Lithium Royalty's Lithiumfocused Royalty Portfolio of Sustainable and ESG "Friendly" Projects

written by InvestorNews | May 2, 2023

In <u>late February</u>, I opined that perhaps we had seen a near-term top for the price of lithium. Hindsight suggests that was a pretty good call. However, that was more of a short-term trading view on lithium as opposed to an overall investing view.

Generally speaking, I still believe that the overall lithium market is reasonably bullish over the next several years barring some sort of technological breakthrough that obsoletes the lithium battery.

In fact, if you believe what the <u>IEA published</u> on lithium (along with other critical minerals), you'd be very bullish based on the IEA view that the lithium market will see a 33% compound annual growth rate ("CAGR") for the next decade.

Another stat that puts future lithium demand into perspective is the fact that Tesla is targeting the manufacture of 20 million electric vehicles ("EVs") per year by 2030 and in order to produce that many vehicles in a year, Tesla would need more lithium than was produced in the world in 2021.

Assuming lithium prices have now stabilized or perhaps even bottomed before another move higher, the question becomes how best to play lithium going forward.

Lithium Royalty Corp. overview

One option to get more broad-based exposure to the market is the newly listed <u>Lithium Royalty Corp.</u> (TSX: LIRC).

Lithium Royalty is a lithium-focused royalty company with a globally diversified portfolio of 30 high-grade revenue royalties on mineral properties around the world that supply, or are expected to supply, raw materials to support the electrification of transportation and decarbonization of the global economy.

The Company's portfolio is focused on high-grade and low-cost mineral projects that are primarily located in Australia, Canada, South America, and the United States. Lithium Royalty is a signatory to the United Nations Principles for Responsible Investment.

There are two key takeaways from that corporate description.

- First off, they have focused on "friendly", stable jurisdictions with 46% (based on acquisition costs) of their projects in North America, 62% comprise OECD nations, and no Russian, Chinese, or African asset exposure. Their non-OECD assets are primarily in Brazil and Argentina, which are both stable enough at present.
- Secondly, the integration of ESG factors and sustainable mining are important considerations in Lithium Royalty's investment analysis and royalty acquisitions. This includes a focus on the use of renewable power in extraction and processing; infrastructure benefits to remote communities; environmental and economic impact on local communities; water use; surface disruption and remediation plans as well as tailings management.

I've noted as recently as <u>last week</u> that I strongly believe a premium will start to be placed on sustainable miners with responsibly sourced materials and a low-carbon footprint. Lithium Royalty definitely ticks that box.

Royalty portfolio and upside potential

But ultimately it comes down to whether you can also make money while being responsible. The royalty that excites me the most at present in the Company's portfolio is one that has just transitioned from construction to production.

In all Lithium Royalty now has 3 producing royalties but their 90% interest in a 1.0% Net Smelter Royalty (NSR) in <u>SIGMA Lithium Corporation</u>'s (NASDAQ: SGML | TSXV: SGML) Grota do Cirilo project is about to start generating returns with its inaugural shipment of approximately 15,000 tonnes of spodumene concentrate in May 2023. Sigma is now focused on ramping up to full production capacity for Phase 1 of the project, which is expected by July 2023.

Other assets currently generating income for the company are both in Australia, including Allkem Limited's (ASX: AKE | TSX: AKE) Mt. Cattlin project with a royalty of A\$1.50 per tonne of ore mined and Core Lithium Limited's (ASX: CXO) Finniss mine where the Company expects to receive its first royalty payment for its 2.5% Gross Overriding Royalty (GOR) as a result of Q1/2023 sales.

In total, Lithium Royalty has 30 royalties in its portfolio, of which 29 are summarized in the slide below. Additionally, the acquisition pipeline currently has 10 additional royalty targets with the opportunity to deploy over US\$130 million of new capital.

FIGURE 1: Lithium Royalty's Current Portfolio of Royalities

		LRC Royalty	Asset						
	Operator		Name	Country	Туре	Product	Stage	Report	
	ALI - IL	790	-W			V. V.V.			
1.	Alkem	A\$1.5/t Treated	Mt. Cattlin	Australia	Hard Rock	Spodumene	Production	FS	
2	Core Lithium	2.50% GOR1	Finniss	Australia	Hard Rock	Spodumene	Production	DFS	
3	Sigma Lithium	1.00% NSR ²	Grota do Cirilo	Brazil	Hard Rock	Spodumene	Construction	FS	
4	Zijin Mining	1.00% GOR ²	Tres Quebradas	Argentina	Brine	Carbonate	Construction	FS	
5	Ganfeng	0.50% NSR2	Mariana	Argentina	Brine	Chloride / Carbonate	Construction	PEA	
6	Sinova Global ³	8.00% - 4.00% GOR ⁴	Horse Creek	Canada	Silica Quartz	Silica Quartz	Construction	FS	
7.	Sayona Mining	2.50% - 1.50% GOR ^{5.6}	Mobian	Canada	Hard Rock	Spodumene	Development	- 1	
8	Sayona Mining	2.00% NSR	Tansim	Canada	Hard Rock	Spodumene	Development	IGR	
9	Euro Lithium	Various ⁷	Valjevo	Serbia	Clay	Carbonate / Boric Acid	Development	PEA	
10 & 11	Winsome Resources	4.00% GOR ^{II} & 1.00% NSR	Cancet	Canada	Hard Rock	Spodumene	Development	IGR	
12 & 13	Winsome Resources	4.00% GOR* & 2.00% NSR	Adina	Canada	Hard Rock	Spodumene	Development	IGR	
14	Winsome Resources	4.00% GOR	Sirmac-Clapier	Canada	Hard Rock	Spodumene	Development	IGR	
15	Grid Metals	2.00% GOR	Donner Lake	Canada	Hard Rock	Spodumene	Development	.10	
16	Grid Metals	2.00% GOR	Campus Creek	Canada	Hard Rock	Spodumene	Development	41	
17	Lithium Springs	1.50% GOR	Lithium Springs	Australia	Hard Rock	Spodumene	Development	-	
18	Noram Lithium	1.00% GOR	Zeus	United States	Clay	Carbonate	Development	PEA	
19	Bradda Head	2.00% GOR	Basin E & W / Wikieup	United States	Clay	Hydroxide	Development	MRE	
20	ACME Lithium	2.00% GOR	Shatford Lake / Cat-Euclid Lake	Canada	Hard Rock	Spodumene	Development		
21	Red Dirt	1.00% GOR	Yinnetharra	Australia	Hard Rock	Spodumene	Development		
22	Morella	1.50% GOR	Mallina	Australia	Hard Rock	Spodumene	Development		
23	Morella	1.25% GOR	Tabba Tabba	Australia	Hard Rock	Spodumene	Development	-	
24	Morella	1.25% GOR ⁶	Mt Edon	Australia	Hard Rock	Spodumene	Development	2:	
25	Green Technology	1.00% GOR	Seymour Lake	Canada	Hard Rock	Spodumene	Development	MRE	
26	Green Technology	1.00% GOR	Root Lake	Canada	Hard Rock	Spodumene	Development	2/	
27	Green Technology	1.00% GOR	Wisa Lake	Canada	Hard Rock	Spodumene	Development		
28	Larvotto	1.00% GOR	Eyre	Australia	Hard Rock	Spodumene	Development	•	
29	Arvo Lithium	1.25% GOR	Kaustinen / Ilmajoki	Finland	Hard Rock	Spodumene	Development		

Source: Lithium Royalty Corporate Presentation

Final thoughts

Given the Company just reorganized into the publicly traded entity we have today, my numbers could be a little off. My math suggests the Company finished 2022 with US\$35 million in cash, raised a net amount of C\$100 million as part of the go-public transaction, and acquired its 30th royalty position (not included in the above table) for US\$1.8 million. Using today's exchange rate that puts cash available to pursue additional royalties at roughly US\$108 million.

There are currently just over 55 million shares outstanding which puts Lithium Royalty's market cap at C\$818 million (US\$604 million).

Who are the graphite mining leaders as analysts forecast a tight graphite market in 2023 and beyond

written by Matt Bohlsen | May 2, 2023 Reports continue to emerge that the graphite market may be next to boom. This is due to accelerating strong demand from the EV battery sector and limited new supply in the pipeline.

The 2021 <u>International Energy Agency ("IEA") report</u> highlighted that the world will need between **8 and 25x more flake graphite** from 2020 to 2040. This is supported by my recent Trend Investing <u>forecast</u> of a **17x increase in flake graphite demand** from 2020 to 2037.

In December 2022 Fastmarkets <u>stated</u>: "An impending graphite shortage, driven by phenomenal demand growth from the EV battery sector and delays to new capacity.....will all lead to significantly higher graphite prices in the coming years."

Trend Investing v IEA demand forecast for EV metals

Increase in metal demand 2020 to 2037 (100% EV and su	ıstainable energy world)
---	--------------------------

	Trend Investing (f) to 2037	IEA (f) to 2040	
Lithium demand	35	1342	
Cobalt demand	5.7	621	
Nickel demand	2.8	719	
Manganese demand	1.7	38	
Flake Graphite demand	17	825	
NdPr demand	5.9	37	
Copper demand	2.3	23	

Source: <u>Trend Investing</u> & <u>IEA</u>

The graphite mining leaders

There are a number of leading Chinese graphite mining companies (Aoyu Graphite Group, BTR New Energy Materials, Qingdao Black Dragon, National de Grafite, Shanshan Technology, and LuiMao Graphite); however, they are not typically accessible to most western investors.

Syrah Resources Limited (ASX: SYR | OTC: SYAAF) is the leading western graphite producer. They source their graphite from their 100% owned and massive Balama graphite mine in Mozambique. Syrah is currently constructing their active anode materials ("AAM") plant at their Vidalia facility in Louisiana, USA. The facility has initial plans for 11.25ktpa of AAM and then to expand to 45ktpa AAM. The first stage 11.25ktpa AAM is targeted to start production in the September quarter of 2023. Tesla (NASDAQ: TSLA) signed an off-take agreement for an initial 8ktpa of AAM which was recently expanded to an additional 17ktpa AAM of off-take (see Dec. 23, 2022 news).

Other graphite producers include Ceylon Graphite Corp. (TSXV: CYL | OTCQB: CYLYF) with production in Sri Lanka, Mineral Commodities Ltd. (ASX: MRC) who own 90% of Skaland Graphite which operates the highest grade flake graphite operation in the world and largest producing mine in Europe, Tirupati Graphite

PLC's (LSE: TGR) project in Madagascar, and Northern Graphite Corporation (TSXV: NGC | OTCQB: NGPHF) with their Lac des Iles producing graphite mine in Quebec and the Okanjande graphite deposit/Okorusu processing plant in Namibia.

Some junior graphite miners

There are several junior graphite miners but those with the more advanced stage projects are NextSource Materials Inc. (TSX: NEXT | OTCQB: NSRCF), Talga Group Ltd. (ASX: TLG), Westwater Resources Inc. (NYSE: WWR), Nouveau Monde Graphite Inc. (NYSE: NMG |, TSXV: NOU), Triton Minerals Limited (ASX: TON), (TSXV: LEM | OTCQB: LEMIF), Lomiko Metals Inc. (TSXV: LMR | OTCQB: LMRMF), and Renascor Resources (ASX: RNU).

Closing remarks

The graphite miners have not yet taken off due to subdued graphite prices and ample supply in recent years; however, this looks set to start changing from 2023 onwards especially if the EV boom continues to do well. The flake graphite miners that can also move to make valued added active anode materials (spherical graphite) look set to capture even greater profits. There is also the synthetic graphite producers such as Novonix (ASX: NVX) (Nasdaq: NVX), the future graphite recycling companies such as Elcora Advanced Materials Corp. (TSXV: ERA | OTCQB: ECORF), and the graphene companies such as Zentek Ltd. (NASDAQ: ZTEK | TSXV: ZEN).... but that's for another discussion next time.

NEO Battery Materials moves another step forward in the EV Battery market race

written by InvestorNews | May 2, 2023

The EV battery race is heating up, and there seems to be a decided ABC (anyone but China) theme to the progression of this race, at least in the West. With that said, China likely isn't all that worried at present given the advantage they currently have in various necessary commodities (via outright ownership or purchasing control) and the subsequent upgrading and/or refining of those commodities into some of the most important end-use products. Nevertheless, the rest of the world is doing their best to work together, get along and advance the green revolution as quickly as possible.

One part of the world that is "playing nice" with the West is Southeast Asia, with many EV battery deals of late in both the U.S. and Canada being announced with joint venture partners including Panasonic (Japan), LG Energy Solution (South Korea), Posco Chemical (South Korea) to name a few. Not to mention all the actual car manufacturers from the region, like Honda, Toyota, Hyundai, etc. getting in on the act. It has become pretty obvious who these nations want to align themselves with, or perhaps it's more of a tale of who they don't want to partner with and potentially have all their IP put at risk. Maybe I'm being a little unfair, I'm sure there are plenty of reasons behind the trends we are seeing of late, but it's always fun to stir the pot a little bit.

Before I sink any deeper into speculative conspiracy theories, let's circle back to something with a more investable theme. A company looking to advance the next generation of EV batteries.

NEO Battery Materials Ltd. (TSXV: NBM | OTCQB: NBMFF) is developing lithium-ion battery materials for electric vehicle and energy storage applications. NEO has a focus on producing silicon anode materials through its proprietary single-step nanocoating process, which provides improvements in capacity and efficiency over lithium-ion batteries using graphite in their anode materials. The Company intends to become a silicon anode active materials supplier to the electric vehicle industry with their management and technical advisory team cherry picked from LG Chem, Samsung and various renowned universities.

This Vancouver-based company has strong ties to South Korea, where on January 26, 2022, the Company received approval from Gyeonggi-do, the largest Economic Province in South Korea, to build its commercial plant on a 10-year lease term. The site is located in Oseong Foreign Investment Zone in Gyeonggi-do and is approximately 106,700 square feet (or 2.5 acres). NEO Battery Materials will initially invest, over the next 5 years, 24 billion KRW or approximately C\$25 million to support the construction and expansion of the silicon anode commercial plant. NEO Battery Materials aims to transform the region into an essential manufacturing and R&D hub of silicon anode materials. The first phase of the commercial plant will possess an initial annual production capacity of 240 tons of NBMSiDE™, and the facility will be with additional space that can accommodate production expansion to 1,800 tons annually of the Company's anode material.

NEO is making solid progress towards this goal on numerous fronts, having <u>announced in October</u> that it had successfully installed additional production equipment into the R&D Scale-Up Centre to step-up efforts in incrementally optimizing the all-in-one mass production process for NEO's silicon anode materials, NBMSiDE™. This scale-up milestone will enable product development as the series of NBMSiDE™ material characteristics

and manufacturing costs can be evaluated and adjusted to meet the various specifications of downstream customers. Additionally, on the commercial front, the Company signed NDAs with 3 European companies and 1 U.S.-based company, and a European company is scheduled to visit the R&D Scale-Up Centre to discuss practical cooperative initiatives such as a joint development agreement.

Keeping the ball rolling, at the end of November <u>NEO reported</u> that following the announcement of the late stage in architectural design, NBM Korea, NEO's South Korean subsidiary, has submitted the construction permit application for the Silicon Anode Commercial Plant to Pyeongtaek City, Gyeonggi Province. With a processing period of 1 month, the construction permit is expected to be obtained at the end of December 2022. Upon the approval of the construction permit, the initial construction process from site clearance to basic civil engineering work will be carried out sequentially.

It would appear shovels are about to start digging and NEO will take another step forward from concept to reality. NEO has a market cap of less than C\$22 million with roughly a little over C\$2 million in cash at the end of August. Keep an eye on this situation to see if someone steps up to help NEO fund the build out of the silicon anode commercial plant. After all, Twitter is so yesterday for Elon Musk, I'm sure he's gotta be looking for the next big thing by now.

A triple play deal for battery materials between Canada and Korea prove critical minerals incentives work

written by InvestorNews | May 2, 2023

When we started writing the <u>Dean's List series</u> back in late July to highlight the burgeoning government support for critical minerals, supply chain and EV battery manufacturing, I had no idea how quickly that support would start turning into tangible deals for producer supply agreements. Sure, the first big facility announcement was way back in March with the Stellantis, LG Energy Solution <u>C\$4.9 billion electric vehicle battery plant</u> in Windsor, Ontario, and there have been numerous deals announced in the interim both North and South of the 49th parallel for various multi-billion dollar facilities. But what happened on September 22 and 23 appears to have taken things to another level for the producers of the materials that go into EV batteries.

The aforementioned South Korean LG Energy Solution Inc. (LGES), a leading global manufacturer of lithium-ion batteries for electric vehicles, mobility, IT, and energy storage systems, announced three agreements in a span of 24 hours with Canadian miners to source materials required to make batteries for EVs. It appears the <u>Inflation Reduction Act</u>, which requires that 40% of battery components be sourced from factories in the U.S. or its free trade agreement partners and that Chinese components and minerals be phased out beginning in 2024, has lit a fire under those who want to lead the charge to manufacture EV batteries for North American built vehicles. Given where demand

is forecast to go over the next 5 to 10 years, these three deals could just be the tip of the iceberg as other manufacturers follow suit.

The first "winner" of the LGES battery supply lottery was Electra Battery Materials Corporation (TSXV: ELBM | NASDAQ: ELBM). Electra is a processor of low-carbon, ethically-sourced battery materials who is currently commissioning North America's only cobalt sulfate refinery. Their deal is <u>a three-year</u> agreement to supply LGES with 7,000 tonnes of battery grade cobalt from 2023 to 2025. Electra will supply 1,000 tonnes of cobalt contained in a cobalt sulfate product in 2023 and a further 3,000 tonnes in 2024 and 2025 under an agreed pricing mechanism. Cobalt sulfate provided under the term of the contract with LGES will be sufficient to supply up to 1.5 million full electric vehicles. In addition to the supply agreement, Electra and LGES have agreed to cooperate and explore ways to advance opportunities across North America's EV supply chain, including, but not limited to, the securing of sustainable sources of raw materials.

Next up for LGES was a pair of lithium supply deals. We'll explore the <u>Avalon Advanced Materials Inc.</u> (TSX: AVL |OTCQB: AVLNF) news first, mainly because it was the first company highlighted on the <u>Dean's List</u>, so indulge me while I pat myself on the back. Avalon is a Canadian mineral development company specializing in sustainably produced materials for clean technology. Avalon is currently focusing on developing its <u>Separation Rapids Lithium Project</u> near Kenora, Ontario while continuing to advance other projects, including its 100%-owned <u>Lilypad Cesium-Tantalum Lithium Project</u> located near Fort Hope, Ontario. The Company signed a non-binding <u>memorandum of understanding</u> (MOU) with LGES to supply battery-grade lithium hydroxide starting in 2025. The MOU would see Avalon commit, for five years initially, to provide LGES with at least 50% of its

planned initial lithium hydroxide production from its Thunder Bay facility (11,000 tons per year), with the potential to increase production as demand grows.

The second lithium, and third overall deal for LGES in a 24 hours span was with Snow Lake Resources Ltd. (NASDAQ: LITM). Snow Lake is committed to creating and operating a fully renewable and sustainable lithium mine that can deliver a completely traceable and carbon neutral product to the North American electric vehicle and battery markets. The Thompson Brothers Lithium Project now covers a 55,318-acre site and contains an identified-to-date 11.1 million metric tonnes indicated and inferred resource at 1% Li20. Snow Lake signed a non-binding MOU with LGES to supply lithium hydroxide (20,000 tons per year) over a 10-year period once production starts in 2025. The deal between the two entities will see them collaborate to explore the opportunity to create one of Canada's first lithium hydroxide processing plants in CentrePort, Winnipeg, Manitoba.

It should be noted that the Electra deal is a binding term sheet, while the other two are non-binding MOUs. Investors need to understand that there is a lot more certainty to the Electra deal than the other two which is likely why, as of yesterday's close, Electra was still up 2% versus where it was trading before the LGES announcement while Avalon was down 6% and Snow Lake down 18% versus pre-LGES announcement trading. Not to take anything away from the non-binding deals, they are still very important and a positive sign for these companies, but the market isn't very forgiving these days so there is definitely value in certainty. For Avalon that certainty is anticipated to come with a definitive supply agreement, which is intended to be finalized in no later than 6 weeks. I could not find confirmation of timing to firm up commitments in any of Snow Lake's press releases.

The Dean's List — Part 6: What cobalt companies could benefit from Canada's commitment to critical minerals?

written by InvestorNews | May 2, 2023

It's time for Part 6 in our series that looks at Canadian companies in the mining sector that could be impacted by the many announcements with respect to critical materials, supply chain, EV battery manufacturing, etc. As a reminder the province of Ontario first announced in March its strategy for 'critical minerals' followed shortly by a C\$4.9 billion electric vehicle battery plant in Windsor, Ontario, and then in mid-July, a new C\$1.5 billion battery materials facility was announced for eastern Ontario. In April the Federal Government got on board with it's Budget 2022 proposing up to C\$3.8 billion in support over eight years to implement Canada's first Critical Minerals Strategy followed in late June with a House of Commons Standing Committee on Industry and Technology report entitled: Positioning Canada as a Leader in the Supply and Processing of Critical Minerals.

On top of all this, the U.S. passing of the <u>Inflation Reduction</u> <u>Act</u> could also have a trickle down affect on Canadian miners. The Bill requires that 40% of battery components be sourced from factories in the U.S. or its free trade agreement partners (like Canada) to qualify for tax credits. It also states that Chinese components and minerals be phased out beginning in 2024. Hence the <u>Dean's List</u> focus to date on critical minerals involved in

EV battery production. So far we've covered all the primary components in current generation batteries except for one — cobalt, which is where we are headed today.

The initial company I was going to look at would have been a very efficient way of covering two critical minerals with one name, especially in light of uranium stocks getting a huge lift on news out of Japan on Wednesday. UEX Corporation (TSX: UEX | OTCQB: UEXCF) has several uranium and three cobalt-nickel exploration projects all located in the Athabasca Basin of northern Saskatchewan. However, on Monday UEX completed a transaction to sell to Uranium Energy Corp based in Texas, which may or may not reduce the likelihood of benefitting from Canadian Government financial support. Given the Canadian Government didn't seem to care that a foreign company was purchasing a Canadian company with 3 commodities on the critical minerals list, I shouldn't discount the likelihood that they could still benefit in some way. However, I'm going to be stubborn and stick to Canadian companies with Canadian assets.

So who's next on my cobalt list? I guess it would make sense to go to Cobalt, Ontario and start looking around that area. Yes, there is a town called Cobalt and you can probably guess how it got its name. In 1908, the area was considered the world's largest producer of silver and of cobalt which is a byproduct of the process. This led me to Canada Silver Cobalt Works Inc.
(TSXV: CCW | OTCQB: CCWOF), a Canadian leader in the silver-cobalt space. The Company's flagship silver-cobalt Castle mine
and 78 sq. km Castle Property feature strong exploration upside for silver, cobalt, nickel, gold, and copper. CCW has an exceptional high-grade silver discovery at Castle East, a pilot plant to produce cobalt-rich gravity concentrates, a processing facility (TTL Laboratories) in the town of Cobalt, and a proprietary hydrometallurgical process known as Re-20x (for the creation of technical-grade cobalt sulphate as well as nickel-

manganese-cobalt (NMC) formulations).

Two things stand out for me with Canada Silver Cobalt, first is the location — Ontario and Quebec (their <u>Graal</u> nickel, copper and cobalt project is getting a lot of attention from the Company of late). Quebec is another province looking to make its mark in the manufacturing space with BASF announcing plans to build a factory in <u>Quebec</u> to produce cathode active materials and General Motors Co. and South Korea's POSCO Chemical having announced a deal to <u>build a plant to produce material for batteries</u> to be used in EVs both in Bécancour, Quebec, just to name a couple. Of note, Cobalt, Ontario is basically on the border with Quebec so CCW is located pretty strategically with its mining assets.

The second point that could make Canada Silver Cobalt a beneficiary of government support is their proprietary Re-20x technology. It is a closed-loop hydrometallurgical process that extracts metals without any discharge or smelting and conforms with EV manufacturers' need for ethically sourced battery metals and strict environmental compliance. The Ontario Government has stated in its critical minerals strategy that it wants to expand domestic refining and processing capacity of minerals as well as support applied research projects to strengthen mining and mineral processing research and innovation. The Federal Government has also prioritized developing expertise in intermediate processing with the Committee on Industry and Technology report recommending Canada establish an intermediate processing sector and catalyze and support private sector adoption of a national sustainable capacity for critical minerals and the materials supply chain.

It seems to me that if you not only have the critical minerals, but are also willing to do a little extra homework on the processing of them, you might differentiate yourself from the

rest of the herd. And if you are a shareholder of any of these companies, and they can extract any funding from governments of any level, then you will surely benefit from non-dilutive financings that hopefully add value. The only question is whether any of these politicians will "walk the walk", given we all know how fond they are of "talking the talk".

Did you miss a previous edition? Check out....

<u>The Dean's List — Part 5: Which manganese companies could</u> benefit from Canada's commitment to critical minerals?

<u>The Dean's List - Part 4: What copper company could benefit from Canada's commitment to critical minerals?</u>

<u>The Dean's List - Part 3: What graphite company could benefit</u> <u>from Canada's commitment to critical minerals?</u>

<u>The Dean's List — Part 2: What nickel company will benefit from Canada's commitment to critical minerals?</u>

<u>The Dean's List - Part 1: What rare earths company will benefit</u> from Canada's commitment to critical minerals?

The Dean's List — Part 4: What copper company could benefit from Canada's commitment to critical minerals?

Part 4: Foran Mining Corporation

It's time for another installment in our series that looks at Canadian companies in the mining sector that could be impacted by Federal and Provincial government announcements with respect to critical materials, supply chain, EV battery manufacturing, etc. As a reminder the province of Ontario first announced in March its strategy for 'critical minerals' followed shortly by a C\$4.9 billion electric vehicle battery plant in Windsor, Ontario. In April the Federal Government got on board with it's Budget 2022 proposing up to C\$3.8 billion in support over eight years to implement Canada's first Critical Minerals Strategy. The Fed's followed this up in late June with a House of Commons Standing Committee on Industry and Technology report entitled: Positioning Canada as a Leader in the Supply and Processing of Critical Minerals. And then in mid-July, a new C\$1.5 billion battery materials facility was announced for eastern Ontario in a deal that sees Umicore, a Belgium multinational corporation, planning to transform metals such as nickel, cobalt and lithium into cathode active battery materials.

With announcements like this coming fast and furious one can hope that there is follow through on all of this potential and numerous Canadian mining companies can take advantage of this positive momentum. On top of all this, there was some big news out of the U.S. this weekend that could also have a trickle down affect to Canadian miners. With the Senate passing the <u>Inflation Reduction Act</u>, the Bill includes requirements for domestic manufacturing of EVs and their battery components to qualify for tax credits. As written, the law requires that 40% of battery components be sourced from factories in the U.S. or its free trade agreement partners (that would definitely include Canada), and that Chinese components and minerals be phased out beginning in 2024. The landscape is beginning to look outright bullish for North American purveyors of all these critical minerals.

Up to this point in this series, I had been focused on Ontario-based companies, simply because that province appears (to me) to have the best critical minerals plan and is also the heart of vehicle manufacturing in Canada. However, in light of the latest U.S. development and another piece of news out yesterday, I've decided to venture into Saskatchewan for today's offering. Foran Mining Corporation (TSXV: FOM | OTCQX: FMCXF) just announced it has entered into a non-binding term sheet with Ontario Teachers' Pension Plan Board (Ontario Teachers), which contemplates a transaction that could see Ontario Teachers' invest up to C\$200 million in the 100%-owned McIlvenna Bay copper project.

McIlvenna Bay is a copper-zinc-gold-silver rich volcanic-hosted massive sulphide (VHMS) deposit intended to be the center of a new mining camp in a prolific district that has already been producing for 100 years. McIlvenna Bay sits just 65km West of Flin Flon, Manitoba, is located entirely within the traditional territory of the Peter Ballantyne Cree Nation and is the largest undeveloped VHMS deposit in the region. The Company announced the results from its Feasibility Study on February 28, 2022, outlining an 18-year mine life producing an average of 65 million pounds of copper equivalent annually. That Feasibility Study indicates an initial capital cost of C\$368 million, which means it appears they are already over half way there as far as financing this domestic copper supply.

Over and above all the generally bullish news currently out there regarding critical minerals, Foran Mining has a couple of unique characteristics that make it stand out to me. First is location. Saskatchewan is one of the world's top mining jurisdictions and with the property being entirely located on the Peter Ballantyne Cree Nation, it triggers one priority found in the House of Commons Standing Committee on Industry and Technology report which recommends that the government provide incentives to ensure that the development of a new mine also

establishes a value-added industry in the region where it is located and introduces initiatives to encourage Indigenous peoples to fully participate in the mining sector. Perhaps it's a bit of a reach but I suspect Foran could tap into some funding from the Federal government if they play their cards right.

The other interesting aspect of the McIlvenna Bay project is Foran's objective to build the mine based on the Company's carbon neutrality goals and initiatives, part of a broader mission to create a blueprint for responsible mining that is upheld as leading practice globally. To show they are serious about this undertaking, Foran has already announced an agreement with Sandvik to supply initial underground equipment for development at its McIlvenna Bay project. The initial equipment order includes battery electric underground drills, trucks, and loaders that will be used for the mine's development and production activities. Clean power is provided by two nearby hydroelectric dams to reduce operational emissions and a stateof-the-art tailings storage facility and paste backfill operation will reduce the carbon footprint and greatly reduce environmental impact. I have to believe that as the push for domestic supply chains of critical minerals evolves, the potential source's carbon footprint will also play a role in who signs the best supply or offtake agreements.

I'm not sure if the phasing out of anything Chinese in battery components by 2024 was a late add to the US Inflation Reduction Act as a result of China's military response to US House speaker Pelosi's visit to Taiwan (likely not, but it's fun to speculate). Regardless, there appears to be increasing tensions globally as the rest of the world figures out how far behind China they are when it comes to the resources and facilities required to combat climate change and reduce emissions without being mostly reliant on China. In the near term that appears to be good news for North American resource companies.

Did you miss a previous edition? Check it out....

<u>The Dean's List — Part 3: What graphite company could benefit</u> <u>from Canada's commitment to critical minerals?</u>

<u>The Dean's List — Part 2: What nickel company will benefit from Canada's commitment to critical minerals?</u>

<u>The Dean's List — Part 1: What rare earths company will benefit</u> from Canada's commitment to critical minerals?

The Dean's List — Part 2: What nickel company will benefit from Canada's commitment to critical minerals?

written by InvestorNews | May 2, 2023

Part 2: Canada Nickel Company Inc.

Last week we started a series to look at <u>Canadian companies</u> in the mining sector that could be impacted by Federal and Provincial government announcements with respect to critical materials, supply chain, EV battery manufacturing, etc. As a reminder, the province of Ontario first announced in March its <u>strategy for 'critical minerals'</u> followed shortly by a <u>C\$4.9</u> <u>billion electric vehicle battery plant</u> in Windsor, Ontario. This was followed in April by the Federal Government's <u>Budget 2022 proposing up to C\$3.8 billion in support</u> over eight years to

implement Canada's first <u>Critical Minerals Strategy</u>. The Fed's followed this up in late June with a House of Commons Standing Committee on Industry and Technology report entitled: <u>Positioning Canada as a Leader in the Supply and Processing of Critical Minerals</u>.

I'll start by saying I'm a little skeptical of how effective the Caandian Federal Government will be in doing anything useful to advance the cause of critical materials. But as long as it is a topic that appears to be at the forefront and politically in vogue, my simple hope is that they will at least stay out of the way and let smart, innovative people get on with doing what's best for Canada and its allies.

With that in mind, I'm going to stick with Ontario companies for now as I feel there is a slightly better plan and path to success with the focus on all aspects of the value chain, from mining, to processing to end use (like the Windsor battery plant). Perhaps as this series progresses I'll find it in my heart to cut the Federal government a little slack and explore some of our country's non-Ontario companies... maybe. In the meantime, today we're going to talk about another major ingredient in EV batteries — nickel.

As noted above, Ontario has already announced a C\$4.9 billion EV battery plant, and the Provincial Government has stated their strategy is the encouragement of domestic processing and creating resilient local supply chains. In recent years, automakers have discovered that adding more nickel to the cathode can boost a battery's energy density, which translates into more range per pound of batteries. Automakers have increased the percentage of nickel in cathodes to boost the batteries' energy density and increase vehicle range with most now using cathodes that contain at least 60% nickel. Some use even more, in part to reduce or eliminate cobalt, and in part to

increase density for premium applications. And to quote the infamous Elon Musk from a July 2020 Tesla earnings call: "Please mine more nickel... Tesla will give you a giant contract for a long period of time if you mine nickel efficiently and in an environmentally sensitive way." Hopefully Stellantis and LG Energy Solution feel the same way.

And if they do happen to share Elon's attitude towards nickel, one company that could be the beneficiary of all this is Canada Nickel Company Inc. (TSXV: CNC | OTCQX: CNIKF) which is advancing the Crawford nickel-cobalt sulphide discovery with large scale potential located in the established Timmins mining camp. Not only has the company recently announced an updated mineral resource estimate more than doubling the project's Measured & Indicated (M&I) mineral resources but it is pursuing the development of processes to allow the production of net zero carbon nickel, cobalt, and iron products. I've got to think politicians around the world would be trying to make a company like this the poster child of the 'green revolution'. And with the Ontario government's commitment to exploring how to support R&D and access to and/or development of intellectual property related to critical minerals processing, perhaps Canada Nickel can tap into some government funding for its net zero initiatives.



Source: Canada Nickel Company Corporate Presentation

Based on PEA results, the company also boasts that once the mine reaches Phase III (approximately year 8), its peak production will among the top 5 nickel sulphide operations globally, with #1 being Norilsk in Russia and #2 Jinchuan in China. Additionally, Crawford is expected to be one of the largest base metal mines in Canada, surpassing Teck's Highland Valley mine, Glencore's Raglan operation in Quebec and Vale's Voisey's Bay

operation. Once again, numbers like this should put Canada Nickel on the radar of any politician trying to ride the coattails of the critical minerals trend.

In April, the Company raised C\$51.5 million, of which 37% was via flow-through shares. However, the deal closed 2 days before the effective date of the Federal Budget announcement of the Critical Mineral Exploration Tax Credit. Given the expenses haven't been undertaken yet, I don't know if Canada Nickel shareholders are in for an unexpected bonus of renounced flow-through expenses but I suspect it would sure be a welcome surprise. Regardless, this new, expanded tax credit is still a tool available to Canada Nickel and all Canadian critical mineral explorers for raising capital on or before March 31, 2027.

To repeat what I said at the end of <u>Part 1</u>, as long as governments don't get in the way of their good intentions, we could be on the verge of a golden era for critical mineral explorers, miners and processors in Canada. To that end, we will continue to look at companies that find themselves positioned to take advantage of this renewed focus on the security of supply to exploit Canada's abundance of valuable critical minerals in a responsible, ESG-friendly manner.

The Dean's List — Part 1: What rare earths company will

benefit from Canada's commitment to critical minerals?

written by InvestorNews | May 2, 2023

Part 1: Avalon Advanced Materials Inc.

Since the start of the very unnecessary war in Ukraine both federal and provincial governments in Canada have made numerous announcements with respect to critical materials, supply chain, EV battery manufacturing, and a whole host of other related subjects. The province of Ontario made a big splash in March, first announcing its strategy for 'critical minerals' worth C\$3.5 billion to Ontario's economy followed shortly by a C\$4.9 billion electric vehicle battery plant in Windsor, Ontario. Then in April, the Federal Government got in on the action with Budget 2022, proposing up to C\$3.8 billion in support over eight years to implement Canada's first Critical Minerals Strategy.

All these initiatives could have material impacts on several companies in the mining sector in Canada. Against this backdrop, we will begin a series of articles looking at the companies that could benefit from this government support to help position Canada to lead the way in supplying materials for clean technology, healthcare, aerospace, and computing, that will continue to be in high demand for years to come.

We'll start the series by looking at an Ontario based mining company providing investors with exposure to lithium, rare earths, cesium, tantalum, feldspars, tin and indium. <u>Avalon Advanced Materials Inc.</u> (TSX: AVL | OTCQB: AVLNF) is a Canadian mineral development company specializing in sustainably produced

materials for clean technology. Avalon is currently focusing on developing its <u>Separation Rapids Lithium Project</u> near Kenora, Ontario while continuing to advance other projects, including its 100%-owned <u>Lilypad Cesium-Tantalum Lithium Project</u> located near Fort Hope, Ontario. Additionally, Avalon is evaluating opportunities to apply an innovative, new extraction technology to recover rare earths and other metals from acid mine drainage at closed mine sites and remediate the environmental liability.

Unlike typical articles about companies where we focus on what a company is up to and where the next catalyst may come from, this series is going to look at how a company may be able to tap into some of the cash governments are pledging to the industry or benefits that may accrue due to policy changes. Accordingly, let's review a few of the highlights from the various announcements.

Both Ontario and the Federal Budget announcements included funding to improve the regulatory framework, which has the potential to backfire in my opinion, but if successful this should be a benefit to any and all mining companies in Canada. However, the Ontario announcement goes one step further to include the development of a regulatory framework for recovery of minerals from mine tailings and waste with an amendment to the Mining Act. Avalon has been looking at several such opportunities including East Kemptville Tin-Indium and the Cargill past-producing phosphate mine site in Ontario with concentrations of rare earths, scandium and zirconium in the tailings. Unfortunately, East Kemptville is in Nova Scotia so it falls outside of Ontario's jurisdiction, but if Avalon can advance their process, I'm sure there is ample opportunities to apply the technology to many of Ontario's past producing mines.

Another pillar in the Ontario strategy was the encouragement of domestic processing and creating resilient local supply chains.

The announcement of the Stellantis and LG Energy Solution JV marking Canada's first lithium-ion electric vehicle (EV) battery manufacturing plant went a long way toward supporting this initiative. And what goes into lithium-ion batteries? Lithium of course, and Avalon is well positioned with two lithium projects located in Ontario. That strikes me as being in the right place at the right time with the right commodity. We'll see how this plays out over the next few years as the plant is scheduled to begin production in early 2025.

Another catch-all for all junior miners in Canada was the Federal Budget announcement of the introduction of a new 30% Critical Mineral Exploration Tax Credit for specified mineral exploration expenses incurred in Canada and renounced to flow-through share investors. The tax credit would apply to eligible materials including nickel, lithium, cobalt, graphite, copper, rare earth elements, vanadium, tellurium, gallium, scandium, titanium, magnesium, zinc, platinum group metals, and uranium. This should help any explorer in the sector looking to fund upcoming drilling programs by providing another avenue of raising capital.

As long as governments don't get in the way of their good intentions, we could be on the verge of a golden era for critical mineral explorers, miners and processors in Canada. Correspondingly, over the next several weeks we'll continue to look at companies like Avalon that find themselves well-positioned to take advantage of this renewed focus by the Canadian Government on the security of supply, to exploit Canada's abundance of valuable critical minerals.

Pilot Plant Project to Produce Battery Metals Yields Positive First Steps

written by InvestorNews | May 2, 2023

Last week, <u>Canada Silver Cobalt Works Inc.</u> (TSXV: CCW | OTC: CCWOF) ("CCW") announced that <u>bench-scale test work</u> has yielded positive results in producing a concentrate required for its Re-20x process.

In addition to owning a silver-cobalt exploration project, CCW also owns a proprietary hydrometallurgical process known as Re-20X that can process mineral concentrates into cobalt sulphate, an important component for making Electric Vehicle ("EV") batteries.

Re-20X Process

The environmentally-friendly Re-20X process, bypasses the smelting process, to produce a cobalt sulphate hexahydrate from feed material such as mineral ore, tailings or recycled batteries.

While the Re-20X process recovers cobalt, manganese, nickel, silver and other metals, it can also remove toxic compounds. The recovered metals can be sold without smelting or further processing.

In 2018, the Company extracted an 82-kg sample of vein material from its Castle Mine in northern Ontario, Canada and sent it to SGS Laboratories in Lakefield, Ontario.

The vein material was processed into cobalt-rich gravity concentrates and then run through the Re-20X process. The

process produced EV battery-grade cobalt sulphate at 22.6% cobalt that exceeded the specifications required by battery manufacturers at that time.

The Re-20X process recovered 99% of the cobalt, 81% of the nickel and 84% of the manganese from the concentrate and, importantly, removed 99% of the arsenic.



SOURCE:

Battery Metal Pilot Plant Underway

CCW is now working with SGS on a Pilot plant to scale up the Re-20X process for the production of cobalt-nickel-rich gravity concentrates. The Company believes the process can be an economic method of producing, locally sourced, client-specific battery metals for the North American EV market.

The plan calls for the Pilot plant to be built and operated by SGS in Lakefield, Ontario and use silver-cobalt ore from the region including the Castle Mine property.

In May 2020, CCW released a maiden <u>NI 43-101 mineral resource</u> <u>estimate</u> for the Castle Mine project of 27,400 tonnes of material at an average silver grade of 8,582 g/t (250.2 oz/ton) for a total of 7.56 million Inferred ounces, and 2.54 million cobalt ounces at a grade of 3,260 g/t cobalt.

Frank Basa, CEO and Director commented, "The economics of harvesting both the base metals and silver, then adding value by processing it into premium EV battery metals will provide the Company with two solid income streams and we are excited for the future as the High-Grade and Technology Leader in Canada's Silver Cobalt Heartland."

Battery Recycling Using the Re-20x Process

Earlier this month, CCW announced that it has begun studies at SGS Canada to use the Re-20x process to <u>extract minerals from old batteries</u>. The Re-20x process is adaptable to recover rare earth metals from lithium-ion, nickel-hydride and nickel-cadmium batteries.

"We strongly considered this initiative a few years ago but initial research turned up a lack of feedstock at that time, but this has now changed. With feedstock currently available and coupled with the Re-20x process, the path is clear for the Company to develop what can be a robust and ever-increasing potential income stream by providing future tolling services for the treatment of used batteries," remarked Frank Basa.

Acquiring EV Properties with the Potential for a Spin-out Battery Metals Company

Last month, CCW announced the acquisition of 39,200 hectares of EV properties in Quebec and Ontario.

The Company also reported that it was their intention to transfer the properties to another public company, in order to capitalize on the current EV market, and to dividend the shares to CCW's existing shareholders.

Final Thoughts

CCW's is focusing on becoming a producer of both silver, cobalt and other battery metals for the North American EV market. With its high-grade silver-cobalt mine and Re-20X process, the Company is well positioned to become a Canadian leader in the production of silver, cobalt and other metals used in the EV industry.

CCW closed yesterday at C\$0.46 with a market cap of C\$56.0

Control the supply chain, control the world — The battle for critical materials and rare earths begins....

written by InvestorNews | May 2, 2023

To become a global power a country needs to have a great industrial production and be a leading exporter, particularly of high value items such as autos, tech (smartphones, PCs, online businesses etc), and services (tourism, education, IT etc). The UK led the industrial revolution only to be taken over by the USA, and today China threatens to be the next global super power. The one piece left in the puzzle for China is to lead the world in producing and exporting autos (especially electric vehicles) and high tech, including green energy, as these are the future industries of the 21st century.

China knows that to be a global super power it must control the supply chain of critical materials and rare earths, which it has now achieved due to sustained efforts over the past decade. China already dominates the supply chain for most of the key future industries — Electric Vehicles (dependent on Li-ion batteries and key materials lithium, cobalt, nickel, manganese, graphite, and rare earths), green energy such as solar panels and wind turbines (dependent on rare earths), and portable electronic devices (dependent on batteries and rare earths).

Furthermore many of these components are critical for the military and aerospace industries.

Rare earths uses — Catalysts and magnets dominate. China dominates production with 84% share in 2016



Source

Some key facts

- Global auto manufacturers plan to spend <u>US\$300 billion</u> over the next 5-10 years developing EVs and to procure EV batteries. The problem is that China is increasingly dominating lithium ion battery production capacity.
- Over 70% of all mined cobalt comes from the DRC, most of which is controlled by the Chinese.
- China dominates global rare earth production with ~80-90% market share.

Added together a common theme is emerging where China will end up controlling 70%+ of the EV supply chain. This can lead to major issues if China decided to prioritize supplying Chinese manufacturers ahead of overseas competitors. A similar potential threat exists with solar, wind, and most personal electronics production.

What is the rest of the world doing to take back control of the industrial supply chain?

The gradual closure of Western manufacturing factories and job transfer from West to East has been happening for decades. The recent US-China trade war and COVID-19 has shocked the Western world into the realization that they are heavily reliant on China's supply chain.

The US has a number of Acts currently in process through the US Senate that aim to restore the supply chain of critical materials and rare earths. But unfortunately the US is moving too slow. For example, the US has only 3 lithium-ion battery megafactories in planning compared to China which has 88. The difference is staggering and only serves to further highlight the size of the problem.

Europe is at least making a greater effort to support the EV sector and to build up their battery supply chain. Benchmark Mineral Intelligence <u>states</u>: "China accounted for 69% of this total capacity while Europe increased its share to 17% yet North America lagged behind at 8%."

China is winning the EV battery race as the West is being left behind

The critical materials and rare earths industry outside of China needs to be driven by demand, not handouts. For the Western world to sustainably regain the lost industrial power and jobs, they must rebuild the entire supply chain. So for an electric car that would mean investing and developing critical material mines in the Western world. It would mean building more anode, cathode, and Li-ion battery factories in the West, manufacturing magnets and electric motors in the West, and manufacturing EVs in Western factories. It has taken a South African born entrepreneur, Elon Musk, to act single handedly to propel the US forward, while most of America stood still the past several decades doing nothing.

To succeed Western governments will need to incentivize the private sector with various tax benefits to promote vertical integration and rebuilding of the supply chain. However, in the end the final product needs to be globally competitive and be able to stand on its own and compete with China on quality and

price.

Closing remarks and investors takeaway

All major modern industrial powers have dominated industrial production of machinery and transport, particularly autos. Look at the modern era where Germany, Japan, South Korea, and the US dominated auto production. Now look ahead and we see China is planning to dominate everything.

The message for investors is clear. Invest in Western companies that are expanding in key future industries such as EVs, green energy (solar & wind), and disruptive technology. Invest in Western companies that can support the supply chain for the above key industries. Additionally invest in Western miners with critical materials and rare earth resources on US or Western soil. Western consumers can also play a role by buying locally made products.

The winning investments for this next decade will be those that can succeed in the future economy and those that can supply its components and raw materials. Tesla's meteoric stock price rise the past year as they grew to dominate global EV sales is just the first example.

Put simply — "Control the supply chain, control the world". This will be a key thematic going forward as the West moves rapidly to regain control of its future this decade.

Further reading

Investorintel's library of Critical Materials and Rare
 Earths articles and videos