



Palladium: A foreshadowing of the automotive industry's approach to battery metals?

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For years automakers and investors alike have known that at some point the palladium stockpile in Russia, the world's largest supplier of mined production, would sell down and the market would immediately move into deficit. As the stockpile in Russia dwindled in recent years, analysts and mining companies tried to raise money to expand and build new palladium production with limited success. And then, as projected, it happened - Russia signaled the last of the stockpile was being sold and the price of palladium skyrocketed. Fears of shortage gripped our inboxes and the call to platinum for substitution went out.

Palladium's importance in automotive catalytic converters makes for an interesting case study in how the automotive industry and its supply chain might respond in the case of battery metals. In particular, specialty metals such as lithium, cobalt, graphite and class 1 nickel. Copper, while it may go in to deficit at some point in the next few years, is a different case due to the size and complexity of the market – at least in terms of how automotive manufacturers can react.

Why hasn't the Western automotive supply chain invested in battery metals?

Mining is not in the business plan, at least not yet: Ask any mining CEO how difficult it is to discover, build, and operate a mine. Whether you focus on the billions of dollars destroyed in the nickel industry by pursuing HPAL projects or the political challenges copper miners have faced in places like the DRC, Indonesia and Mongolia – mining isn't easy. If a project happens to be one in a thousand that gets built, it now takes on average upwards of 15 years from discovery to production. Automotive manufacturers are faced with dramatically shifting business

models on multiple fronts. In addition to the electric vehicle, the very ownership model of auto ownership is set to change. As autonomous vehicles become ubiquitous in the coming decade, many automakers believe that automobile ownership will decline and ride hailing services like Lyft and Uber will ultimately reinvent how people use and own cars. The next generation of EVs may operate with minimal maintenance for a million miles and be able to work around the clock without a driver. This is basically a long winded way of saying, automobiles and their supply chains already have a lot going on and vertical integration with the mining industry is a big leap.

Commodity purchasers don't get paid to take risks: A purchasing agent at BMW does not have the same DNA as his counterpart at Glencore. Traders at the world's largest commodity trading houses such as Glencore, Traxys and Trafigura, are paid to take risk. Traders can be long or short, heck, they can start the day long and end the day short. A large portion of a commodity trader's annual income is derived from the money she makes taking risks, i.e. trading. This is in stark contrast to a buyer inside the automotive and cathode maker supply chain. If you work at say GM, and you buy cobalt at US\$15 per pound, and it goes to US\$40, you don't get a yearend bonus for the mark-to-market money you made GM. However, if you convince your boss at GM to buy a large stockpile of cobalt at US\$40 and it goes to US\$15, you might get fired. The incentive inside the automotive supply chain is for buyers not to take risks. Supply chain managers tend to buy specialty commodities on market and then tell their manager that there was nothing they could do as X price is the market. This approach is particularly true around niche metals such as lithium, cobalt, and graphite. Price is less of a concern for copper and nickel as hedging tools are available. Notwithstanding the availability of hedging tools, no amount of paper

risk-shuffling can save a buyer if a commodity, such as class 1 nickel, moves into shortage.

Large public companies manage their balance sheet to quarterly calls and yearend financials: Almost weekly we read about new EV model launches and the rollout plans of automotive manufacturers globally. These plans have huge implications for the basic materials that are critical components of the vehicles. In fact, and ironically, the price of some of the basic material inputs to the EV supply chain may drive profitability at a future date. While this point is not lost on senior executives who recognise the importance of the basic material inputs, the analysts and public market investors that cover these companies are focused on next quarter's earnings and not investing in supply chains required to meet demand five years from now. The short-term nature of even the world's largest public equity markets may punish an automotive manufacturer that starts to stockpile cobalt or invests in a lithium or nickel mine. The fear exists that the money will be seen as not allocated "efficiently".

Ford's \$1 billion write down is still fresh almost 20 years on: For some automotive manufacturers, the call of commodity shortages associated with the EV revolution may not truly be believed and Ford's experience with palladium nearly 20 years ago may still impact board rooms today that are considering how to prepare for the new basic material realities in the EV supply chain. Nearly twenty years ago Ford, anticipating a palladium shortage, began stockpiling palladium and entering into long-term contracts. As the market ran, the company increased its position, ultimately buying a large physical stockpile. The price rally, which was ultimately started by Russia signalling it would hold back shipments, subsided with a stockpile sell down and Ford was left to "mark-to-market" its palladium position. Writing down nearly USD 1 billion and later being sued by shareholders. This cautionary tale really harkens back to our earlier point about how automotive manufacturers manage and think about risk and their balance sheets.

Have no fear, China is here – to build and sell you an EV

The electric vehicle story is really a tale of two economic systems. Up to this point, my observations have almost exclusively been directed at Western automotive manufacturers and their supply chains, who, as public companies are constrained by quarterly and annual performance reporting requirements dictated by capital markets. These markets are short term in both their thinking and ability to allocate capital, and this makes it challenging for long term structural bets by Western automotive manufacturers. This is the exact opposite of China.

As a matter of national policy, the Chinese government has made it a priority to achieve global leadership in environmental policy by accelerating the transition from ICE to electric vehicles at a rapid pace. I repeat, China is the global leader on environmental policy as it pertains to electric vehicles with the Government of China publicly announcing their intention to lead the world in the production and use of EVs with up to 2 million EVs to be in use by 2020. This has wide spanning implications for the future of the automotive industry. On the one hand, the adoption of the EV in larger Chinese cities is making its citizens happy as the air quality is enhanced, on the other China is seizing the opportunity to be the world leader in manufacturing the electric vehicle.

The Chinese strategy is completely different from the Western strategy as it pertains to EVs. China is creating a vertically integrated supply chain around all of the battery metals with large-scale outbound investments made in copper, nickel, cobalt and lithium production globally.

China does not want to sell you a battery; they want to sell you a car. The commitment on behalf of Chinese industry to the EV story has given the region a massive advantage over Western automakers. Many of the best lithium assets already have Chinese investors and offtake agreements in place.

The same can be said for Chinese companies who have secured world class copper-cobalt assets in the DRC, such as China Molybdenum, a partly state-owned enterprise which paid US\$2.65 billion in 2016, for the Tenke Fungurume Mine in the DRC, one of the world's largest known reserves of copper and cobalt.

To date, Chinese automotive manufacturers have clearly demonstrated that, as important as the technology is going to be to the EV, having access to basic materials will also be a critical requirement that cannot be overstated or overlooked. In fact, the difference between the automakers that don't survive and those that thrive, may well be locked-up ownership of, and long-term access to, basic materials required to manufacture EVs. China's downstream consumers including battery and automotive manufacturers recognise that this means investment in upstream production of mined supply of critical battery metals.

Will this time be different? Can the West lead?

It is hard to say if this time will be different. To date Western automotive companies have kicked the tires in multiple processes over the past year and not made a move. We are aware of ongoing searches and HR departments trying to build teams around some of the specialty metals. Building these teams is the first step down the path towards making a direct investment in battery metals mining projects. The interesting moment will be when the newly formed teams present development stage projects that may be years away from production, albeit with positive economics to support mined production of critical battery metals, to their boards for approval.

At the current rate, the most likely outcome is that the Chinese supply chain secures enough basic materials to become the silicon valley of EVs. If nothing changes, you will drive a Chinese built EV someday. While Western automotive manufacturers are starting to make noises around vertical integration, they are still years away from the pace and dollars invested by China. This is ultimately wildly bullish for commodities related to EVs and electrification. If history is a guide, automotive manufacturers will wait too long, and then pile in to the market as it runs.

ABOUT THE AUTHOR

Anthony Milewski is Chairman and CEO of Cobalt 27 Capital Corp. (TSXv: KBLT)(OTCQX: CBLLF)(FRA: 270) a leading battery metals streaming company offering exposure to cobalt and nickel, metals integral to key technologies of the electric vehicle and energy storage markets. The Company owns physical cobalt and a 32.6% Cobalt Stream on Vale's world-class Voisey's Bay mine, beginning in 2021. Cobalt 27 is undertaking a friendly acquisition of Highlands Pacific which is expected to add increased attributable nickel and cobalt production from the long-life, world-class Ramu Mine. The Company also manages a portfolio of 11 royalties and intends to continue to invest in a cobalt and nickel focused portfolio of streams, royalties and direct interests in mineral properties containing battery metals. For further information please visit the Company website at www.cobalt27.com or email directly at info@cobalt27.com.