

Ford Enters a 'Brave New World' in Securing Lithium for Battery Gigafactories to Drive EV Production Surge

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[Ford Motor Company](#) (NYSE: F) hosted its investor event on Monday and it would appear that in a single investor day presentation the Company has gone from worst to first when it comes to securing battery-grade lithium supplies to scale up its electric vehicle production. I'm pretty sure all these deals didn't come to fruition over the weekend, but they sure made a splash when they were presented on Monday.

In total, Ford announced deals with five separate companies sourcing lithium from all over the world, including Quebec, Chile, Argentina, Australia, and a few U.S. locations sprinkled in for good measure. These latest supply deals announced by Ford complement the [ioneer Ltd](#) (ASX: INR | NASDAQ: IONR) contract [signed in July 2002](#).

Ford Investor Day Lithium Announcements

According to the Ford Investor/Analyst Day presentation transcript (yes I scanned most of the 78 pages and know way more about Ford than I ever wanted to know), they've now sourced about 90% of the nickel and the lithium to meet their future capacity targets, including producing 2 million electric vehicles (EVs) by 2026. On Monday, the Company announced lithium agreements with 3 of the top producing major global suppliers –

[Albemarle Corporation](#) (NYSE: ALB), Chile's [Sociedad Química y Minera de Chile S.A.](#) (aka "SQM") (NYSE: SQM), and [Nemaska Lithium](#).

Nemaska is a joint venture backed by [Livent Corporation](#) (NYSE: LTHM) and the [investment arm of the Province of Quebec](#). According to Ford, these are some of the largest lithium producers in the world with the best quality, existing capacity, and [IRA compliance](#) (although Albemarle does have plenty of Chinese processing capacity but we'll assume Ford knows that).

US-Based Lithium Development Deals

Coupled with these deals with major players to provide stability to its plants, Ford is also investing in U.S.-based development projects through agreements with [Compass Minerals International, Inc.](#) (NYSE: CMP), [EnergySource Minerals LLC](#) (*private*), and the previously announced deal with Ioneer.

The interesting thing about these investments is that Ford is basically pursuing promising technology that has yet to be proven at scale. Ford claims they are developing extraction technologies to further diversify the industry, but if they are betting on the right horse, it could certainly give them a leg up on the competition.

A Bet on Direct Lithium Extraction Technology

Specifically, we are talking about direct lithium extraction (DLE) technology. The Holy Grail for lithium extraction as it seeks to extract the white metal from brine using filters, membranes, ceramic beads, or other equipment that can typically be housed in a small warehouse. It would enable miners to boost

global lithium production with a footprint far smaller than open-pit mines and/or evaporation ponds, which are often the size of multiple football fields.

Compass and ESM are using ESM's proprietary [ILiAD™ adsorption technology](#), which is a DLE technology that competes with what pioneer and [Lithium Americas Corp.](#) (TSX: LAC | NYSE: LAC) are pursuing at their respective projects. The pursuit and potential success of DLE technology is easily an article in itself, and probably well above my pay grade to do it justice.

FIGURE 1: Giga Factory Locations



Source: Ford Investor Day Presentation (May 22, 2023)

Ford to Build 5 New EV Battery Giga Factories

So we'll circle back to the Ford story and talk about why they've locked in several large, multi-year lithium supply contracts. Ford is building 5 new giga factories to produce batteries, with the first two, located in Kentucky and Tennessee, on track to open in 2025. Another plant, in Marshall, Michigan, will be dedicated to producing battery cells using LFP

(lithium iron phosphate) technology.

With respect to the LFP facility, it helps explain one of the lithium announcements noted above, the SQM deal which supplies lithium carbonate. Lithium carbonate is required for LFP batteries versus lithium hydroxide, which is the primary component for the current generation of lithium-ion batteries. Ford now feels it has control of its value chain. Instead of relying on a cell supplier, Ford can now move material around where they need it, so If they wanted to flex more into LFP and use more lithium carbonate, no problem. If the Company wants to swing more towards hydroxide, it can also do that.

Final Thoughts

Granted this isn't original thinking as Elon Musk was the first one out of the gates lining up sources of lithium (and other critical materials) for [Tesla, Inc.](#) (Nasdaq: TSLA), and in January, [General Motors Company](#) (NYSE: GM) [signed a deal](#) with the aforementioned Lithium Americas.

Nevertheless, it seems now that virtually all North American automakers are securing supplies of battery materials to boost EV output as demand for EVs continues to grow, and to take advantage of U.S. tax credits.

It would appear automakers are entering a '[Brave New World](#)'. Which, ironically is a dystopian novel written in 1931 by Aldous Huxley, where the citizens of the World State substitute the name of (Henry) Ford, founder of the Ford Motor Company, wherever people in our own world would say Lord. We shall see if the Ford Motor Company of 2023 will become the messiah of EV production.

Vertical Integration is all the Rage in the EV Industry, is Musk the New Ford?

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Last week, Bloomberg news [reported](#) that [Tesla, Inc.](#) (NASDAQ: TSLA) was in talks to buy [Sigma Lithium Corporation](#) (TSXV: SGML | NASDAQ: SGML), a company that is focused its 100%-owned Grota do Cirilo project, a large hard-rock lithium deposit in Brazil with lithium production aiming for 2024.

The stock price of Sigma Lithium was up 16% after the news was released and is up almost 250% over the past year in lockstep with other lithium miners. Electric vehicle (“EV”) manufacturers want to lock up lithium supplies as the metal increases since it is a key component in EV batteries and there are worries that demand will soon outstrip supply.

Neither Telsa nor Sigma Lithium released any news release on the subject nor provided any comment to the media. Tesla, led by Elon Musk, is looking at various options to secure its lithium sources, including potentially its own mining and refining.

Previously to fund its exploration and development, Sigma Lithium had signed a funding and 6-year offtake agreement with [Mitsui & Co., Ltd.](#) (TSE: 8031) of Japan and also signed a six-year lithium offtake agreement with Korean-based [LG Energy Solution](#) (KOSE: A373220).

In the past, Tesla signed [contracts for lithium](#) with Ganfeng

Lithium Group Co. (SZSE: 002460), one of the largest lithium suppliers in the world, and [more recently, Lontown Resources Limited](#) (ASX: LTR), an Australian miner.

Is Elon Musk the New Henry Ford?

The reappearance of Henry Ford-style vertical integration in car manufacturing marks a big 180-degree turn from the late 1990s when outsourcing to sub-contractors began.

In the early 1900s (over 100 years ago!), Henry Ford had a keen interest in acquiring and controlling the sources of raw materials for his company to achieve manufacturing self-sufficiency for his automobile operations. By achieving vertical integration, a business strategy in which a company controls all aspects of production, from raw materials to finished products, Henry Ford believed he would ensure a reliable supply chain and potentially reduce costs.

To achieve this desire, Henry Ford bought vast tracts of timberland and built sawmills in Michigan to control the wood required in his vehicles but also used to create shipping containers and for heating his factories. Henry Ford had a strong interest in controlling other sources of raw materials for his company, such as iron ore for steel production, a key component of automobiles, and also coal for his factories.

But Henry Ford also went further afield as he sought to secure a reliable source of rubber for his company. In the mid-1920s, he purchased a large tract of land in the Brazilian Amazon rainforest and established a rubber plantation and community called Fordlandia. Unfortunately, it was abandoned in the late 1930s due to challenges with the workers and the physical environment.

The New Vertical Integration Trend Continues...

Not to be outdone by Tesla, earlier this month, [General Motors Co.](#) (NYSE: GM) announced the closing of the initial tranche, [a \\$320 million investment](#), of a previously announced \$650 million investment and offtake agreement with [Lithium Americas Corp.](#) (TSX: LAC | NYSE: LAC). Lithium Americas is advancing the Caucharí-Olaroz lithium project in Argentina towards first production and is also developing the Thacker Pass lithium project in Nevada which is advancing towards construction.

Last year, [Rio Tinto Group](#) (NYSE: RIO | LSE: RIO) and the [Ford Motor Company](#) (NYSE: F) signed [an agreement](#) whereby Rio Tinto would supply Ford with materials including lithium, low-carbon aluminum, and copper and Ford would become the initial customer for Rio Tinto's Rincon lithium project in Argentina.

It's also happening with the smaller technology components in EV batteries. In June 2022, [Nano One Materials Corp.](#) (TSX: NANO), a company with patented processes for the low-cost, low-environmental footprint production of high-performance cathode materials used in lithium-ion batteries, [announced](#) a strategic US\$10 million equity investment and collaboration agreement with Rio Tinto. The two companies entered into an agreement under which they would work together to support the acceleration of the commercialization of Nano One's patented cathode technology.

Also in June of last year, [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF) announced a [C\\$3 million strategic investment](#) from Automobile & PCB Inc. (KOSE: A015260) into its Korean subsidiary for the first phase of its commercial plant project. NEO focuses on producing silicon anode materials for lithium-ion batteries through its proprietary single-step nanocoating

process.

Final Thoughts

Ford's attempts to control raw materials were not always successful, and he faced challenges such as labor disputes, market fluctuations, and supply chain issues.

Nonetheless, his focus on vertical integration and self-sufficiency had an impact on the American manufacturing industry.

Perhaps what is old is new again.