

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

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OTCQB: REEMF

- *Progressing construction of demonstration plant to confirm advantages of proprietary rare earth processing/separation technology and produce a >99.5% pure Nd/Pr oxide*
- *Leading-edge technology partner and majority shareholder affiliate, General Atomics, has over 60 years of advancing innovative technology into commercial development*
- *Extensively drilled Wyoming mineral asset rich in the rare earths critical to magnet technologies and essential for numerous defense, medical and renewable energy applications*
- *Significant federal and state funding from the Department of Energy (\$21.9M) and Wyoming Energy Authority (\$4.4M) supports the \$44 million demonstration plant*

Rare Element Resources' (RER) Bear Lodge Project, located in northeast Wyoming, is set to be a significant North American rare earth elements (REE) producer. Work completed on the Project confirms that the quantity and quality of the mineral deposit makes it a world-class mining district, giving it the ability to be a dependable, long-term, domestic source of REEs. The Company's proprietary process for REE processing/separation has been advanced by General Atomics (GA) and its technology partners and has successfully separated REE oxides into saleable products, most significantly neodymium/praseodymium (Nd/Pr) oxide. The process is expected to result in greater efficiency and lower environmental impact than current industry methods. These factors combine to give RER and Bear Lodge the opportunity to be a leading domestic source of the REE essential to advanced technologies.

## Rare Earths – The Seeds of Technology

Known as “the seeds of technology,” REEs make possible today's technology – from the miniaturization of electronics, to the enabling of “green” and medical technologies. REEs have unique magnetic, phosphorescent, and catalytic properties. In permanent magnets, they radically boost magnetic strength reducing the size of magnets necessary, allowing applications to be smaller and more efficient.



## Importance of a Reliable Rare Earth Supply

In 2021, China was responsible for 85% of the world's refined supply of REE products and 92% of the global magnet products.<sup>1</sup> Because of REEs importance in both defense applications and technology advancements, this monopoly has raised significant concern. Both the Biden and Trump administrations acknowledge that developing U.S. sources of REEs is a matter of national security.

<sup>1</sup>U.S. DOE Report, “Rare Earth Permanent Magnets: Supply Chain Deep Dive Assessment,” 2/24/22

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

A domestic supply chain will need to start with a world-class mineral deposit. The Bear Lodge Project fits the bill.

- **Outstanding Mineralized District** – Not only does the Project have a well-defined and drilled mineral asset, but it is also one of the highest-grade deposits for the critical magnet REEs – Nd/Pr. Demand for these REEs is expected to increase three-fold over the next 10 years, driven by their use in green technologies.
- **High-Grade Zone** – Early mining of a near-surface, high-grade zone, could accelerate early cash flow.

Rare Element Resources and its partners, through development of the Bear Lodge Project, are striving to become the cornerstone of a domestic REE supply chain, providing a consistent, high-quality source of critical components to advanced technology applications.

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- **Additional Targets Identified** – Exploration drilling on two additional targets within RER’s claims, indicates good potential to extend the Project’s life.
- **Exceptional Location** – Wyoming’s history of mineral development and pro-business focus, coupled with its skilled workforce and business-friendly tax climate, make it an excellent state for our project. In 2022, the Wyoming Energy Authority (WEA) granted RER \$4.4M to use for construction of the demonstration plant. This strong statement of support demonstrates Wyoming’s ongoing commitment to create jobs and economic diversity.



- **Excellent Existing Infrastructure** – Easy access to a major interstate, transcontinental rail, natural gas, water, and low-cost power.
- **Permitting Work** – Significant environmental and baseline data has already been collected, and RER has established relationships with federal and state regulators. These efforts will set a good foundation when permitting resumes on the Project.
- **Technology Upside** – Additional revenue could be generated through tolling of third-party material or licensing for use at other facilities.

### Leading Edge Technology and Outstanding Partners

In 2017, an affiliate of General Atomics (GA), one of the largest technology companies in the world, took an equity position in RER. As a leading technology developer, GA is aware of the necessity of establishing

secure sources of the REEs essential to many key defense and commercial applications. RER, our proprietary processing/separation process, and the Bear Lodge Project are at the core of their efforts to develop a domestic supply chain to support their many businesses.

GA’s consortium has brought the full force of their development team to refine and enhance the recovery technology. Additionally, GA’s governmental connections were essential in securing financial participation by the Department of Energy (DOE) as it continues to seek ways to secure the REEs necessary to achieve the country’s carbon reduction goals.

The first stage of pilot plant testing undertaken in 2020 successfully upgraded the Bear Lodge sample to 92 - 97% REEs. Next the radionuclides, naturally occurring with many REEs, were reduced to below regulatory standards, and the cerium, currently not marketable, was removed. The final step, a high-efficiency solvent extraction process, produced a >99.5% pure Nd/Pr oxide and other REE oxides amenable to further processing. This work demonstrated REE recovery could be done at a lower cost and in a more environmentally sound way than traditional methods.

### Advancing Rare Earth Demonstration Plant Plans

Because of this success, the decision was made to proceed to demonstration-scale testing with design, construction, and operation of a plant in Upton, WY. Material previously stockpiled from Bear Lodge will provide feed, and the data collected will confirm scalability and create the operating and financial framework for commercial plant development.

Design work has been completed. Long-lead time equipment has been procured and assembly is occurring offsite. The Nuclear Regulatory Commission Source Material License was received in July and the DOE is completing their final environmental review.

Construction is planned to commence in 4Q23 and is expected to take approx. 7 months. Operating for 10 to 12 months and creating 15 near term jobs, the plant will generate the data essential for the next steps in developing a secure, domestic source of REEs.