

Bear Lodge Critical Rare Earth Project

*Developing a Secure U.S.
Supply of Critical Minerals
for Green Technology
and Defense*



President & CEO Randall Scott

June 2021

Forward-Looking Statements

This presentation contains forward-looking statements and forward-looking information (collectively, the “forward-looking statements”) within the meaning of securities legislation in the United States and Canada. Except for statements of historical fact, certain information contained herein constitutes forward-looking statements. Forward-looking statements are usually identified by our use of certain terminology, including “will”, “believes”, “may”, “expects”, “should”, “seeks”, “anticipates”, “plans”, “has potential to”, or “intends” (including negative or grammatical variations thereof) or by discussions of strategy or intentions. Such forward-looking statements include statements regarding our vision and strategic objective, the potential financial award from the U.S. Department of Energy, environmental benefits and cost savings of patented and patent-pending rare earth element processing, the Bear Lodge Project, our 2021 and 2022 key objectives, demand growth for rare earth element materials, future prices, cash flow and payback, the planned demonstration plant for the Bear Lodge Project, including timing and estimated costs, timing for construction of the Bear Lodge Project, plans to advance toward full-scale production, future demand and supply affecting the rare earth element markets, and other aspects of our business and our prospects as well as those of industry participants.

Our forward-looking statements are based on assumptions and analyses made by us in light of our experience and our perception of historical trends, current conditions, expected future developments, and other factors that we believe are appropriate under the circumstances. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause our actual results or achievements to be materially different from any future results or achievements expressed or implied by such forward-looking statements. These statements are subject to numerous known and unknown risks and uncertainties that may cause actual results to be materially different from any future results or performance expressed or implied by the forward-looking statements. These risks and uncertainties include those described in the “Risk Factors” section of our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, and our filings with the Securities and Exchange Commission, which are incorporated by reference in this presentation. Many of the forward-looking statements in this presentation relate to events or developments anticipated to occur numerous years in the future, which increases the likelihood that actual results will differ materially from those indicated in such forward-looking statements. The forward-looking statements made in or in connection with this presentation speak only as of the date hereof. Except as required by law, we disclaim any obligation subsequently to revise any forward-looking statements to reflect events or circumstances after the date of such statement or to reflect the occurrence of anticipated or unanticipated events.

Certain information contained in this presentation has been obtained by the Company from its own records and from other sources deemed reliable, however no representation or warranty is made as to its accuracy or completeness. The technical information relating to the Project disclosed herein is based upon a historical technical report prepared and filed pursuant to National Instrument 43-101 - Standards for Disclosure of Mineral Properties (“NI 43-101”) and other publicly available information regarding the Company, including the Company’s technical report entitled, “Pre-Feasibility Study Report on the Reserves and Development of the Bull Hill Mine, Wyoming,” filed on October 10, 2014, available on the Company’s website and under its profile at www.sedar.com (“SEDAR”). The historical technical information must be updated and should not be deemed current or reliable.

Compelling Investment Thesis



Rare Element Resources

OTCQB: REEMF

U.S. source of critical rare earths (“RE”) serving fast growing, magnet-driven electric vehicle, wind turbine, defense and consumer electronics global markets

Strategic major shareholder, a General Atomics affiliate, has been actively involved in pilot testing and optimizing our proprietary RE processes

Patented and patent-pending improved RE processing in fewer steps with environmental benefits and cost savings over conventional processes

Anticipated U.S. Department of Energy (“DoE”) award of \$21.9M to team that includes RER and General Atomics’ affiliates for half of cost of demonstration plant using our proprietary technology

Rapidly advancing and de-risking Bear Lodge with potential support from the DoE

Skilled, veteran leadership and Board of Directors

Value Creation – Where We are Headed

RER is a RE mineral development company

Vision:

To become the long-term, secure, reliable and sustainable U.S. source of separated critical rare earths essential for defense, electronics, automotive and industrial supply chains

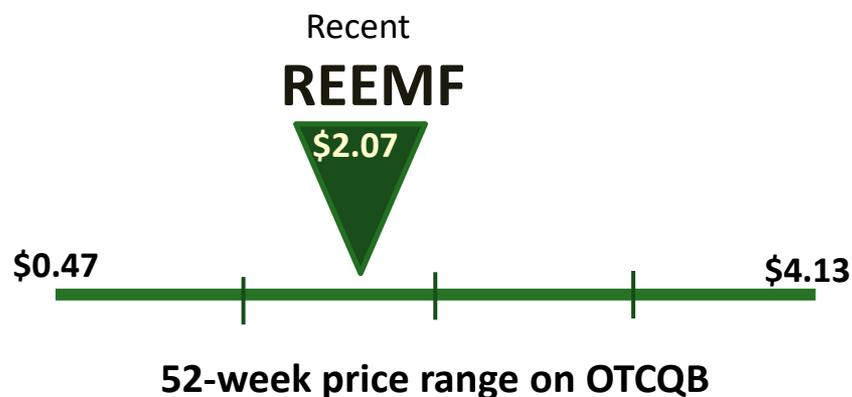
Objective:

Develop our Bear Lodge Project using our proprietary technology as a world-class, domestic source of strategic rare earth materials in alignment with the rapid expansion of rare earths permanent magnet market

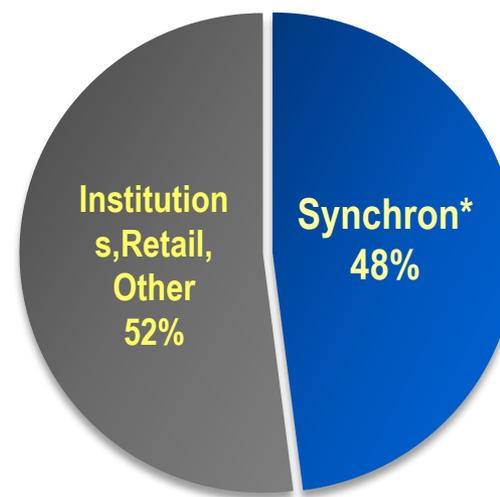
Capital Structure

Ticker	REEMF
OTCQB trailing 3-mth. daily trading average	202,000
Common shares outstanding	105,308,445
Common shares subject to options	1,875,000
Fully diluted shares	107,183,455

Current Financials	March 31, 2021
Cash and cash equivalents	\$2.05M
Current liabilities	\$0.37M



Ownership



* General Atomics' affiliate, owns 50.8M shares

Supportive Largest Shareholder & Demo. Plant Collaborator



Rare Element Resources
OTCQB: REEMF



GENERAL ATOMICS

General Atomics, which is headquartered in San Diego, CA, is a privately-held company and is a large defense and diversified technologies company

Scott Forney, President, General Atomics Electromagnetic Systems:

- ◆ “RER’s **Bear Lodge** deposit is endowed with critical rare earth elements essential for high-strength permanent magnets, electronics, fiber optics, laser systems for health and defense, and commercial technologies such as electric vehicles, solar panels, and wind turbines.
- ◆ Along with RER and our partners, this team brings the resources, experience and technologies together to efficiently design, construct and operate a facility for the separation and processing of rare earth ore to meet the nation’s requirements.”

Advancing on Construction for Operation of Demonstration Plant

- ◆ Complete definitive documents to secure the DoE's potential financial award of \$21.9M for 50% of the cost of our rare earth separation and processing demonstration plant
- ◆ Concurrently, advance our proprietary rare earth optimization work to confirm the operational flow sheet, including equipment sizing and reagent requirements
- ◆ Secure financing for remaining 50% of the demonstration plant to be located in Upton, Wyoming plus near-term working capital
- ◆ After securing financing for the demonstration plant:
 - Finalize demonstration plant design and engineering
 - Complete demonstration plant permitting
 - Construct demonstration plant for expected 2023 operation
- ◆ Plan and initiate long-lead time deliverables, including Bear Lodge commercial project permitting and feasibility study

◆ Permanent Magnets

- Largest, fastest growing segment of \$2.2B RE market
- 29% of total RE demand but 80% of RE elements' market value
- RE provide the highest magnetic force per unit of weight among magnets
- Market expansion from the clean energy electric vehicles and wind turbines, aerospace/defense components and cell phones

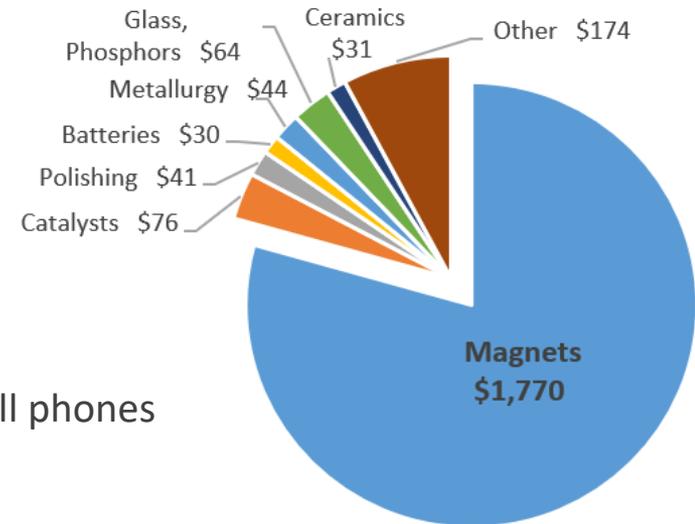
◆ Phosphors Lighting and Display Screens

- Meeting global demand for energy efficiency
- Growth applications include LCDs, communication devices and weapon systems

◆ Fluid Cracking Catalysts

- RER future production has competitive advantages to serve the U.S., the world's largest catalyst market
- Demand driven by overall market growth and processing of heavier sour crude oils

Est. Rare Earth Value
By Use, 2019 (US\$000M)



RER Focused on RE Materials for Rapidly Growing Markets

Aerospace

Aircraft Parts



Automotive

Cars, HEVs, EVs



Computers

Cloud Technology



Energy

Wind Turbines



High-Speed Transit

MagLev Technology



- ◆ Multi-billion-dollar end market for magnets
- ◆ 10%+ annual demand growth for RE materials in certain sectors
- ◆ Growth driven partly by electronics miniaturization and increased efficiency
- ◆ 80% of rare earths used in the U.S. between 2016 and 2019 were imported from China*
- ◆ End users seeking secure supply alternatives to China's dominance

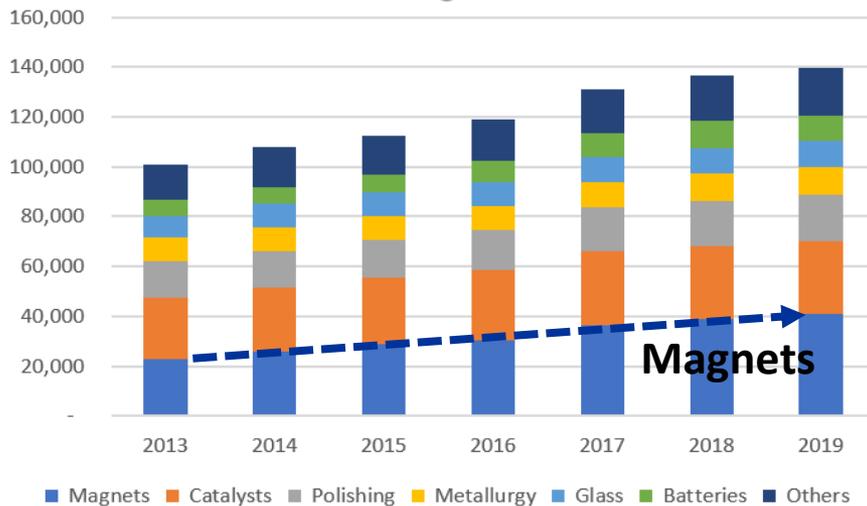
* Source: U.S. Geological Survey in S&P Global Market Intelligence, February 25, 2021

Magnet Uses Driving Demand Growth

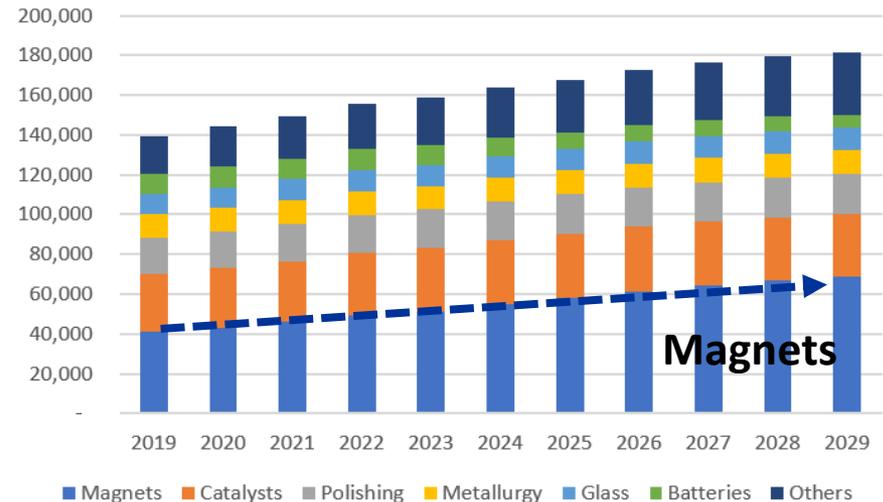


- ◆ Roskill projects annualized increases in magnet consumption of 6% in 2020-2024 and 5% in 2025-2030*

Rare Earth Oxide Demand by Application, 2013-2019 (mt)



Outlook for Rare Earth Demand by First Use, 2019-2029F (mt)



* Pre-pandemic estimates. RER believes the global economic malaise in 2020 may have dampened demand growth in the near term but this only pushes out anticipated demand expansion as economies reopen.

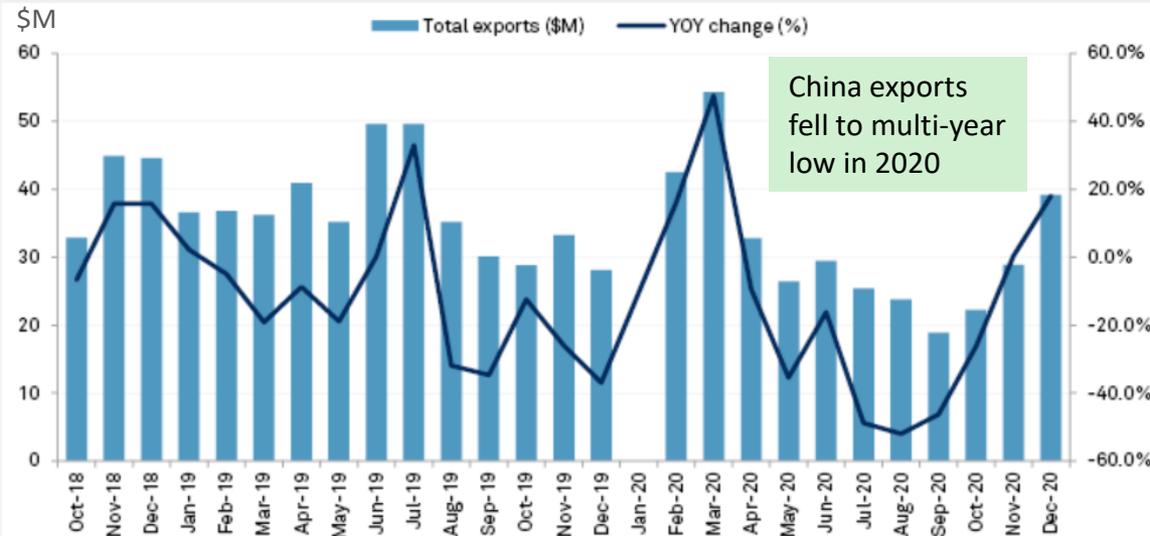
Source: Roskill, 2020.

China Rare Earth Exports – Reliability of Supply



- ◆ China, the world's largest RE supplier, is becoming a net importer, according to Roskill and other industry watchers
- ◆ China government has imposed production quotas and environmental controls, and curtailed illegal production, which will negatively impact world supply of RE

Chinese exports of rare earths



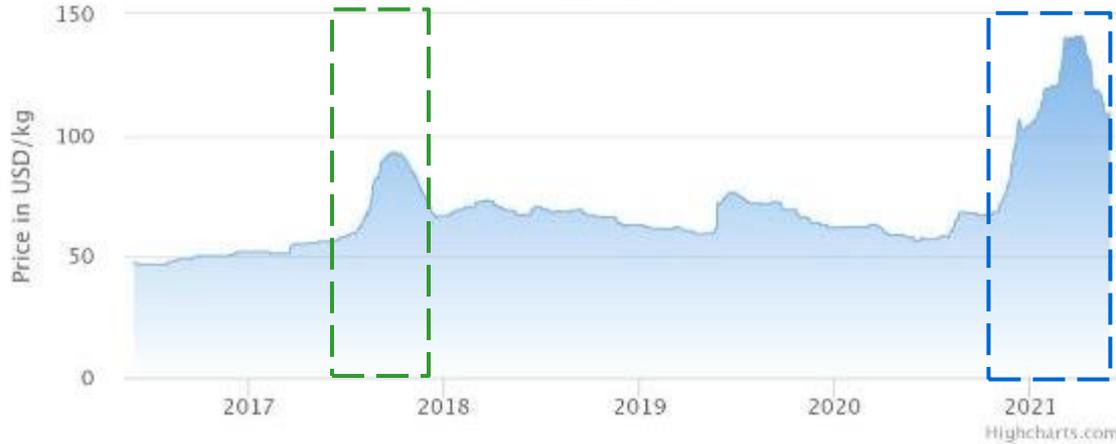
Data accessed Feb. 24, 2021.
Data from China General Customs Administration figures.
The Chinese government published January and February 2020 figures on a combined basis due to COVID-19.
Source: Panjiva, a business line of S&P Global Market Intelligence

Chart source: S&P Global Market Intelligence, February 25, 2021

Nd-Pr Prices Sensitive to Supply Shortfalls

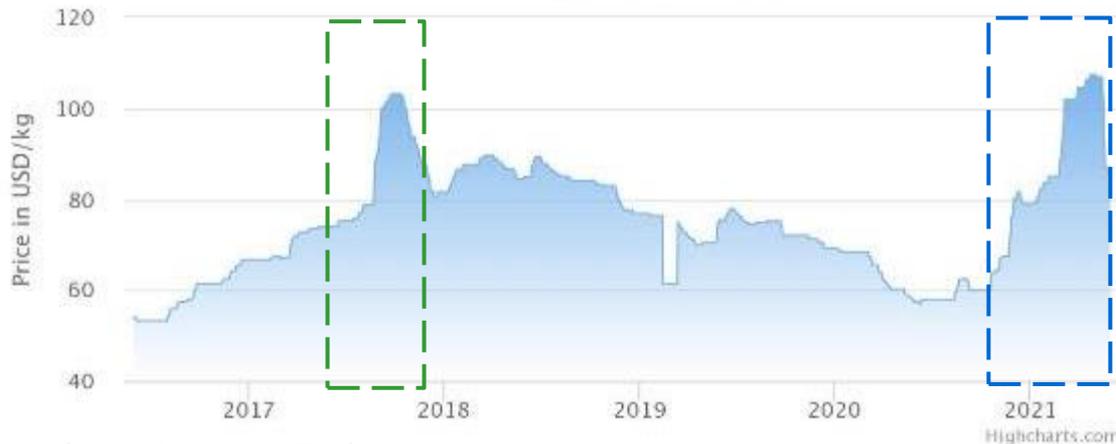


Neodymium (Nd) Oxide Ask Price



2017: Supply disruptions & trader purchasing drove price spike, partially offset by China controls.*

Praseodymium (Pr) Oxide Ask Price

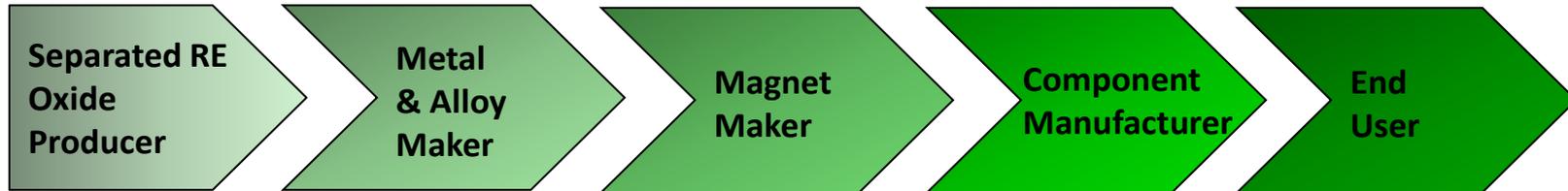


Early 2021: There was a build up of RE inventory by magnet manufacturers in late 2020 into early 2021. Subsequently, this led to stagnated buying and price weakening.*

Charts: Kitco using Tradium prices

* Source: Roskill, 2018 and May 2021

RE Magnet Value Chain – Many Non-Chinese Options



Major Non-Chinese Companies*

Lynas	Silmet	Shin-Etsu	GE	GE
MP Materials (planned)	Santoku	Sumitomo	ABB	Siemens
RER's Bear Lodge	Shin-Etsu	Hitachi Metals	Bosch	Tesla
	Sumitomo	TDK	Brose	Ford
	Less Common Metals	Vacuumschmelze (OM Group)	Gamesa	GM
	INFINIUM	Magnetfabrik Schramberg	Enercon	Volkswagen
	Showa Denko	Morgan Crucible	Vestas	TDK
		Neorem Magnets	And many more	Apple
		MCP/Daido Steel/Mitsubishi JV		Toshiba
		Arnold Magnetics		Samsung
		Thomas & Skinner		Lockheed Martin
		Electron Energy Corporation		General Dynamics
				Boeing
				General Atomics
				Panasonic
				And many more

*There are many Chinese firms at each stage in the chain.

Favorable U.S. Political Outlook for Critical Materials



Rare Element Resources

OTCQB: REEMF

- ◆ There have been **7 U.S. Presidential Determinations** regarding U.S. supply of critical materials.
 - “The domestic production capability for Rare Earth Metals and Alloys is essential to the national defense.” (July 22, 2019)
- ◆ President Biden issued a February 2021 **Executive Order** for an expedited 100-day review to address sustainable supply chains for four vital sectors, including critical minerals and rare earth elements.
 - Specifically, the Dept. of Defense must submit a report identifying risks in the supply chain of critical materials, including RE, and make policy recommendations to address such risks.
 - 100-day review led to Executive Order on June 8, 2021 calling for an investment in sustainable domestic and international production and processing of critical minerals, including recommendation that Congress take actions to recapitalize and restore the National Defense Stockpile of critical minerals and materials.

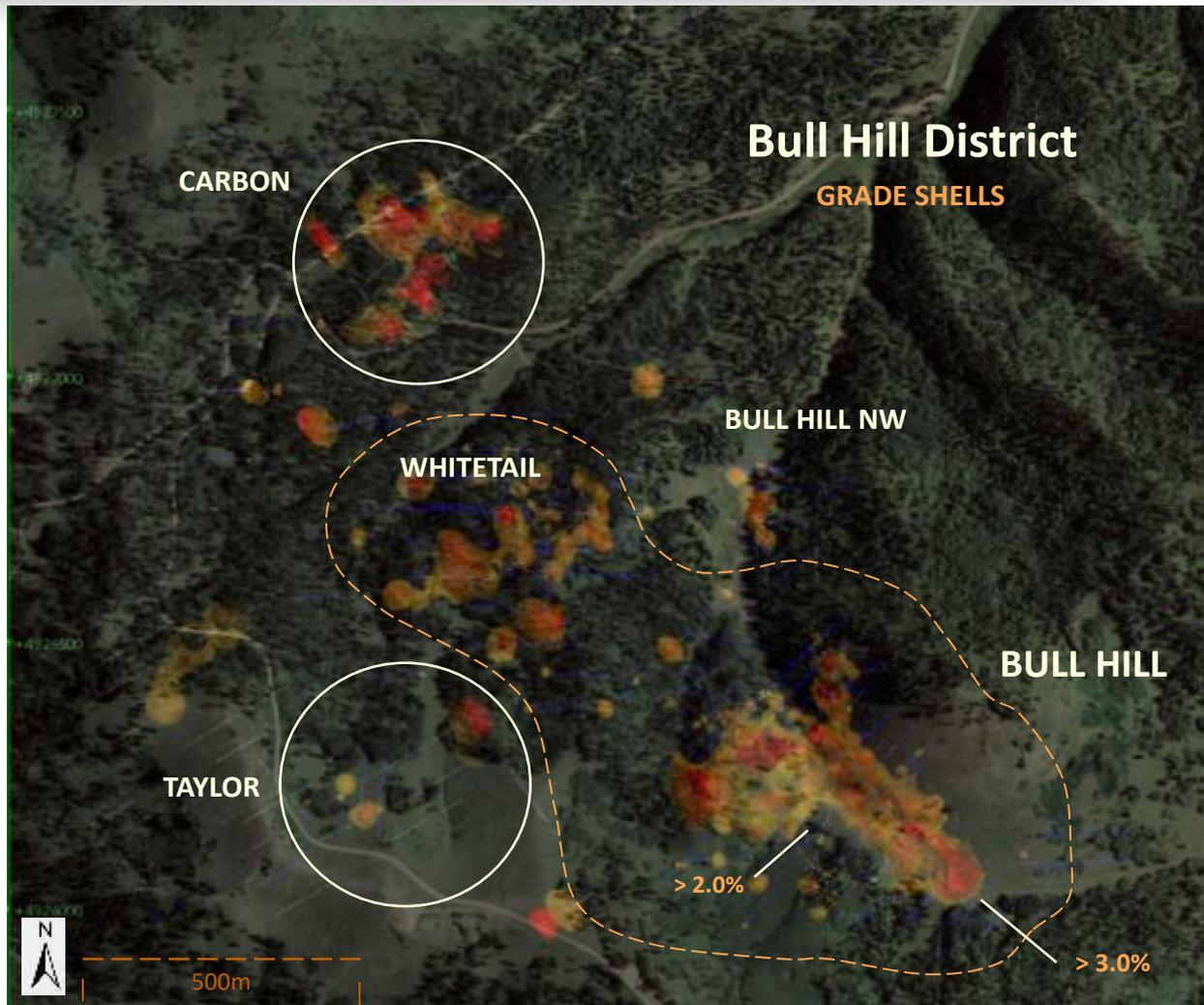
Bear Lodge Project – A World-Class Resource



Rare Element Resources

OTCQB: REEMF

- ◆ Located 63 miles east of Gillette in NE Wyoming
- ◆ Royalty free mineral rights
- ◆ Several initial years of high-grade RE oxide (REO) zone output
- ◆ 1,000-ton bulk sample with 10% REO content
 - Previously stockpiled ore for demonstration plant
- ◆ Extensive exploration on district, with upside resource expansion
- ◆ Resource rich in critical RE with additional RE by-products



LeapFrog image showing the distribution of the +2.0% (orange) and +3.0% TREO (red) grade shells at the Bear Lodge Project. Orange dashed line shows planned pit boundary.

Bear Lodge Project – Systematically De-risking

Advancing Towards Full-Scale Production

- ◆ World-class, long-lived resource with expansion potential
- ◆ Expect to exploit higher grade material in first years for accelerated payback
- ◆ Business-friendly Wyoming location helps to minimize capital and operating costs; infrastructure and labor in close proximity
- ◆ Substantial progress made on all required permits
- ◆ Anticipate capital savings and environmental benefits (less waste) from our proprietary extraction and separation processes
- ◆ Our pioneering technology and processes are expected to deliver value-added, high-purity, separated RE oxide
- ◆ Planned demonstration plant to prove scale and processes



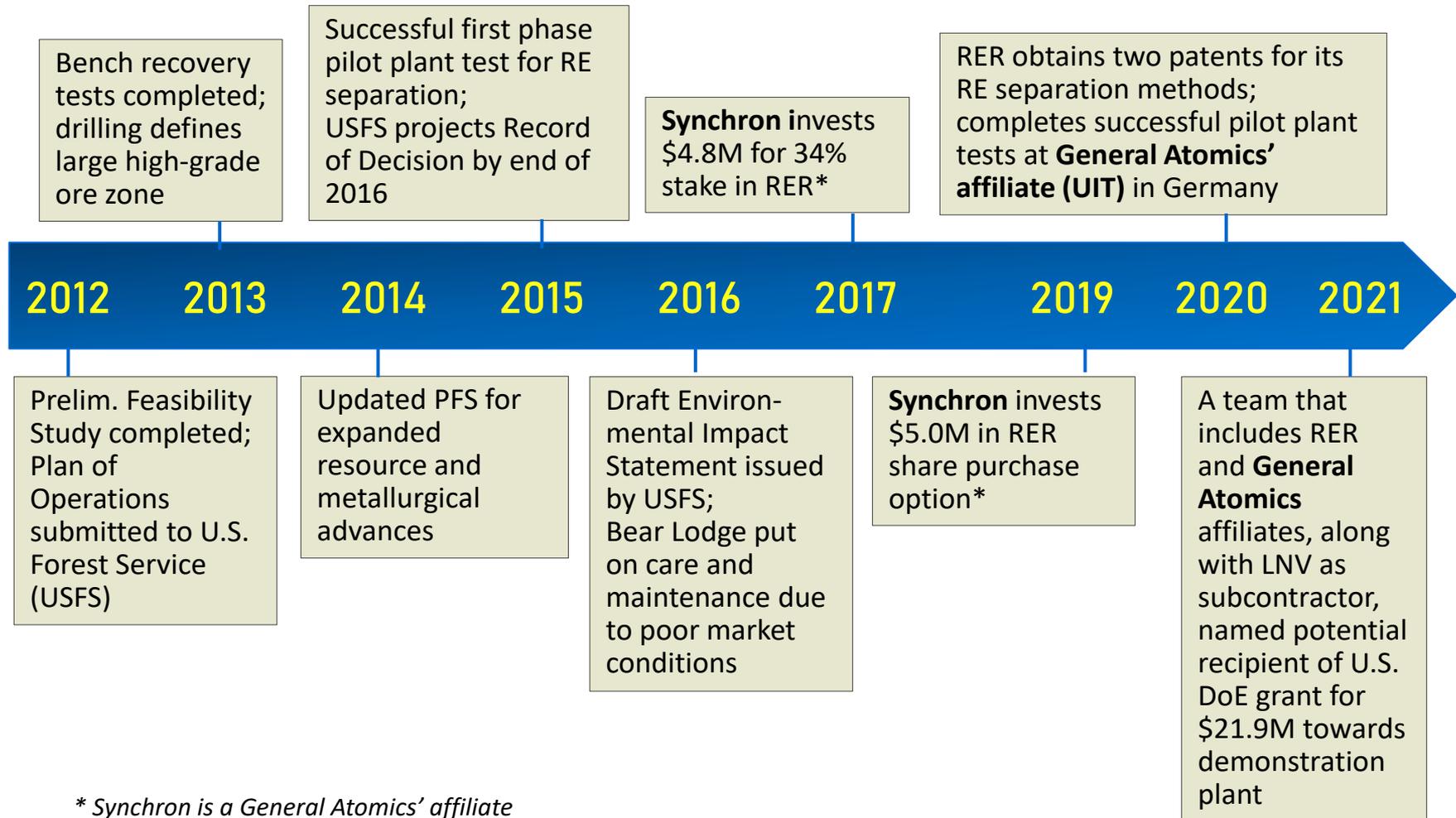
RER's pilot plant at General Atomics' affiliate UIT in Germany

Bear Lodge Project – Well Positioned for Success



Rare Element Resources

OTCQB: REEMF



* Synchron is a General Atomics' affiliate

Bear Lodge Demonstration Plant Timeline



After securing financing for demonstration plant:

Year 1

Year 2

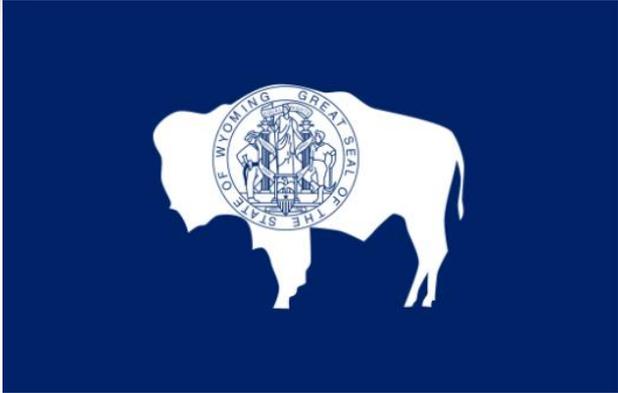
Year 3

- Finalize demonstration plant design. Construction. (18-24 months)
- Resume permitting process. Re-evaluate operating scale. (18-30 months)
- Operate demonstration plant (12 months)

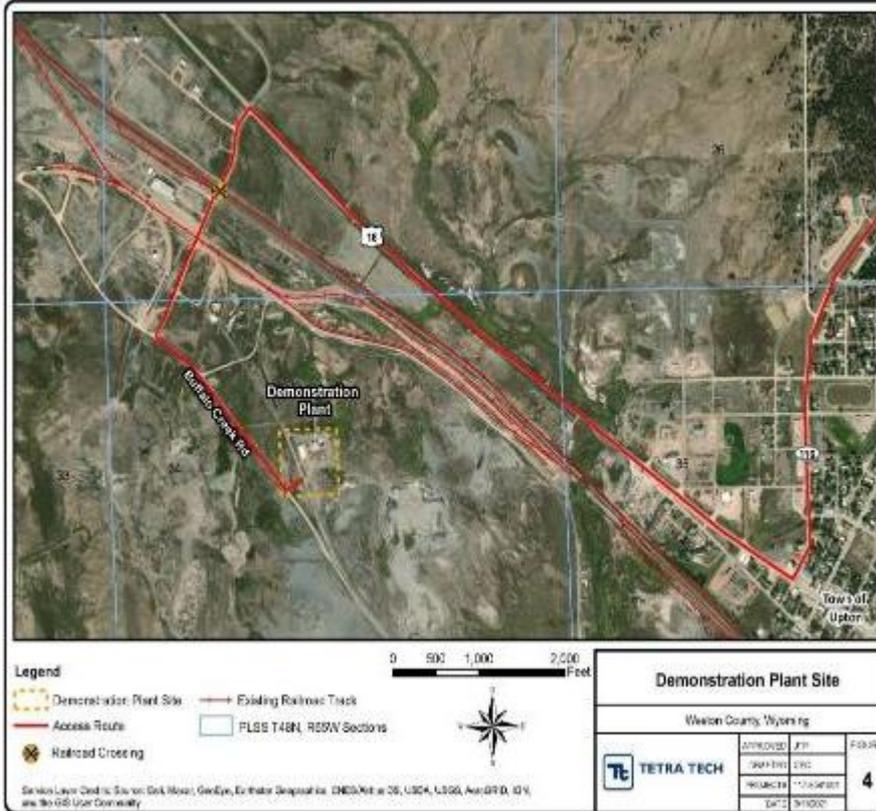
Next Step: Demonstration Plant

Rare Earth Processing and Separation Demonstration Plant

Location	Upton, Wyoming
Total Est. Cost	\$44M
Anticipated Funding	Half through DoE financial award and half through other financing. DoE award finalization expected in early 3Q 2021.
Purpose	To demonstrate, at commercial-scale, the operational flow sheet and scalability for final plant design.
Design & Construction	18-24 months
Operation	12 months using previously stockpiled ore
Proprietary Technology	Confirming RER's proprietary process produces saleable Nd-Pr, using fewer steps at expected lower costs.
Current Status	Further economic optimization of process, development of scale-up design, and confirmation of operating and capital cost estimates. Initiation of permitting and licensing.



Demonstration Plant Location- Upton, Wyoming



- ◆ Upton Logistics Industrial Center
- ◆ 8.2 Acre Brownfields Site

Proprietary and Enhanced RE Processing

RER has patented and patent-pending RE recovery and processing technology

Ore Recovery:

- ◆ Highly-selective use of oxalic acid early in process delivers exceptional purity
- ◆ Eliminates Thorium at initial stage for safe, efficient disposal

Processing / Separation:

- ◆ Use of ultra-pure concentrate and process enhancements
- ◆ Pioneering variation of conventional solvent extraction technology for rare earths
- ◆ Innovative precipitation of rare earths from organic phase eliminates stripping steps of conventional processes



RER's pilot plant at General Atomics' affiliate UIT in Germany



- ◆ A secure **U.S.-based separated RE supply**
- ◆ High concentration of RE elements essential for **fastest growing, high-strength permanent magnet market**
- ◆ Exceptional location for **cost-effective** infrastructure and highly skilled workforce
- ◆ Technology **innovations** delivering **lower-cost** advantage
- ◆ High-grade ore zone in early years expected to generate **strong cash flow** and payback
- ◆ **Exceptional support** from strategic shareholder and potential support from the DoE
- ◆ **Largest shareholder**, General Atomics' affiliates, augments critical minerals expertise, government R&D partnership and contract experience



Appendix

Leadership – Skilled, Operating Professionals

Randy Scott – President, CEO & Director

Metallurgical engineer with over 40 years of mineral resource operations experience. Former executive with Thompson Creek Metals Company, Cyprus Amax Coal Company and Pincock Allen & Holt. BSc degree in metallurgical engineering from the Colorado School of Mines and MBA from the University of Arizona.

Kelli Kast, Esq – Consultant, Corporate Secretary, and former SVP, Chief Administrative Officer and General Counsel

Top legal professional with over 25 years of in-house legal experience. Former RER SVP, General Counsel and Chief Administrative Officer. Former SVP and General Counsel for Coeur d'Alene Mines. Former executive with HealthTech Inc., Global Water Technologies Inc. and Psychrometric Systems. J.D. degree with honors from the South Dakota School of Law. B.A in Organizational Communication from University of Idaho.

Jaye Pickarts, P.E. – Operations Consultant and former COO

Senior process engineer with more than 35 years of leadership in international project management for development, acquisitions, engineering design, reclamation, mine closure, water management and process operations, feasibility studies and environmental permitting. Former executive with Knight Piesold and Pegasus Gold. BSc degree in mineral processing engineering from the Montana College of Mineral Science and Technology.

George Byers, M.A. – Government Relations Consultant and former VP

Mining and energy industry veteran with extensive executive experience in federal, state and local government relations. Former executive with Cameco, Rio Algom, Newmont and Santa Fe Pacific Gold. BA degree in geology and Masters of urban and regional planning from the University of Mississippi.

Adria Hutchison – Consultant, Principal Financial Officer

Certified public accountant with over 20 years of experience. Former Controller for Vista Gold and Azarga Uranium. BS degree in accounting from Metropolitan State University of Denver, Master of Finance and Master of Resource Law Studies from The University of Denver.

Gerald W. Grandey – Chairman

Director since 2013. Over four decades of mining leadership. Former long-serving CEO and Director of Cameco. Recognized by Harvard Business Review as a Top 100 CEO in 2010 and received other business awards. Former director of varied natural resource companies.

Barton Brundage

Director since 2019. EVP of Cordillera, an affiliate of General Atomics with real estate operations in three western states, and is a director and/or an executive officer of several of its affiliates.

Ken Mushinski

Director since 2017. President of Synchron (RER's largest shareholder and affiliate of General Atomics), VP of Corporate Planning and Acquisitions, General Atomics Technologies, VP of Sales and Marketing, Nuclear Fuels Corporation, among other executive roles.

David Roberts

Director since 2017. President and CEO of General Atomics Uranium Resources, SVP of General Atomics, and President and other executive roles for several affiliates of General Atomics.

Paul Schlauch

Director since 2011. Top legal professional and former partner of Holland & Hart, specializing in mining, regulatory and public land legal matters.

Randy Scott – President, CEO & Director

Director since 2012. (See prior slide for description.)

Lowell Shonk

Director since 2013. Co-founder and partner of Cupric Canyon Capital, a private equity firm in partnership with Global Natural Resource Investment (former unit of Barclays Bank) developing the high-grade copper-silver Khoemacau Project in Botswana in the start-up phase

Demonstration Plant Feed Sample Ready for Processing

Resource (Q6)



1,000-ton bulk sample
for feed to
demonstration plant



Trench exposed near-
surface main dyke and
was bulk sampled along
300-foot length



Bulk samples ranged from
3.65% to 14.65% total rare
earth oxide with an
average grade of 10.1%
total rare earth oxide

Demonstration Plant – Permitting and Licensing



- ◆ US Forest Service (USFS) – Road Use Permit to transport sample to demonstration plant location
- ◆ Wyoming Department of Environmental Quality (WDEQ)
 - Air Quality Permit
 - Sample Re-handle, Crushing/Screening
 - Hydrometallurgical Process, Calcination
 - Separation Process
 - Asbestos Inspection
 - Water Quality Permit
 - Storm water (Wyoming PDES)
 - Process Water Treatment
 - Sewer
- ◆ US Nuclear Regulatory Commission (USNRC)
 - Source Materials License
 - Performance Based License
- ◆ Solid wastes generated by the process will be shipped off-site to a licensed storage disposal facility

Major Technology Advancements – Innovation in Separation



Rare Element Resources

OTCQB: REEMF

- ◆ Single-contact SX removal of 100% of the thorium using available organic extractants
- ◆ Early removal of Ce reduces downstream SX requirements and reduces reagent and energy consumption
 - Lower operational and capital costs
- ◆ Streamlined process – significantly fewer mixer/settlers and ability to quickly strip loaded organic solvents outside of SX without strong acids
- ◆ High-purity end products, individual or combined, should realize higher value for Company
- ◆ Process is highly efficient, with minimal waste discharge, making it environmentally sound.

Bear Lodge RE – Magnets Drive Value



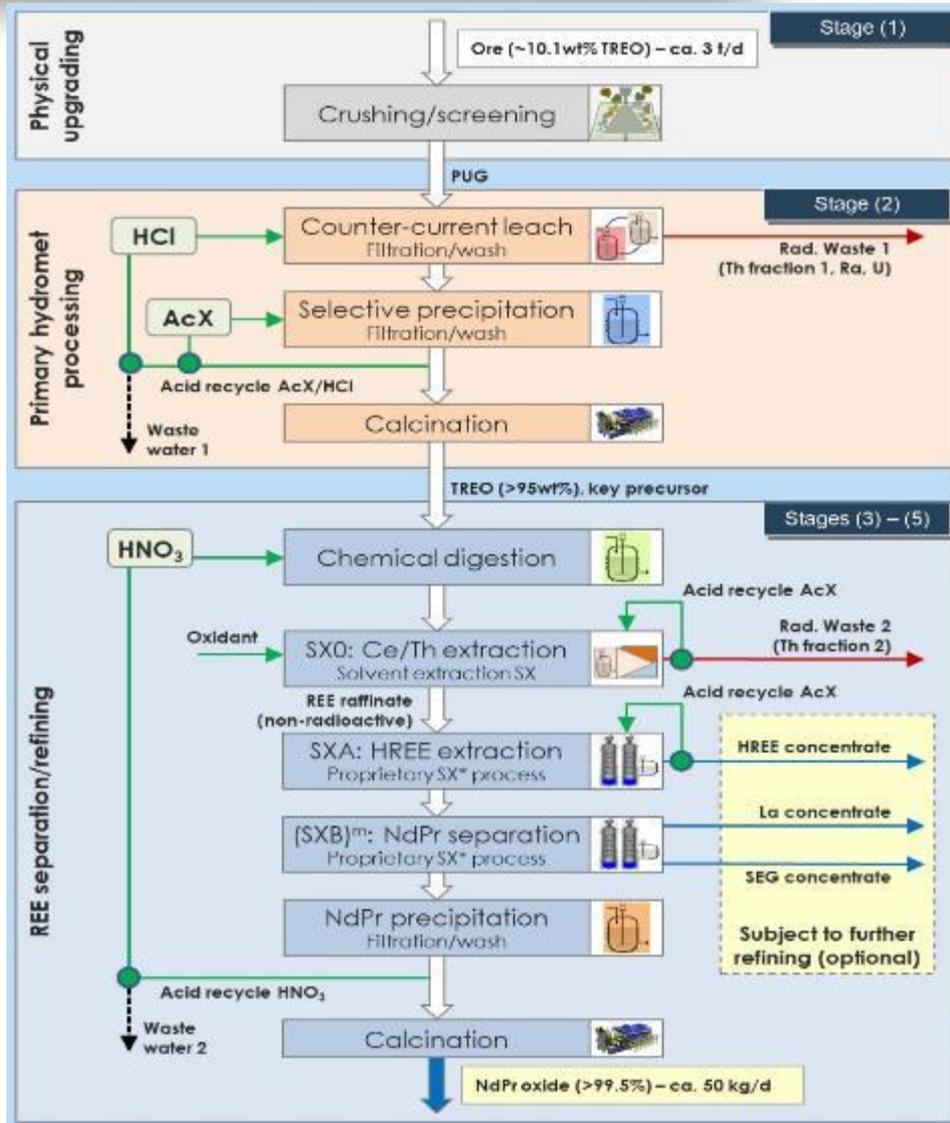
Projected Distribution by Weight³

Critical Rare Earth Elements ¹	Distribution by Wt.
Neodymium (Nd)	17.9%
Europium (Eu)	0.7%
Dysprosium (Dy)	0.5%
Terbium (Tb)	0.1%
Yttrium (Y)	1.3%
Praseodymium (Pr)	4.9%
Subtotal CREOs	25.4%

Critical Rare Earth Elements ¹	Distribution by Wt.
Cerium (Ce)	43.0%
Lanthanum (La)	26.8%
Gadolinium (Gd)	1.6%
Samarium (Sm)	3.0%
Other REEs ²	0.2%
Total Rare Earth Oxides	100%

1. Rare earths identified as “critical” by US Dept. of Energy, Critical Materials Strategy Report, including Pr due to use as a raw material for high-intensity, permanent magnets.
2. Other REEs include Holmium, Erbium, Thulium and Ytterbium
3. Allocation based on RER’s historical technical report prepared and filed pursuant to National Instrument 43-101 - Standards for Disclosure of Mineral Properties (“NI 43-101”) and other publicly available information regarding the Company, including the Company’s technical report entitled, “Pre-Feasibility Study Report on the Reserves and Development of the Bull Hill Mine, Wyoming,” filed on October 10, 2014, available on the Company’s website and under its profile at www.sedar.com (“SEDAR”). The historical technical information must be updated and should not be deemed current or reliable.

Process Flowsheet*



*Proposed process flowsheet

For more information

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Drilling

Assaying



Evaluating



Pilot Plant Testing



Baseline Data
Collection

Economic
Evaluation

