to 2037. The reason it is lower than the IEA is due to the emergence of lithium-iron-phosphate ("LFP") batteries which do not use cobalt. Nonetheless, a 5.7x increase is still very significant, especially when we consider that cobalt has the most difficult supply chain of all EV metals.

The cobalt market is currently quite balanced with a mild surplus as demand from electronics remains weak; however, Trend Investing forecasts that by 2027 onwards this will become a growing deficit, assuming EVs sales continue to grow strongly.

As a result of the above, the cobalt price ([US\\$15.20/lb](#)) and many of the cobalt miner's stock prices are depressed allowing a more attractive entry point for long-term investors into the sector.

Trend Investing vs IEA demand forecast for EV metals

Trend Investing v IEA demand forecast for EV metals ([Trend Investing](#)) ([IEA](#))

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	

Sources: [IEA](#) and [Trend Investing](#)

The leading cobalt miners in 2023

[Glencore PLC](#) (LSE: GLEN | OTC: GLCNF | HK: 805) is the leading global producer of cobalt with production of [43,800t](#) in 2022. Most of this production came from the Democratic Republic of the Congo ("DRC"). In 2023, Glencore's guidance is for the production of [38,000t of cobalt plus or minus 5,000t](#). On the plus end, this would lead to the production of 43,000t in 2023 or slightly lower than the production in 2022.

From the Mutanda and Katanga mines in the DRC, Glencore has the potential to increase cobalt supply to approximately 57,000 tonnes-per-annum ("tpa") if market conditions suit. They also produce about 3,000tpa from their Murrin Murrin operation in Australia. Given total global cobalt supply was approximately 200,000t in 2022 it means that Glencore is a critical player in the market and can influence pricing by altering its supply. Glencore has agreed to [supply General Motors Co. \(NYSE: GM\)](#) with cobalt from its Murrin Murrin operation in Australia.

[CMOC Group Limited](#) (HKSE: 3993 | SHE: 603993 | OTC: CMCLF)

(formerly China Molybdenum) is the second largest global producer of cobalt producing [18,501t](#) in 2021 from their Tenke Fungurume mine in the DRC. For the first 3 quarters of 2022, CMOC's cobalt production stood at 15,300t. However, 2022 has seen a dispute with the DRC's Gecamines which has resulted in exports being suspended since July 2022. On a more positive note, CMOC [announced](#) in January 2023 that mining from their other DRC mine (KFM copper-cobalt mine) had begun.

[Zhejiang Huayou Cobalt](#) (SHA: 603799) is the third largest global cobalt producer at around 20,000tpa. They also rely on mines in the DRC. Huayou Cobalt [agreed to supply cobalt](#) to Tesla, Inc. (NASDAQ: TSLA) from July 1, 2022 until 2025.

Other cobalt producers

Other global cobalt producers include **Eurasian Natural Resources Corp. (private)**, **GEM Co Ltd. (SHE: 002340)**, **Jinchuan Group International Resources (HK: 2362)**, **Shalina Resources subsidiary Chemaf**, and several other smaller cobalt producers such as **Vale SA (NYSE: VALE)**, **Norilsk Nickel**, **Sumitomo Metal Mining Co. (TYO: 5713)**, **Sheritt International Corporation (TSX: S | OTC: SHERF)**, **Korea Resources Corporation**, **Umicore SA (Brussels: UMI | OTC: UMICY)**, and [Nickel 28 Capital Corp.](#) (TSXV: NKL).

Junior cobalt miners

The most advanced junior cobalt miners are **Jervois Global Limited (ASX: JRV | TSXV: JRV | OTCQX: JRVMF)** and **Electra Battery Materials Corporation (NASDAQ: ELBM | TSXV: ELBM)**. Jervois aims to commence commercial concentrate production by the end of Q1/2023 from their Idaho Cobalt Operations in the USA. Jervois also now owns the Kokkola producing refinery in Finland and plans to have a second refinery in Brazil up and

running [by the end of Q1/2024](#).

Electra targets to have their Ontario cobalt refinery (North America's first cobalt sulphate refinery) operational with ore feed from Glencore by the [Spring of 2023](#). They are also working on battery recycling and own the [Iron Creek Cobalt-Copper Project](#) in Idaho, USA.

Closing remarks

The cobalt market is quite small and is dominated by supply from the DRC, making it a rather risky market from a supply chain point of view. The current slowdown in electronics (smartphones, PCs) sales has temporarily hurt cobalt demand. Looking ahead this should recover and as electric car sales grow the demand for cobalt rises dramatically. It is looking like a fairly tight market from now to 2027, but from 2027 onwards the world will need multiple new junior cobalt miners to meet supply.

Electra Battery Materials is leading the 'charge' for battery materials with a signed cobalt supply agreement

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South Korean LG Energy Solution Inc. (LGES), a leading global manufacturer of lithium-ion batteries for electric vehicles, mobility, IT, and energy storage systems, recently [announced](#)

[three agreements](#) in a span of 24 hours with Canadian miners to source materials required to make batteries for EVs. It appears the [Inflation Reduction Act](#), which requires that 40% of battery components be sourced from factories in the U.S. or its free trade agreement partners, and that Chinese components and minerals be phased out beginning in 2024, has lit a fire under those who want to lead the charge to manufacture EV batteries for North American built vehicles. This could be a very positive trend for North American miners and material processors/recyclers.

One of the “winners” of the LGES battery supply deals was [Electra Battery Materials Corporation](#) (TSXV: ELBM | NASDAQ: ELBM). Electra is a processor of low-carbon, ethically-sourced battery materials that is currently commissioning North America’s only [cobalt sulfate refinery](#). Electra is executing a multipronged strategy focused on onshoring the electric vehicle supply chain. Keys to its strategy are integrating black mass recycling and nickel sulfate production at Electra’s refinery located north of Toronto, advancing Iron Creek, its cobalt-copper exploration-stage project in the Idaho Cobalt Belt, and expanding cobalt sulfate processing into Bécancour, Quebec. We’ve made several references to the Bécancour area in [previous InvestorIntel articles](#) as it also becomes a rapidly emerging center for producing the advanced materials needed for lithium-ion batteries.

Electra’s binding term sheet with LGES is [a three-year agreement](#) to supply LGES with 7,000 tonnes of battery grade cobalt from 2023 to 2025. Electra will supply 1,000 tonnes of cobalt contained in a cobalt sulfate product in 2023 and a further 3,000 tonnes in each of 2024 and 2025 under an agreed pricing mechanism. Cobalt sulfate provided under the term of the contract with LGES will be sufficient to supply up to 1.5 million full electric vehicles. In addition to the supply

agreement, Electra and LGES have agreed to cooperate and explore ways to advance opportunities across North America's EV supply chain, including, but not limited to, securing of sustainable sources of raw materials. In my opinion, this marks validation of Electra's cobalt sulfate refinery as this is an actual binding agreement, not just a LOI or MOU or some other wishy washy type of agreement that makes great press but essentially means very little, at least initially.

Building on the momentum of the commercial agreement with LGES, Electra provided a September 28 [update](#) on the commissioning of its cobalt refinery, confirming that it remains on track to meet project timelines, including the launch of a black mass recycling demonstration. The Company anticipates launching the battery recycling demonstration plant at the Ontario refinery site this fall. Revenue generated from black mass recycling activities will be accretive to results expected from the sale of cobalt sulfate that is anticipated beginning in spring 2023 when the refinery is commissioned. Possibly even more critical to their operations in today's environment, Electra will use a hydrometallurgical process to treat black mass to recover contained lithium, nickel, cobalt, copper and graphite. This process has a low carbon footprint and produces stable non-acid generating tailings, thereby reducing environmental impacts while meeting or exceeding water discharge effluent criteria as stipulated by both federal and provincial regulations.

However, Electra isn't simply a material processor/refiner/recycler, they also have the [Iron Creek Project](#) located within their Idaho property. Iron Creek is one of several cobalt-copper resources and prospects within the Idaho Cobalt Belt, a prospective mineralized system that contains the largest primary resources of cobalt in the United States, according to the U.S. Geological Survey. Last week the Company announced [a new cobalt zone](#) following the receipt of

assay results from drilling at its Ruby prospect. The Ruby target is a new zone of cobalt mineralization located approximately 1.5 km southeast of Electra's flagship Iron Creek deposit. This project has the potential to become an important source of cobalt in the U.S. and reduce North America's reliance on foreign supply.

Electra finished Q2/22 with over C\$40 million of cash, has completed 85 percent of all procurement and 90 percent of detailed engineering for its cobalt sulphate refinery, and has a binding cobalt offtake agreement with LG Energy Solution. That seems like a pretty good combination to successfully move forward in the race to be relevant in the battery materials business in North America. Is the C\$135 million market cap a little rich at the moment? I guess it depends if they are successful at hitting their 5,000 tonnes per annum battery-grade cobalt goal in 2023. With spot prices over US\$50,000/t, that suggests an annual revenue stream of US\$275 million. I guess a lot depends on what kind of margins there are in cobalt refining.

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Frank Basa on Canada Cobalt Works' high grade numbers for cobalt, silver and nickel

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"The original hole we drilled was in 2008. Lots of silver, lots of cobalt, lots of nickel. Late last year we decided to put a downhole camera... It gave us the orientation of the structure. We went down the same hole and wedged it and we hit two wedges. One was 50,000 grams per ton silver and the other was 70,000 grams per ton silver plus very high grade numbers for cobalt and very high numbers for nickel." States Frank Basa, President, CEO and Director of [Canada Cobalt Works Inc.](#) (TSXV: CCW | OTCQB: CCWOF), in an interview with InvestorIntel's Tracy Weslosky.

Frank went on to say that in the small area that Canada Cobalt has drilled the company has hit 1.2 million ounces silver in addition to significant amount of cobalt and nickel. He continued, "Cobalt is the new oil going forward. Without cobalt none of the batteries really work well. People try to replace cobalt, they try to lower cobalt grade, they are putting some nickle, some managanese but the reality is, more cobalt, more range, the better quality vehicle you have."

To access the complete interview, [click here](#)

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