

The Nano One manufacturing hub represents a game-changing opportunity to secure sustainable and clean battery supply chains in NA

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One of the largest gaps in the North American EV metals supply chain is the need for 'western supply' of lithium iron phosphate ("LFP") cathodes used in most standard range electric cars, smaller electric cars, commercial vehicles, and stationary energy storage. These demand areas are set to surge this decade, yet where is the non-China supply of LFP going to come from?

At [Tesla Inc.](#) (NASDAQ: TSLA) [2023 Annual Shareholder Meeting](#) on May 16, 2023, Elon Musk showed a very interesting slide that stated solar and wind production needs to increase by 3x/yr, **battery production by 29x/yr**, battery electric vehicle ("BEV") production by 11x/yr. The takeaway from the slide is that the greatest area of forecast demand is battery production. Another key thought is that Tesla sees most, if not all, of their standard range electric cars, smaller electric cars, and stationary energy storage batteries using LFP cathode chemistry.

Solar and wind production needs to increase by 3x/yr, battery production by 29x/yr, BEV production by 11x/yr to reach a 100% renewable energy world



Source: [Tesla 2023 shareholder meeting](#)

All of Tesla's current LFP batteries come from China, which

results in US-made Tesla electric cars with LFP batteries only receiving half of the IRA clean vehicle tax credit of US\$7,500. Similar to other EV OEMs using China batteries from Contemporary Amperex Technology Co., Limited (SHE: 300750) (“CATL”), Gotion High-tech Co., Ltd. (SHE: 002074), and others.

The next big thing will be North American and European LFP battery production. LFP cathodes and batteries could be made in North America using a Western supply chain. There is just one company currently able to supply a small volume of LFP cathode material from North America.

Nano One Materials Corp.

The Company is [Nano One Materials Corp.](#) (TSX: NANO) (“Nano One”). Nano One owns the **only existing North American lithium iron phosphate (“LFP”) production facility (“the Candiatic facility”)**. Nano One is a battery materials focused company that has developed and patented numerous more effective ways to produce cathode materials that are cost-effective with no waste streams and an improved environmental footprint.

Nano One is converting its 2,400tpa LFP Candiatic facility in Québec to the One-Pot process with small pilot plant volumes targeted for end of 2023 for evaluation with partners and scaling up to approx. capacity of 2,000tpa by end of 2024.

On April 24, 2023, Nano One [updated the market](#) on their commercial plans for LFP and other cathode materials. Highlights of the plan were quoted as follows:

- *“Nano One’s technology, manufacturing hub and plans represent a game-changing opportunity to secure sustainable and clean battery supply chains in North America.*

- *Nano One's systematic plans jump start the commercialization of its One-Pot process starting at **200 tonnes per year in 2023, expanding in steps to 2,000, 10,000 and hundreds of thousands of tonnes per year.***
- *\$40 million in cash, \$7 million in grants remaining to draw down and multiple proposals for additional government support."*

Nano One's Candiatic facility in Québec is being retrofitted with its new One-Pot reactors (using Nano One's patented one pot process), and will be commissioned initially as a Pilot Plant with 200tpa in Q3 2023, ramping up to 2,000 tpa. The Pilot Plant will produce product off-take samples to be qualified by cathode and battery manufacturers. Nano One then plans to expand this to a 10,000tpa Demo Plant.

Of particular interest was the part highlighted above, notably **"hundreds of thousands of tonnes per year"**. Given the massive demand wave ahead for LFP cathodes and a new North American supply chain, the potential growth ahead for Nano One is enormous. We wrote about this opportunity in late 2022 [here](#).

CEO Dan Blondal [commented](#):

"The cathode market opportunity is extraordinary, with production volumes projected to grow, in North America for instance, from thousands to over a million tonnes per year, within a decade. We are laying a solid foundation to address these opportunities and to bring increased value to our shareholders. It begins with a strategy that leverages our newly acquired facility in Candiatic, Québec which is the only LFP production plant and most experienced operational team in North America....."

Nano One says they will launch LFP in North America, followed by

Europe and the Indo-Pacific region to power hundreds of gigawatt hours (“GWh”) of battery storage and millions of EVs.

Nano One [state](#):

“This plan could enable hundreds of millions in revenue during Nano One’s initial years of commercial operations while also enabling demonstration of its technology to the market, potential licensors, joint ventures, and investors, at a scale relevant to automotive OEM and renewable energy storage interests.”

Nano One’s Candiatic 2,400tpa LFP plant (Quebec, Canada) and expansion plans for a one-pot process Pilot and Demo Plant



Source: [Nano One company presentation](#)

Nano One also plans to make cathode materials for NMC and LNMO batteries

In addition, Nano One has commercialization plans for nickel manganese cobalt (“NMC”) and lithium nickel manganese oxide (“LNMO”) cathode active materials. Nano One also has engineering work underway for a separate 100 tpa NMC and LNMO pilot facility.

Closing remarks

For a long time, Nano One has been seen as a pioneering cathode materials research style company. However, this has changed significantly since their purchase of the Candiatic facility in North America. Nano One is now starting a new journey as a commercial cathode materials ‘manufacturer’ with plans to scale to large volumes and supply the emerging North American battery

supply chain with critically needed cathode materials LFP and NMC. The company is also implementing its licensing strategy to deploy its technology with partners throughout key markets in Europe, Asia and South America.

Nano One Materials trades on a market cap of [C\\$278 million](#).