

# Building the Cornerstone to a Secure, Domestic Rare Earth Supply Chain

August 2024



- *Demonstration plant construction in Upton, WY, is nearly complete with pre-assembled equipment skids being installed alongside world-class technology partner, General Atomics*
- *Plant operations to begin in second half of 2024 with the goal of confirming the advantages and economics of the Company's proprietary rare earth processing/separation technology*
- *Updated mineral resource evaluation completed on the Company's Bear Lodge Project focused on maximizing value from key magnet materials – neodymium (Nd) and praseodymium (Pr)*
- *Ongoing Federal and State support with Department of Energy and Wyoming Energy Authority (WEA) committing over \$26M to demonstration plant project*

Construction began on the Company's rare earth (RE) recovery/separation demonstration plant in Upton, WY, in December 2023 and is now nearing completion. This is the next step in the testing and refinement of the Company's proprietary processing/separation technology. The project is being overseen by General Atomics (GA), a large private technology company whose affiliate is Rare Element Resources' (RER) largest shareholder. The world-class team that GA has assigned to work alongside the Company on the project has allowed for significant advancement of the technology.

## **Innovative Processing/Separation Technology**

Historically, advancements in the RE recovery arena have been almost non-existent. Traditional methods are water intensive and generate significant waste. RER's technology has the advantage of being a closed system, recycling both process water and chemicals. The four-step process reduces mass, removes low value REs and precipitates out naturally occurring radionuclides prior to separating out the more valuable magnet-related REs.

Pilot plant testing in 2020 confirmed the process' environmental advantages and successfully upgraded a sample from the Company's Bear Lodge Project, producing a >99.5% pure Nd/Pr oxide – a key component in high-strength permanent magnets and the two elements expected to experience the largest demand growth over the next 30 years. This work demonstrated RE recovery could be done at a lower cost and in a more sustainable way than traditional methods.

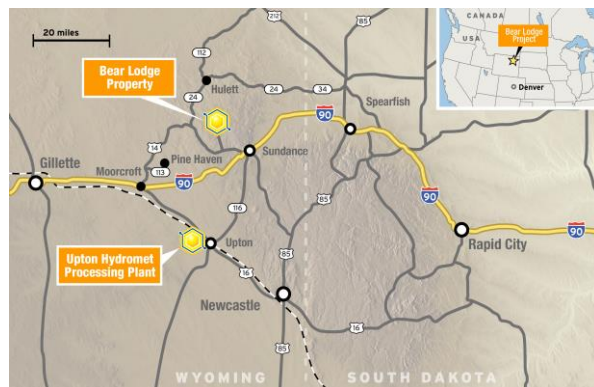


## **Rare Earth Demonstration Plant in the United States**

The team began plant design work in 2021, with a goal of scaling-up the process to generate the economic and operational data necessary for evaluation of development of a commercial facility. In support of this, the team secured financial participation by the Department of Energy (DOE) for \$21.9M, or approximately one half of the plant's initial budget, and from the State of Wyoming, through the Wyoming Energy Authority (WEA), for \$4.4M in support of energy diversification and job creation. Construction is being finalized with equipment skids being installed and tested. Construction is expected to be complete in 3Q 2024, and the plant is expected to operate for up to 12 months.

## Bear Lodge Positioned to be a Secure Rare Earth Source

The Bear Lodge Project has the ability to help address future U.S. magnet material needs because of its high concentrations of Nd/Pr – two key magnet REs. Based on a mineral resource update, completed in early 2024 and focused on maximizing value from magnet materials, and with operations as currently envisioned, production from the Bear Lodge Project could meet between 15 to 20% of the Nation’s projected demand for magnet REs in 2030 and beyond.



What sets Bear Lodge apart is the amount of geological and geophysical work completed and the depth of understanding of the mineralization. Once data is available from demonstration plant operations and economics are evaluated, little additional work needs to be done on the resource. Additionally, significant environmental and baseline data has already been collected that should expedite permitting once it is resumed. When you couple all of this with its advantageous location, excellent infrastructure, and strong local support, Bear Lodge is positioned to become the cornerstone of a dependable, long-term domestic supply source of REs.

### 2024 Bull Hill Total Rare Earth Mineral Resource Summary

Resource Class	Metric Tonnes	%TREO	Contained TREO Metric Tonnes	Recovered Nd/Pr Metric Tonnes
	(millions)		(1000's)	(1000's)
Measured	2.04	4.53	92.4	18.4
Indicated	3.98	3.85	153.1	31.3
<b>Measured &amp; Indicated (M&amp;I)</b>	<b>6.02</b>	<b>4.08</b>	<b>245.5</b>	<b>49.7</b>
Inferred	1.90	3.61	68.5	14.4

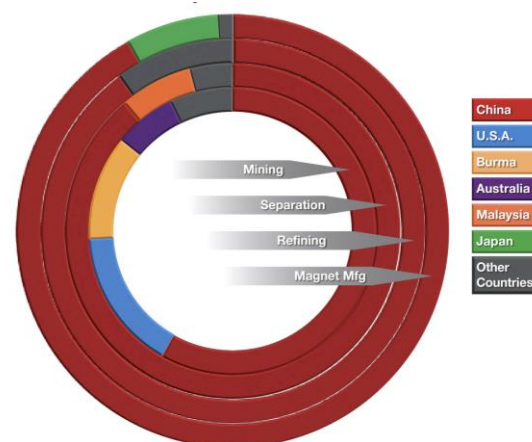
#### Resource Notes:

- Mineral resources do not have demonstrated economic viability. There is no guarantee that any part of the mineral resource will be converted to mineral reserves in the future. All figures are rounded to reflect the accuracy of the grade and tonnage estimates.
- This mineral resource estimate is reported in accordance with Regulation S-K (CFR Title 17 Part 229 Items 1300-1305) at a cut-off grade of 2.18% TREO.
- Only certain rare earth elements (La, Nd, Pr, Dy, and a heavy rare earth element mixed oxide including Yb, Tm, Tb, Er, Ho, Lu) are considered payable for pit optimization purposes. Commodity price assumptions used in the preparation of the mineral resource estimate are set forth in the TRS.
- The estimated overall Nd/Pr process recovery is 90%.

## Importance of a Reliable Rare Earth Supply

Known as “the seeds of technology,” REs are a major driver of today’s technology. When used in permanent magnets, Nd/Pr radically boosts magnetic strength allowing for smaller, more efficient applications.

China understood long before the rest of the world the role REs would have in the future of technology. This led to a calculated strategy to establish control of the RE supply chain. In 2023, China was responsible for 63% of the world’s mine supply of RE minerals and 84% of the global refined supply.<sup>1</sup> This dominance gives China political and economic power because of the importance of REs in both defense and green technology applications. The U.S. administration has acknowledged developing domestic sources of REs is a matter of national security and have directed to agencies like the DoE and Department of Defense to actively support the development of U.S. rare earth projects.



Geographical concentration of supply chain stages for sintered NdFeB magnets  
From center: Rare Earth mining, oxide separation, metal refining, & magnet manufacturing

<sup>1</sup>WoodMackenzie, Global rare earths market short Term Outlook, Jan. 2024

<sup>2</sup>US DoE Report, “Rare Earth Permanent Magnets: Supply Chain Deep Dive Assessment” 2/24/22