

# Bear Lodge Advanced Magnet Rare Earth Project

*The Cornerstone of the  
Domestic Rare Earth  
Supply Chain*



**Energy Council: Grand Forks, North Dakota  
June 2024**

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# Rare Earth Elements(REEs) Are “Seeds of Technology”

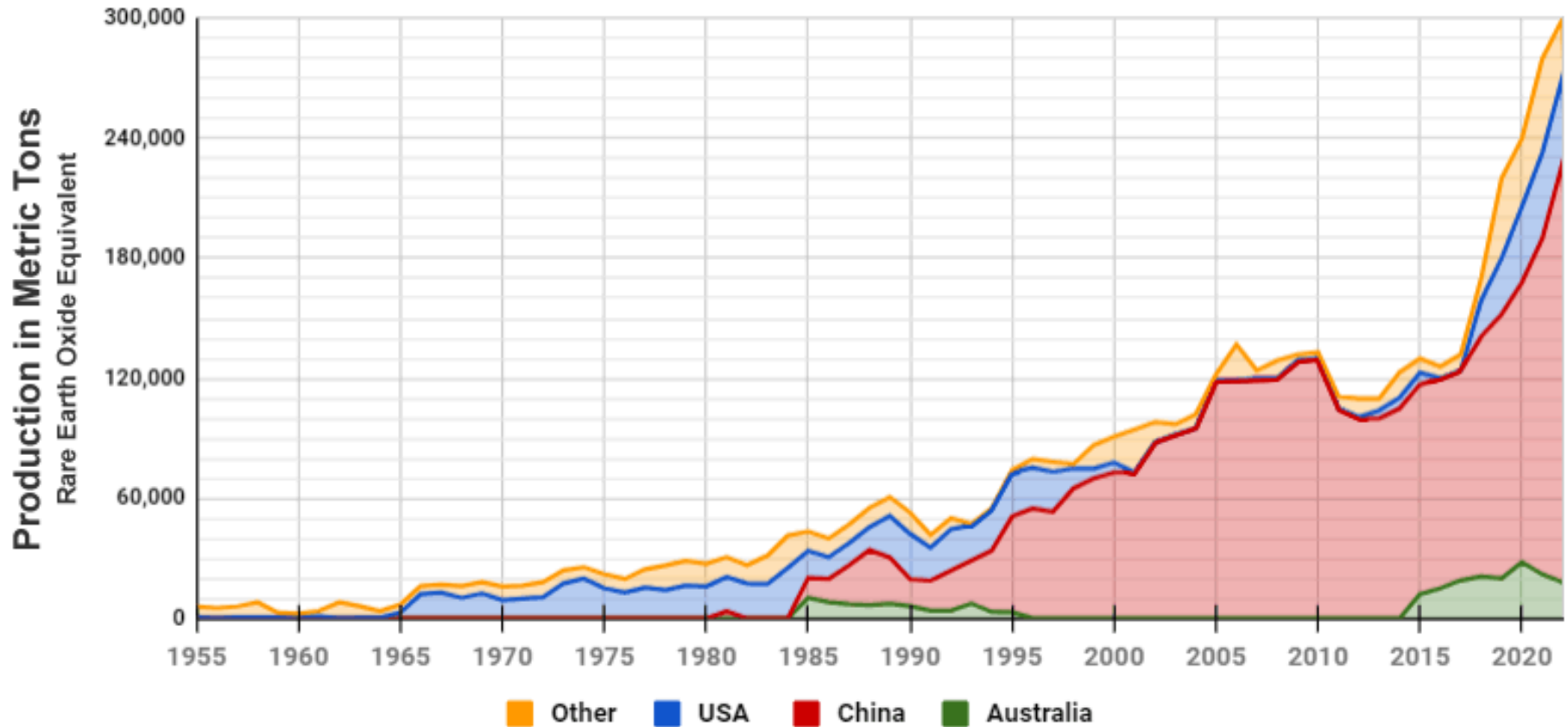


- ◆ 200+ products, including high-strength permanent magnets (NdFeB), defense applications, electronics, fiber optics, medical technologies, EVs, and wind turbines.
- ◆ Coatings for jet engines, missile guidance systems, antimissile defense systems, satellites, lasers, radar/sonar systems, and communications systems.
- ◆ F-35 Lightning II stealth fighter jet requires 920 pounds of REEs,
- ◆ DDG-51 destroyer requires 5,200 pounds of REEs,
- ◆ SSN-774-class nuclear submarine requires 9,200 pounds of REEs
- ◆ Offshore wind turbines consume 485,000 lbs of Nd/Pr oxide per GW

- ◆ “The Middle East has oil. China has rare earths.”  
- Deng Xiaoping, CCP Leader, 1978-1989
- ◆ 1960s to 1980s – U.S. was global leader of REE mining & production.
- ◆ 99% world’s HREEs were byproduct of US mining operations for titanium, zircon, and phosphate.
- ◆ 1980 U.S.-led NRC & IAEA regulations on radioactive “source materials.”
- ◆ In 2023, China controlled ~60% of the global REE mineral supply;
- ◆ Refined ~85% of global REE supply; and
- ◆ Manufactured ~95% of the magnet material.

- ◆ China capitalized on the U.S. self-imposed regulatory handicap and cornered the REE market.
  - ◆ New extensive licensing, regulatory, disposal, and liability rules.
  - ◆ Production & refining terminated in U.S. and allied countries.
- 
- ◆ 1980 U.S. restored China's trading status of "most favored nation."
  - ◆ "Perfect Storm" of self-regulation and legislative openness.
  - ◆ U.S. and allies voluntarily sold and transferred REE expertise, factories, and IP to China.
  - ◆ China: low cost of production, cheap labor, loose environmental & health regulations, and government subsidies.

# Global REE Mining Production



# Why a Secure Domestic Primary Source Matters

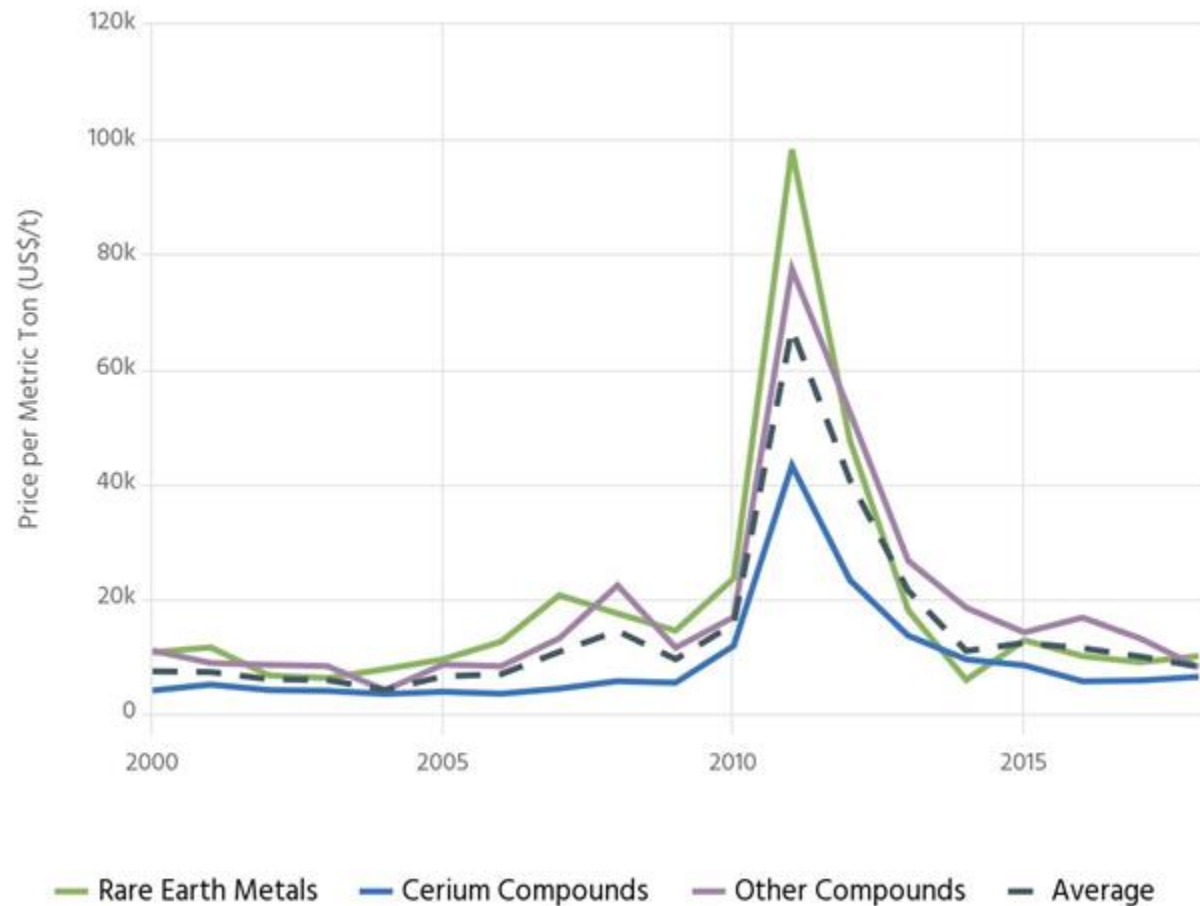


Rare Element Resources

OTCQB: REEMF

- ◆ The Japan-China “fishing boat incident” of 2010
  - China reduced exports by 40%
  - Global REE prices jumped from 2,000% to 6,000%
  - Billions of dollars invested

## Average Price of Global Rare Earth Imports



CSIS China Power Project | Source: UN Comtrade Database

- ◆ China manipulates pricing
  - Floods or restricts market via production quotas
  - 2013 – 2015 China floods market, sending ~400 REE companies into bankruptcy
- ◆ China swoops in to buy bankrupt RE companies – largest US REE mine purchased at auction in 2017 for only \$20.5 million
- ◆ 2020 same company goes public on NYSE in \$1.47B deal. Today market cap of is ~\$3B.
- ◆ Company is partially owned by China (7.7%) who then buys 100% of mine offtake



# What About Rare Element Resources?

## *Rare Earth Company with Proprietary Technology for Recovery & Separation*

Bear Lodge: World-class mineral asset with excellent (4%+ TREO) concentration of rare earth magnet elements in natural resource friendly Wyoming

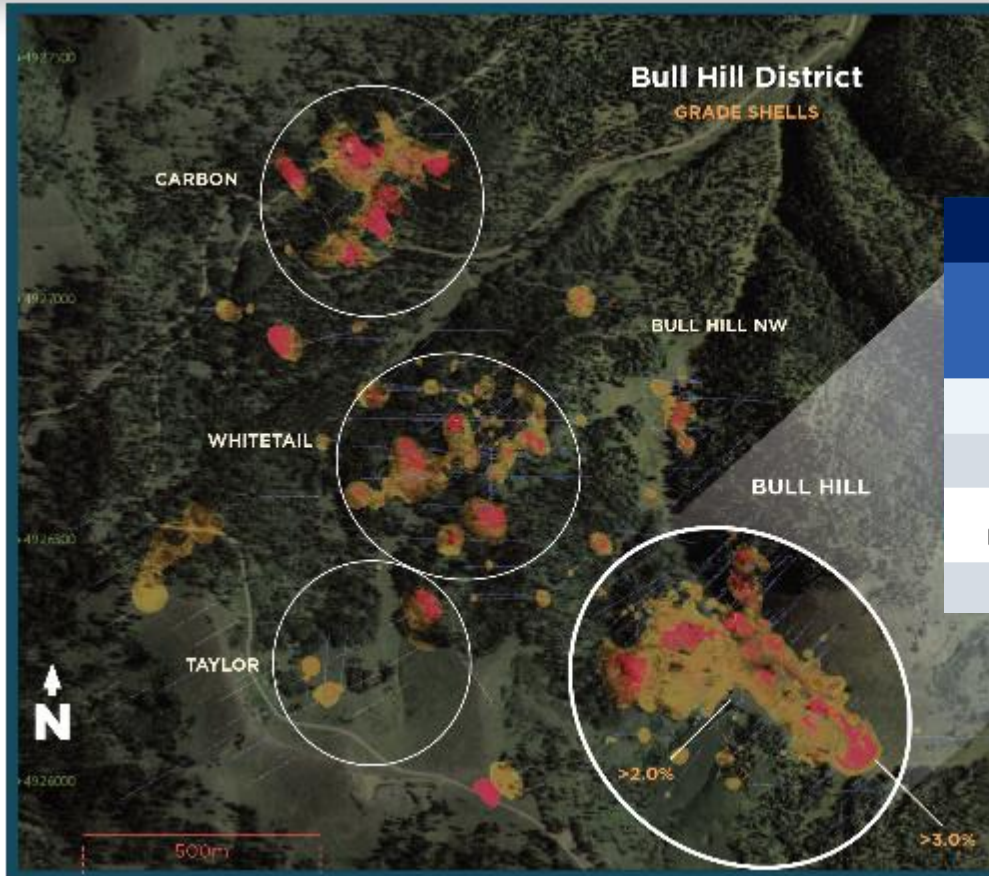
World-class, technology-leader General Atomics (“GA”) partnering with RER to advance proprietary rare earth recovery/separation process

\$140M+ invested on Bear Lodge & tech. Strong Federal and State support, including over \$26M in funding for demonstration plant (DOE & WEA)

Demo Plant provides link to achieve domestic REE supply chain;  
Confirms scalability & provides the design/economic data for commercialization;

Operations start summer 2024

# Nd/Pr Focused Resource Update (March 2024)



## Focused on Maximizing Value from Magnet Materials

Measured and Indicated Resource @ 2.18% Cutoff Grade

Bull Hill	Metric Tonnes	%TREO	Contained TREO Metric Tonnes	Recovered NdPr 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 (MI)</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

- ◆ As envisioned, Nd/Pr production could meet 15 to 20% of U.S. projected demand in 2030<sup>1</sup>
- ◆ Resource update based on development of Bull Hill only
- ◆ Upside in 3 targets identified by geophysical and geological mapping

- 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 minerals (La, Nd, Pr, Dy, and a heavy rare earth 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 Technical Report Summary.
- The estimated overall NdPr process recovery is 90%.

<sup>(1)</sup> Wood Mackenzie, Global Demand (2023) Report

# World-Class Technology Leader: General Atomics

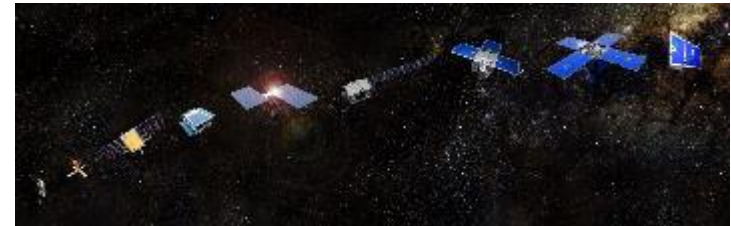


## *A global leader in the research, design and manufacturing of first-of-a-kind technology innovations*

- ◆ Majority shareholder is GA affiliate
- ◆ Vision to secure a domestic REE supply
- ◆ Dedicated project team
- ◆ GA designed and engineered demonstration plant based on successful pilot plant testing
- ◆ Essential in securing \$26M+ in financial participation from DOE and WY



Aircraft Launch & Recovery



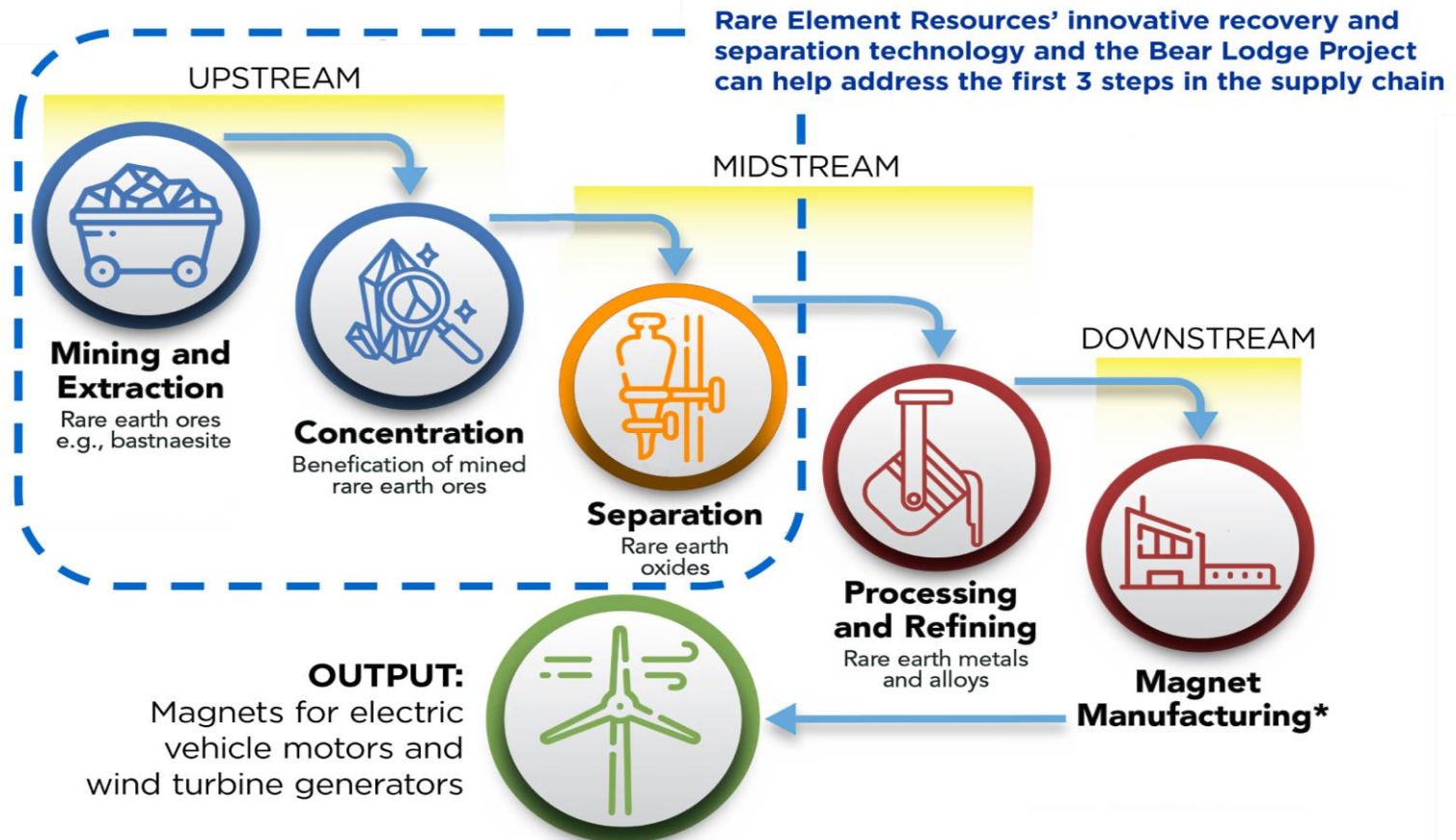
Space Systems & Technology



Missile Defense & Advanced Weapons Systems

# Rare Element Resources: Key to a Secure Supply Chain

## Cornerstone of a Secure, Domestic Supply Chain Mines to Magnets



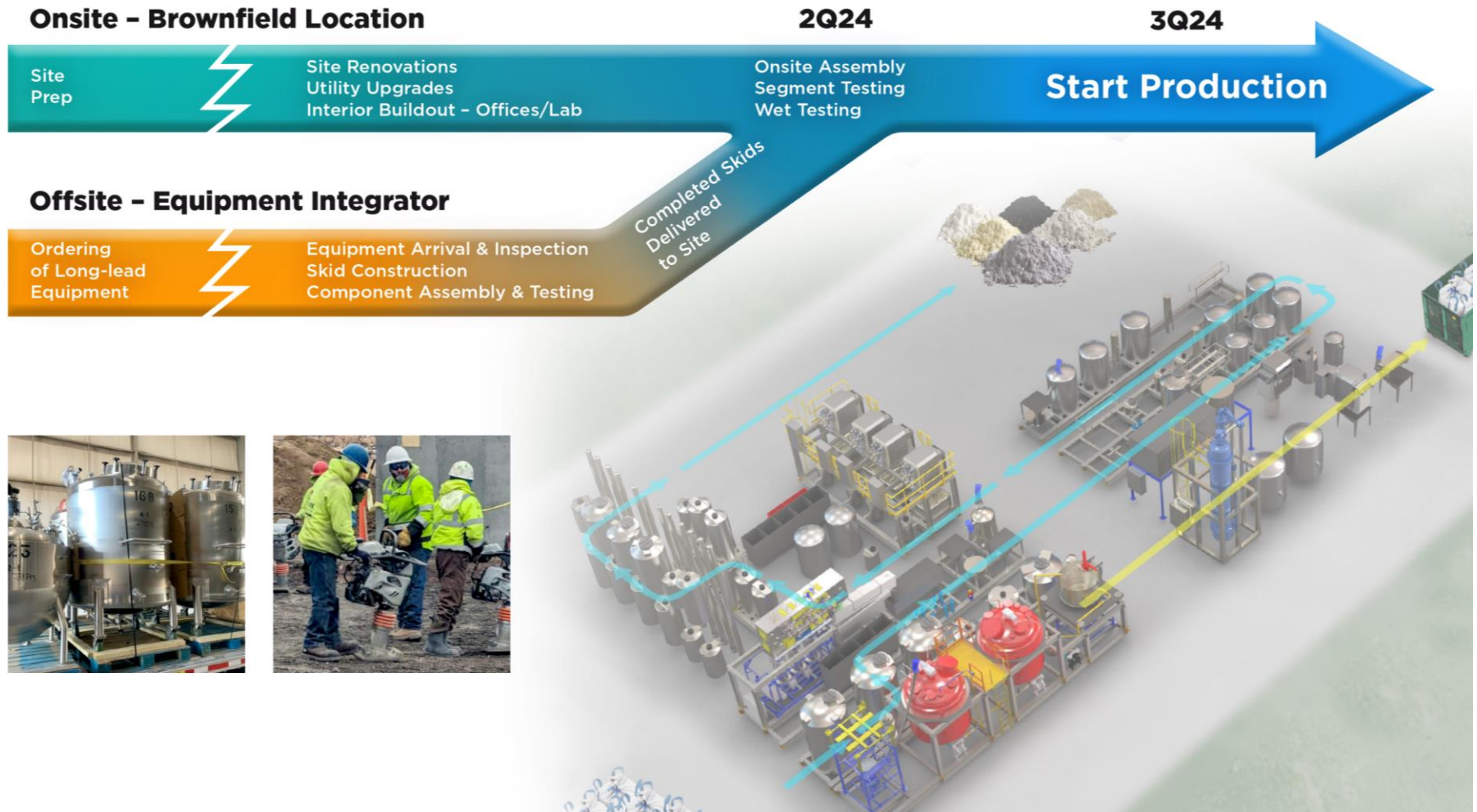
DOE Advanced Manufacturing Office - Achieving American Leadership in Rare Earth Magnets Supply Chain, 2/24/22

Orange indicates U.S. commercial capacity currently under development  
Red indicates no U.S. commercial capacity

\* Indicates sintered NdFeb (neodymium iron boron) Magnets

# Demonstration Project Under Construction

## Reducing Development Time with Two Track Approach



# Innovative Recovery Technology

- ◆ Expecting major economic & environmental improvement over traditional recovery methods
  - Closed system - significantly lower water and reagent use
  - First-of-a-kind, real-time control software for process optimization
  - 100% separation of radionuclides early in process (Th and U)
  - Produced >99.5% pure Nd/Pr in pilot-plant testing
- ◆ Demonstration plant start up in 3Q 24 will generate key operating and economic data for commercialization
  - Brownfield site utilities upgraded and exterior work nearly complete
  - First skid arrived on site in early May



# Rare Element Resources & Bear Lodge: The Advantages



Rare Element Resources  
OTCQB: REEMF

- ◆ Premier North American deposit, well advanced with good concentrations of critical magnet REs
- ◆ GA relationship advancing technology while raising awareness and providing access to federal and state financial participation
- ◆ Advantageous Wyoming location with strong all-level statewide support
  - Highly skilled and willing mining and process workforce
- ◆ Demo plant operations to begin in 3Q 2024 will generate key data for commercialization decision
- ◆ Bear Lodge can meet 15-20% of U.S. REE magnet demand of oxides

**Bear Lodge can be the cornerstone for a secure, domestic supply chain of REEs used in tech, medical, energy, and defense applications.**

# Questions?



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