

Nano One Strives For Sustainability and a Total Domestic North American Lithium Ion Battery Supply Chain

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My biggest takeaway from COP26 is not so much climate action and emission reduction, but the message of sustainability. Without focusing on the importance of sustainability one risks thundering down a path of unintended consequences. What do I mean by this? Several years ago I read that if we could convert all coal fired power generation to natural gas it would achieve the Kyoto emission target. I can't confirm if this is completely accurate or not, regardless it would have been a large step in the right direction (despite still being a fossil fuel based solution). At the time it would also have been achievable with existing, available resources and bought the world some time to continue building out renewable resources, which is the ultimate end game. However in 2021, with the lack of energy investment over the last several years due to a combination of factors, that isn't the case today, and we are starting to see parts of the world where renewables haven't developed enough by themselves to even keep people warm this winter. Meanwhile, the fossil fuel alternatives aren't any longer as readily available as backup and may still not even provide enough for home heating. I understand the urgency of eliminating coal fired power, but if there aren't enough alternative power options to keep people warm then who knows what happens next.

That's why I think in order to successfully green our economy and reduce our global carbon footprint, the focus has to be on how to do it sustainably. One company that has to be at or near the top of the list in the transition to clean energy in a sustainable way is [Nano One Materials Corp.](#) (TSX: NANO). Nano One is a clean technology company with a patented, scalable and low carbon intensity industrial process for the low-cost production of high-performance lithium-ion battery cathode materials. The technology is applicable to electric vehicle, energy storage, consumer electronic, and next generation batteries in the global push for a zero-emission future. Nano One's One-Pot process, its coated nanocrystal materials, and its Metal to Cathode Active Material (M2CAM) technologies address fundamental performance needs and supply chain constraints while reducing costs and carbon footprint.

Another facet of sustainability that is very applicable today is the supply chain. Currently, the cathode supply chain is long and complex. Nano One manufactures its cathode materials directly from nickel, manganese, and cobalt metal powder feedstocks rather than metal sulfates or other chemical salts. The metal powders used are one fifth of the weight of metal sulfates, avoiding the added costs, energy, and environmental impact of first converting to sulfate and then the shipping and handling of waste. The manufacturing process for all of its Cathode Active Material (CAM) uses lithium feedstock in the form of carbonate rather than of (lithium) hydroxide, which is costly, corrosive and harder-to-handle. The process is feedstock flexible which enables improved optionality of sourcing of raw materials. Nano One's technology aligns it with the sustainability objectives of automotive companies, investment communities and governmental infrastructure initiatives.

On Tuesday, November 10, 2021, [Nano One announced](#) the goal of building a fully integrated and resilient battery supply chain

in North America, which must include responsible mining of battery metals, onshore refining, environmentally favorable cathode material production, and recycling. The Company believes there is a once-in-a-generation opportunity to create a secure and cost competitive supply chain that is domestically integrated with a low environmental footprint. Accordingly, Nano One is shifting its LFP (lithium-iron-phosphate) cathode material strategic direction to large emerging markets outside of China, starting in North America, and has ceased joint development activities with Pulead Technology Industry.

LFP production is free from the constraints of nickel and cobalt, and although its origins are deeply rooted in Canada, its growth over the last decade is almost entirely based in China. Recent LFP cell-to-pack innovations have driven costs down and enabled greater EV range, setting the stage for EV pioneers to shift to LFP. The need has never been greater for a sustainable, responsible, and secure supply of LFP materials and batteries, to be established and supported in North America and Europe, proximal to where the EV's are manufactured. Canada has clean energy assets, responsibly sourced critical minerals, and a rich history in LFP technology and manufacturing. By leveraging these opportunities with the Company's simplified low-cost approach to cathode production, Nano One seeks to create a resilient value-added North American LFP supply chain in a collaborative ecosystem with a smaller environmental footprint.

There you have it. A company that sees the bigger picture and embraces sustainability in an effort to advance clean technology while reducing both costs and the overall carbon footprint. If this were a video, at this point I would simply drop the mic and walk away. Since it's an article and I need a conclusion I'll finish off by saying Nano One has the potential to have its technology in every EV built in North America and Europe, and

that's going to be a pretty big number in the not too distant future.