

Copper, Lithium, and a Presidential Election in Chile, why does it matter?

Now that COP26 has concluded perhaps some other items will begin to show up in the news cycle. However, unless you dig deep you may not be aware that on November 21st Chileans go to the polls to elect a new president. You may be wondering why I picked an election in Chile as something to pay attention to given all the things going on in the world today. I have to admit that I'm a little concerned about the build-up of Russian troops on the Ukrainian border in response to complaints of increasing NATO activity in the region. And you just never know what's going to happen when the Chinese and U.S. get together to discuss economic and military tensions. Yet despite all that I think the Chilean election could have greater global ramifications depending on the outcome...or it could be a non-event.

The reason for having a look under the hood at Chile's election is two-fold. One is that the leading candidates in the polls are currently from the far left and the far right, neither are from Chile's mainstream political parties. The second is Chile's contribution to two very top-of-mind commodities at present: copper and lithium. Has this information started to pique your curiosity? If it hasn't then it should and here's why.

In today's economic reality, as we move towards a cleaner, greener world with less carbon emissions, we are going to need a lot of copper to build out all the electrical infrastructure and of course lithium has been termed as the gasoline of the future. We've covered the macro necessity of both these commodities enough at InvestorIntel, so I won't get into the weeds on everything regarding copper and lithium. However, I

will say that Chile is the world's largest miner of copper by a long shot. Mine production in Chile is approximately 28% of all copper mined in the world and the country is estimated to contain 23% of global copper reserves. Those are the kind of numbers copper investors need to pay attention to.

As for lithium, it's almost as impressive with Chile being part of the renowned Lithium Triangle. The Lithium Triangle is a lithium-rich region in the Andean southwest corner of South America, spanning the borders of Argentina, Bolivia, and Chile. Roughly 58% of the world's lithium resources are found in these three countries, according to the 2021 USGS Mineral Commodity Summary. Although Chile only accounts for an estimated 11% of global lithium resources, they are currently the world's second-largest producer with approximately 22% of the world's lithium production. Again, this is enough material so that any sort of disruption to order or rule of law could have serious ramifications that ripple around the world.

As much as I like to brag about Canada being rich in commodities, Chile is knocking it out of the park when it comes to copper and lithium. Hence the reason I'm paying attention to this election given the importance to a nation's commerce of an orderly transfer of power.

Now let's take a closer look at the background heading into this election. This is the first election since widespread protests over inequality rocked Chile in 2019. Some of those protests turned violent, with riots, arson attacks, looting and violent clashes with police, all sparked after the government increased public transportation fares. Things were bubbling below the surface for a while and this was the ignition point. Needless to say Covid impacts to the economy and its people further exacerbated these issues. This led to Chileans voting in a referendum in October, 2020 to rewrite Chile's constitution which appeared to be the writing on the wall for the center-right coalition government that is currently in power. Then in May of this year, Chileans voted

again in an election for delegates who would rewrite the constitution. The ruling coalition failed to pick up the one-third of seats necessary to block radical changes to the constitution. Meanwhile, the center-left, which has dominated politics since the end of Augusto Pinochet's 1973-1990 military dictatorship, garnered less support than leftists who have been pushing for wholesale change to the 'Chilean model' that has been credited with fomenting growth, but also with deep inequality.

That's the macro reasoning but layered on top of that are a couple of micro issues that investors should also be aware of. The country is debating a controversial mining royalty bill which could sharply hike tariffs on the sector. The royalty bill, under discussion in Congress, could shut down the country's private miners by slapping a 3% royalty on sales of copper with a sharp escalator as copper prices rise. As well, there is a new glacier protection law, which could impact some key mines.

The people of Chile want change and it looks like they will get it with the polls being led by far left hopeful Gabriel Boric and ultra conservative front-runner, Jose Antonio Kast. Thus far both candidates have kept their powder dry on mining during the campaign. Left-wing candidate Boric has discussed royalties while Kast has proposed vague changes to mining property law to rev up the sector, including opening up state miner Codelco to more private investment. At this point, it's difficult to understand what either candidate could mean to Chile's future as a mining powerhouse. Nevertheless, investors should be putting this election on their radar as there is potential for a lot more downside than upside, in my opinion. With that said, my hope is that this election is a non-event and results in an orderly transfer of power from one democratically elected party to another.

It should be noted that if no candidate gets a simple majority this coming Sunday, the top two will compete in a head-to-head

ballot on Dec. 19. The polls suggest this is likely the next date you'll have to mark in your calendar if you feel, as I do, that it could be important to know who is the next President of Chile.

The Post-COP26 World Looks To Australia For Future Non-Chinese Rare Earths Production

To achieve U.N. climate change management goals the world needs to shift rapidly to clean energy, and that means we need to build or secure, reliable sources of rare earths. While the USA and Canada have made some progress in this direction, Australia will also be needed to play a key role.

When looking at a chart of rare earths reserves by country, China shows the largest reserves followed by Vietnam, Brazil, Russia, India, and Australia, in that order. The USA is ranked 8th and Canada is outside of the top ten. Given Australia's stellar track record as a reliable supplier of raw materials, it should not be surprising to know that the West is looking towards Australia to step up production of rare earths, especially those needed to support the surging cleantech sectors of electric vehicles, wind energy, and solar energy.

ClearWorld.us says it well, stating:

“Renewable energy development relies upon sufficient quantities of rare earth minerals, specifically neodymium, terbium, indium, dysprosium, and praseodymium. These are used

in the production of solar panels and wind turbines. If the world is to meet the greenhouse gas emissions targets sought in the Paris Climate Agreement the availability of these minerals must increase by 12 times by 2050.”

(Emphasis by the author.)

Rare earths are key elements in the cleantech revolution



Australian listed rare earths companies:

Producers

Lynas Rare Earths Limited (ASX: LYC) (“Lynas”)

Lynas is the second largest neodymium and praseodymium

("NdPr") producer in the world. Lynas owns the Mt Weld rare earth mine, which is one of the world's highest grade rare earths' mines, and the Mt Weld ORE Concentration Plant, both located in Western Australia. Lynas also owns the Lynas Advanced Materials Plant (LAMP), which is an integrated manufacturing facility, separating and processing rare earths' materials in Malaysia. The Lynas 2025 growth strategy encompasses plans to build the Kalgoorlie Rare Earths Processing Facility (cracking and leaching) in Australia and an LRE/HRE separation and specialty materials facility in the USA. Lynas trades on a market cap of A\$7.3 billion.

Iluka Resources Ltd. (ASX: ILU) ("Iluka")

Iluka is a relatively new (April 2020) producer of rare earths at their Eneabba Project in Western Australia. Iluka intends to ramp to selling 50,000 tpa of a 20% monazite-zircon ore concentrate for further processing offshore. Iluka has an offtake agreement for 50,000 tpa. Iluka is working on developing a Phase 2 of the Eneabba Project which involves investigating techniques to beneficiate and purify the monazite to an 80% concentrate for sale further down the value chain. Iluka is mostly known for being an Australian heavy mineral sands, zirconium and titanium, producer. Iluka trades on a market cap of A\$3.5 billion.

Vital Metals Limited (ASX: VML) ("Vital")

Vital recently began mining ore at its Nechalacho' Mine in Canada's Northwest Territories (NWT), with commencement of ore processing at Vital's, under construction, Saskatoon cracking and leaching facility expected to begin in 2022. The Nechalacho Mine is a high grade, light rare earth (bastnaesite) project with a world-class resource of 94.7Mt at 1.46% REO (measured, indicated and inferred). Nechalacho's North T Zone, which is being mined by Vital, hosts a high-grade resource of 101,000 tonnes at 9.01% LREO (2.2% NdPr). Vital has a non-binding MOU with Ucore Rare Metals Inc. for

the supply to it of a mixed rare rare earth carbonate, beginning H1 2024. Vital Metals trades on a market cap of A\$250 million.

Explorer/Developers (in alphabetical order):

Arafura Resources Limited (ASX: ARU) (“Arafura”)

Arafura 100% own the Nolan’s Bore rare earth project 135kms from Alice Springs in the Northern Territory, Australia. Arafura states: “The Project is underpinned by low-risk Mineral Resources that have the potential to supply a significant proportion of the world’s NdPr demand. It is a globally significant and strategic NdPr project which, once developed, will become a major supplier of these critical minerals to the high-performance NdFeB permanent magnet market.”

The deposit contains a JORC 2012-compliant Mineral Resources of 56 million tonnes at an average grade of 2.6% total rare earth oxides (TREO). 26.4% of the total rare earths contained are NdPr. The Project is supported by Export Finance Australia (EFA), and the Northern Australia Infrastructure Facility (NAIF), via non-binding letters of support for a proposed senior debt facility of up to A\$200 million and A\$100 million respectively. Arafura is looking to raise further funds to get the project started. Arafura recently stated: “The momentum with offtake discussion has enabled engagement to expand to include the options for strategic investment as part of the Nolan’s project funding.” Market cap is A\$379 million.

Australian Rare Earths Limited (ASX: AR3) (“AREL”)

AREL is progressing in the exploration of a significant deposit of valuable ‘clay-hosted’ rare earth elements, located at their Koppamurra Project spread over ~4,000km² of tenements in South Australia and Victoria. Past exploration of the Koppamurra region has shown it contains mineralization

containing the rare earth elements neodymium, praseodymium, dysprosium and terbium. The Koppamurra Project is an 'ionic clay' rare earth opportunity with a 2021 JORC Inferred Mineral Resource of 39.9Mt @ 725ppm TREO. AREL trades on a market cap of A\$98 million.

Australian Strategic Materials Ltd. (ASX: ASM) ("ASM")

ASM owns the Dubbo Rare Earths Project in NSW, Australia. The Dubbo Project is a 100% owned 'construction ready' poly-metallic and rare earths project with potential to become a key global supplier of specialty metals and rare earths. ASM's goal is a "mine to metal" strategy to extract, refine and manufacture high-purity metals and alloys, supplying directly to global technology manufacturers. Market cap is A\$1.92 billion.

Northern Minerals Limited (ASX: NTU)

Northern Minerals own the Browns Range heavy rare earth minerals project in Western Australia. Northern Minerals has built a pilot plant to test a number of deposits and prospects that contain high-value dysprosium and other Heavy Rare Earths (HREs) such as yttrium, hosted in xenotime mineralization.

The Company states: "Northern Minerals is positioned to become the world's first significant producer of dysprosium outside of China. Accounting for 60% of the Browns Range Project's (the Project) revenue, dysprosium is the key value driver of the Project and is at the core of Northern Minerals' marketing strategy. With a high value, high purity, dysprosium rich product, the Company is set to become a long term and reliable supplier of dysprosium and other critical heavy rare earths to world markets." Market cap is A\$339 million.

Peak Resources Limited (ASX: PEK)

Peak Resources 75% owns the Ngualla Tanzania rare earth project, which the Company states is one of the world's,

largest and highest grade, undeveloped rare earth projects. The Ngualla Project has ore reserves of 18.5 million tonnes at 4.8% REO; 22% of the total mineral resource is NdPr, with an expected 26 year life of mine. The Project is currently at the funding stage having completed a BFS in 2017. The BFS summary details are here. About 90% of the Project's revenues will be coming from NdPr. Peak Resources state: "Operating cost of US\$ 34.20/kg NdPr* Oxide, demonstrating potential to be the world's lowest-cost fully integrated rare earth development project." Market cap is A\$135 million.

Closing remarks

With rare earths demand set to grow strongly this decade as the world moves towards cleaner energy and technology, investors would be wise to take a second look at the rare earths sector.

Australian critical minerals projects were recently in the news after the Government announced that they would receive an A\$2 billion boost (via a loan facility), to support the sector. This bodes well for the Australian rare earths junior miners to join Lynas as producers. Stay tuned as this sector looks set to shine this decade.

**Nano One Strives For
Sustainability and a Total
Domestic North American**

Lithium Ion Battery Supply Chain

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.

Nano One Materials' Dan Blondal with Chris Thompson on decarbonizing the battery materials supply chain

In a recent InvestorIntel interview, Chris Thompson spoke with Dan Blondal, CEO, Director & Founder of Nano One Materials Corp. (TSX: NANO) about Nano One's place in decarbonizing the battery materials supply chain and about the company's product development collaboration with Euro Manganese and a global OEM automotive company.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Dan Blondal said that Nano One's patented technologies are used to make a wide range of the cathode materials used in batteries for electric vehicles, energy storage, and for consumer electronics. Dan also provided an update on Nano One's One-Pot process, which increases the energy density and durability of lithium ion batteries, and how its M2CAM technology addresses supply chain complexities while reducing costs and carbon footprint.

To watch the full interview, click here.

About Nano One Materials Corp.

Nano One Materials Corp (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. Nano One has received funding from various government programs and its current “Scaling of Advanced Battery Materials Project” is supported by Sustainable Development Technology Canada (SDTC) and the Innovative Clean Energy (ICE) Fund of the Province of British Columbia.

To learn more about Nano One Inc., [click here](#)

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If you have any questions surrounding the content of this interview, please email info@investorintel.com.

Tesla's pivot towards LFP batteries and the impact on the cobalt and nickel markets.

Electric cars today predominantly use 3 main types of cathodes in their batteries – Nickel Manganese Cobalt (“NMC”), Nickel Cobalt Aluminum (“NCA”), and Lithium Iron Phosphate (“LFP”). CNBC reported last month that Tesla (TSLA) plans to pivot towards now using LFP batteries for all their global ‘standard range’ (“SR”) electric cars, previously LFP use by Tesla was only for the SR models made in China. Tesla's long range and performance electric cars will continue to use nickel-cobalt chemistries. Tesla is the global number one seller of electric cars and commands a 14.7% global market share. This means when Tesla acts others follow. In this case Volkswagen, Renault and Mercedes are also considering a similar move towards LFP for their shorter range vehicles. BYD Co, albeit one of the world's largest manufacturers of LFP batteries, already widely uses LFP batteries.

Another recent news article reported a rumor that BYD is to

supply Tesla with 10 GWh of LFP batteries, in addition to their existing supplier CATL. This would make sense as neither Tesla nor Panasonic yet make LFP batteries. As of now around 95% of LFP cathode manufacturing is produced in China. The two key LFP producers are CATL and BYD Co.. LG Energy Solutions is also developing LFP batteries. LFP patent restrictions will start to expire in 2022, then battery cell makers will potentially be able to produce LFP cells outside China without paying for licenses and royalties.

In recent years LFP batteries have improved considerably, in their energy density (i.e., storage capacity), and they are now suitable for shorter (standard range) electric cars. Previously LFP was used predominantly in China mostly for heavy EVs such as electric buses, trucks, and low range electric cars. For example Tesla's Model 3 SR (made in China with LFP batteries) has been tested and shown to achieve 391 km (243 miles) of real world range, which is satisfactory for many people, in particular in China.

LFP batteries advantages are a longer lifespan, and being safer and cheaper than NMC and NCA. LFP s batteries' disadvantages are lower range (due to lower energy density), a slightly higher self-discharge rate, and reportedly , a loss of range in very cold conditions. LFP batteries contain no nickel and no cobalt.

The question then for investors is, has Tesla's (and soon likely others) pivot towards LFP batteries affected the market for cobalt and nickel for batteries?

The short answer is YES. The battery market will now need less nickel and cobalt relative to before. For now, cobalt and nickel prices continue to perform well, simply due to the current EV sales boom, with 2021 sales up over 100% on 2020.

Global electric car sales in 2021 are booming – Up over 100% on 2020



Source: EV-Volumes

The long answer is that due to the expected ~10-20x increase in electric car sales this decade, both LFP and NMC/NCA type batteries will experience accelerating demand. **This means the demand for battery grade nickel and cobalt will still increase significantly**, just not as much as was previously anticipated. Lithium is likely to be the biggest winner as it is used in all types (LFP, NMC, NCA). In particular lithium carbonate (mostly sourced from brines) will be the winner as the precursor chemical for LFP battery cathodes.

Investors can consider holding more weight in lithium stocks but keep some weighting still for nickel and cobalt stocks. Of course investors must also remember that these trends are always evolving, and, hence, they are subject to change. For example, for the last few years NMC was gaining in popularity and so was the source material lithium hydroxide made from the hard rock lithium mineral, spodumene. Investors need to also consider the supply-side dynamics, where new battery-grade cobalt and nickel supply looks very constrained.

Benchmark Mineral Intelligence stated in October 2021:

“High-nickel cathode chemistries, which require lithium hydroxide, have not been deployed as quickly as expected, at the same time lower energy density, but cheaper, LFP cathodes have dominated the Chinese cell production industry in recent months. Cells with LFP cathodes have held an average market share of 51.1% so far in 2021, compared to 42.6% in 2020,

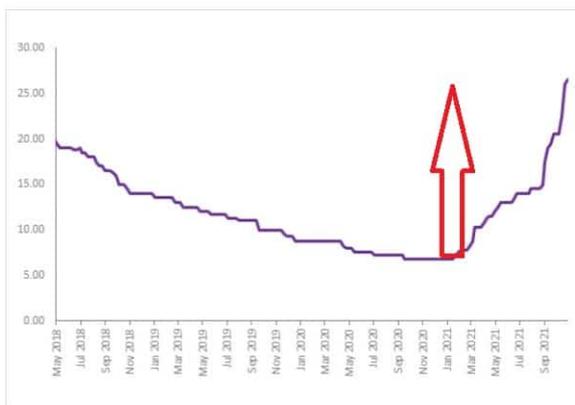
showing a step-change in demand as a result of technological improvements to the cathode chemistry and indirect policy support from the Chinese government for applications most suited to LFP.”

Lithium pricing also gives a clue to demand. Lithium chemicals pricing has surged higher in 2021 from around US\$7/kg to US\$26.50-27.00/kg. Interestingly lithium carbonate prices are at US\$26.50/kg and lithium hydroxide are at US\$27.00/kg suggesting demand for both remains extremely strong.

Demand for lithium from booming EV sales in 2021 has pushed prices up from US\$7/kg to US\$26.50-27.00/kg

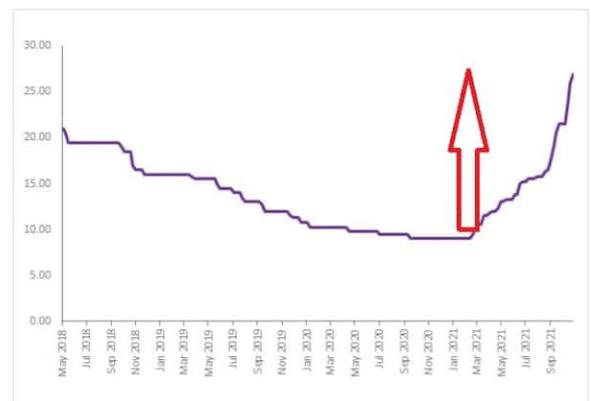
Lithium carbonate charts

Lithium carbonate, 99.5% Li₂CO₃ min, battery grade, spot price cif China, Japan & Korea, \$/kg (midpoint)



Lithium hydroxide charts

Lithium hydroxide monohydrate 56.5% LiOH.H₂O min, battery grade, spot price cif China, Japan & Korea \$/kg (midpoint)



Source: Fastmarkets

Looking ahead lithium demand is forecast to outstrip supply leading to prolonged high lithium prices.

Recent quotes from industry insiders and experts

Rio Tinto: “60 Jadar mines wouldn’t fill looming lithium gap....EV sales are on track to hit up to 55% of the world’s total light vehicles sales as early as 2030, reaching about 65 million units.” (2020 sales were 3.1M)

Benchmark Mineral Intelligence (Simon Moores tweet): “Lithium

carbonate price today in China is \$28k tonne high end, mid point \$24k. This is the top end of what we experienced 4/5 years ago and there's a long way to go before this price surge runs out of steam....I don't feel we are even half way thru yet.....prices in China would exceed \$40,000/t." (US\$40/kg)

Pala Investments: "I think it's important to remain balanced across the portfolio, and have exposure to both carbonate and hydroxide....These prices are probably going to remain elevated for the next 12 months or so, at least in our view."

Pilbara Minerals CEO Ken Brinsden: Lithium market is 'desperately short'.

Closing remarks

LFP batteries have always been popular in China, where their advantages of lower cost, safety, and longer cycle life have been favored over the more expensive NMC/NCA types. In the month of September 2021 58% of Chinese electric cars used LFP. However, Europe and USA have favored NMC for its greater energy density and hence longer range.

With battery raw material supply a growing concern (especially cobalt, but also nickel) it is quite understandable why Tesla is pivoting to using more LFP batteries and less NMC/NCA. Perhaps the safest way for investors considering to pivot is to increase exposure to lithium (ideally the lithium carbonate producers, typically from Chilean and Argentina brine salars), but not reduce nickel and cobalt exposure in case the trend changes again next year. Additionally, it may potentially pay to consider investing in lithium brine 'juniors' (non-producers) that will benefit from surging lithium demand in future years.

The other winners will be Tesla (lower input costs on standard range cars) and the big two LFP battery manufacturers BYD Co and CATL.

Disclosure: The author owns stock in Tesla (TSLA), BYD Co (HK:1211), and numerous lithium, cobalt, and nickel miners.

dynaCERT wins during COP26 with renewed support for its emissions reduction technology

Whether it be COP26 or the recent company news, 'emissions reduction' company dynaCERT Inc. (TSX: DYA | OTCQX: DYFSF | FRA: DMJ) stock price leaped 42.86% higher on the Toronto Stock Exchange yesterday. Since the COP26 conference began on October 31 the stock has moved up from C\$0.22 to C\$0.40, for a 82% gain the past 3 days. Now that's impressive!

Of course InvestorIntel readers may not be surprised, as we published "dynaCERT's Carbon Emissions Reduction Technology (CERT) is revved and ready, as the world eyes the upcoming UN Climate Change Conference in Glasgow for updates on emissions reductions commitments" back on September 2, 2021.

dynaCERT (TSX: DYA) was up 42.86% yesterday

dynaCERT Inc. (DYA.TO)

Toronto - Toronto Real Time Price. Currency in CAD

0.4000 +0.1200 (+42.86%)

At close: 3:59PM EDT

1D **5D** 1M 6M YTD 1Y 5Y Max   Full screen



Source: Yahoo Finance

On November 1, 2021, dynaCERT announced that their distributor CarbonKleen has reported “Sofina will expand their installation of *dynaCERT*’s Technology from four (4) HydraGEN™ Technology units to twenty (20) units, with a goal of using *dynaCERT*’s patented technology to improve the efficiency and reduce harmful emissions of diesel-powered engines.” Sofina Foods will be installing this technology as part of their ongoing commitment to continuously improving the environmental impact of their operations and products.

Sofina Foods Inc. is a Canadian based manufacturer of processed animal products. Sofina is privately owned and

dedicated to providing great tasting, high quality food products for retail and food service. Sofina acquired Lilydale in a C\$130 million deal in 2010 and Santa Maria Foods ULC (an importer and distributor of specialty Italian brands) in 2012.

dynaCERT President & CEO, Jim Payne, stated: “*dynaCERT* congratulates the entire team at Sofina Foods for taking important steps towards contributing to Sustainability as it relates to Climate Change. *dynaCERT* applauds both KarbonKleen and Sofina Foods for their uncompromising commitment to innovative technologies that reduce emissions in internal combustion engines. Our patented HydraGEN™ Technology and HydraLytics™ software is well-suited for Sofina Foods and is a testimony of their rising efforts in contributing to solutions to Climate Change....”

Could the Sofina deal lead to a windfall of new customers for dynaCERT

Certainly 2021 has seen many announcements of companies wanting to go green and reduce their emissions. While not every business can afford or justify buying new electric vehicles, millions of global businesses can afford to install dynaCERT’s HydraGEN™ emission reduction system on their existing combustion vehicles or generators, especially those using diesel. That’s because the system can be retrofitted and as well as reducing emissions it improves fuel efficiency. Furthermore, the HydraLytics™ software allows companies to see on their computers or cell phones exactly how much CO2 they are generating for any particular truck or diesel engine. A win-win for the Company and also for dynaCERT.

HydraGEN™ Technology delivers less emissions and improved fuel efficiency

HydraGEN™ Technology

- C\$70 million already invested
- 17 years of R&D to commercialization
- Continued & expanded R&D for new models in expanded R&D facilities
- Results in:
 - > More power
 - > Better torque
 - < Less fuel consumption and
 - < Less CO₂, CO, and NOx
- For internal combustion engines

Source: dynaCERT company presentation

dynaCERT's extensive global distribution for its products

dynaCERT has numerous collaborations and partnerships, including **45 qualified agents and dealers operating in 44 countries** worldwide, with a potential market size of one billion vehicles. In particular, polluting large heavy vehicles (trucks, buses, mining vehicles etc) running on diesel are prime potential beneficiaries. Fleets can also benefit by reducing emissions and saving on fuel costs.

Some examples of dynaCERT's agents/dealers/alliances include KarbonKleen (mentioned above), 6TAVADA LDA (Portugal), SSiE (Canada), ESAMETAL S.r.l. (Italy), SIMMAX Power Generation (Canada), Simply Green Ltd (Canada), GridFix, (Australia), and ACR Industrial Supplies (Colombia and Peru).

dynaCERT's potential global market for its products is enormous (includes 1 billion existing combustion engine vehicles and millions of trucks)

Market Size

- Total ICE Market
 - 1 billion internal combustion engines operate world-wide
 - 100 million new internal combustion engines built world-wide every year
- HG2 Market Estimate
 - 20 million in North America
 - 40 million in Europe
 - 55 million in South Asia
 - 20 million in South America
- Europe
 - 145 million trucks
- North America
 - 711,000 trucking companies relying on 3.5 million drivers
 - 15.5 million class 8 trucks
 - 36 million trucks registered for business
- South America & India
 - 210 million trucks

Source: dynaCERT company presentation

More about dynaCERT

dynaCERT's patented technology (HydraGEN™ system and HydraLytics™ software) creates hydrogen and oxygen on-demand through a unique patented electrolysis system and supplies these gases through the air intake of internal combustion engines to enhance combustion, resulting in lower carbon emissions and greater fuel efficiency. dynaCERT's technology is designed for use with many types and sizes of diesel engines used in on-road vehicles, reefer trailers, off-road construction, power generation, mining and forestry equipment, marine vessels and railroad locomotives.

Closing remarks

The COP26 climate change conference on now in Glasgow has been highlighting the need to take urgent action to save our planet. The recent example of Sofina Foods purchasing dynaCERT's emissions reduction technology is just one small example of how change can happen.

dynaCERT's technology was 17 years in the making with C\$70 million invested, all leading up to now. The Company trades on a market cap of C\$152 million which gives an opportunity for further gains should more of the 1 billion combustion engine owners decide to reduce emissions. Let's hope COP26 is just the beginning of an avalanche of new purchases for dynaCERT's products and we can move towards a cleaner world.

ESG Investor Spotlight on Climate Change and Water

As world leaders gather in Glasgow for the United Nations Climate Change Conference (also known as COP26) one has to be aware that as the world continues to suffer from more severe weather, some of the things we take for granted may become more costly and/or scarce. The impact of extreme heat and droughts could potentially affect the supply and availability of clean water for drinking, as well as for irrigation and our supply of fresh food. Albeit COP26 is primarily focused on mitigating greenhouse gas emissions, we need to look past that to what the consequences of a changing environment could have on humanity. For years, if not decades, clean water has been portrayed as a critical commodity whose time will come. Perhaps now that weather patterns appear to be getting more volatile, we may finally be seeing the start of this.

Today we are updating an InvestorIntel favorite – H2O Innovation Inc. (TSXV: HEO | OTCQX: HEOFF) which designs, manufactures and commissions customized membrane water treatment systems, provides operation and maintenance services for that equipment, and designs, manufactures and sells a complete line of OEM specialty products such as chemicals,

consumables, couplings, fittings, cartridge filters and other components for multiple markets in the water treatment industry. For the last 20 years the company has designed and fabricated state-of-the-art, integrated water treatment solutions for municipal, energy production, and natural resource end users, specializing in applications for drinking water, water reuse, wastewater treatment and industrial process water. Developed in-house, the company's solutions are custom designed, adapted and built for all types of applications.

The Company breaks down its activities into three operating segments: Water Technologies & Services (WTS), which designs and builds custom water, wastewater and water reuse systems; Specialty Products (SP), utilizing a global network of more than 100 distribution partners to manufacture and deliver specialty chemicals, components, and consumables to end-users, with a particular focus on membrane applications; and Operations and Maintenance (O&M), for contract operations for water, wastewater, water reuse treatment, collection, distribution systems, pumping stations, and associated assets for customers throughout North America.

At the end of September, the Company released its results for its fiscal year ended June 30, 2021, reporting record fiscal year 2021, revenues and profitability. Highlights included annual revenues reaching \$144.3 million, representing a \$10.7 million growth or 8.0 % year over year; net earnings of \$3.1 million, or \$0.039 per share, compared to a net loss of \$4.2 million, or \$0.061 per share, for the previous fiscal year; and a strong financial position with a net debt of \$0.5 million at year end, compared to a net debt of \$10.5 million as of June 30, 2020. On the M&A side, H2O Innovation completed two acquisitions complementing its O&M services in Texas, and expanded its reach in Spain and Latin America with the acquisition of Genesys Membrane Products, S.L., a specialty products marketing and sales network.

The Company fell a little short of market expectations, however, despite the positive results, and the stock lost 10% upon the announcement of its fiscal 2021 numbers. However, redemption may be right around the corner when Q1 results for the current fiscal year come out on Wednesday, November 10th. If we ask why an investor should be optimistic, the answer is that since June 30th H2O Innovations has announced an O&M contract for the City of Laurel, MS with a total value of \$10.4 million over 4 years; it has also been awarded six new capital equipment projects in its WTS business line, and reached completion on six others, with the new contracts valued at \$4.8 million; its Piedmont business line secured new orders for fiber reinforced polyester cartridge filter housings and duplex stainless couplings totaling \$4.0 million along with the signing of five new distribution agreements in Latin America; and its SP business line has been selected to provide antiscalant to the world's largest seawater reverse osmosis desalination plant. This is important because one of primary focuses of H2O Innovations is building recurring revenues across its three business segments, and it has realized an 87% threshold. That suggests that all the above announcements should be additive to the upcoming Q1 results.

Thankfully the planet earth hasn't descended into the harsh, inhospitable environment of the desert planet, *Arrakis*, the setting of the latest version of the movie "*Dune*" based on the must-read book(s) by *Frank Herbert*. But as the reliability of fresh water becomes more of a concern, it's good to know that companies like H2O Innovations have our back. Perhaps we are finally starting to see the commoditization of water that could make the stewards of clean water, like H2O Innovations, which was Water Company of the Year at the 2020 Global Water Awards, very important and valuable. In the meantime, this Company with its recurring revenues, clean balance sheet and a market cap of just over \$200 million.