

Leveraging Lithium: The Future of the Electric Vehicle Market

In the world today, the idea of 'going green' or becoming more eco-friendly has transformed from just a buzzword to a significant geopolitical issue. For example, a [typical passenger vehicle in the U.S. emits about 4.6 metric tons of carbon dioxide per year](#) – and that's only a single vehicle! Climate scientists and environmental experts have been strategizing on how to alleviate these numbers for decades, but ultimately, it's up to specific industries to advocate for change and enact more sustainable policies.

One of the industries at the top of this list is automotive, and although the move to electric vehicles (EVs) has been initiated, is it a realistic solution? Are there enough raw products available, such as [lithium](#), to facilitate such a transition? And finally, what does the future of EVs look like?

The Importance of Lithium for EVs

Even though EVs have been around for about the same amount of time as internal combustion engine vehicles (ICEVs), there is a [key difference in their propulsion methods](#): ICEVs use fossil fuel combustion to generate power, while EVs use stored energy from lithium-ion batteries.

The average lithium-ion battery system requires approximately [8 kg of lithium carbonate](#), highlighting that lithium is not only a core component of EVs, but that significant amounts will be required if the move to EVs is to happen in our lifetime. In fact, the International Energy Agency (IEA) predicts that we could [face lithium shortages by as early as 2025](#).

Considering that [30 national governments pledged to work towards phasing out ICEVs by 2040](#) at the COP26 climate talks in 2021, the push towards securing lithium to use in EVs is becoming increasingly discernable worldwide.

The Sprint to Secure Lithium Stores

For some countries, this means that the race to secure lithium for EV batteries is on. For example, Nio Inc., a Chinese company that specializes in manufacturing high-performance EVs, [agreed to invest in an Argentine lithium mining project](#) through a new deal with Australia's Greenwing Resources Ltd in late September.

The transaction will see Nio paying [\\$12M for a 12.16% stake](#) in the operation, with experts pointing out that this strategic move mirrors what other rivals have recently done, such as Tesla and General Motors.

However, Nio, Tesla, and General Motors are not the only EV manufacturers going directly to the source for lithium supplies. Mercedes-Benz recently announced a new deal with Canadian mining company Rock Tech Lithium for [10,000 tons of battery-grade lithium annually](#). This agreement is yet another example of automakers moving quickly to secure their future position in the automotive industry through lithium acquisition for EVs.

Ultimately, the soaring prices of lithium have been hurting the supply chain stability of manufacturers and their bottom lines, driving these automotive companies to go to the source for the raw materials rather than their usual suppliers.

Long-Term Sourcing Challenges

Beyond this race to source raw materials for battery creation, what are some other lithium sourcing challenges that the industry faces?

Well, materials scientists are up against two main obstacles. One is [cutting down on the expensive, scarce, or problematic metals used to create lithium-ion batteries](#) due to their negative socio-environmental impact. Essentially, this is an endeavor in efficiency. They are working to figure out how to use fewer materials to achieve the same results.

The second challenge is [improving battery recycling](#) so that the valuable materials in spent car batteries can be reused. Considering that the IEA anticipates lithium shortages within the next five years, these methods could be integral to getting the world to its goal of net zero.

Lithium Sourcing Strategies

Over the past 18 months, lithium prices have sky-rocketed more [than 500% amid supply chain bottlenecks and robust demand for EVs](#), which is why we're seeing automotive manufacturing companies going directly to the source. However, lithium batteries are still [30 times cheaper than when they first entered the market](#) in the early 1990s – showcasing how the products have become more accessible and affordable over time.

So, the question becomes, is going to the source the most effective solution for lithium acquisition? On the one hand, manufacturers would have access to the raw materials they need to create the batteries to power their EVs. However, on the other hand, by cutting out suppliers, they must now employ workers to process the lithium compound into a usable product. Not to mention, when manufacturers circumvent suppliers, they no longer have access to the expertise of their materials scientists or innovative thought leaders.

At [Infinity Stone Ventures](#), we believe lithium explorers like ourselves are crucial in securing the EV supply chain. We also are involved in the development of other critical metals necessary for lithium-ion batteries, beyond just lithium, including graphite, copper, cobalt, nickel and manganese. It's estimated that 30 new lithium mines will need to come into production over the next 10 years to meet projected demand. That's why we're not only engaged in the [development of battery metals projects to fuel the green revolution](#), but our mission is to provide the most innovative, industry-specific solutions to our clients across several industries.

Final Thoughts

Moving forward, if we're ever hoping to reach our goal of net zero, lithium will only become more critical to the advancement of the EV. The solution to eliminate the manufacturing of new ICEVs and replace them with EVs in our lifetime is idealistic; however, realistically, materials scientists will need to continue forging further innovations in order to keep the supply chain running smoothly.

These current supply chain disruptions, coupled with rising lithium prices, have incited several automotive companies to look into sourcing their own materials directly. Although this strategic move may make the process more direct, it arguably won't make the mining, processing, and manufacturing of lithium any easier.

With pressure from government bodies to make the sustainable switch to EVs by 2040, it's expected that lithium production and the EV market as a whole will experience explosive growth in the coming years as it solidifies its position as a critical material in the modern age.