

# Chris Gibbs and Marty Weems of American Rare Earths talk about tripling its Halleck Creek Target

written by InvestorNews | September 13, 2022

In this InvestorIntel interview, host Tracy Weslosky is joined by [American Rare Earths Limited](#) (ASX: ARR | OTCQB: ARRNF) CEO & Managing Director Chris Gibbs, and President – North America Marty Weems, to talk about the company recent announcement that it has more tripled its JORC-compliant rare earths Exploration Target at its Halleck Creek project in Wyoming.

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here to access InvestorChannel.com](#)), Chris tells Tracy that “in completing the maiden drill campaign we came out with a significant upgrade to the Exploration Target. It’s 328 percent more than the previous Exploration Target and it’s a whopping around 1.1 billion tons of mineralized rock at this actual deposit.”

Marty Weems also talks about American Rare Earths’ close relationship with innovation hubs at the US Department of Energy and the EERE. “The research community has a real keen interest in our feed stock because of the low thorium content,” he tells Tracy. “There’s hundreds and hundreds of millions of dollars being poured into changing the technology of this supply chain and making it greener, cleaner, and more sustainable. That funding is coming from DOE as well as the Department of Defense programs like the DARPA EMBER [Environmental Microbes as a BioEngineering Resource] program which we’re also part of.”

Chris Gibbs also tells Tracy that its Halleck Creek project is still open at depth and open laterally. “We’re super excited with this project and look we can’t wait to get drills on the ground.”

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

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### **About American Rare Earths Limited**

American Rare Earths Limited (ASX: ARR, OTCQB: ARRNF, FSE: 1BHA) is an Australian company listed on the ASX with assets in the growing rare earth metals sector of the United States of America, emerging as an alternative international supply chain to China’s market dominance of a global rare earth market expected to expand to US\$20 billion by the mid-2020s. The Company’s mission is to supply Critical Materials for Renewable Energy, Green Tech, Electric Vehicles, National Security, and a Carbon-Reduced Future.

Western Rare Earths (WRE) is the wholly owned US subsidiary of the Company. ARR owns 100% of the world-class La Paz Rare Earth Project, located 170km northwest of Phoenix, Arizona. As a large tonnage, bulk deposit, La Paz is potentially the largest, rare-earth deposit in the USA and benefits from containing exceptionally low penalty elements such as radioactive thorium and uranium.

In the first half of 2021, ARR acquired the USA REE asset, the Halleck Creek Project in Wyoming. Since acquiring the asset, the company has increased the land holding to over 6,000+ acres. Approximately 1,015 to 1,268 million tonnes of rare earths mineralised rocks were identified as an exploration target for the Halleck Creek project area with an average Total Rare Earth

Oxide (TREO) grade of 2,245 – 2,807 ppm.

La Paz and Halleck Creek's mineral profiles are incorporated into emerging US advanced rare earth processing technologies in collaboration with US national laboratories, major universities and the US DOE innovation hub, the Critical Materials Institute.

To know more about American Rare Earths Limited, [click here](#)

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## **Marty Weems of American Rare Earths talks about successful drilling results at Halleck Creek**

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In this InvestorIntel interview with host Tracy Weslosky, [American Rare Earths Limited](https://www.americanrareearthslimited.com)'s (ASX: ARR | OTCQB: ARRNF) President – North America, Marty Weems talks about continuing positive news coming out of its Halleck Creek rare earths project, and how the company plans an updated JORC-compliant exploration target “to give the market an idea of what we mean when we say this project has the potential to be the largest rare earth JORC resource and development in the USA.”

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here to access InvestorChannel.com](https://www.investorintel.com)), Marty tells Tracy that with recent drill

results “the grades appear very consistent to depths of exceeding 100 meters, so we’re not talking about a few little high-grade veins of rare earths. We’re talking exceptional thickness,” he says. He goes on to say that “it’s exposed at surface and really consistent to depths exceeding 100 meters, so the majority of the drill holes average over 4,100 parts per million total rare earth content – rare earth oxides – over more than 90 meters of mineralized thickness in average across those holes, so the project remains open at depth and laterally and that’s especially exciting considering we now have over 24 square kilometers of claim control at Halleck Creek.”

Marty tells Tracy that in addition to last week’s reported assay results, American Rare Earths was named the sole industry member of a consortium led by Lawrence Livermore National Laboratory (LLNL) that has been awarded up to \$13 million in research funding to develop scalable, bio-based separation and purification of rare earths elements.

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sampling of the Overton Mountain area conducted in 2018 revealed average TREO values of 3,297 ppm, average Heavy Rare Earth Oxide (HREO) values of 244 ppm, and average Magnetic Rare Earth Oxide (MREO) values of 816 ppm. (ASX Announcement, 26 April 2022). The maiden exploration drilling program was completed in April 2022. The Company is updating the existing exploration target and developing a more comprehensive drilling program with the objective of defining a high tonnage maiden JORC resource.

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## **Disregarding ESG standards is key to China's rare earths dominance**

written by Melissa (Mel) Sanderson | September 13, 2022

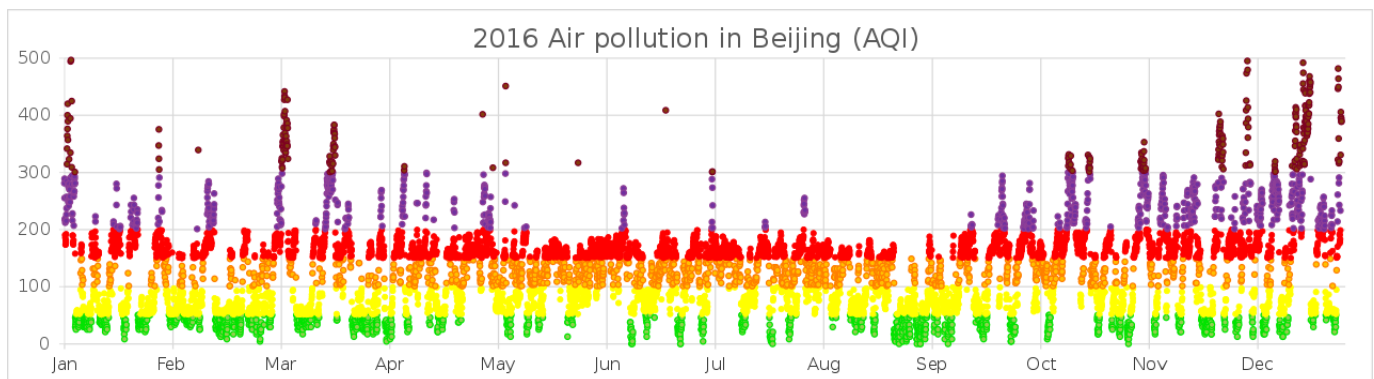
Everyone knows – or, those who care about such things know – that China produces approximately 80% of current rare earths supply for essential “green” materials such as permanent magnets used in electric vehicles and offshore wind turbines. US and European governments repeatedly have stated publicly that this degree of market dominance poses a clear and present danger to their national security and economic development interests, and



are providing a variety of incentives to hasten rare earth processing within their respective national boundaries while respecting ESG (environmental, social and governance) concerns.

It is worth examining how China attained its controlling market position. It is not because China has all the rare earth deposits, although they do have significant amounts. Rather, the answer lies in a variety of factors, including but not limited to: relatively low demand, until recently, for most rare earth elements, which meant that private mining companies were not incentivized into this segment of the mining market; relatively low geological exploration outside China until relatively recently, and China's willingness to disregard ESG (Environmental, Social and Governance) principles which would have constrained its rapid production growth.

Not so long ago, the world was startled by images from major Chinese cities, including Beijing, of air pollution so bad that visibility was limited to feet, citizens masked up to try to breathe (some even resorting to gas masks) and birds fell dead from the sky, choked to death. These amazing images were reminiscent of the Great London Smogs written of in the 1800s, or of the pollution in Mexico City in the mid-to-late 1980s. In other words, not today's normal.



2016 air pollution in Beijing as measured by Air Quality Index (AQI) defined by the EPA. Source: WikipediaCommons – Phoenix7777

But the willingness to forego or disregard ESG standards is fundamental to China's rare earths dominance. The majority of known deposits coexist with highly radioactive thorium and uranium, making both mining and production dangerous and expensive. Storing thorium (which currently has few non-medical uses) is costly. So too is storing uranium, although processed uranium is useful for nuclear energy and certain other uses (mostly military). This poses a particular hurdle for US companies potentially interested in the rare earth space. Appropriate secure storage and/or construction and maintenance of impoundment ponds are subject to special licensing and impose significant additional project costs as well as heightened uncertainty that a project even could be permitted, as the Nuclear Regulatory Commission would then become party to the already lengthy permitting process (averaging 10 years in the US if no significant opposition to the project arises).

Recent discussions and increasing interest in building new nuclear power plants – particularly [experimental mini-plants](#) – could offer a new offtake solution for uranium but this remains years away. Similar and sometimes more restrictive regulations in the EU also have affected production there. All these measures, however, reflect the responsibility felt by Western governments to safeguard their populations and uphold environmental standards – in other words, balancing ESG and national/economic security interests.

The Chinese government has allowed no such qualms to hinder its aspirations, which is how it became the world's leading producer of rare earth metals materials, but new, cleaner separation technologies being developed in the US offer hope of breaking China's grasp.



Hazy air quality over the Shanghai skyline in China.

Research underway at the Critical Materials Institute, a U.S. DOE Energy Innovation Hub, Lawrence Livermore Laboratories (with DOD financial support) and various University labs focus on trying to develop “green separation” methodologies using amoebas, bacteria, proteins etc. This strand of research is best suited to rare earth deposits with little to no radioactivity, such as those of junior exploration/development company [American Rare Earths Limited](#) (ASX: ARR | OTCQB: ARRNF), which is [providing feedstock](#) to the above-cited labs from its La Paz and Halleck Creek sites. Other companies, such as [MP Materials Corp.](#) (NYSE: MP), the sole US-based rare earth miner, are working on setting up [production facilities](#) in the US. Initiatives such as these illustrate that it is possible to realize the goals of shortening and securing supply chains for vital rare earth processed materials while developing a “green economy” in the US based on sound ESG principles.

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# What does the replacement of the Australian Strategic Materials CEO mean?

written by Jack Lifton | September 13, 2022

[Australian Strategic Materials Ltd.](#) (ASX: ASM) has accomplished the execution of a business model first described by Canada's former Great Western Minerals and then appropriated by the (second) American Molycorp, neither of which could ultimately pull it off – the vertical integration of a critical mineral producer from the mine to the finished mass-produced product ready for end-user product fabrication.

For ASM the first integrated production will be of rare earth metals, titanium, and zirconium, the mineral supply chain for each of them originates with the company's Australian mining operation, and the final processing to metals is done in a Korean joint venture, already proven at the pilot plant level and with a full-scale plant being contracted for with Hyundai Engineering.

I have no doubts that the entire output of ASM's Korean operations will be sold into the Korean market. The sister company of Hyundai Engineering, Hyundai Motors, is already mass producing a low-cost battery powered EV, which needs rare earth permanent magnet electric motors made independently of Chinese critical metals.

The Korean nuclear power industry needs zirconium (and its sister metal, hafnium [also to be produced by ASM in Korea]) for

the cladding of fuel rods. And the Korean domestic armaments industry needs rare earth permanent magnet motors and titanium for its aircraft and shipbuilding (Korea's first full-scale aircraft carrier is now being planned).

ASM, having now structured its total supply chain for critical metals, just last week [installed a new CEO](#), its former COO, Rowena Smith, who has almost 30 years of global mining experience in strategic planning and mineral processing with senior mining corporations, including roles at South 32, Rio Tinto, and BHP. Previous CEO David Woodall abruptly stepped down from his roles and left the company.

It's important at this point to understand the significance of the replacement of now former CEO, David Woodall, by former COO, now CEO, Rowena Smith. Those who plan wars, or even battles, rarely carry them out. During David Woodall's tenure, the vertical integration of ASM was planned and the component ventures were acquired, modified and themselves integrated. During that time Rowena Smith, as COO, familiarized herself with the plan, helped to implement it, and took over the day-to-day operations of the system as it matured. She has overseen areas of the Dubbo project and the Korean Metals Plant. Last week the board of the company determined that ASM was ready for her operationally-experienced and skilled management to assume overall control, and the management change was implemented.

ASM is now the first non-Chinese company to complete a vertically integrated business model from the mine through to the production of high purity critical metals for the EV, shipbuilding, aerospace, and nuclear industries.

ASM is Australian-owned and sited, and its first customers are in Korea.

The rest of the non-Chinese mining and processing world should

look closely at this success and emulate this model.

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# Marty Weems of American Rare Earths on “outstanding” drill results and US govt project backing

written by InvestorNews | September 13, 2022

In this InvestorIntel interview with host Tracy Weslosky, [American Rare Earths Limited](#)'s (ASX: ARR | OTCQB: ARRF) President – North America, Marty Weems talks about its recent “outstanding” drill results from its Halleck Creek Rare Earth Project in Wyoming.

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here](#)), Marty discusses the results from the first four holes reported from the maiden drilling program at the Halleck Creek Rare Earth Project which “confirmed mineralization is consistent surface to depth, and we had mineralization at depth, so we’re really excited about what we see in both size and grade opportunity.” With the reported magnetic rare earth oxides comprising approximately 26% of TREO (Total Rare Earths Oxides) “by our estimation that puts it in a fairly world-class distribution,” Marty continues, “so we’re quite excited to see that number being as high as it is.”

Marty also discusses American Rare Earths’ recent announcement that its wholly owned US subsidiary, Western Rare Earths, is the

sole industry member of a consortium that has been awarded research funding from the U.S. Defense Advanced Research Projects Agency (DARPA) to develop scalable, bio-based separation and purification of rare earths elements using Western Rare Earths' feedstock. "I'm excited to see substantive, robust engagement by the U.S. government and putting budget dollars to support onshoring the supply chain, and I think it bodes really well for us."

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Rare Earth project recently upgraded 170MT Resource. (ASX Announcement, 29 September 2021). During the period from February to April 2022 the Company drilled nine holes for 821 metres and collected 677 samples in the La Paz southwest area. The assay results from the first 332 samples demonstrate rock type associated with higher rare earth grades. The enhanced grades and thickness of the mineralized zone have accelerated exploration planning. The Company is working on establishing a JORC resource for the southwest area (ASX Announcement, 14 June 2022). Preliminary metallurgical test work demonstrates that La Paz ore can be effectively concentrated using conventional magnetic separation, selective grinding and direct flotation. Under the guidance of Wood Australia, advanced metallurgy and mineral processing test work is near completion with Nagrom Laboratories in Perth Western Australia (ASX Announcement, 7 April 2022).

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# **In-house production key to making Energy Fuels the world's lowest cost producer of rare earth metals**

written by Jack Lifton | September 13, 2022

**Energy Fuels takes giant step towards complete, in-house, vertical integration in the production of rare earth permanent magnet alloys**

[Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR) has just this week [announced](#) that it will buy, subject to due diligence, a huge Brazilian deposit of heavy mineral sands, which it will mine to produce a concentrated mineral mix that will contain zircon, ilmenite (titanium), and monazite. This concentrate is expected to be sold to partner companies, which will extract the zircon and ilmenite as payables, and the residual monazite, a waste product in zircon/ilmenite processing, will be conveyed at a nominal cost (as part of the arrangement to supply the heavy

mineral sands to partners) to Energy Fuels' White Mesa, Utah, where the monazite will be cracked and leached to extract a clean rare earth content as a mixed carbonate and to extract and sell or legally dispose of its uranium and thorium content.

Energy Fuels is already buying, and processing monazite produced in the above way from the zircon/ilmenite operations of Chemours in Georgia, but the Brazilian purchase will allow Energy Fuels to diversify and lower its cost of monazite concentrates.

The in-house production of monazite rich heavy mineral sands by Energy Fuels will be the foundation of its program for the vertically integrated (in-house) production of rare earth metals and alloys from (in-house) separated and purified individual and blended rare earth salts.

Energy Fuels operates the only operating uranium processing "mill" in the United States and the only facility in the United States in the U.S. capable of processing monazite for the recovery of uranium for sale to nuclear power plants, and the recovery or legal disposal of the thorium and other radionuclides associated with monazite.

The company has already begun processing purchased monazite into a mixed rare earth carbonate, and currently has the capacity to produce thousands of tons of such mixed rare earth carbonates per year. Energy Fuels' mixed carbonate is the most advanced rare earth product being produced at a commercial scale in the U.S. today. The company is also making major strides in producing separated and refined individual and blended rare earth products at its mill.

Comparatively, monazite contains up to 50% more of the recoverable core magnet metals, neodymium and praseodymium than the bastnaesite mined at Mountain Pass, California.

Energy Fuels is finalizing a scoping study for a dedicated, rare earths, solvent extraction separation system and is finalizing the commercialization of a new rare earth metals and alloys production process demonstration.

Within 24-36 months Energy Fuels has the potential to be the world's lowest-cost producer of separated individual rare earths and will therefore the lowest cost producer of rare earth metals and alloys. No government subsidies have been needed. Just managerial knowledge, experience, and skill.

Energy Fuels already is a major domestic supplier of uranium and vanadium In fact, the company announced at its AGM, earlier this week, that it has signed a decade long supply deal with two American utilities to provide them with more than 4,000,000 lbs of uranium. This contract will bring in more than USD\$200,000,000 over its life.

Energy Fuels is a producing and growing domestic American critical metals processing hub.

*Disclosure: Jack Lifton is a member of the Advisory Board for Energy Fuels Inc., and may hold securities or options in some of the companies mentioned in the above article.*

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# **Rising demand benefits the only integrated producer of**

# **bonded rare earth permanent magnets outside of China**

written by InvestorNews | September 13, 2022

[Neo Performance Materials Inc.](#) (TSX: NEO) (Neo) is an almost totally integrated Western (Canadian) company that processes mixed rare earth concentrates to produce separated individual and specifically blended rare earths to produce rare earth metals, alloys, and “bonded” rare earth permanent magnets. What makes Neo special is that they are the only company in the world that operates dual supply chains inside and outside of China for REE separation and REE advanced materials and end-use products. Neo owns the only operating commercial rare earth separation facility outside of Asia. It’s in Europe (Estonia facility) and it has sales and production centers spread across [10 countries](#) globally.

All of the above makes Neo unique as a Western producer of rare earth materials as well as end-use products, which are critical in the green energy and EV revolution.

## **Award winning facilities**

As announced on [February 22](#) and [March 28, 2022](#), Neo won awards for two of its key factories, the first in Thailand and the second in Estonia. The awards were Gold Medals awarded by EcoVadis for 2021 sustainability performance.

The second announcement [stated](#): “This places Neo’s Silmet facility in Sillamäe, Estonia in the top five percent of all facilities around the world reporting to EcoVadis for its sustainability programs in 2022... The Silmet facility processes mixed rare earth feedstock into a variety of high-purity rare earth specialty materials, including neodymium-praseodymium

(NdPr) oxide, which is used by Neo's Magnequench business unit to produce neodymium-iron-boron (NdFeB) magnetic materials and magnets for automotive, factory automation, home appliance, circulation pump, and other applications."

This impressive recognition is also very well timed given the surging demand for NdFeB magnets used in many EV motors. Global electric car sales finished March 2022 with [851,000](#) sales for the month (the second best month ever), 60% higher YoY, with market share of 15%.

The global OEM automotive industry today uses mainly sintered NdFeB rare earth permanent magnets, but the use of bonded type NdFeB in this application is growing rapidly. Neo has pioneered the use of bonded NdFeB magnets in automotive applications with Japanese customer/partner, Honda, and this use is expanding. Neo has agreed with European magnet customers to expand its capacity there and to add sintered NdFeB magnets to its product lines. The EU has encouraged and is financially supportive of this move by Neo.

Prices for rare earths materials and end-user products used in the green economy have been surging the past year, due to demand exceeding supply, and this is reflected in Neo's latest financial results. This supply deficit looks to be baked in for at least the next decade due to the growth of the green economy.

#### **Q4 2021 and Full-Year financial results highlights (in USD)**

As [reported](#) on March 10, 2022, Neo achieved the following outstanding financial results:

- "Q4 2021 revenue of \$153.4 million higher by 39.0% YoY; full-year 2021 revenue of \$539.3 million was higher by 55.5% YoY.
- Volumes in the fourth quarter of 3,311 tonnes; full-year

volumes expanded by 20.2%.

- Operating income of \$12.7 million in the quarter; \$59.9 million for the year.
- Adjusted Net Income for the quarter of \$16.1 million, or \$0.39 per share, with full-year Adjusted Net Income of \$55.0 million, or \$1.42 per share.
- Adjusted EBITDA for the quarter of \$19.7 million; 2021 Adjusted EBITDA of \$81.9 million was 183.7% higher YoY.
- Cash balance of \$89.0 million after raising \$38.0 million from equity offering and distributing \$12.8 million in dividends to shareholders.”

As shown above, full-year 2021 revenue was 55.5% higher YoY, based on volume growth of 20.2%. Clearly higher-end product prices helped support the stellar results. Neo sums it up well and the general direction the business is heading by stating:

“Neo reported strong year-over-year (YoY) gains in revenue, volumes, operating income, Adjusted EBITDA, and profitability in the year ended December 31, 2021, driven largely by increased demand for products across all three of its operating divisions, higher selling prices for rare earth materials, and continuing progress in several of the Company’s strategic initiatives.”

I did warn investors that this was what we were expecting from Neo with our December 22, 2021 article: [“Neo Performance Materials looks to expand capacity as it rides the tailwind of growing rare earth permanent magnet demand.”](#)

**Neo Performance Materials is one of a few Western companies able to process rare earths and make magnets**



Source: [Neo Performance Materials website](#)

## Closing remarks

Neo Performance Materials occupies a rare and critical position in the Western supply chain to produce rare earths specialty products. Demand for powerful rare earth type magnets used in many consumer goods as well as in wind turbines and EVs is expected to surge this decade.

Neo Performance Materials trades on a market cap of [C\\$546 million](#) and a current PE of [17.6](#). 2022 PE is forecast at [7.82](#).

The next catalyst for Neo will be the Q1, 2022 earning results due out before the market opens on [May 13, 2022](#). Stay tuned.

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# Marty Weems on how American Rare Earths is focused on becoming a NA Rare Earths Producer

written by InvestorNews | September 13, 2022

In a recent InvestorIntel interview, Chris Thompson spoke with [American Rare Earths Limited](#)'s (ASX: ARR | OTCQB: ARRNF) President – North America, Marty Weems, about the positive field [assay results](#) from the La Paz Project in Arizona. Marty highlights how American Rare Earths' La Paz Project is on track to become a North American rare earths producer.

In this interview, which may also be viewed on the InvestorIntel YouTube channel ([click here to subscribe](#)), Marty comments on the



United States government's push to develop a rare earths supply chain outside of China. With rising demand for electric vehicles, wind turbines and defense applications, Marty highlights how the American Rare Earths' La Paz Project already has a 170.6 million ton JORC compliant resource and provides an update on the new Southwest Zone.

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

### **About American Rare Earths Limited**

American Rare Earths Limited is an Australian company listed on the ASX with assets in the growing rare earth metals sector of the United States of America, itself emerging as an alternative international supply chain to China's market dominance of a global rare earth market expected to expand to US\$20 billion by the mid-2020s. The Company's mission is to supply Critical Materials for Renewable Energy, Green Tech, Electric Vehicles, National Security, and a Carbon-Reduced Future. Western Rare Earths (WRE) is the wholly owned US subsidiary of the Company. ARR owns 100% of the world-class La Paz rare-earth Project, located 170km northwest of Phoenix, Arizona. As a large tonnage, bulk deposit, La Paz is potentially the largest, rare-earth deposit in the USA and benefits from containing exceptionally low penalty elements such as radioactive thorium and uranium. ARR plans to deliver its first Preliminary Economic Assessment for La Paz by 2022 and is working with leading USA research institutions. La Paz's mineral profile is incorporated into emerging US advanced rare earth processing technologies. In early February 2022, the Company commenced further drilling at the La Paz project to explore lateral and vertical extent in the new southwest area. Approximately 742 – 928 million tonnes of Rare Earths mineralized rocks are identified as an exploration target in the La Paz Rare Earths project's Southwest area with an average TREO Grade of 350 – 400ppm and Scandium Oxide grade

of 20 – 24.5ppm. The new exploration Target is additive to the La Paz Rare Earth project recently upgraded 170MT Resource. In the first half of 2021, In June 2021, ARR acquired the USA REE asset, the Halleck Creek Project in Wyoming. With permits in hand, the maiden exploration drilling program commenced in March 2022 and will provide initial mineralization, lithology and fresh rock core material for metallurgical and process testing. Approximately 308 to 385 million tonnes of rare earths mineralized rocks were identified as an exploration target for the Halleck Creek project area with an average Total Rare Earth Oxide (TREO) grade of 2,330 – 2,912 ppm. Initial surface sampling of the Overton Mountain area conducted in 2018 revealed average TREO values of 3,297 ppm, average Heavy Rare Earth Oxide (HREO) values of 244 ppm, and average Magnetic Rare Earth Oxide (MREO) values of 816 ppm.

To know more about American Rare Earths Limited, [click here](#)

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If you have any questions surrounding the content of this interview, please contact us at +1 416 792 8228 and/or email us direct at [info@investorintel.com](mailto:info@investorintel.com).

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## **Energy Fuels is now producing uranium, vanadium, and mixed rare earths, a first in the world accomplishment**

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Earlier this week I discussed a [rare earths and uranium 'junior'](#); but today I take a look at a uranium/vanadium and rare

earths 'producer' that continues to do well over the years by navigating successfully the market's highs and lows and more recently expanding into rare earths processing/production.

The Company is [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR). Energy Fuels is [the number one uranium producer in the U.S.](#) and has the potential to become one of the lowest-cost, non-Chinese rare earth producers in the world. In its latest move the Company is looking at commercially developing a newly applied (to rare earths) technology to produce rare earth metals and alloys, a step down the supply chain and higher up the value-add chain.

Below is their stock price chart which is quite impressive given the uranium bear market from 2014 to 2021, when many uranium miners went out of business.

### **Energy Fuels 5 year stock price chart**



Source: [Yahoo Finance](#)

### **Rare earths processing business**

In the past year, Energy Fuels has expanded to also become a processor/producer of commercial mixed rare earths. Energy Fuels is buying U.S sourced rare earths' ore and then processing it to produce a mixed rare earth carbonate using its existing, operational, White Mesa Mill. The Company [states](#): "Because our product is ready for separation into individual rare earth oxides without further processing, we are currently producing an intermediate rare earth product in a more advanced form than any other U.S. company. We will be receiving additional shipments of natural monazite sand in... 2022, and we are in advanced discussions with several monazite suppliers around the world to

secure a diverse supply of feed for this exciting initiative.”

## **MOU for the development of a novel technology for the production of rare earth element metals**

As [announced](#) on December 15, 2021 Energy Fuels has executed an MOU with Nanoscale Powders LLC (NSP) for the development of a newly applied technology for the production of rare earth element metals. The release [stated](#): “We believe this Technology, which was initially developed by NSP, and will be advanced by the Company and NSP working together, **has the potential to revolutionize the rare earth metal making industry by reducing costs of production, reducing energy consumption, and significantly reducing greenhouse gas (GHG) emissions.** Producing REE metals and alloys (REE Metals) is a key step in a fully integrated REE supply chain, after production of separated REE oxides and before the manufacture of neodymium iron boron (NdFeB) magnets used in electric vehicles (EVs), wind generation and other clean energy and advanced technologies..... Energy Fuels’ initial investment in the Project is intended to advance the Technology to allow for: (i) the continuous, pilot-scale production of 10 kilograms per hour of neodymium-praseodymium (**NdPr**) metal that meets typical specifications for NdFeB magnets at TLR Level 7; (ii) the separate build of a batch reactor able to produce key minor magnet metals (e.g., dysprosium, terbium); and (iii) the demonstration of samarium-cobalt alloy production....The MOU contemplates a phased development of the Project to scale-up to the production of 1,000 metric tonnes of one or more REE Metals per year. Energy Fuels will have the right to earn up to a 100% interest in the entity and Technology.”

*Note: Bold emphasis by the author.*

## **Existing uranium and vanadium business**

Energy Fuels has the largest uranium resource portfolio in the U.S. among producers, with an ability to rapidly scale up low-cost U.S. uranium and vanadium production if needed.

With the recent tight supply situation for uranium, Energy Fuels is now looking at entering again into long term uranium supply contracts. The Company [states](#): “We believe this new dynamic could create opportunities for Energy Fuels to enter into long-term supply contracts for a portion of our production with nuclear utilities at prices, quantities and other terms that generate sufficient project cashflow, all while keeping the majority of our production leveraged to further potential increases in uranium prices.”

### **Energy Fuels White Mesa Mill and a list of their businesses**



Source: [Company presentation](#)

### **Closing remarks**

The smartest mining companies these days are able to quickly adapt to price swings in the commodity markets as well as bring on new products. Even better to be able to sell value-added products and form an integrated supply chain in the USA.

In the case of Energy Fuels, they now offer investors so much more than a year ago, including:

- Uranium/vanadium production that can rapidly scale when needed from their existing mines and Mill.
- Mixed rare earths carbonate production using the White Mesa Mill.
- Potentially, in the near future, rare earth metals production using a novel production technology with their agreement to buy 100% of Nanoscale Powders LLC. If

successful, Energy Fuels [believes](#) “Nanoscale’s metal-making technology could be orders of magnitude safer and less expensive than the current established technology.”

Finally, if we do happen to get a Russian invasion of Ukraine there is also the possibility we may get interrupted supply of Russian sourced uranium if sanctions are applied. That could potentially send uranium prices higher.

2022 looks set to be another good year for Energy Fuels. Their market cap is [US\\$1.03 billion](#) after a recent dip, so worth a look for investors wanting to gain U.S exposure to uranium, vanadium, and rare earths.

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## **Neo Performance Materials looks to expand capacity as it rides the tailwind of growing rare earth permanent magnet demand**

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Demand for rare earth metals and magnets has been very strong in 2021, boosted by an approximate [100%](#) surge in electric car sales so far in 2021. This means that companies that sell the valuable magnet metals such as neodymium and praseodymium (NdPr) are doing very well, as NdPr (the combination is called “didymium” in the trade) is used to produce high performance neodymium, iron, and boron (NdFeB) magnets, used in many electric cars

today.

[Neo Performance Materials Inc.](#) (TSX: NEO) (“Neo”) is a rare Western company that processes natural rare earth mixtures to produce individual high value separated rare earth chemicals, then uses them to produce rare earth fine chemicals, metals, alloys, and “bonded” rare earth permanent magnets. Neo summarizes well when they [state](#):

*“Neo is the only company in the world that operates dual supply chains inside and outside of China for REE separation and REE advanced materials. Neo owns the only operating commercial rare earth separation facility in Europe.”*

Neo operates globally with sales and production [across 10 countries](#) including: Japan, China, Thailand, **Estonia**, Singapore, Germany, United Kingdom, Canada, United States, and South Korea.

### **Neo Performance Materials global operations**



Source: [Neo Performance Materials investor presentation](#)

### **Neo explores a possible expansion, and new production of advanced rare earth element products in Estonia**

As [announced](#) on November 17, 2021: “Joint Communiqué in Support of Expanding Valued-Added Rare Earth Product Manufacturing in Estonia. A joint effort between the Estonian Ministry of Economic Affairs and Communications and Neo Performance Materials has been launched **to explore a possible expansion of Neo’s current production of advanced rare earth element (“REE”) products in Estonia, and well as to potentially launch new manufacturing of REE-based metals, alloys, and magnetic materials** for use in electric vehicles and other green



technologies.”

The timing to expand in Europe is perfect given the massive rise in European and global EV sales. For example, Europe’s electric car sales were [184,000](#) in October 2021, up 26% YoY, reaching 23% market share. Germany reached [30%](#) share, France [23%](#), and Netherlands [35%](#) share in October 2021. It also times nicely with Tesla beginning electric car production at Giga Berlin in 2022.

Only a day earlier on November 16, 2021, Neo [announced](#): “Completion of \$100.66 Million Bought Deal Treasury and Secondary Offering of Common Shares....The Company issued and sold from treasury an aggregate of 2,598,000 Common Shares at a price of \$19.25 per share for total gross proceeds to the Company of approximately \$50.01 million.”

The above announcement does not mention what the \$50.01 million will be used for; however, it seems to me more than just a coincidence that only a day later Neo announced their Estonia expansion plans. I will let the reader draw their own conclusions.

### **Neo continues to produce strong financials in 2021**

In 2021 Neo continues to deliver strong YoY revenue and income growth; albeit revenue and adjusted net income were slightly lower than last quarter.

As [announced](#) on November 8, 2021, Neo reported Q3 2021 revenue of US\$119.8 million, higher by 53.9% YoY. Volumes in the quarter of 3,523 tonnes improved by 16.1% YoY. Adjusted net income was US\$9.8 million, or \$0.26 per share.

This compares to [Q2 2021 results](#) of revenue of US\$135.1 million up 99.5% YoY and adjusted net income of US\$14.1 million, or US\$0.37 per share.

## Neo Performance Materials financials summary quarter by quarter from Q2 2020 to Q3 2021



Source: [Neo Performance Materials investor presentation](#)

### More about Neo

Neo is a processor and manufacturer of advanced industrial materials including rare earth metals, alloys, and “bonded” rare earth permanent magnets, specialty chemicals, technology metals, and alloys. Neo is well positioned in markets that are forecast to see robust, long-term growth driven by multiple global macro trends, such as vehicle electrification, industrial automation, consumer electronics, energy efficient lighting, air and water pollution control, and greater use of superalloys.

Global rare earths expert Jack Lifton’s view on Neo:

*“Neo Performance Materials is today, the only Western company that is vertically integrated with the capability and commercial scale capacity to separate the rare earths, manufacture rare earth metals and alloys, and manufacture rare earth permanent magnets. It is the non-Chinese model for any venture seeking to enter or assemble a total rare earths permanent magnet supply chain.”*

### Closing remarks

While companies such as Tesla get all the headlines, did you know that Neo’s stock price is performing better than Tesla in 2021. YTD in 2021 Neo Performance Materials stock price is [up 62%](#) compared to Tesla [up 46%](#).

The other key difference is Neo trades on a PE of [14.8](#) compared to Tesla on a PE of [302](#). Both stocks are being supported by the

booming EV trend, just one is many multiples cheaper (based on current PE ratios).

Investors would be wise to take a deeper look at Neo Performance Materials especially now while they trade on a reasonable multiple and look set to expand in Estonia.