

Leading rare earths junior Appia adds a new uranium claim block to their expanding asset portfolio

written by InvestorNews | February 7, 2022

Two of the best-performing commodities in the past year have been the key rare earth magnet material blend, neodymium, praseodymium (NdPr), and the energy metal, uranium. Today's company has established itself as a leading rare earths junior in Canada, but recently [changed its name](#) and expanded its uranium portfolio. This means investors get exposure to both the key magnet rare earths and also uranium. Even better, it controls 3 projects/properties.

The Company is [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQB: APAAF) (Appia) formerly known as Appia Energy, with its Alces Lake rare earths project and its newly acquired uranium mineral claim block (Otherside), as well as other uranium properties located in Northern Saskatchewan, Canada, and its Elliot Lake uranium and rare earths property in Ontario, Canada.

Appia's very high-grade rare earths project at Alces Lake

For background on Appia's rare earths projects you can read some past articles [here](#) which focus on Appia's tremendous asset at Alces Lake, Canada which has the 2nd highest average rare earth's grade in the world, at [16.65 wt% TREO](#). High-grade zones are up to 49 wt% TREO. The rare earths are hosted in favorable 'monazite' ore at or near surface spread over 27sq km of tenements. There is a [23-25%](#) Critical Rare Earth Oxide (CREO) component, including neodymium (Nd), praseodymium (Pr),

dysprosium (Dy), and terbium (Tb).

Appia's 100% owned Alces Lake Project has the world's second highest average grade of TREO



Source: [Company presentation](#)

Appia has access to use the Government funded Saskatchewan Research Council (SRC) processing facility in Saskatoon, Canada. Existing pilot facilities there (1,000 tpa capacity) have already optimized a monazite processing flow sheet for Appia. The SRC production-scale processing facility is expected to be partially operational in early 2023.

Appia plans a smaller surface and near-surface operation to start production with an open-pit scenario which is easier to permit and manage and should have a low CapEx/Opex.

Appia's latest results include:

- Drill results at Wilson North (Alces Lake) with [average 17.5 wt% TREO over 9.38 metres](#) with up to 37.9 wt% TREO.
- [High grade REE mineralization](#) identified over an estimated 27 square kilometre area. Channel sample of 14.71 wt % TREO from Sweet Chili Heat and 11.94 wt % TREO from Diablo. 10.35 wt % TREO returned from grab sample at Zesty. 7.86 wt % TREO returned from grab sample along the Oldman River trend. New discovery of REEs with 2.27 wt % TREO grab sample from "Train Domain". Elevated critical electronics metal, Gallium, values have also been returned for all samples enriched in TREO.
- Promising Results from Initial Metallurgical Tests on a Composite Sample from Alces Lake. Laboratory heavy liquid separation tests recovered 95% of the total rare earth

oxide (TRE0). Appia President Frederick Kozak [stated](#): “TRE0 recoveries and the percentage of TRE0 in concentrate are comparable to other producing global rare earths projects, supporting the potential for Alces Lake as a future monazite rare earths supply.”

Appia is waiting on further drilling core and channel sample assay results from the 2021 program. In terms of major near-term catalysts, Appia [states](#): “Analysis of 2021 drilling and assays may lead to NI 43-101 report early 2022.”

Saskatchewan Uranium Properties

Appia recently [announced](#) that they significantly increased their uranium claims by acquiring the Otherside claim block of 27,291 contiguous hectares. Appia [states](#): “The claims were staked on the basis of similar geological and geophysical signatures to the Company’s Loranger property as well as other known high-grade, large-tonnage uranium deposits in the Athabasca Basin including Fission Uranium Corp’s Triple R deposit, NexGen Energy’s Arrow deposits and others.”

Appia now owns 4 uranium properties/claims over a total of 69,344 hectares – Loranger, North Wollaston, Eastside, and Otherside. The properties are well located with proximity to infrastructure such as roads, highway, powerline, an airstrip as well as two uranium mills. The properties are ready to explore, with at or near-surface high-grade uranium, no sandstone cover, and negligible overburden.

Saskatchewan Uranium Properties – Loranger, North Wollaston, Eastside, and Otherside



Source: [Company news January 10, 2022](#)

Appia [stated](#) on January 10, 2022 that the next steps are: “Appia has commenced the permitting process for a winter drilling program on the Loranger property and anticipates commencement of drilling in approximately one month, depending on weather and permits. The Company is fully funded for this program.”

Elliot Lake (Ontario, Canada)

Appia also has a 100% interest in 12,545 hectares (31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario. The Resource details are shown in the table below.



Source: [Company presentation](#)

Closing remarks

Appia is becoming a significant rare earths and uranium junior. Appia now owns three very promising projects – Alces Lake (very high grade and critical rare earths), Saskatchewan Uranium Properties (Loranger, North Wollaston, Eastside, and Otherside), and Elliot Lake (rare earths & uranium).

Appia trades on a market cap of [C\\$54 million](#).

**Biden, the Chinese raw
material hunt and the**

'massive' monazite results of Appia Rare Earths & Uranium

written by InvestorNews | February 7, 2022

While the Biden Administration fixates on solving the port problem in the United States, China continues to dominate the Western world's supplies of, when it comes to the bigger picture, critical metals and materials. Literally, at the same time the US government is trying to focus on the issues right in front of it that may disrupt Christmas (*heaven forbid*), Chinese companies continue to seek out and lock up more of the raw materials that will [drive the future](#). In just the last few days, Zijin Mining Group Co., Ltd. launched a [C\\$960 million takeover bid](#) for Canadian domiciled [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF), while Contemporary Amperex Technology Co. Limited (CATL), the world's largest battery supplier and ironically already part owner of Neo Lithium, signed a battery supply deal with U.S. commercial EV maker, Electric Last Mile Solutions Inc. (NASDAQ: ELMS). Three weeks ago CATL made a C\$377 million takeover bid for Canada's Millennial Lithium Corp. (TSXV: ML). Zijin is no stranger to taking out Canadian mining companies having previously acquired Nevsun Resources (C\$1.86 billion), Guyana Goldfields (C\$323 million), and Continental Gold (C\$1.4 billion), and those were just some of its Canadian targets.

From an investor's perspective, I guess this takeover activity can be viewed as a good thing given that these Chinese entities are [paying full value for their acquisitions](#). So you get your liquidity event and hopefully have made money to go off and find the next possible target. But it is disappointing to see the West talk the talk about our greener future but not walk the walk as our leaders appear to be completely oblivious as to how we'll get there if we let China control all the raw materials. I

will save that rant for another day. In the meantime let's have a look at a company that could tick the boxes for a potential acquisition by the Chinese.

Of late it seems the flavour of the day is lithium but that isn't the only critical material out there. The Chinese have long since cornered the market for rare earths but if no one is willing to stop them, or even slow them down, then why wouldn't they continue to acquire everything the world will let them. One Canadian junior mining company that could fit the bill is [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQB: APAAF), or perhaps you know it by its [former name Appia Energy Corp.](#) but that was so yesterday (today is literally the first day trading under its new name). Appia is a Canadian publicly-listed company in the uranium and rare earth element sectors and is currently in its largest exploration and diamond drilling program in the Company's history, focusing on delineating high grade critical rare earth elements, gallium, and uranium on its 100% owned [Alces Lake property](#), as well as exploring for high-grade uranium, in the prolific Athabasca Basin, on its [Loranger](#), [North Wollaston](#), and [Eastside](#) properties. Appia has found some of the highest grade samples of neodymium rich monazite on its properties in Saskatchewan.

The Alces Lake discovery of an accessible extensive hard rock deposit of monazite is very important to the world's demand for magnet rare earths. This is because Appia's monazite is neodymium rich, which is the most desirable for the production of rare earth permanent magnets. Not only is it rich in neodymium (Nd) and praseodymium (Pr), but also contains 1% of xenotime, the best heavy rare earth bearing hard rock mineral. The good news is that yesterday the Company [announced](#) it has discovered new and previously unknown occurrences of massive and semi-massive monazite in the Wilson North area of Alces Lake. A total of 27 drill holes (2,460 m) have been completed at the

Wilson-Richard-Charles-Bell zones (WRCB), with at least 27 holes (2,360 m) remaining. In total the Company has completed 61 drill holes (4,575 m) including drilling at Biotite Lake (13 holes – 685 m), Danny (7 holes – 430 m) and Sweet Chili Heat (14 holes – 995 m) with monazite occurrences identified in each area. One drill continues to test the continuity and depth extent of the WRCB zones, while the other moves across the property, exploring new drill targets, named Diablo and Oldman River.



[Source](#)

With assays pending for all 61 holes drilled to date in the 2021 program, it's certainly exciting times for Appia. The Wilson North 21-WRC-015 drill hole showed monazite mineralization over 8.85 m from 15.74 m – 24.59 m. As noted above, three other locations also saw monazite occurrences. If the grades in this season's drill holes match the world class grades previously announced things could get very interesting very quickly. The Company is well funded to complete this season's drilling with plans to [prepare an NI 43-101 report](#) following the conclusion of the current exploration program later this year. With 107.6 million shares outstanding, the current market cap for Appia stands at roughly \$82 million. That's chump change given what some of these Chinese companies are throwing around for quality assets.

Keep in mind that for the last few years China has been buying monazite concentrates, thrown off as residues from heavy mineral sands' mining, from all over the world including, until recently, from the USA! China bought 30,000 tonnes last year from Rio Tinto in Southern Africa; and up to another 20,000 tons from Indonesia, Brazil. It is logical to assume that China would have a great interest in a higher grade neodymium rich monazite deposit than Lynas' Mt Weld especially since the Appia material

has 1 percent xenotime, which is a higher grade of heavy rare earth rich, xenotime, than Lynas' deposits at Mt Weld.

Appia may be on the cusp of an exciting future.

Canada's entry point to a domestic North American rare earths products production center

written by Jack Lifton | February 7, 2022

Why is [Appia Energy Corp.](#)'s (CSE: API | OTCQB: APAAF) Alces Lake discovery of an accessible extensive hard rock deposit of the rare earth bearing mineral, monazite, so very important to the non-Chinese world's demand for magnet rare earths? It is because Appia's monazite is, in fact, the neodymium rich variant, which is the most desirable for the production of rare earth permanent magnets. it is not only rich in neodymium (Nd) and praseodymium (Pr), but also contains 1% of xenotime, the best heavy rare earth bearing hard rock mineral.

Monazites are typically up to 50% higher in contained Nd and Pr than bastnaesite, the ore mined at Mountain Pass by MP Materials Corp. (NYSE: MP) and the residual mineral from China's Baotou region iron mining, which up until recently was the world's most-produced source mineral for light rare earths. Lynas Rare Earths Limited (ASX: LYC) is currently the world's largest producer of rare earths derived from monazite deposits at Mt.

Weld in a remote area of northern Australia.

Monazites are produced today as a byproduct of the processing of heavy mineral sands to recover zircon and ilmenite, respectively the ores of zirconium and titanium. Until recently processing monazite for rare earths was inhibited by the fact that monazites always contain radioactive thorium and sometimes uranium. The monazites were thus returned to the tailings from these operations and in the USA the environmental regulations required that they be returned to the worked-out deposits and distributed so that the residual background radiation was equal to or less than it was before the deposit was worked.

In the last five years as Chinese bastnaesite deposit grades have declined and mining created pollution has become a big problem in China the Chinese rare earth industry has begun to import very large quantities of monazites from the USA, Madagascar, South Africa, Brazil, and Australia. All of this material was produced as a byproduct of heavy mineral sands processing for zircon and ilmenite.

In order to solve the thorium/uranium problem, China requires that all imports of monazite go first to China Nuclear Corporation, which removes the thorium and uranium, and then ships a clean mixed rare earth carbonate to the Chinese refiner that ordered the material. China nuclear is licensed to process up to 50,000 tons of monazite containing up to 30,000 tons of total rare earths a year.

In the USA the only licensed uranium mill, [Energy Fuels Inc.](#)'s (NYSE American: UUUU | TSX: EFR) White Mesa Utah facility, has replaced China as the destination for monazite produced from its heavy mineral sands operations in Georgia by US Chemical Group, Chemours. Energy Fuels removes the uranium, which is a payable for Energy Fuels, and is storing, legally, the thorium, which

has been committed to a medical radioisotope group. The first clean mixed rare earth carbonate produced by Energy Fuels from the Chemours' monazite has already been sold to and shipped to [Neo Performance Materials Inc.](#)'s (TSX: NEO) European solvent extraction rare earth separation facility.

Appia is working with Canada's and the world's most attractive (Report's the Fraser Institute) mining investment jurisdiction, the Province of Saskatchewan. The Province's Saskatchewan (Mining and Refining) Research Center, the SRC, has agreed to develop a hydrometallurgy for Appia's monazite and the SRC has already designed and begun the construction of a 3000 ton per annum rare earth solvent extraction separation facility, where the separation and purification of Appia's monazite will be proven and piloted in what will be Canada's anchor for a total rare earth permanent magnet supply chain. Saskatchewan is the home of Canada's uranium mining industry and so the sale of any recovered uranium and the storage (or use) of any recovered thorium is not a problem.

North America is well on its way to becoming a world center of monazite processing, and Appia is Canada's entry point to a domestic North American rare earth products production center.

Appia Energy's Tom Drivas on "one of the highest grade rare

earth projects in the world”

written by InvestorNews | February 7, 2022

In a recent InvestorIntel interview, Tracy Weslosky speaks with Tom Drivas, CEO and Director of [Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF) about Appia’s recent [news release](#) on the largest exploration and drilling program for rare earths and gallium at their Alces Lake Project.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Tom went on to say that all the rare earths in the Alces Lake Project are exclusively hosted in Monazite with rare earth grades up to 50% along with high-grade gallium making it “one of the highest grade rare earth projects in the world”. Providing an update on their uranium projects, Tom said that Appia has three major critical materials namely, rare earths, uranium and gallium.

To watch the full interview, [click here](#)

About Appia Energy Corp.

Appia is a Canadian publicly-listed company in the uranium and rare earth element sectors. The Company is currently focusing on delineating high-grade critical rare earth elements, gallium and uranium on the Alces Lake property, as well as exploring for high-grade uranium in the prolific Athabasca Basin on its Loranger, North Wollaston, and Eastside properties. The Company holds the surface rights to exploration for 65,601 hectares (162,104 acres) in Saskatchewan. The Company also has a 100% interest in 12,545 hectares (31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario.

To learn more about Appia Energy Corp., [click here](#)

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If you have any questions surrounding the content of this

interview, please email info@investorintel.com.

Rare earths directed Appia Energy embarking on a fully funded drilling program at Alces Lake

written by InvestorNews | February 7, 2022

Rare earths companies are starting to gain attention as demand for the magnet [rare earths](#) in particular is forecast to boom this decade as we move further towards renewable energy and electric vehicles. The market for magnet Rare Earth Oxides (REO) is expected to increase [five-fold by 2030](#). Two key magnet metals, Neodymium (Nd) and Praseodymium (Pr) have seen their prices rise strongly in 2021 and notably again the past month after a recent dip.

Neodymium (Nd) oxide and Praseodymium (Pr) oxide prices have spiked higher the past month



Source: [Kitco](#)

One rare earth junior (Appia Energy) has 2nd highest average rare earth element (REE) grade in the world, at [16.65 wt%](#) TREO, hosted in favorable monazite ore.

[Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF) (“Appia”) is focused on rare earths at their 100% owned, 43,434 acre, Alces Lake Project in the Athabasca Basin area of northern Saskatchewan, Canada. They also have uranium prospects in the region as you can read [here](#).

Appia Energy’s project portfolio in Northern Saskatchewan, Canada



[Source](#)

The Alces Lake project has ‘monazite ore’ containing valuable rare earths Neodymium (Nd), Praseodymium (Pr), Dysprosium (Dy), and Terbium (Tb). Exploration since 2017 has identified high-grade Total Rare Earth Oxide (TREO) with [up to 49 wt%](#) TREO (average grades of 16.65 wt% TREO and 3.85 wt% CREO) on or near surface. Less than 1% of the property has been explored with diamond drilling.

On July 15, 2021, Appia [announced](#) that they are now embarking on a [fully funded ~5-6,000m drilling campaign](#) at Alces Lake, which is as much drilling as they have ever drilled before at the Project. The first phase of ground geology and geophysics is completed and the drilling team is about to mobilize to the Alces Lake camp, where two drilling rigs and crews will be working 24/7 on this phase of the helicopter-supported diamond drilling program.

Alces Lake Project Manager, Nic Guest, [commented](#): “The quality of the data obtained in the first phase of ground exploration is excellent. Our understanding of the various occurrences across the property has grown and we have planned our drill program accordingly. Our first phase of 2021 drilling will give us new and important information.”

Appia President, Frederick Kozak, [stated](#): “Approximately 5,700 metres of drilling has been planned to test the near-surface and down-plunge extents of new and existing rare-earth targets. More than 4,000 metres will be dedicated to identifying the depth potential of the WRCB zone (cumulatively the Wilson-Richard-Charles-Bell discoveries) and help complete the understanding of this significant discovery.”

The Alces Lake Project has excellent local infrastructure including mills, power, labour, highway, air strips, and well established summer and winter access routes. Appia has even recently built [a winter camp site](#) to help with all year round operations.

Highlights of Appia Energy’s exciting Alces Lake Project



Source: [Company presentation](#)

Closing remarks

Appia is sitting on a super high grade REE monazite ore deposit at Alces Lake. A huge summer drilling campaign has just begun and will help the Company potentially build up a Resource estimate. Rare earths expert Jack Lifton has also [agreed to join the Appia team](#) as a Strategic Adviser.

Appia is currently trading on a market cap of C\$83 million after a recent stock price dip. For those who missed out on buying Appia earlier, now looks to be a good time to take a second look. We will let you know the drill results as they come in during the following months. Stay tuned.

Frederick Kozak on Appia Energy's rare earths and uranium exploration program, recent financing and Jack Lifton appointment

written by InvestorNews | February 7, 2022

In a recent InvestorIntel interview, Tracy Weslosky speaks with Frederick Kozak, President of [Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF) about Appia's fully-funded summer rare earths and uranium [exploration program](#) plans in the prolific Athabasca Basin.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Frederick went on to explain why there is so much industry interest in Appia Energy and explained the significance of Appia's recently closed [\\$5.75 million bought deal financing](#). Having closed the financing only a month ago on May 19th, Frederick said, "...the equity holders in the financing are looking at a great return on their investment so far." Appia recently announced the [appointment](#) of global rare earths expert, Jack Lifton, as a consultant and advisor to the Board of Directors. "If you are going to have a strategic advisor on your board of Board of Directors in the rare earths space, certainly Jack Lifton is who to have," Frederick commented.

To watch the full interview, [click here](#)

About Appia Energy Corp.

Appia is a Canadian publicly-listed company in the rare earth element and uranium sectors. The Company is currently focusing on delineating high-grade critical rare earth elements (“REE”) on the Alces Lake property, as well as exploring for high-grade uranium in the prolific Athabasca Basin on its Loranger, North Wollaston, and Eastside properties. The Company holds the surface rights to exploration for 65,601 hectares (162,104 acres) in Saskatchewan.

The Company also has a 100% interest (subject to a 1% Uranium Production Payment Royalty and a 1% Net Smelter Return Royalty on any precious or base metals payable, provided that the price of uranium is greater than US\$130 per pound) in 12,545 hectares (31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario. The Camp historically produced over 300 million pounds of U_3O_8 and is the only Canadian camp that has had significant rare earth element (yttrium) production. The deposits are largely unconstrained along strike and down dip.

To learn more about Appia Energy Corp., [click here](#)

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Appia Increases Bought Deal Financing as it Ramps Up Rare

Earths Drill Program

written by InvestorNews | February 7, 2022

[Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF) announced upsizing its previously announced [bought-deal financing](#) to \$5 million that it expects to close later this month.

Appia plans to use part of the proceeds on a multi-million dollar summer exploration program on its Alces Lake property, which includes at least 5,000 meters of drilling and property-wide geophysical work. It also aims to upgrade the camp for winter use and access to extend the drilling season.

Appia is a Canadian-based mineral exploration company targeting the rare earth element (REE) and uranium sectors. The Company is currently focusing on delineating REE and uranium targets on its Alces Lake property, and plans to change its name to Appia Rare Earths & Uranium Corp.

The Alces Lake property is located in the Athabasca Basin of northern Saskatchewan, almost 30 kilometers northeast of Uranium City, which is a major centre in the area with good infrastructure including hydroelectric power, an airstrip, and an ice road connection.

The REE assays are reported as Total Rare Earth Oxides (TREO) and the Alces Lake property hosts some of the highest REE grades in the world and the second-highest average grade at 16.65% TREO.



[SOURCE:](#)

Re-analyzing Previous Samples Confirm Gallium Mineralization

Since 2016, Appia has been working on the Alces Lake project and focused on uranium and the critical rare earth elements (CREE) including neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb).

Recently, Appia re-analyzed some historical samples with high-grade rare earth oxide (REO) results to determine the extent of [gallium mineralization](#) over the property and the correlation between REO and gallium.

The results returned gallium concentrations ranging from 0.01% to 0.104% Ga_2O_3 and a positive linear correlation between gallium and REO.

According to the Company, gallium is considered high-grade when the weight percentage Ga_2O_3 is greater than 0.010% and the combination of the high-grade REO system and gallium gives it the potential of becoming a world-class asset for critical metals.

Frederick Kozak, Appia's President, commented, "The gallium concentrations on the Property are remarkable. Gallium was found in naturally occurring high-concentrations on the Property that far exceed current concentrations required for global production of gallium."

Gallium is primarily used in electronics, semiconductors, and light-emitting diodes (LEDs) as it is able to turn electricity into light.

In March, the current price of high-grade gallium metal (99.99%) was US\$376.71/kg compared to Nd at US\$105/kg, Pr at US\$74.95/kg, Dy at US\$424.95/kg, and Tb at US\$1,468.02/kg. Being able to recover gallium would increase the ore value to Appia.

Targeting Ore from Deposit in Next 24 Months

Appia's Alces Lake property has the REE hosted in coarse-grained monazite that is exposed at the surface in high-grade outcrops, making it economic to extract.

Monazite processing for REE extraction has a long history of economic viability and was started in the 1950s at the Steenkampskraal Mine in South Africa.

The company is following a low capital pathway to initial production by focusing on the potential of bulk mining the surface mineralization akin to a gravel pit operation and believes it could start production as early as 2023.

Appia would then use gravity and magnetic separation to create a concentrate to ship to a third-party plant and extraction facility for further processing.



[SOURCE:](#)

Leveraging SRC's Rare Earth Facility

In August 2020, the Saskatchewan government announced C\$31 million in funding for a Rare Earths processing facility in Saskatoon that will be owned and operated by the [Saskatchewan Research Council](#) (SRC).

The SRC facility will be the first-of-its-kind in Canada and will establish an REE supply chain in Saskatchewan.

In February, Appia announced that [bench-scale monazite processing](#) and metallurgical testing had started at the SRC facility using sample materials from Appia's Alces Lake property and SRC's current Separation Pilot Plant.

The goal of the test is to process monazite-bearing rocks from the property to determine the ease of metallurgical processing

and recovery of REE end products.

The testing results will be a factor in determining the economic viability of the project and are expected to take at least three months before a report is issued by SRC to Appia.

REE Solvent Extraction Process at the SRC Facility in Saskatoon, Saskatchewan



[SOURCE:](#)

Shifting Towards a Green Economy

North American and European economies are focused on developing more environmentally friendly (“green”) economies by shifting to low-carbon power generation and renewable energy, including solar and wind, as well as the swing from fossil fuel to electric vehicles. REE play a critical role in these industries.

Last year, the governments of Ontario and Canada announced plans to each spend C\$295 million to help Ford upgrade its assembly plant in Oakville, Ontario to start making electric vehicles.

But it is not just the green economy that requires these metals, they are critical in specialized alloys and magnets for airplanes, computer and military systems, high-speed transit, and satellites. A secure supply chain has become of strategic importance.

Governments Focusing on Critical Metals that Include REE

According to the [Center for Strategic and International Studies](#), China produced approximately 85% of the world’s rare earth oxides and 90% of rare earth metals, alloys, and permanent magnets in 2019. This dominance is a concern for other governments and businesses that want to ensure a stable supply

of critical metals.

In 2018, the U.S. Secretary of the Interior published a list of 35 critical minerals or mineral material groups and voiced their concerns about their dependence on imports to meet the demand and supply chain risk due to the source concentration of just one or two countries.

The U.S. Defense Logistics Agency, a combat support agency in the U.S. Department of Defense that manages the global supply chain, currently stores 42 commodities, including chromium, cobalt, iridium, palladium, platinum, and zinc, with a current market value of over \$1.1 billion.

In March, the rare earth's and critical minerals sectors received another boost as the Canadian government unveiled its "[Critical Minerals](#)" list that included 31 minerals the government considers *"essential to Canada's economic security, required for Canada's transition to a low-carbon economy, and a sustainable source of critical minerals for our partners."*

The mineral list was comprised of base metals, battery metals, energy metals, and other elements, including aluminum, cobalt, copper, gallium, lithium, nickel, niobium, REE, uranium, and zinc.

The government of Canada wants Canadian mining to become a global leader and supplier of choice and plans to support Canadian critical mineral projects with policy development, coordinate international engagements, and strengthen research & development in the sector.

Canada's list reaffirms its alignment with the U.S. on its list of "Minerals Deemed Critical to U.S. National Security and the Economy" and Canada's commitment to a "critical minerals" cooperation agreement that was initiated in 2019 and currently

in the working-group phase.

Final thoughts

Appia's planned financing should strengthen its Balance Sheet and fund its exploration plans for 2021.

In addition, Appia is not a one-trick pony as it holds exploration rights to 656 square km (162,104 acres) in Saskatchewan, including the Alces Lake, Eastside, Loranger, and North Wollaston properties, and over 125 square km (31,000 acres) of prospective REE and uranium deposits in the Elliot Lake area of Ontario.

If you think it's time to add some REE exposure to your portfolio, Appia might be a candidate to add to your watchlist.

Appia closed yesterday at C\$0.65 with a Market Cap of C\$63.4 million.

Jack Lifton on Rare Earth Supply Chains and Value Chains

written by Jack Lifton | February 7, 2022

Rare earth sector analysts have finally recognized that a project's place in a total supply chain is very important to its economic viability. Before a junior mining deposit goes into (usually expensive and time consuming) development into a producing mine there must first be an evaluation of what possible product(s) of that mine are demanded by the next step in the supply chain and what price(s) they may bring when the

mine begins production. Most such evaluations are at best extrapolation and at worst pure speculation due to unpredictable commodity price cycles. Even for producing mines like MP Materials Corp. (NYSE: MP) and Lynas Rare Earths Limited (ASX: LYC) their places in the total supply chain differentiates them from each other because of the different value of their current respective delivered products.

The sale of rare earth permanent magnets brings a majority of the revenue in the total rare earth products supply chain. But no non-Chinese company has ever been vertically integrated from a mine to a magnet maker. The closest that a Western owned company (Canadian) has come to being a total rare earth permanent magnet supplier is [Neo Performance Materials Inc.](#) (TSX: NEO), which has everything (in the total rare earth permanent magnet supply chain) but a mine. Neo Performance sells rare earth products (oxides and chemicals) as well as rare earth enabled products (e.g., magnets) and has been consistently profitable with revenues exceeding \$500,000,000 per year. This year, 2021, Neo will shortly begin taking delivery from America's [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR) of 70 tons per month of clean mixed rare earth carbonates (MREC) extracted from domestic American monazite. Energy Fuels is the first American company to produce rare earth concentrates free of radioactive elements and interfering ions in at least 25 years. The MREC can be put into solution directly at Neo's European rare earth separation plant and fed into the system as a pregnant leach solution (PLS). Thus, Neo Performance can deliver to its customers downstream products, such as separated oxides, metals and magnet alloy powders and bonded magnets (made at its Thailand operations) that are produced by a total rare earth supply chain with no Chinese involvement.

Energy Fuels reports that its monazite extraction/purification system to produce clean MRECs is profitable. MP says that its

bastnaesite ore concentrates now sold exclusively to China's Shenghe Resources are profitable. Lynas says that its in-house separated rare earth oxides are sold at a profit. For rare earth juniors, the successful (I.e., profitable) sale of ore or clean mixed rare earth carbonates is the key metric and few of them succeed.

The total rare earths' (enabled products) supply chain has the following composition:

1. Mining,
2. Extraction of the rare earths from the mining concentrates and the preparation of a clean, pre-PLS, mixed rare earths product,
3. Separation of the mixed rare earths into individual oxides and blends,
4. Manufacturing of chemical products, such as phosphors and catalysts, and of individual metals and alloys forms, and
5. Manufacturing of rare earth permanent magnets from rare earth alloys.

Historically mining companies have done steps 1,2, and sometimes 3, while specialized smaller companies have done steps 4 and 5 as separate ventures.

The rare earths' value chain is not the same as the supply chain. It is very difficult to make money mining, extracting, or even separating mixed rare earths into individual rare earths and blends. Lynas, for example, has become profitable by reducing the costs of separation to where they are comparable to those of the Chinese. Lynas' monazite ore body is much richer than, for example, MP's bastnaesite or even that of China's Bayan Obo. Lynas is now profitable selling individual rare earth salts and blends, but it has taken a decade and \$2 billion to reach this point, and the company's survival was actually due to long term low interest loans from a Japanese government agency

designed solely to give Japan a backup to Chinese sourcing.

MP Materials is today only an ore concentrate producer, and its original capital needs were only to re-open a relatively recently closed large-scale well-run mining and ore concentrating operation. MP basically acquired some \$2 billion of sunk costs for about 1% of that. The real challenge now is for MP to (attempt to) match the Lynas model, and deliver separated rare earths and blends just as the original Molycorp did until 20 years ago. I am told that Molycorp II's Project Phoenix ran first just before the bankruptcy, but I only get silence when I ask if it was running economically and efficiently. I am very skeptical about MP's announcements that they will be separating rare earths at Mountain Pass in 2022 if by that they mean economically and efficiently.

Lynas has never advanced beyond separation in the supply chain, and I have never heard it said that they plan to do that or want to do it. The Lynas 22,500 tpa operation in Kuantan, Malaysia, took seven years and \$1.3 billion to begin commercial operation, and it is limited to processing monazite to extract and separate light rare earths only. If Lynas chooses to build a light rare earths separation plant in the USA as has been announced I suspect it will take 2 to 3 years to build and burn-in and that if it is to be a 5000 tpa system as announced, and that it will cost far more than \$60 million on a greenfield site in Texas.

Project Phoenix was to be a 20,000 tpa system. It never ran commercially even though well over a billion dollars was expended on it over a four-year period. It is extremely unlikely that Project Phoenix can be resuscitated and brought into profitable operation in just one year, if ever.

Molycorp II, in its attempt to vertically integrate bought the rare earth permanent magnet alloy making operations of Santoku,

America, in suburban Phoenix, Az. In 2011 for \$17 million. Within two years the operations were shut down as the necessity to buy Chinese metal as feedstock made profitability impossible.

Energy Fuels is buying monazite concentrates and removing the uranium and thorium as well as non rare earth elements in its existing White Mesa uranium mill in Utah. Less than \$2 million was needed in additional equipment to give the mill the capacity to process 2500 tpa of monazite to recover the contained 55% of total rare earths.

Neo Performance can distribute costs across its almost total in-house supply chain. It can thus maximize profits in its highest margin end-use products. MP is literally a start-up beyond the mine, and the jury is out on its potential for success. Lynas' operations were designed by former Solvay chemical engineering managers with the longest continuous experience in rare earth separation in the world. The chemistry chosen for Kuantan was that proven by experience and use by Solvay, China. Neo Performance Materials is the successor in interest to Neo Materials, which was founded in the 1990s and is helmed today by one of its original founders. Neo Materials perfected the bonded rare earth permanent magnet and is today the supplier of 80% of the world's supply of them.

Energy Fuels has been in business since the late 1980s, and is America's sole licensed uranium mill and thorium storage site. From the inception of the plan to process monazite until commercial operations took just one year. Uranium is purified by solvent extraction, and Energy Fuels has more than 500 man-years of experience with solvent extraction. The company is doing a scoping study on a dedicated rare earths solvent extraction system and has been awarded a contract by the US Dept of Energy to study the separation of rare earths derived from coal and phosphate-acid residues.

MP and Lynas are the largest, rare earth miners outside of China. Lynas and Neo Performance are the largest processors of rare earths to separate them by solvent extraction outside of China, and Energy Fuels is the sole producer of clean mixed rare earth carbonates in the Americas.

I am watching the following juniors: USA Rare Earths, Rare Element Resources Ltd. (OTCQB: REEMF), [Vital Metals Limited](#) (ASX: VML), and [Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF).

The next five years will be the critical time for the development of a domestic American or European total rare earth enabled products supply chain. Canada is at a crossroads; it may build a domestic supply chain anchored on mines and going downstream with licensed European separation, metal and alloy making, and magnet making, or it may build a trans-Atlantic one with the EU.

The game's afoot.

Jack Lifton with Appia's Tom Drivas and Frederick Kozak on the revival of the Canadian rare earths industry

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In a recent InvestorIntel interview, Jack Lifton spoke with Tom Drivas, CEO and Director of [Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF) and Appia's newly appointed [President](#), Frederick

Kozak about the Alces Lake Project that has some of the highest-grade monazite-based rare earths and gallium mineralization in the world.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Tom went on to say that Appia has started a bench-scale monazite processing and metallurgical testing at the Saskatchewan Research Council to produce a mixed REE carbonate from monazite-bearing rocks.

Monazites are rich in magnetic rare earths but are radioactive because of the presence of uranium and thorium. Jack pointed out that “Appia could be the only company in Canada which can address monazite as the feedstock.” He added that with SRC capable of handling the radioactivity “the world is going to see a revival of the Canadian rare earths industry but with a new emphasis on monazite.”

To watch the full interview, [click here](#)

About Appia Energy Corp.

Appia is a Canadian publicly-listed company in the uranium and rare earth element sectors. The Company is currently focusing on delineating high-grade critical rare earth elements (“REE”) and uranium on the Alces Lake property, as well as prospecting for high-grade uranium in the prolific Athabasca Basin on its Loranger, North Wollaston, and Eastside properties. The Company holds the surface rights to exploration for 65,601 hectares (162,104 acres) in Saskatchewan.

The Company also has a 100% interest (subject to a 1% Uranium Production Payment Royalty and a 1% Net Smelter Return Royalty on any precious or base metals payable, provided that the price of uranium is greater than US\$130 per pound) in 12,545 hectares

(31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario. The Camp historically produced over 300 million pounds of U_3O_8 and is the only Canadian camp that has had significant rare earth element (yttrium) production. The deposits are largely unconstrained along strike and down dip.

To learn more about Appia Energy Corp., [click here](#)

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Appia appoints Frederick Kozak as President as they progress the Alces Lake high-grade rare earths monazite project

written by InvestorNews | February 7, 2022

[Appia Energy Corp.](#)'s (CSE: API | OTCQB: APAAF) ('Appia') stock price has been on a tremendous run the past year, up 364%, as shown below. Today I take a look at why the stock has done so well, and what's next for Appia Energy, potentially soon to be renamed Appia Rare Earths & Uranium Corp. (retaining the same stock tickers).

Appia Energy Corp. 1 year stock price performance



[Source](#)

The reasons why Appia has had a great past year are multiple but would include:

1. Rising prices for rare earths, and to a lesser degree uranium.
2. Greater recognition by investors on Appia's potential.
3. Successful exploration by Appia on their Alces Lake project and progress towards next stage development.

Regarding higher rare earth prices, on March 3, 2021 Appia [stated](#):

"In the oxide form, the Shanghai Metals Market quoted February 28 prices per kg in US\$ are: Nd \$105, **up over 100%** year over year ("YoY"), Pr \$74.95 **up over 18% in one month**, Dy \$424.95 **up nearly 100% YoY**, Tb \$1468.02 **up nearly 200% YoY**. There is an unusually high concentration of gallium at Alces Lake compared with other deposits and the price of Gd Oxide increased by 18% in one month to \$35.93."

A lot of investors may not yet know about the surge in rare earth prices, but here at InvestorIntel, we have been warning for some time to expect higher prices for critical metals. This is because we are just at the beginning of a new era of renewable low carbon energy (wind, solar, nuclear) and electric vehicles (EVs), which all need critical metals.

This leads to the reason for Appia's proposed name change. Appia Energy is focused on rare earths (Alces Lake Project) and uranium (Athabasca Basin uranium prospects).

Appia [state](#) the reason for the name change as:

"In order to better identify the Company's focus on the Alces Lake Project and the Athabasca Basin uranium prospects. The

Property hosts some of the highest-grade total and critical rare earth elements (“CREE”) and gallium mineralization in the world. CREE is defined here as those rare earth elements that are in short-supply and high-demand for use in permanent magnets and modern electronic applications such as electric vehicles and wind turbines, (i.e: neodymium (Nd), praseodymium (Pr) dysprosium (Dy), and terbium (Tb)).”

Appia’s Alces Lake Project (100% owned)

The Alces Lake Project is unique for its exceptional high grade rare earths (2nd highest globally with average grade 16.65 wt% TREO and 3.85 wt% CREO) hosted in the favorable monazite ore. Critical rare earth elements (‘CREE’) at the Alces Lake Project include neodymium (Nd), praseodymium (Pr) dysprosium (Dy), terbium (Tb). There is also considerable gallium (Ga). The property has huge potential exploration upside, over a 45 km regional trend, as [less than 1%](#) of the Property has been explored with diamond drilling.

Note: TREO is Total Rare Earth Oxides and CREO is Critical Rare Earth Oxides.

Appia Energy Corp.’s Alces Lake has the 2nd highest global average grade at 16.65 wt% TREO hosted in monazite ore (some super high grade zones shown below)



[Source](#)

The Alces Lake project area is 17,577 hectares and is 100% owned by Appia. The project is located close to an old mining camp with existing support services, such as transportation (15 km from the nearest trail), energy infrastructure (hydroelectric power), a 1,200 m airstrip that receives daily scheduled

services and access to heavy equipment.

The Property is located in Saskatchewan, the same provincial jurisdiction that plans to develop a “first-of-its-kind” rare earth processing facility in Canada, scheduled to become operational in 2022. This means Appia may have the opportunity to fast track early stage production of rare earths, at a low CapEx. I wrote about that previously [here](#). Appia [state](#): “Appia would “ideally” consider a surface and near-surface operation to start production, smaller than open pit scenario, easier to permit and manage, potentially low CAPEX/OPEX.”

Appia’s goal is to maintain a small environmental foot-print with a possible low CapEx start and initially use the Saskatchewan Research Council Rare Earths Processing facility in Saskatoon, Saskatchewan



[Source](#)

What’s ahead for Appia Energy in 2021

Appia plans to continue to further rapidly develop their Alces Lake Project under newly appointed President Mr. [Frederick Kozak](#). Mr Kozak is a highly experienced capital markets and resource executive with a background in geological engineering, business, and as an equities analyst at Canaccord Genuity & Haywood Securities. This boosts the team at Appia as they expand exploration and begin the next steps towards production.

During the Summer of 2021, Appia intend to drill in excess of 5,000 metres at their Alces Lake Project with a goal to further grow their rare earths resource, in particular, to potentially discover further high grade rare earth oxide occurrences. Appia has also commenced [bench-scale metallurgical testing](#) at the SRC

facilities. The intent is to refine the extraction process to separate the rare earths oxide and ultimately produce Nd and Pr oxides, gallium oxide, as well as uranium oxide.

Appia also intend to further exploration for high-grade uranium in the prolific Athabasca Basin on Appia's Loranger, North Wollaston, and Eastside properties.

Closing remarks

Appia Energy now has a new President, and if approved on May 18, 2021, will change its name to Appia Rare Earths & Uranium Corp.

After a blockbuster past year Appia is now positioning for a solid 2021. If things go well I would expect we would also see an upgrade from the CSE to the TSXV, and a further re-rating for Appia.