

Energy Fuels announces an MOU for a \$122M investment in Astron that will supply a “new U.S.-based supply chain for decades”

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For those following the critical metals space, there was some key U.S. news on December 1, 2023. The U.S. government announced their [proposed policy](#) for Foreign Entities of Concern (“FEOC”). The key part of the proposal effectively [stated](#) that starting from 2025 an eligible clean vehicle may not contain any critical minerals that were extracted, processed, or recycled by an FEOC. FEOCs were [named to be](#) China, Russia, North Korea, and Iran.

This means OEMs selling in the U.S. auto market are now in a mad scramble to source processed critical minerals from non-FEOC sources before 2025, otherwise, their customers can miss out on the US\$7,500 clean vehicle subsidy (half of which is impacted by material sourcing). One of the hardest to source will be the magnet rare earths used in the permanent magnet motor of most electric vehicles and many wind turbines. This is because China dominates the rare earths industry.

Energy Fuels is making major moves to build a new rare earths supply chain in the USA

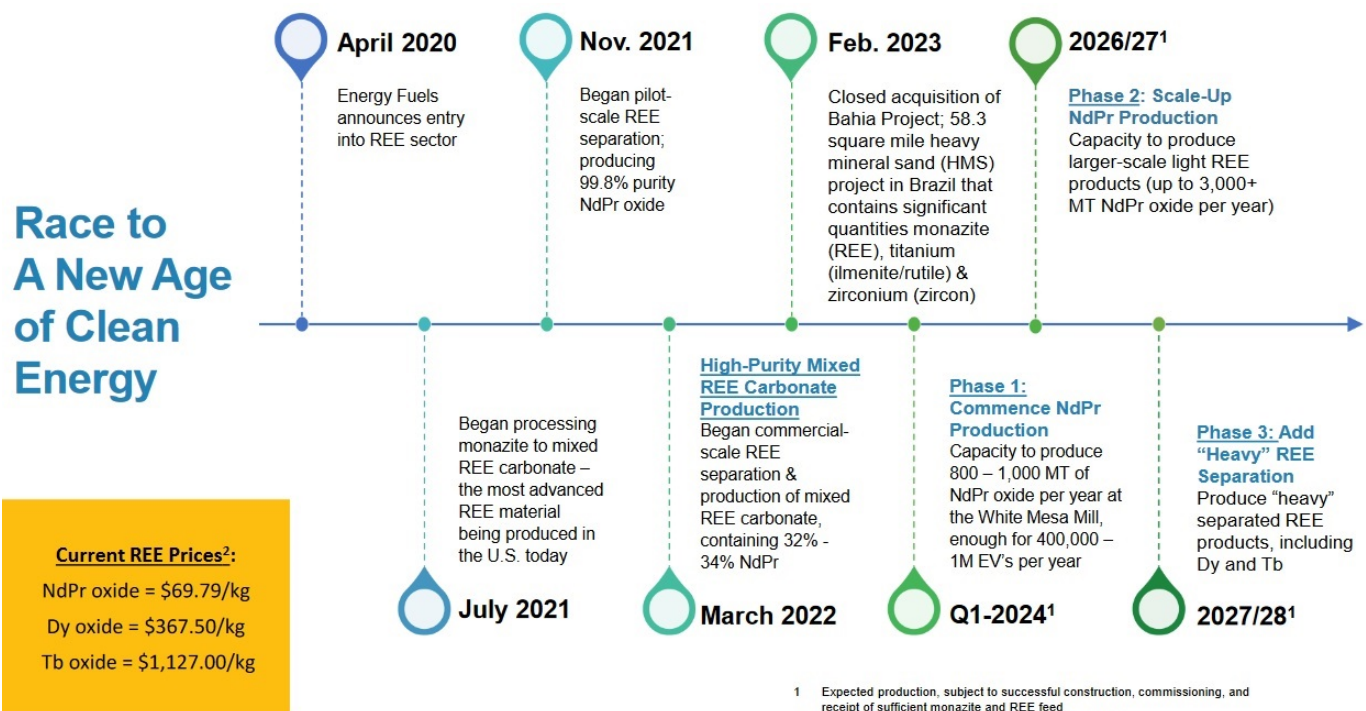
[Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR) is a leading

U.S.-based critical minerals producer. In fact, they are the 'leading' U.S. producer of uranium, vanadium, and rare earth elements. Energy Fuels White Mesa Mill is "the only existing facility in North America with the licenses and capabilities to process monazite and produce advanced rare earth element products."

2023 has been a very prosperous year for Energy Fuels with rare earth concentrate production and a booming uranium price helping their large uranium business.

Energy Fuels plan is to grow their rare earths concentrate business to also include rare earths separation to produce rare earth oxides. Phase 1 plans to have a capacity of 800 – 1,000 MT of neodymium-praseodymium (NdPr) oxide per year by Q1 2024 and Phase 2 a capacity of 1,500 – 3,000+ MT NdPr oxide per year by 2026/27. The Phase 3 plan is to produce heavy separated rare earths including dysprosium (Dy) and terbium (Tb) by 2027/28.

Energy Fuels is one of the leaders in the race to build up a U.S. rare earths supply chain independent of FEOC such as China



Source: [Energy Fuels company presentation](#)

To achieve their plan, Energy Fuels needs sufficient monazite ore as feed, hence their recent acquisitions. In February 2023, Energy Fuels [acquired](#) the Bahia heavy mineral sand (“HMS”) Project in Brazil that contains significant quantities of monazite (rare earths containing ore). But wait there’s more!

Energy Fuels announces a new rare earths sourcing MOU with Australian company Astron

As [announced](#) on December 27 Energy Fuels entered into an MOU to secure a near-term, large-scale Australian source of rare earth minerals. The announcement says this will supply a “new U.S.-based supply chain for decades” and that “most licenses and permits are in place (or at an advanced stage of completion)”. Energy Fuels proposed investment is ~A\$180 million (~US\$122 million) for a 49% interest in the new Joint Venture.

The MOU is with Astron Corporation Limited (ASX: ATR) (“Astron”) to jointly develop the Donald Rare Earth and Mineral Sands Project in Victoria, Australia. The announcement [states](#):

*“The Donald Project is a world-class, world scale, ‘shovel-ready’ critical mineral deposit that Energy Fuels believes would provide it with another near-term, low-cost, and large-scale source of monazite sand in an REE concentrate (“**REEC**”) that would be transported to the Company’s White Mesa Mill in Utah, USA (the “**Mill**”) for processing into REE oxides and other advanced REE materials and recovery of the contained uranium...The Donald Project is expected to provide Energy Fuels with 7,000 to 14,000 metric tons (“**tonnes**”) of REEC per year, containing 4,000 to 8,200 tonnes of total REE oxides (“**TREO**”), with commissioning*

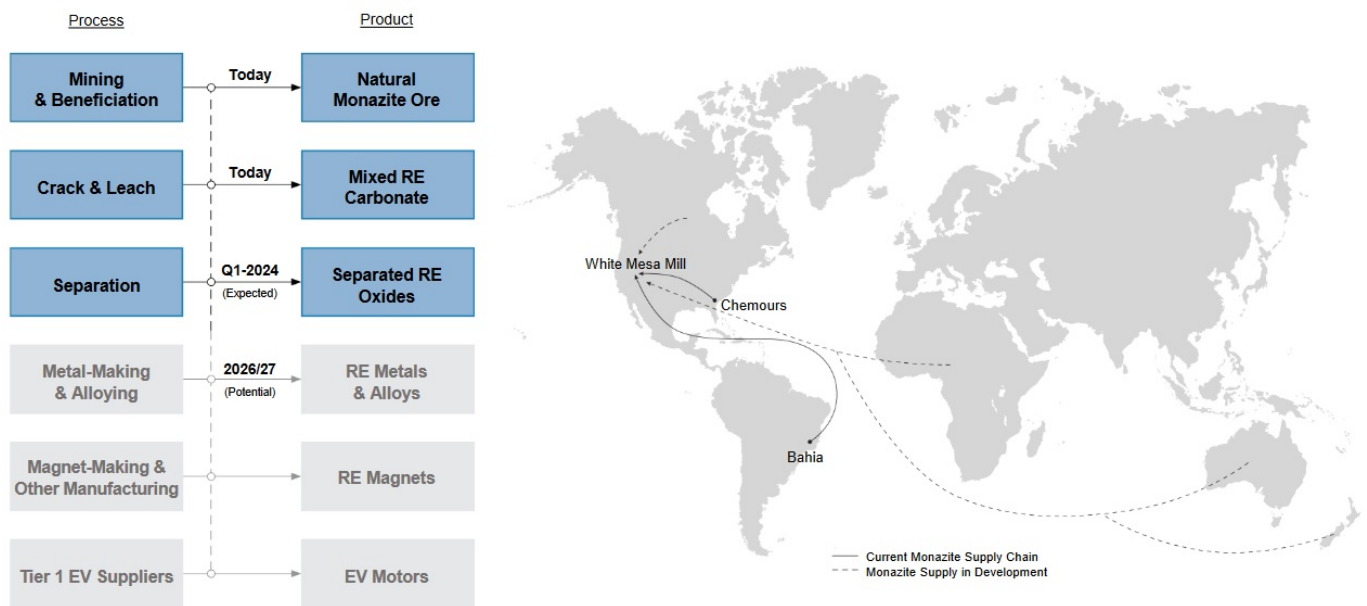
and ramp-up expected to begin in 2026. Most of Energy Fuels' proposed investment is expected to be disbursed in 2025."

Note: REEC is rare earth elements concentrate.

Energy Fuel's masterplan for rare earths products and supply sources

A New Capital Efficient Rare Earth Supply Chain

Created by Energy Fuels – Centered in the U.S.



Source: [Energy Fuels company presentation](#)

Closing remarks

Energy Fuels is steadily putting together all the pieces of a jigsaw puzzle in order to create a new western supply chain of rare earths products, that will be needed to support the U.S. demand for their own electric vehicle and clean energy industry, independent of China.

The Bahia Project announced in early 2023 will provide near-term rare earth concentrate supply from Brazil, and all going to plan, the Donald Project will also provide a supply from 2026.

Meanwhile, Energy Fuels is currently doing very well from their U.S.-based uranium production business, boosted by surging uranium prices in 2023 (now at [US\\$91/lb](#) at the time of writing).

Energy Fuels trades on a market cap of [US\\$1.16 billion](#) with the stock price up [~25%](#) in the past year.

Curtis Moore on Energy Fuels' competitive advantage in the North American rare earths market

written by InvestorNews | December 29, 2023

In an InvestorNews interview, Tracy Weslosky spoke with Curtis Moore, Senior VP of Marketing & Corporate Development at [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR). Curtis discussed Energy Fuels' focus on monazite sand, highlighting its high neodymium-praseodymium (NdPr) content, which provides a cost processing advantage over other rare earths bearing ores like bastnaesite. He explained that monazite's value is enhanced by its higher concentration of NdPr, essential for permanent rare earth magnets used in EVs and wind turbines, and its higher concentration of heavy rare earths. Curtis noted that while monazite has higher uranium and thorium levels than bastnaesite, Energy Fuels can efficiently process these elements at their uranium mill. He emphasized Energy Fuels' unique advantage in handling the naturally occurring uranium and thorium in rare earth bearing ores, a significant challenge for other companies.

This capability allows them to potentially monetize these elements, especially as thorium markets mature.

Curtis also addressed a key question he wishes people would ask more often: why Energy Fuels is likely to succeed in the rare earth sector where many others have failed? He attributed their potential success to their inherent advantages in processing rare earth bearing ores and producing advanced materials. These advantages include their experience with solvent extraction, a technology crucial for producing separated rare earth oxides, and their existing infrastructure at the White Mesa Mill in Utah. Curtis highlighted their \$25 million investment in a rare earth separation circuit at the mill, which is expected to be operational in the first quarter of 2024, with a capacity to produce about 1000 metric tons of NdPr oxide per year, enough for 500,000 to 1,000,000 EVs annually. He expressed high confidence in their ability to succeed in the rare earth industry due to these factors.

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

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About Energy Fuels Inc.

Energy Fuels is a leading US-based critical minerals company. The Company, as the leading producer of uranium in the United States, mines uranium and produces natural uranium concentrates that are sold to major nuclear utilities for the production of carbon-free nuclear energy. Energy Fuels recently began production of advanced rare earth element (“**REE**”) materials, including mixed REE carbonate, and plans to produce commercial quantities of separated REE oxides in the future. Energy Fuels also produces vanadium from certain of its projects, as market

conditions warrant, and is evaluating the recovery of radionuclides needed for emerging cancer treatments. Its corporate offices are in Lakewood, Colorado, near Denver, and substantially all its assets and employees are in the United States. Energy Fuels holds two of America's key uranium production centers: the White Mesa Mill in Utah and the Nichols Ranch in-situ recovery ("ISR") Project in Wyoming. The White Mesa Mill is the only conventional uranium mill operating in the US today, has a licensed capacity of over 8 million pounds of U_3O_8 per year, and has the ability to produce vanadium when market conditions warrant, as well as REE products, from various uranium-bearing ores. The Nichols Ranch ISR Project is on standby and has a licensed capacity of 2 million pounds of U_3O_8 per year. The Company recently acquired the Bahia Project in Brazil, which is believed to have significant quantities of titanium (ilmenite and rutile), zirconium (zircon) and REE (monazite) minerals. In addition to the above production facilities, Energy Fuels also has one of the largest NI 43-101 compliant uranium resource portfolios in the US and several uranium and uranium/vanadium mining projects on standby and in various stages of permitting and development.

To learn more about Energy Fuels Inc., [click here](#)

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Company's profile on [SedarPlus.ca](https://www.sedarplus.ca) and to carry out independent investigations in order to determine their interest in investing in the Company.

Energy Fuels Strengthens Its Rare Earths Supply Portfolio

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When I last discussed [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), it was all about the working capital the Company had cobbled together to move forward. [The article](#) was entitled “Show me the money!”, a quote stolen from the movie “*Jerry McGuire*”. The reason being, following the closing of [the sale of three wholly-owned subsidiaries](#) to enCore Energy Corp. (NYSE American: EU | TSXV: EU), which together held Energy Fuels’ Alta Mesa ISR Project, for total consideration of US\$120 million, the Company had accrued a war chest of roughly US\$240 million. Subsequently, Energy Fuels has converted some of its marketable U308 inventory into US\$18.5 million cash with [a deal to sell](#) 300,000 pounds of natural uranium concentrates to the US government for the establishment of a strategic uranium reserve. This is all good news but the question becomes what will the Company do with all this capital?

On Monday, we gained some insight into how Energy Fuels was going to invest some of its capital going forward to expand its uranium and rare earth business lines. As a reminder, Energy Fuels is a leading US-based critical minerals company. The Company mines uranium and produces natural uranium concentrates that are sold to major nuclear utilities for the production of

carbon-free nuclear energy. Energy Fuels recently began production of advanced rare earth element (“REE”) materials, including mixed REE carbonate, and plans to produce commercial quantities of separated REE oxides in the future. Energy Fuels also produces vanadium from some of its projects, as market conditions warrant, and is evaluating the recovery of radionuclides needed for emerging cancer treatments. The Company’s White Mesa Mill in Utah is the only conventional uranium mill operating in the US today, has a licensed capacity of over 8 million pounds of U3O8 per year, and from various uranium-bearing ores, has the ability to produce vanadium when market conditions warrant, as well as REE products.

Completes the Acquisition of Rare Earth and Heavy Mineral Project in Brazil

The latest update from Energy Fuels sheds some light on its emerging rare earths business segment. First, the Company [announced](#) that it has completed its previously announced acquisition of seventeen (17) mineral concessions between the towns of Prado and Caravelas in the State of Bahia, Brazil totaling 15,089.71 hectares (approximately 37,300 acres or 58.3 square miles). At the Closing, the Company paid the mineral owners the remaining US\$21.9 million in cash. Acquisition of the Bahia Project is expected to supply the raw materials needed by the Company’s US facility for the production of advanced rare earth materials used in EVs, clean energy, and defense technologies.

Prior to closing on the Bahia Project, Energy Fuels commenced a sonic drilling program on the property to further define and quantify the heavy mineral sand resource, particularly at depth.

The Company expects to finalize the Phase 1 sonic drilling at the Bahia Project this month, totaling 2,250 meters. The Company plans to announce the Phase 1 drilling results this year and start Phase 2 drilling in Q3/2023. Once data from both drill programs are available, the Company plans to engage industry leaders to calculate an initial mineral resource estimate for use in an S-K 1300 (US) compliant Initial Assessment and an NI 43-101 (Canada) compliant Technical Report.

Expanding the White Mesa Mill

Another area Energy Fuels is deploying capital is the production of separated Neodymium-Praseodymium (NdPr) products at the White Mesa Mill and plans for future REE separation. The Company is currently separating lanthanum ("La") and cerium ("Ce") from its commercial rare earth carbonate stream utilizing existing Mill infrastructure. Energy Fuels is proceeding with the modification and enhancement of its infrastructure at the Mill ("Phase 1") to expand its "light" REE separation facilities to be capable of producing commercial quantities of separated NdPr oxide. Earlier this year, the Company began construction on its "Phase 1" REE separation facilities, which includes modifications and enhancements to the solvent extraction circuits at the Mill. Because Energy Fuels is utilizing the existing infrastructure at the Mill, "Phase 1" capital is expected to total only about \$25 million. "Phase 1" is expected to be operational later this year or early 2024, at which point Energy Fuels believes it will be the 'first to market' among US companies with commercial quantities of separated NdPr available to EV, renewable energy, and other companies for offtake.

Granted the capital expenditures noted above will barely make a dent in Energy Fuels' war chest, it's good to see the Company prudently spending capital to advance and diversify its

business. However, keep in mind this is the largest US producer of uranium. Uranium production still remains the Company's core business, and it continues to make progress on resuming production at its mines.

Energy Fuels currently trades at a market cap of approximately US\$1.13 billion (C\$1.51 billion).

Iluka Resources quietly becomes a western rare earths producer

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Australian company now producing rare earths concentrates to meet increased demand

The boom in electric vehicles should increase the demand for rare earths dramatically in the decade ahead. Electric Vehicles (EVs) are [forecast](#) to grow about 11 times from the [2.2m](#) cars and trucks produced in 2019 to 22.4 million vehicles a year by 2030. [Other strong demand sources](#) for rare earths include catalysts, metal alloys, high tech products (smartphones etc), aerospace & manufacturing. Against this backdrop any company that can bring on production of rare earths (especially the valuable valuable Nd, Pr) is set to do very well based on the increased forecast demand.

Rare earths demand drivers



[Source](#)

Additional NdPr oxide needed per EV (additional to an Internal Combustion Engine vehicle)



[Source](#)

One Australian miner has recently become a rare earths producer.

Iluka Resources (ASX: ILU | OTC: ILKAY) (“Iluka”) is better known as an Australian mineral sands (zircon) and titanium producer, but in April 2020 they quietly commenced production of rare earths at their Eneabba Project in Western Australia.

Iluka has recently completed [Phase 1](#) (construction and commissioning) of the Eneabba Project and intends to sell 50,000 tpa of a 20% monazite-zircon ore concentrate for further processing offshore beginning in Q3, 2020. Iluka has an offtake agreement for 50ktpa for 2 years. Project life is estimated at 13 years with a projected 6 month payback.

Iluka [is now working on a Phase 2](#) of the Eneabba Project which involves a FS investigating techniques to purify the monazite to an 80% concentrate for sale further down the value chain. The early CapEx estimate for Phase 2 is \$20–40m, but this is subject to change as the FS advances.

Iluka is certainly advancing fast and has essentially become a

largely unrecognized, western-located, rare earths concentrate producer.

Iluka Resources monazite ore Eneabba Project in Western Australia



[Source](#)

Closing remarks

New rare earths supply is very hard to come by because of large CapEx and environmental hurdles. Combine this with what is expected to be a 2 times surge in demand for rare earths this decade (boosted by demand for magnets used in electric vehicles and high tech devices) and you have a very compelling reason to be looking closely at the rare earth miners. In particular, any near term pure play rare earths producers located in safe western locations will be very highly attractive.

It appears for now that many investors are not fully aware of the potential NdPr demand surge ahead. This is understandable as we are yet to see EV demand really surge, and NdPr prices have not yet responded. A rise in NdPr prices as the dependent industries gain more attention will follow as analysts up their forecasts. For investors willing to come in early and take a forward looking decade approach, right now is an excellent time to get familiar with and invest into the rare earths sector. The usual risks apply, and yes China will no doubt continue to be a fierce competitor.

Iluka Resources, while not a pure play, is an exciting new western entrant in the field of rare earths producers. Assuming Iluka can execute well, the coming decade should provide an excellent tailwind for Iluka to build a valuable rare earths

business to compliment their existing business.