Which Metals will benefit from the EV Boom in 2022 and after?

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2021 has been a triumphant year for electric vehicle (EV) metal miner stocks. This is because EV sales are on track to grow ~100% on 2020 sales, which has led to surging demand for the EV metals lithium, cobalt, graphite, nickel, neodymium-praseodymium (NdPr), and dysprosium (Dy).

China lithium carbonate prices led the way rising from CNY 43,750 (US$6,859/t) to CNY 232,500 (US$36,452/t) in 2021, for a 5.3x gain. Cobalt prices have risen from US$14.51/lb to US$31.42/lb in 2021, for a 2.2x gain.

All of this demand for EV metals has also led to a surge in takeovers and strategic buy-ins in 2021. The Chinese have again led the charge leaving the Western world asleep at the wheel, as I discuss below.

China lithium carbonate prices have risen 5.3x so far in 2021

Source: Trading Economics

China leads the lithium takeover charge as the Western world is left asleep at the wheel

The same theme of the past several years continued in 2021. While the West talked about acting, China and even Russia acted, with China making some big moves.

Take a look at the lithium takeovers and buy-ins during 2021 summarized below.

- **Bacanora Lithium PLC** (AIM: BCN) – Taken over recently by China's Ganfeng Lithium.
- **International Lithium Corp.** (TSXV: ILC) – Mariana Project final project share buyout by China's Ganfeng Lithium.
- **Ioneer Ltd (ASX: INR)** – South Africa's Sibanye-Stillwater invested US$490 million for a 50% interest in the Rhyolite Ridge Lithium-Boron Project.
- **Millennial Lithium Corp.** (TSXV: ML | OTCQX: MLNLF) – Bidding war (Ganfeng, CATL, LAC) eventually won by Canada's Lithium Americas Corp. (TSX: LAC | NYSE: LAC) with a 100% company buyout offer for C$4.70 per share.
- **Neo Lithium Corp.** (TSXV: NLC | OTCQX: NTTHF) – 100% company buyout by China's Zijin Mining at C$6.50 per share.
- **Arena Minerals Inc.** (TSXV: AN) – China's Ganfeng Lithium project and equity stake, Lithium Americas initially equity stake then increased equity stake.
- **North America Lithium Inc.** ("NAL") – Australia's Sayona Mining (ASX: SYA) (75%) & Piedmont Lithium Inc. (Nasdaq: PLL | ASX: PLL) (25%) acquire NAL.
- **AVZ Minerals Limited** (ASX: AVZ) – Sold 24% of the Manono lithium and tin project JV to China's Suzhou CATH Energy Technologies (jointly owned by Chinese battery maker CATL) for US240 million.
- **Global Lithium Resources** (ASX: GL1) – China's Yibin Tianyi (owned by CATL, the world's largest battery manufacturer) to invest $6.2 million for a 9.9% equity interest in Global Lithium Resources.
- **Alpha Lithium Corporation** (TSX.V: ALLI) – Russia State backed Uranium One (TSX: UUU) agrees to buy 15% of the Tollilar salar for US$30 million, option/right to buy a further 35% for US$185 million.

Of the ten mentioned above, six of the ten buyers are Chinese companies, one is Russian, one is South African, one is

Canadian, and one is Australian. What is also interesting is that with the Alpha Lithium Tolillar salar deal the buyer is a Russian 'state backed' company with significant plans to acquire more global lithium assets.

2022 will see Tesla dramatically ramp up production and require significantly more EV metals

In 2022 Tesla is likely to exceed 1.5 million electric car sales, up from around what should be about 900,000 in 2021 (a 2/3rds production increase estimate for 2022). Tesla has their Texas gigafactory and their Berlin gigafactory about to open and officially start production, will be expanding giga Shanghai, and will see huge sales of Model Y, some Tesla Semis, and finally the start of production of their Cybertruck in late 2022. All of this will require a dramatic increase in EV metals demand from Tesla in 2022, potentially about a 66% increase based only on the 2/3rds increase in production forecast.

Chinese EV companies such as leader BYD Co with their own huge expansion plans, look set to chase Tesla again in 2022. They will also require significant additional volumes of lithium in 2022.

Global electric car sales look set to rise from 3.24 million in 2020 to exceed 6 million in 2021. My forecast for 2022 is 10 million.

Tesla is set for a huge increase in production in 2022 (Texas gigafactory as of August 31, 2021, set to open very soon)

Source: iStockphoto

Closing remarks

2021 saw the world wake up to the fact that electric vehicles are taking off and will largely replace conventional cars this decade, at least in most parts of the world. The ~100% surge in electric car sales during 2021 has caused an immediate impact on the EV metals supply chain, with a resulting huge 5.3x price increase in lithium, and large increases also in cobalt, nickel and NdPr prices. Graphite looks likely to follow next.

Meanwhile, the Chinese pounced yet again, buying up or into 6 of the 10 major lithium acquisitions in 2021. The other four were made up with one each from Russia, South Africa, Canada, and Australia. Sadly again the Americans were absent!

Will 2022, under Biden's lead, finally see the US awaken. I think it is possible, after all Tesla is massively ramping up their production in 2022.

I hope 2022 will be the year the US wakes up and starts to secure their EV metals supply chain. Because if they don't, the Chinese will continue to dominate EV supply chains globally leaving the US auto industry at their mercy.

Lithium: The Haves and the Have Nots

written by Jack Lifton | December 20, 2021

Too little attention is being paid in all of the chatter, both informed and uninformed, about a lithium supply "deficit" and its longevity, to the culling of both battery and vehicle manufacturers that such a deficit would (will[?]) entail.

There is not even the remotest possibility that global lithium (measured as metal) production could grow to this week's prediction, for example, by the child-like prognosticators at Deloitte, that in 2030 32% of all newly manufactured motor vehicles would be battery electric vehicle (BEV). Even assuming no growth in total OEM automotive production, a CAGR of zero, there would be 100,000,000 cars and trucks manufactured in 2030, and, under this prediction, 32,000,000 of them would be BEVs. Using an average lithium-ion battery capacity per vehicle of 100 kWH and the requirement of 16 kg of lithium per 100 kWH this means a need in 2030, just for BEVs and excluding stationary storage (the so far un-named gorilla in the battery needs zoo) and personal portable electronics, of 512,000 tons of lithium or six times the new production level of 2020!

China's **new economic plan** "only" calls for 20% of its domestic OEM automotive production in 2025 to be BEVs. Again assuming no growth in OEM automotive output from 2020 levels this would mean the production in 2025 of 5,000,000 BEVs in and for the Chinese domestic market. This would require, under the above usage of Lithium requirements, 100% of the lithium produced in 2020. But China is different. Today, in 2021, it already controls (owns or owns the output of) 60% of global lithium production and has today 82% of the global installed capacity for manufacturing lithium ion batteries of all types. Assuming that 65% of current lithium production is used for lithium ion batteries and the 100 kWH size of the average car battery and that it takes 9 GWH of battery making capacity to outfit 100,000 BEVs, this means that China today, with its installed capacity (in 2021) of 455 GWh of battery making capacity, could already produce 5,000,000 BEVs a year domestically. **In other words, China today has already enough battery making capacity to match its current supply of lithium that is allocated to BEV battery manufacturing, and, further, to already be in a position to achieve its 2025 target**

production of BEVs!

There’s really no comparison between the efficiency and **effectiveness** of China’s mandarins as state resource allocation experts/executives and the bureaucrats/advisors of former Soviet Russia or today’s Washington and Brussels.

China continues to acquire global lithium sources, build processing and manufacturing capacity for lithium-ion batteries, and increase production of BEVs to meet long-term state planning goals. In the West bureaucrats “study” the needs for capital allocation to do the same thing.

China seems acutely aware of the balance its needs for steady societal growth (in the standard of living) required when set against its need to allocate capital efficiently to meet security of supply. This is where Western politicians who lack even a rudimentary understanding of economic planning have completely failed in their governance.

Yesterday I heard the chairman of a lithium junior in Argentina criticize China’s Ganfang Lithium, the world’s largest producer of lithium chemicals for batteries, for announcing that it is acquiring ownership of, what he called, a “crap” lithium junior in Argentina, Millennial Lithium Corp. (TSXV: ML | MLNLF: OTCQB). He failed to note that just this year Ganfeng has gone ahead with the building of a 20,000 ton per annum, lithium chloride production plant to be powered entirely by a 120 megawatt (Chinese manufactured) solar cell installation in Argentina, and also agreed to complete its purchase of Mexico’s Bacanora Lithium PLC. Ganfeng with its $120 billion market cap and its own cash along with the permission of the People’s Bank of China is valuing Millennial above its current market price primarily for its holdings and its recent PEA and pilot plant success.

Investing in junior lithium miners is not a bet on the US or the EU's future demands it is a bet on the value that China puts on its critical resource supply security.

The "free" market allocation of capital in the West is not for the societal benefit it is for economic growth, supposedly for the benefit of society, but increasingly for the benefit of an oligarchy now in control of finance. China seems to be taking a different path to economic growth and perhaps a better one for the long haul.