Jack Lifton Predicts Heavy Rare Earth Breakthrough – Energy Fuels Positioned to Lead U.S. Supply

written by Jack Lifton | March 3, 2026

Within the global rare earth industry, the rare earth elements are divided into groups denominated by their "run" of increasing atomic numbers. This comes about from their behavior when their naturally occurring mixtures are separated into individual chemical elements by the process known as solvent extraction. The lower atomic-numbered rare earths, lanthanum. Cerium, Neodymium, and Praseodymium are called the light rare earths, the LREEs, and they, along with a lot of the samarium separate first. Then comes the rest of the samarium, the europium and gadolinium, the so-called SEG, or mid-range fraction. Finally, we get the heavy rare earths, the HREEs, dysprosium through lutetium, along with the majority of the Yttrium.

It is necessary to understand that most of the rare earths as found today in nature in mixtures are the light rare earths. The LREEs comprise as much as 70% of any rare earth hard rock mineral deposit. Many LREE mineral deposits contain up to 25% of neodymium and praseodymium. Half of the remaining balance is typically samarium, and all of the rest of the rare earths, both the mid-range and heavy rare earths, comprised all together no more than two or three percent of the total in any hard rock mineral.

Today, there are only two primary rare earth mines in the world. One is the enormous Bastnasite deposit at Mountain Pass, California. The other is the equally enormous Monazite deposit

at Mount Weld, Australia. The Mountain Pass deposit contains, from a financially accessible point of view, only a small amount of SEGs and, for all practical purposes, no HREEs. The Hard Rock Monazite deposit at Mount Weld, Australia, contains around 1% of the hard rock mineral xenotime. Xenotime is yttrium orthophosphate and can contain up to 8% dysprosium and terbium. Xenotime is the very best hard rock mineral source of the HREEs.

In my opinion, the most likely candidate in the near term to be producing heavy rare earths from hard rock mineral deposits is **Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR)**, an American company based in Denver, Colorado, with its processing operations at White Mesa, Utah. Energy Fuels has entered into a joint venture with the Australian mining company, Astron Limited (ASX: ATR), to develop a heavy mineral sands project known as the Donald Deposit in Australia. Energy Fuels has shared with me the analysis of the heavy mineral sands, and the monazite fraction of those sands contains the highest levels of xenotime I have ever seen in monazite derived from heavy mineral sands. Since Energy Fuels already has an in-house designed and built operational 5,000 t per annum light rare earth separation plant at its White Mesa, Utah facility and is currently building onto that plant a heavy rare earth separation facility, I predict that sometime during 2028 or afterwards, Energy Fuels will be America's largest vertically integrated producer of dysprosium and terbium by far.

Today, the entirety of HREE production and processing commercially is done in China primarily from feedstocks produced in the (bordering with China) nation of Myanmar from ionic adsorption clays. Similar Rare Earth bearing clays occur in Malaysia and Laos, and Brazil, but as of this writing, only the Malaysian clays are being mined. And although those clay derived concentrates are today being exported from Malaysia to China by Malaysian mining companies, a major shift in policy is occurring

in Malaysia and a new large Malaysian owned and operated mining and downstream processing company is well underway to commercial operation. The CEO of this company informed me that its principal customers are non-Chinese, and that it will be shipping first heavy rare earth concentrates and then separated high-purity metal ready individual oxides of both the heavy and light rare earths commercially by the first quarter of 2027. Also the South African-based company Rainbow Rare Earths Limited (LSE: RBW) is well on the way to commercial production of heavy rare earths derived from phosphoric acid processing residues sometime in the next year. Brazil has exceptionally high-grade Rare Earth Bearing ionic adsorption clay deposits in several locations. But the infrastructure and human capability in Brazil for the for the commercial production of Rare Earths is just now being developed. I predict that the first non-Chinese controlled production of heavy-rare earths commercially will be from Malaysia, and then from Australia, and after that from Brazil.

I predict that in the North American market, the first vertically integrated commercial producer of heavy rare earth products ready for the rare earth metal and alloy industry will be Energy Fuels.

China currently controls essentially 100% of the production of the world’s heavy rare earths, but that monopoly is coming to an end. Productions first in Malaysia and then Australia and Brazil will by the latter part of this decade, end Chinese dominance in those Rare Earths.