It’s all in the name – Critical Elements Lithium

written by InvestorNews | April 30, 2021

There has been a lot of talk about Lithium (Li) over the last several months. We are all familiar with Lithium-Ion batteries in our laptops, cell phones, tablets, power tools and of course electric cars. But have you ever wondered why that is or are you like me (until now) and just took it for granted. Turns out Lithium has the highest electric output per unit weight of any battery material which is why it is the standard material for lithium-ion (high energy-density rechargeable) batteries. It also happens to be the lightest of all metals making for a pretty good one-two punch to be used in battery technology. The point is, until there is a material technological breakthrough, Lithium will be leading the charge towards electrification of our society.

To that end, the demand side for Lithium looks to be skyrocketing over the next several years/decades. Here’s some great information on this courtesy of InvestorIntel’s own Jack Lifton in this article. As well there is a whole lot of supply chain questions that have been raised by both the pandemic and Chinese dominance of many of the critical battery materials leading to a noticeable shift towards “home grown” supply. Jack Lifton covers this issue in a video that’s also worth a view here, where he discusses how the policy of the US government is to prioritize the production of critical materials either in the United States or in friendly countries that are allied with the US. Additionally, at this year’s virtual PDAC Canada announced its own list of minerals (including Lithium) considered critical for the sustainable economic success of Canada and our allies. Canada’s Minister of Natural Resources is quoted as saying

“Canada’s list signals to investors where Canada will focus and where Canada will lead. Critical minerals will get us to net-zero.”

Needless to say, there should be a bit of a premium to North American BEV (battery-powered electric vehicle) manufacturers to have a convenient and stable source of this important material. Perhaps even more importantly, critical minerals and their development has the support of the Federal government. Enter Critical Elements Lithium Corporation (TSXV: CRE | OTCQX: CRECF). A Quebec based junior mining company with its flagship Rose Lithium-Tantalum project located in James-Bay, Quebec. The company has one of the most advanced Lithium projects in Canada and one of the purest lithium deposits globally. The company recently announced an update to its draft environmental impact assessment report in which the Committee concludes that the project is not likely to cause significant adverse environmental effects. This moves the Rose project one step closer to obtaining the final authorization and keeping Critical Elements on pace to start mine construction in 2021 and see first production by late 2022/early 2023.

In 2017, Critical Elements completed a feasibility study on Rose Phase 1 for the production of high quality spodumene concentrate with an internal rate of return for the project estimated at 35% after tax, a net present value estimated at C$726 million (8% discount rate) and a three year payback. Those are some robust numbers but it’s going to be expensive to bring this project into production. The initial capital cost is estimated at C$341 million including all infrastructure with a 10% contingency. Correspondingly, in January 2021, the company announced it has engaged Cantor Fitzgerald Canada Corporation to pursue, engage and evaluate global strategic partners and investors to advance the Rose Project to production. Given the outlook for Lithium, it’s plausible to conceive that Critical Elements will be able

to pick and choose the best deal for themselves to get the project financed (has anyone put a call into Elon Musk?).

In addition to the appeal of owning a company that could have a world class Lithium mine in full production by 2023 (and a meaningful rerating opportunity that goes with that), there is still some speculative upside from the companies 8 other projects. Even better, Critical Elements just announced an option agreement that gives Lomiko the right to acquire up to a 70% interest in the Bourier project. This agreement will allow the Bourier property to be explored in detail for battery minerals discoveries, such as Lithium, Nickel, Copper and Zinc while Critical Elements stays focused on goal #1 – the Rose Lithium-Tantalum project. However, with roughly $8 million dollars in cash, a financing decision has to be made to continue moving this exciting North American Lithium mine moving forward.

Nano One looks to be moving in the same direction as EV leader Tesla

written by InvestorNews | April 30, 2021

At Tesla Battery Day in September 2020 Tesla discussed how they plan to have a three prong approach to batteries – Lithium Iron Phosphate (LFP), **Nickel Manganese (NM or LMN)**, and high nickel (NCA or NMC). Today I look at the nickel manganese battery and a company that is moving in the same direction as Tesla. That company is Nano One Materials Corp. (TSXV: NNO) ("Nano One").

Tesla's planned mix of battery cathode types – Li Iron Phosphate (LFP), Nickel-Manganese (NM), high nickel (NCA) (NMC)

Source

Nano One specializes in improving battery cathodes. In particular the Company's focus is to make low cost, high performance, cathode powders used in lithium ion batteries.

In October 2020, Nano One announced that they have developed a breakthrough in longevity for a cobalt free high voltage battery that has been successfully demonstrated at automotive rates of charge and discharge for over 900 cycles. The battery uses a low cost, cobalt-free **Lithium Nickel Manganese (LNM)** cathode active material made with Nano One's proprietary One-Pot process.

The problem with removing the cobalt can be that the battery becomes less stable or has a lower lifespan (less cycles). However in this case Nano One has managed to achieve 900 cycles, which is heading towards the 1,500 cycles that a Tesla Model 3 achieves using a more expensive nickel-cobalt-aluminum (NCA) battery. The other reason for removing cobalt is that the world supply of cobalt is limited and mostly comes from the Democratic Republic of the Congo – A country rampant with issues such as corruption, child labor and exploitation. Many analysts are forecasting severe cobalt supply shortages after 2023 just as the EV boom takes off. This explains why Tesla and Nano One are working towards a nickel-manganese battery with no cobalt.

Nano One's Chief Technology Officer Dr. Stephen Campbell explains:

"We are able to avoid rapid capacity fade and premature failure and have successfully demonstrated a high voltage lithium ion

battery cell with significant cycle life – this is an exceptional outcome. The enabling technology is Nano One's patented LNM cathode material operating up to 4.7 volts and made using our patented One Pot process. **The LNM voltage is 25% higher than commercial lithium ion batteries, improving efficiency, thermal management and power.**"

Nano One's Coated Single Nanocrystal Cathode gives a performance advantage

Source

In June 2020, Nano One announced the development of a coated, **single crystal cathode** material for lithium ion batteries that is providing **up to 4 times improvement in longevity**. The technology is applicable to all of Nano One's cathode materials.

Perhaps not surprisingly, Nano One was able to raise an oversubscribed equity raising of approximately $14.37M at an offering price of $2.72 per Unit (one share and half a warrant). The Company intends to use the net proceeds for research and development, capital equipment purchases and facility expansion, intellectual property acquisition, business development, working capital and general corporate purposes.

Nano One continues to have successful breakthroughs in improving lithium-ion battery cathodes, most importantly in all types of cathodes (iron based, nickel-manganese, and high nickel-cobalt). Combine this with their excellent established development partners Pulead (the global leader in LFP cathodes), Volkswagen (a leading OEM), and Saint-Gobain then it should not be surprising to see Nano One start to commercialize their patented technology in the near future.

The global cathode market is forecast to be a US$23 billion market by 2025 and includes a US$1 billion potential licensing opportunity which Nano One is targeting. Nano One's goal is to achieve ~$70M pa in revenues by 2025 at high profit margins.

Nano One's stock is up 118% over the past year so early investors are certainly being rewarded. With the EV boom set to accelerate due to Tesla's planned US$25,000 car by 2023, it should leave plenty of opportunity for Nano One to make their mark.

Well partnered (and well-funded) with key battery suppliers, Nano One charges forward on 'Mission Possible'…

written by InvestorNews | April 30, 2021

Nano One secures an additional $11 million in cash to provide a multi-year funding runway for their work on lithium-ion battery cathodes

For companies that are not yet producing revenues, the threat of running out of funding is a significant business risk. As the COVID-19 disruption deepens and some companies run low on cash,

Nano One Materials has secured an additional $11 million in funding which will provide them with “a multi-year runway extending over three years.” This essentially removes the short-term funding risk making the stock a safer buy for investors.

Nano One Materials Corp. (TSXV: NNO) is working on making lithium-ion batteries better. Nano One has developed patented and scaleable industrial processes for producing low cost, high performance, battery materials typically used in the battery cathode. The processing technology enables lower-cost feedstocks, simplifies production, and advances performance for a wide range of cathode materials.

Nano One is working to make lithium-ion battery cathodes cheaper and better

Source

Nano One’s recent funding success

- $11m raised from private and institutional groups
- $5.25m grant from Sustainable Development Technology Canada (SDTC)

In connection with the closing of the $11m financing, Nano One issued 9,565,000 units at a price of $1.15 per unit with each unit comprising of one common share in the capital of the Company (the “Shares”) and one-half of one common share purchase warrant (the “Warrants”). Each whole Warrant is exercisable into one share at an exercise price of $1.60 per until February 21, 2023.

The proceeds from the financing will be used for corporate development, facilities expansion, technology advancement and general working capital.

Nano One CEO Mr. Dan Blondal stated:

"We are thrilled with the capital market response to this latest placement. The proceeds from this financing will also be leveraged by an additional five million dollars in non-dilutive and non-repayable contributions, that was awarded to Nano One by Sustainable Development Technology Canada in May of 2019. ***The sum of sixteen million dollars*** *enables us to accelerate business plans and co-development activities including those already underway with Volkswagen, Pulead, Saint-Gobain and other undisclosed global automotive interests."*

Note: Nano One also receives financial support from the National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP).

Nano One – Why invest?

Nano One's development partners

Nano One is very well partnered into key battery suppliers and some car manufacturers, including several big names – Pulead, Saint-Gobain and Volkswagen. Nano One is working with Pulead to develop better LFP batteries, with Saint-Gobain to improve thermal processing and to develop enhanced high temprature cathode processing, and with Volkswagen to develop advanced materials for next generation batteries.

Apart from the partnerships discussed above and other undisclosed opportunities, Nano One has 16 patents with 30+ patents pending.

Nano One's business model

Nano One's goal is to achieve up to $1 billion in licensing fees

revenue for their patented cathode technologies, by tapping into the rapidly growing cathode market that is forecast to be worth $23 billion by 2025.

Nano One is tapping into the battery cathode market which is forecast to be worth $23 billion in revenues by 2025

Source

Closing remarks

Nano One is ticking all the right boxes.

- Great patented technology – Check.
- Industry leading partners (Pulead, Saint-Gobain and Volkswagen) – Check
- Funding secured ($16 million in total) – Check
- Government backing – Check

With a potential up to $1 billion licensing fees opportunity and a market cap of just C$80 million, it is not too late for investors to get on board. If Nano One succeeds it will have been a great time for investors to have bought in now after the recent dip. Execution risk remains, but the rewards look large if Nano One can pull it off.

Canada Cobalt Works' CEO on

the ‘real market’ for cobalt

written by InvestorNews | April 30, 2021

Frank Basa on how the real market for the cobalt sulfate provider is the cathode market

“We just came back from Europe. We spent some time in Germany. We listened to the end buyers. We are targeting the end buyers. I think drill results are effective, but the reality, what the market wants, what the end buyer wants is cobalt sulfate, nickel sulfate, manganese sulfate, all these products. You have to show them that you can produce those products. You have to meet their technical grades, technical specifications and you have to be very reasonable that what you have you can deliver.” States Frank Basa, President, CEO and Director of Canada Cobalt Works Inc. (TSXV: CCW | OTCQB: CCWOF), in an interview with InvestorIntel Corp. CEO Tracy Weslosky.

Tracy Weslosky: Frank in preparing to talk to you about Canada Cobalt Works I was so impressed with your background. You are a resource industry expert. Let us start with cobalt. The cobalt stocks are currently not performing the way I would think as an investor they should be performing. Can you tell us what is going on with the cobalt industry?

Frank Basa: Actually we are probably in the same spot like everybody was originally. What we did was we listened to the market. We listened to the people that would be buying our product and we did what we call a technical. We said, look we will show the world we can remove the undesirables from our product and also produce the cobalt sulfate that the market wants. We were actually in China and Japan. We spent 10 days in Asia about a year and a half ago. What you are reading now we already knew about that a year and a half ago. We just came back from Europe. We spent some time in Germany. We listened to the

end buyers. We are targeting the end buyers. I think drill results are effective, but the reality, what the market wants, what the end buyer wants is cobalt sulfate, nickel sulfate, manganese sulfate, all these products. You have to show them that you can produce those products. You have to meet their technical grades, technical specifications and you have to be very reasonable that what you have you can deliver.

Tracy Weslosky: Alright. Let us just start for the InvestorIntel audience, we are self-directed accredited investors, can you tell us what cobalt sulfate is? What is the difference?

Frank Basa: You see a lot of the smelters only produce cobalt metal, but the cathode makers are asking for cobalt sulfate and it is a special thing that they want. They want a certain grade and plus you have to have certain purity or impurities removed from the product. Then they take that product and they blend it either with a nickel sulfate or manganese sulfate or a copper sulfate to make their own specific battery. It is sort of like a recipe. They have their own cookbook. What we have to do is produce these products on specification so they can make their end product for the cathode makers.

Tracy Weslosky: If I hear you correct the real market for the cobalt sulfate provider is the cathode market?

Frank Basa: Yes.

Tracy Weslosky: Okay. Tell us about the cathode market.

Frank Basa: Apparently everybody has been talking, that is what we thought, about battery manufacturers, but the reality was you go to the cathode makers. They are the ones that produce the product for the battery manufacturing people. It is kind of a little more sophisticated. Japan is even far more sophisticated. For example, we met with Nissan to talk to them to get a feel

for the cobalt market. The way Nissan works they have to buy from metal trader. The metal trader buys it from somebody, gives it to the cathode maker and then Nissan has a design battery that somebody else makes for them. Then Nissan gets the battery…to access the complete interview, click here

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Northern Graphite Greg Bowes InvestorIntel Summit Presentation

written by InvestorNews | April 30, 2021

May 30, 2018 – "Why should you be interested in graphite? As I mentioned earlier, graphite is the anode material in lithium-ion batteries. That is a $20 billion dollar a year business that is growing at over 20% a year. That chart is historical. That is not a forecast." states Gregory Bowes, CEO and Director of Northern Graphite Corp. (TSXV: NGC | OTCQX: NGPHF), in a recent presentation at the 7th Annual InvestorIntel Summit – Buds, Batteries & Blockchain 2018.

Gregory Bowes: Northern Graphite is a company that is based in Ottawa, Canada. We have about 65 million shares outstanding. We consider that we have the best new graphite project. I am sure everybody says that so my job today is to convince you why it actually might be true in our case. It starts with location. If any of you want to do a site visit you can jump in a car and you

would be there in 4½ hours. It is between North Bay and Ottawa, off the Trans-Canada Highway. It has a reasonable capital cost. It has a realistic production target relative to the size of the market. It is the highest percentage of the more valuable large flake production. It has the lowest marketing risk of any new project. It has the highest margin and the best economics. It is not a junior exploration story. We have a full feasibility study and we have our major environmental permit. The next step is $100 million dollars Canadian and building a mine. We have developed a patent pending battery material technology, which I will tell you a little bit more about, which converts that graphite mine concentrate or helps convert it into the anode material for lithium-ion batteries. Why should you be interested in graphite? As I mentioned earlier, graphite is the anode material in lithium-ion batteries. That is a $20 billion dollar a year business that is growing at over 20% a year. That chart is historical. That is not a forecast. As usual the best investment advice comes from looking around you. We all know the proliferation of personal devices, cameras, cell phones, laptops. All of that market is driven by lithium-ion batteries. This is lithium-ion battery manufacturing capacity that is in the pipeline. It is set to quadruple by 2021. If that happens we are adding 300 gigawatt hours of production capacity. You can see at the bottom that would require a doubling of annual graphite production. Even if these plants were only to operate at 20% or 30% or 40% of capacity due to lower than expected growth in EVs, you would still need multiple new graphite mines. This is a little bit of a comparison. The three main battery minerals are graphite, lithium and cobalt, obviously. The different in the graphite market you can see it is quite a bit bigger than the other two. In terms of battery demand, it still has not got to where the other two are yet. That is one of the reasons that the graphite price has not performed as well, nearly as well, as lithium and cobalt. The interesting story is

that if you add 100 gigawatt hours of battery manufacturing capacity or demand, you are looking at 160% increase in graphite demand so there is much greater leverage there than there is in the other two minerals. That leverage comes from two factors that people do not often consider. You talk about how much lithium you need and how much graphite you need in a battery…to access the complete presentation, click here

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Peter Clausi on the global cobalt market

written by InvestorNews | April 30, 2021
March 14, 2018 – "There is a limited supply of cobalt. The supply chain out of the Congo is weak. There are not many other places in the world that produce it and as a result demand has been going up." states Peter Clausi in an interview with InvestorIntel's Andy Gaudry.

Andy Gaudry: Peter, why has cobalt gone up over 400% over the past 2 years?

Peter Clausi: Basic economics of supply and demand. Demand is increasing. Supply is falling and at risk in the supply chain.

Sixty per cent of the world's cobalt comes out of the Congo. I do not know if there is anybody who suffered more on the planet than the Congolese. Since King Leopold showed up in the late 1800's, that poor area of the world has had just the life beat

out of it.

It is having the life beat out of it because there is so many minerals in the ground that that the imperialists are fighting for it. Right now, it is copper and cobalt.

There is a limited supply of cobalt. The supply chain out of the Congo is weak. There are not many other places in the world that produce it and as a result demand has been going up.

Demand is also increasing because cobalt is used in the cathode of lithium-ion batteries. You think we are going to sell fewer or more electric cars next year? The answer is more. Electric toothbrushes, power tools, laptops, anything that has a lithium-ion battery in it for rapid charge / discharge needs cobalt. There is more cobalt than lithium in your cell phone battery. The world needs cobalt. Basic laws of supply and demand have just pushed the price up.

Andy Gaudry: Where is it going to go and where is it going to end?

Peter Clausi: Cobalt is up almost 400%, as you say, since February of 2016. Our call is for roughly $50 by the end of the year. The wild card here is the supply chain. Amnesty International and The Enough Project are agitating for the imposition of an external ethical supply Chain. We have recently seen Apple indicate that they will only buy cobalt from ethical sources. If the formalization of an ethical supply chain takes place then there really is no cap on where cobalt will go. That ethical supply chain will knock so much of the cobalt out of the supply chain, prices will spike…to access the complete interview, click here