

# Energy Fuels Now Producing Heavy Rare Earth Element Oxides

written by Raj Shah | July 17, 2025

*Energy Fuels has commenced producing heavy rare earth element oxides at its White Mesa Mill at pilot scale, and could be in a position to produce separated heavy rare earth oxides on a commercial scale as early as Q4 2026 from existing feed sources and, if a production decision is made in 2025, from its permitted Donald Project by the end of 2027, thereby providing much-needed U.S.-produced heavy rare earth oxides.*

July 17, 2025 ([Source](#)) – Energy Fuels Inc. (NYSE American: UUUU) (TSX: [EFR](#)) (“**Energy Fuels**” or the “**Company**”), a leading U.S. producer of uranium, rare earth elements (“**REEs**”), and other critical minerals, is pleased to provide an update on its heavy rare earth element (“**HREE**”) oxide production, which is the only heavy rare earth oxide production occurring from mined ores at a commercial facility in the United States at this time.

Energy Fuels is now in the process of producing Dysprosium (“**Dy**”) oxide, at a minimum purity of 99.5% and potentially exceeding 99.9% purity, at pilot scale at its White Mesa Mill in Utah (the “**Mill**”). Energy Fuels expects to complete production of its first kilogram (“**kg**”) of Dy oxide within the next 30 days. The Company expects to continue producing Dy oxide on a pilot scale until the end of September 2025, at which time it expects to have produced approximately 15 kg of Dy., generating enough residuals to feed its Terbium (“**Tb**”) circuit starting the beginning of October 2025. The Company expects to have produced one kg of Tb on a pilot scale by the end of November 2025. If progress continues as planned, the Company

expects to be able to start producing samarium (“Sm”) oxide on a pilot scale at the Mill in January of 2026.

Assuming the pilot scale production continues to be successful, the Company could be in a position to produce Dy, Tb and Sm on a commercial scale at its existing Phase 1 rare earth element separation circuit at the Mill, with minor modifications, as early as Q4, 2026 from existing feed sources and, if a production decision is made in 2025, as early as Q4 2027 from its permitted Donald Project in Australia.

Unlike others who are experimenting with HREE production via recycling, Energy Fuels is the only U.S. company producing separated HREE oxides from commercial rare earth ores. The rare earth separation techniques being utilized by Energy Fuels can also be applied to a wide range of feedstocks, including rare earth concentrates and recycled materials.

“Energy Fuels is in a unique position to produce the heavy rare earth oxides needed by other U.S. producers to make rare earth metals, alloys and magnets”, said Mark Chalmers, President and CEO of Energy Fuels. “The Company has demonstrated its ability to separate NdPr on a commercial scale through the commissioning of its Phase 1 REE separations circuit at the Mill in April 2024. Piloting of our HREE production is going very well, with our first kg of Dy oxides expected shortly. With minor modifications to the Mill’s existing Phase 1 separations circuit, the Company could be in commercial production of Dy, Tb and Sm as early as Q4 2026. The Company’s permitted Donald Project, in Australia, is one of the richest deposits of HREEs in the world, which we could bring into production by the end of 2027, thereby providing much-needed U.S.-produced heavy rare earth oxides to other U.S. rare earth producers.

The Company’s Donald Project joint venture in Victoria

Australia is a world-class permitted heavy mineral sand and REE development project containing the rare earth-bearing minerals monazite and xenotime, under which the Company has the right to offtake all the monazite and xenotime. While monazite contains light and heavy rare earth elements, xenotime contains more of the heavy rare earth elements including Tb, Dy and Sm. Tb and Dy are required in the rare earth magnet industry to allow the magnets to operate at higher temperatures. The Donald Project is a world-class source of HREEs, because it has high relative concentrations of xenotime. The monazite + xenotime rare earth element concentrate ("**REEC**") that will be produced at the Donald Project contains approximately 3.02% Sm, 0.37% Tb and 2.15% Dy on a 100% total rare earth oxides ("**TREO**") basis. This compares to typical bastnaesite ores, which contain approximately 0.79% Sm, 0.02% Tb and 0.03% Dy and other monazite properties that typically contain approximately 1.80% Sm, 0.10% Tb and 0.20% Dy. At the average Phase 1 production rate at the Donald Project of 7,100 tonnes of REEC per year, the REEC would contain 129 tonnes of Sm, 16 tonnes of Tb and 92 tonnes of Dy per year for the next 40+ years, representing 250%, 23% and 34% respectively of current annual U.S. requirements. Those oxides could be produced at the White Mesa Mill commencing as soon as Q4 2027, if a production decision is made in 2025. Phase 2 production at the Donald Project would be expected to increase the annual tonnage to approximately 13,000 tonnes of REEC, with corresponding increases in annual production of HREEs.

Chalmers continued: "And, of course, we also have the Toliara Project in Madagascar, which is a world-class heavy mineral sands and rare earth development project, currently targeted to come on line as early as 2028, subject to receipt of Madagascar government approvals and acceptable stability arrangements, and our Bahia Project in Brazil, which is a heavy mineral sands and REE exploration and permitting project

targeted to come on line in 2029. Both of these projects contain significant quantities of light and heavy REE oxides which can be supplied to U.S. and European manufacturers.”

The Company’s HREE production would represent the only commercial scale heavy rare earth element production in the United States from an economically viable feedstock and would position Energy Fuels to supply U.S. – based manufacturers with the heavy rare earth oxides required to make rare earth metals, alloys and permanent magnets.

### **Qualified Person Statement**

The scientific and technical information disclosed in this news release was reviewed and approved by Daniel D. Kapostasy, PG, Registered Member SME and Vice President, Technical Services for the Company, who is a “Qualified Person” as defined in S-K 1300 and National Instrument 43-101.

### **About Energy Fuels**

*Energy Fuels is a leading U.S.-based critical minerals company, focused on uranium, rare earth elements, heavy mineral sands, vanadium and medical isotopes. Energy Fuels, which owns and operates several conventional and in-situ recovery uranium projects in the western United States, has been the leading U.S. producer of natural uranium concentrate for the past several years, which is sold to nuclear utilities that process it further for the production of carbon-free nuclear energy. Energy Fuels also owns the White Mesa Mill in Utah, which is the only fully licensed and operating conventional uranium processing facility in the United States. At the Mill, Energy Fuels also produces advanced rare earth element products, vanadium oxide (when market conditions warrant), and is evaluating the potential recovery of certain medical isotopes from existing uranium process streams needed for emerging Targeted Alpha*

Therapy cancer treatments. Energy Fuels is also developing three (3) additional heavy mineral sands projects: the Toliara Project in Madagascar; the Bahia Project in Brazil; and the Donald Project in Australia in which Energy Fuels has the right to earn up to a 49% interest in a joint venture with Astron Corporation Limited. Energy Fuels is based in Lakewood, Colorado, near Denver, with its heavy mineral sands operations managed from Perth, Australia. The primary trading market for Energy Fuels' common shares is the NYSE American under the trading symbol "UUUU," and its common shares are also listed on the Toronto Stock Exchange under the trading symbol "EFR." For more information on all Energy Fuels does, please visit <http://www.energyfuels.com>

#### **CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS**

This news release contains certain "Forward Looking Information" and "Forward Looking Statements" within the meaning of applicable United States and Canadian securities legislation, which may include, but are not limited to, statements with respect to: any expectation that the Company's pilot scale production of HREE oxides will continue to be successful; any expectation of the purity of any of the REE or HREE oxides to be produced at the Mill; any expectation as to the timing of pilot and/or commercial scale production of REEs or HREEs at the Mill; any expectation that commercial scale production of HREEs can be achieved at the existing Phase 1 separation circuit at the Mill, with minor modifications; any expectation that the rare earth separation techniques being utilized by Energy Fuels can also be applied to a wide range of feedstocks, including rare earth concentrates and recycled materials; any expectation that market conditions may support rare earth production; any expectation as to the Company's production capacity or expected timelines to production; any expectation as to when a production decision may be made at the Donald Project, if at all, or at any of the

Company's other projects; any expectation as to the actual production of rare earth concentrates that may be achieved at the Donald Project during any phase of production; any expectations as to the contained REEs or HREEs at the Donald Project; any expectation as to estimated recoverable rare earth oxides; and any expectation that the Company will receive all necessary approvals, stability arrangements, financing and development required for the Donald Project, Toliara Project or Bahia Project to go into production. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as "plans", "expects," "does not expect," "is expected," "is likely," "budgets," "scheduled," "estimates," "forecasts," "intends," "anticipates," "does not anticipate," or "believes," or variations of such words and phrases, or state that certain actions, events or results "may," "could," "would," "might" or "will be taken," "occur," "be achieved" or "have the potential to." All statements, other than statements of historical fact herein are considered to be forward-looking statements. Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from any future results, performance or achievements express or implied by the forward-looking statements. Factors that could cause actual results to differ materially from those anticipated in these forward-looking statements include risks associated with: commodity prices and price fluctuations; engineering, construction, processing and mining difficulties, upsets and delays; permitting and licensing requirements and delays; changes to regulatory requirements; legal challenges; competition from other producers; government and political actions or inactions; market factors, including future demand for rare earth elements, titanium and zirconium; and the other factors described under the caption "Risk Factors" in the Company's most recently filed Annual Report on Form 10-K,

*which is available for review on EDGAR at [www.sec.gov/edgar.shtml](http://www.sec.gov/edgar.shtml), on SEDAR at [www.sedar.com](http://www.sedar.com), and on the Company's website at [www.energyfuels.com](http://www.energyfuels.com). Forward-looking statements contained herein are made as of the date of this news release, and Energy Fuels disclaims, other than as required by law, any obligation to update any forward-looking statements whether as a result of new information, results, future events, circumstances, or if management's estimates or opinions should change, or otherwise. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, the reader is cautioned not to place undue reliance on forward-looking statements. Energy Fuels assumes no obligation to update the information in this communication, except as otherwise required by law.*

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