# 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 uanium 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.