

A line-art illustration of a highway interchange on the left, leading to a city skyline on the right. The skyline includes various skyscrapers and buildings. The highway has blue dashed lines on the road surface.

# AMERICAN

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RESOURCES CORPORATION

*Supporting Modern  
Infrastructure*

[americanresourcescorp.com](http://americanresourcescorp.com)  
NASDAQ: AREC

# Forward-Looking Statements

This document may include predictions, estimates or other information that might be considered forward-looking. While these forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could cause actual results to differ materially. You are cautioned not to place undue reliance on these forward-looking statements, which reflect our opinions only as of the date of this presentation. Please keep in mind that we are not obligating ourselves to revise or publicly release the results of any revision to these forward-looking statements in light of new information or future events. Throughout this document, we will attempt to present some important factors relating to our business that may affect our predictions. You should also review any and all SEC filings of each respective company for a more complete discussion of these factors and other risks, particularly under the heading “Risk Factors.”

This document is neither an offer to sell nor a solicitation to purchase any of the Company’s securities. Certain statements and financial projections in this Presentation constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements, which are based on management’s current expectations, are generally identifiable by the use of terms, such as “anticipates,” “believes,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “possible,” “potential,” “predicts,” “projects,” “should,” “would” and similar expressions. The potential risks and uncertainties that could cause actual results to differ materially from those expressed or implied herein include, among others, the Company’s ability to raise additional debt or equity financing, the Company’s relationships with its current and future customers and business partners, the Company’s ability to achieve anticipated results from acquisitions, and organic growth and development and overall business expansion. All reserve estimates (tonnage, quality, sell ability, etc.) and other number and figures presented herein are management estimates only, may include reserves that are currently under lease negotiation (i.e., not currently controlled), and should be independently verified.

The non-reserve deposit numbers presented herein are estimates based on available data and the interpretation of such data by the company and/or its advisors and/or consultants and are not classified as “proven” or “probable” pursuant to the definitions found within SEC’s Industry Guide 7. Not all non-reserve deposits are permitted, and certain reserve numbers may include figures under permit, permit in-process or leased, and in some cases prior leases that have lapsed and need to be re-obtained.

This presentation and the information herein is updated frequently, and you should absolutely verify with management of the Company that this version is the most recent available. In the event that the information presented herein conflicts with Company public filings, the public filings shall be the governing document.



# AMERICAN

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## RESOURCES CORPORATION

*Environmentally and socially responsible supplier of high-quality and high value raw materials to the modern infrastructure and electrification markets.*



# Investment Opportunity

Showcasing Exponential Revenue Growth



Leading domestic supply chain to be first US-based Company to process and purify Rare Earth and Critical Elements

Praseodymium, neodymium, dysprosium, cobalt, lithium, nickel and manganese

Revenue Producing: 2022



Redefining legacy industry to thrive in today's coal conscious economy

Metallurgical carbon for steel and specialty alloy metals

Smelted not burned for energy use

Currently Producing Revenue



Aggregator and processor of waste metal and steel products to be used in new production

Steel, copper and carbide products

Currently Producing Revenue





# Innovators in the Industry

Nimble Diversified Business Model While Reducing Legacy Industry Risks

**Identify High Value and Under-Utilized Assets and IP**



**Creatively Acquire Under Favorable Terms**



**Modernize and Monetize to Fit Modern-Day Economy**



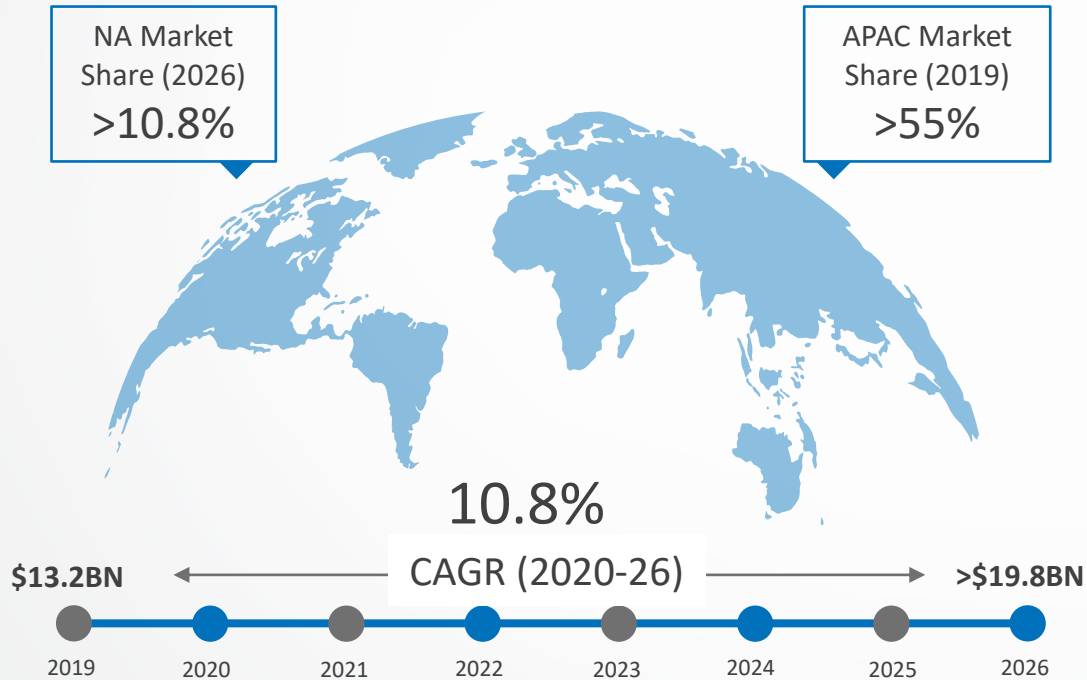
8 Acquisitions and 16 Patent & Technology Licenses Over the Last 6 Years



# Large Markets Poised for Exponential Growth

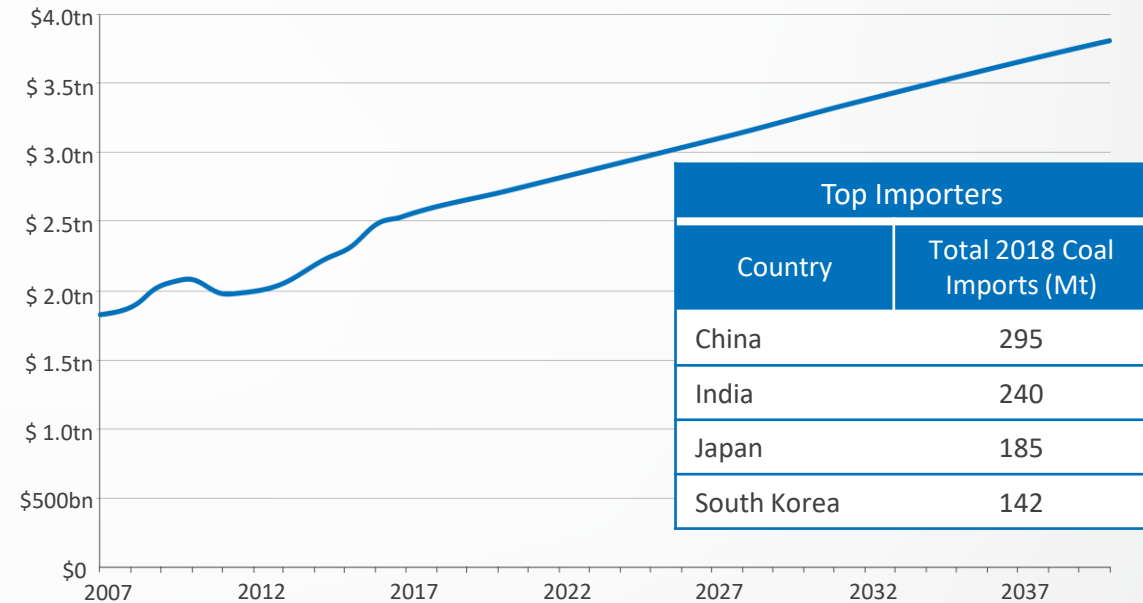
Strategic Priorities Aligned with High Growth Opportunities

## Rare Earth Elements



## Metallurgical Carbon

~\$3.2 Trillion Average Annual Global Spend on Infrastructure Forecasted Over the Next 20 Years<sup>1</sup>



Met Carbon Demand Highly Correlates to Infrastructure Spend

1. Oxford Economics: Global Infrastructure Outlook



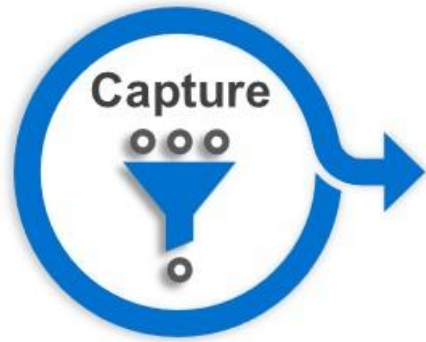
# *re*ELEMENT TECHNOLOGIES



Producer of rare earth and critical elements  
for the electrification marketplace

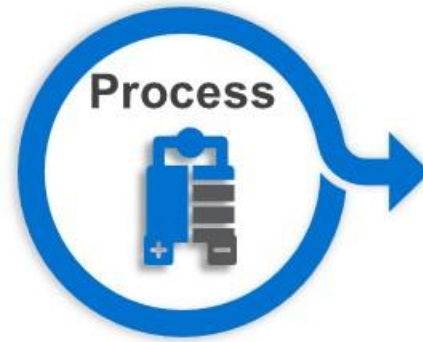
# Rare Earth and Critical Elements: Innovating for a Global Solution

The world needs a streamlined process that is not only low-cost and scalable but can also comply with strict environmental regulations in order to truly compete.



**Capture** vs. Extraction

Non-environmentally invasive and forecasted to be a 1/10th the costs of extraction



Increase concentrate and produce high value byproducts, including graphene, carbon, purified concrete-grade fly ash and hydrogen

Utilizing byproduct economics



Isolation and purified of rare earth and critical elements

Environmentally safe

Proven tech new application  
(Used in drug industry for decades)



# Lead Domestic Supply Chain for Rare Earth & Critical Element Processing

Building first commercial-scale critical and REE processing and purification facilities in the US utilizing private capital

Leveraging most environmentally safe and scalable methods ever developed



Leveraging over 16 exclusive patents and technologies licensed from four leading universities



Technologies developed with support from federal government that are highly aligned with national priorities



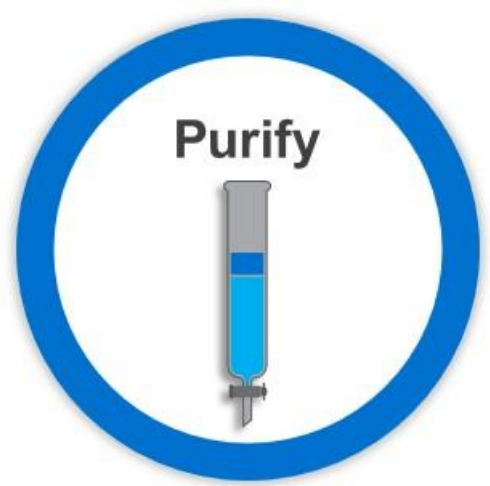
Ability to process material from:

- Controlled feedstocks
- Recycled high-value end-of-life products
- Third-party REE & CE concentrate feedstocks

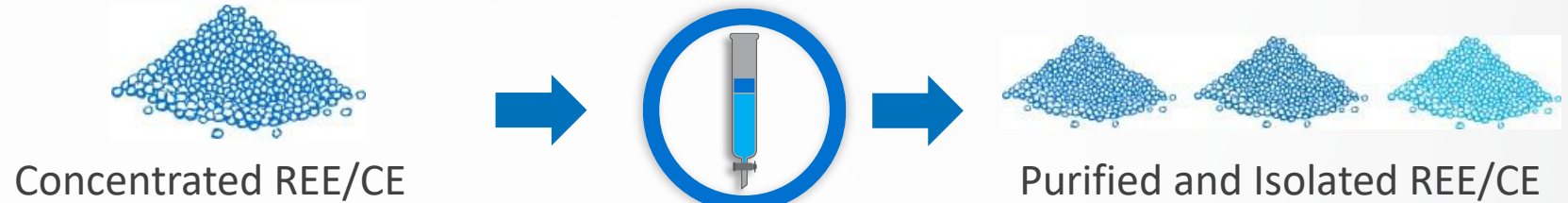


# Purify – LAD Chromatography

*New Application to a Proven and Commercial Technology*



Creating Isolated & Pure Highly-Valuable REE/CE



**2 Staged Ligand Assisted Displacement (LAD) Chromatography**

Key Highlights:



Pure REE/CE are more valuable than concentrate



Exclusive technology to recycle permanent magnets and batteries

**Cost**  
(Low/Medium)



**Environmental Impact**  
(Neutral)



# Advantages to LAD Chromatography

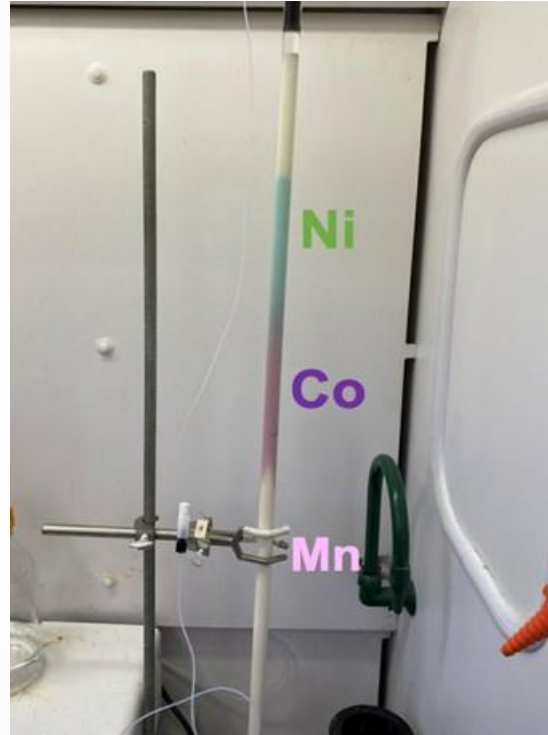
	Solvent Extraction	reELEMENT Chromatography	Advantages
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Flammable solvents</li> <li>• Toxic extractants</li> <li>• Harsh chemicals</li> </ul>	<ul style="list-style-type: none"> <li>• Aqueous solution</li> <li>• Dilute acid &amp; base</li> </ul>	Safer
<b>Chemical cost</b>	High	<b>Very Low</b>	Lower
<b>Purity, Yield</b>	99.5%, 88-90%	>99.5%, 99%	Higher
<b>Productivity</b>	Low	High (10x Solvent)	Higher
<b>Footprint</b>	High (100x Chromatography)	Low	Smaller footprint
<b>Start-up time</b>	Months	Days	Shorter
<b>Feedstocks and products</b>	Specific	<b>Flexible</b>	More versatile
<b>Separators</b>	>1,000	5	Fewer
<b>Initial investment</b>	High	<b>Low</b>	Lower
<b>Waste</b>	Acidic wastewater	<b>Almost zero waste</b>	Cleaner

# Success in Battery Metal Isolation & Purification

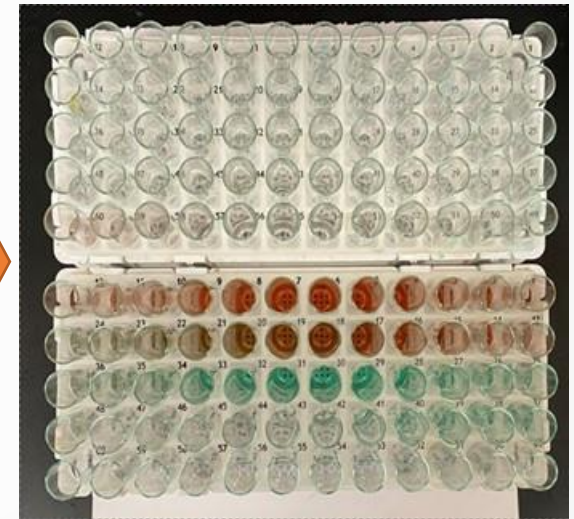
*Isolation and Purification of Battery Metals to > 99.5% Purity from End-of-Life Lithium-Ion Batteries from EV's (Lithium, Cobalt, Nickel & Manganese)*



Single EnerDel Waste Lithium-Ion Battery from EV



Chromatography Separation



Isolated and Purified Battery Metals

3	<b>Li</b>	Lithium 6.94
25	<b>Mn</b>	Manganese 54.938044
27	<b>Co</b>	Cobalt 58.933194
28	<b>Ni</b>	Nickel 58.6934



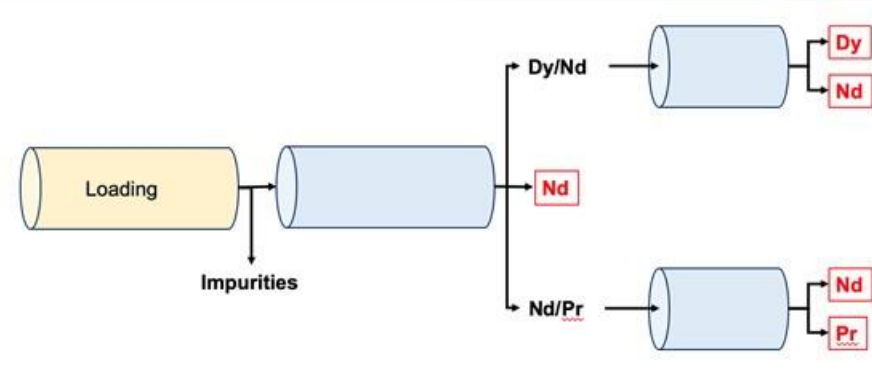


# Success in Magnet Metal Isolation & Purification

*Isolation and Purification of Rare Earth Magnet Metals to > 99.5% Purity and 99% Yield from End-of-Life Permanent Magnets from Wind Turbines and EVs*



End-of-Life Permanent Magnets



Two-Zone LAD Chromatography



60 <b>Nd</b> Neodymium 144.242	59 <b>Pr</b> Praseodymium 140.90786	66 <b>Dy</b> Dysprosium 162.500
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Isolated and Purified Magnet Metals



# Our IP – Synthesizing the Best and Brightest to Create Real Solutions

Patent No. / Agreement	Partner / Assignee	Description
9,199,867 PCT/US2010/031033	Ohio University	Electrolysis: Carbon-Based Electrolysis, Production of Hydrogen, Liquid Fuels and Carbon Nanotubes Simultaneous Removal of Metals, Ammonia and Urea from Water Methods for the Synthesis of Graphene from Coal, Carbon Chars and Carbon Solid Resources Roll-to-Roll Transfer of Graphene and Substrate Recovery
8,029,759 8,409,305 PCT/US2010/027922	Ohio University	Pretreatment Method for Synthesis of Carbon Nanotubes and Carbon Nanostructures from Coal and Carbon Chars
10,544,503 PCT/US2013/035627	Ohio University	Method of Producing Graphene
Sponsored Research	Texas Tech University	Commercialized development and refinement of electrolysis process for our specific feedstocks
10,597,751 PCT/US2015/040975 2955608 - 2015289483	Purdue University	Ligand Assisted Displacement (LAD) Chromatography for High Purity Metal Ion Separation
16/193,566	Purdue University	Preparation of Rare Earth Metals and Other Chemicals from Industrial Coal-Based Waste and Byproducts
62/578,434 PCT/US2018/057712 3080517 - 2018354377 18871054.5	Purdue University	Methods for Designing an Efficient Preparative Chromatographic Separation Process
62/982,811	Purdue University	Multi-Zone LAD Chromatography for the Purification of Complex REE Mixtures
62/982,807	Purdue University	Two-zone LAD Chromatography Method for the Purification of REEs from Waste Magnets
63/323,755	Purdue University	Multi-Dimension, Multi-Mode Chromatography Methods for Producing High Purity, High Yield Lithium, Cobalt, Nickel, and Manganese Salts From Waste Lithium-Ion Batteries and Other Feedstocks
Sponsored Research	Purdue University	Commercialized development and refinement of LAD Chromatography for our specific feedstocks
Sponsored Research	Penn State University	Pyrite Segregation and Recovery of Rare Earth Elements from Coal-Based Waste Streams

# Partnerships that Matter



Davidson School of Chemical Engineering / Purdue Research Foundation - Science & Technology Expertise, Sponsored Research Partnership



Edward E. Whitacre Jr. College of Engineering - Science & Technology Expertise, Sponsored Research Partnership



Engineering, Design, Operational Expertise – Critical & REE Chromatography Isolation and Purification Facilities



The Heritage Group / HG Ventures – Upstream & Downstream partnership development, feedstock aggregation, materials science, environmental services

Institutionally Owned Wind Farms

Feedstock suppliers of end-of-life wind turbines / rare earth permanent magnets



# AMERICAN CARBON



Infrastructure, not old-world energy



# Fastest Growing U.S. Supplier of High-Quality Met Carbon to the Steel Industry

Essential Ingredient in Steelmaking & Specialty Alloys / Silica

## Raw Materials



### Met Carbon (for Coke)

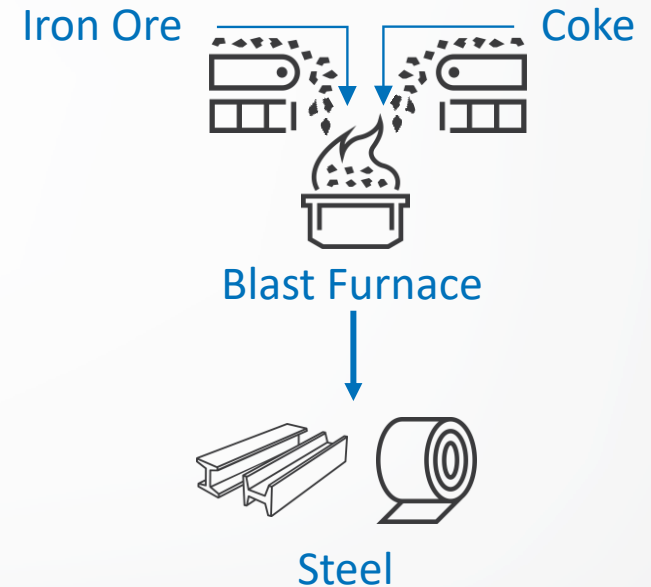
- Heated to ~1100°C in the absence of oxygen for 12-36 hours
- Removes impurities to leave almost pure carbon



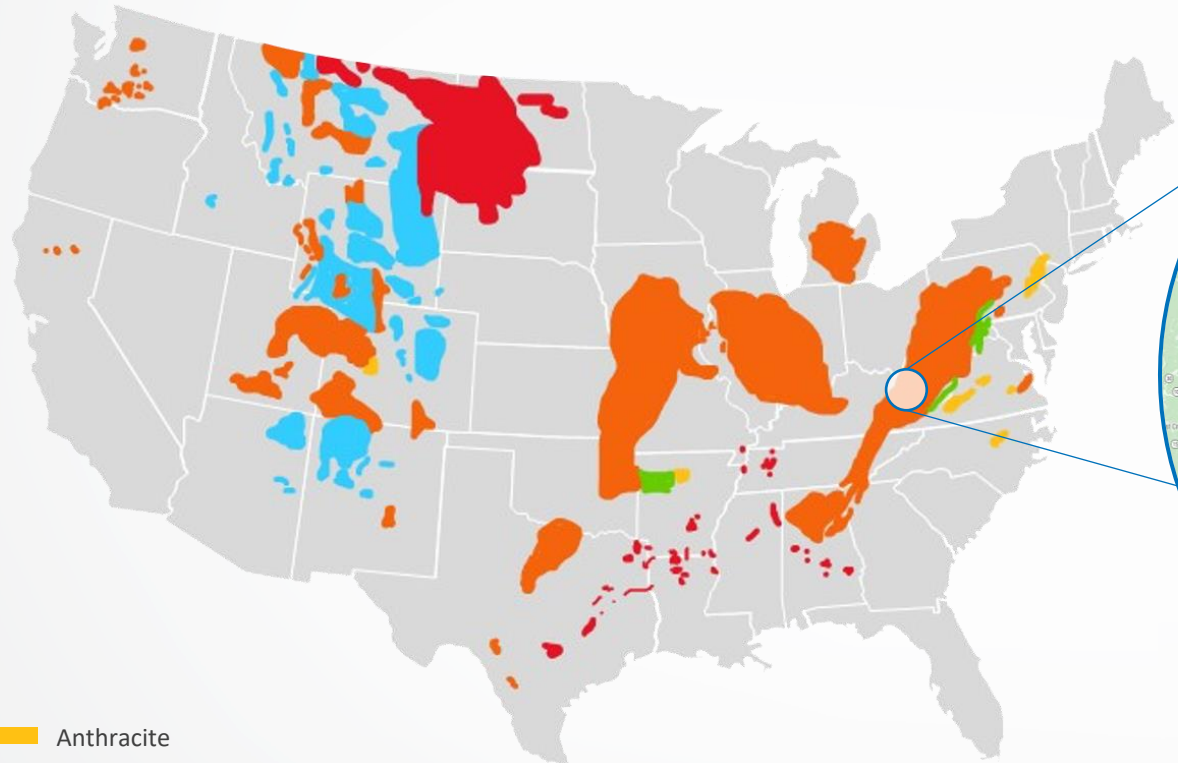
### Iron Ore



## Steelmaking



# Large Organic Growth Potential From Current Asset Base



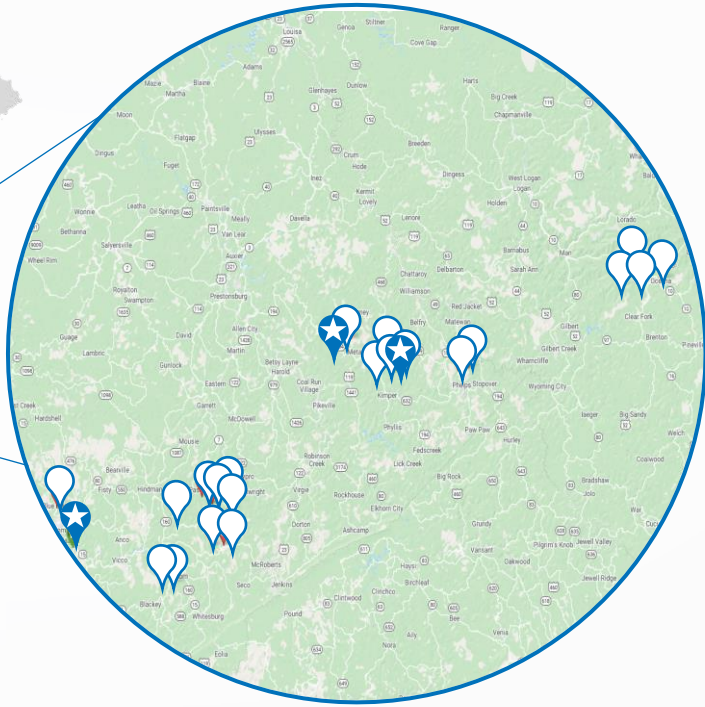
- Anthracite
- Low Volatile Bituminous (Met Carbon)
- Medium and High Volatile Bituminous (Met Carbon)
- Subbituminous
- Lignite

3 | Currently Active Sites

~3-4Mt | Projected Annual Production

>24 | Portfolio Of Sites

~300Mt | Total Current Deposits



# Innovative Approach Creates Significant Competitive Advantage



20-30% lower production costs over competitors



Minimum Capex needed to support organic growth



Streamlining operations to focus on efficiency and flexibility



Leveraging asset base to support parallel business lines and reduce overhead costs



## ESG Successes

## Environmental - Social

## Environment:

Bond releases: over 7,000 net impacted acres

Environmental liabilities: reduced over \$20,000,000

Recycling strategy versus extraction to meet rare earth and battery metals domestic supply chain

## Social / Community

Received the Sentinels of Safety Award

Average employee pay 200%+ above regional minimum wage

Over \$60 million in direct payroll over last four years

Creating stable jobs in economically distressed areas

## ESG Initiatives

Achieve carbon neutral status by 2030

Maintain net negative new acres impacted

Investment in energy efficient equipment, supply chains and processes

Promote diversity and inclusion at all levels

Corporate philosophy built around accountability at all levels

We look to build upon track record of success with regards to environmental stewardship by physically remediating the earth and fixing the negative issues left behind by the legacy industry.



# Team



**Mark Jensen**  
Chairman & CEO  
American Resources  
Corporation



**Kirk Taylor**  
CFO  
American Resources  
Corporation



**Tarlis Thompson**  
COO  
American Resources  
Corporation



**Thomas Sauve**  
President  
American Resources  
Corporation



**Mark LaVerghetta**  
VP Corp Fin & Comms  
American Resources  
Corporation



**Greg Jensen**  
General Counsel  
American Resources  
Corporation



**Jeff Peterson**  
Vice President  
American Rare Earth, LLC



**William Smith III**  
Chromatography Engineer  
Industry Expert  
33 years at Eli Lilly & Co.  
*VP Global Engineering &  
Manufacturing Services*



**Daniel Hasler**  
Advisor - Former Indiana  
Commerce Secretary -  
Purdue Research  
Foundation 31 years at Eli  
Lilly & Co.



**N.-H. Linda Wang, Ph.D.**  
Maxine Spencer Nichols  
Professor, Purdue  
University, Davidson School  
of Chemical Engineering



**David Sauve**  
Vice President  
American Rare Earth, LLC



**Gerardine Botte, Ph.D.**  
Whitacre Department Chair  
in Chemical Engineering,  
Texas Tech University,  
Director – American  
Resources Corporation



**Yi Ding**  
Postdoctoral Research  
Associate Purdue University  
*Recovery of Critical & REEs  
from Complex Mixtures*



**Christian Alvarez-Pugliese,  
Ph.D.** Electrolysis Project  
Manager American  
Resources Corp / CETI Lab  
– Texas Tech Univ.



**Che-yu Chou**  
PhD student, Purdue University  
*Recovery of Critical & REEs  
from Waste Magnets*



**Gabriel Perez Schuster**  
PhD Student,  
Purdue University *Recovery  
of Critical & REEs from  
Waste Batteries*



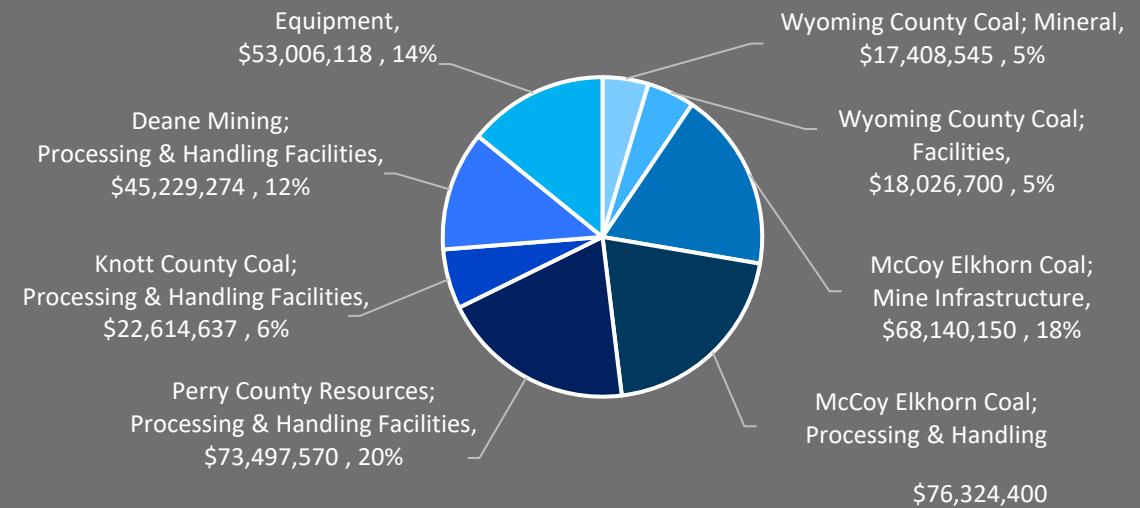
**Chih-Yao (Eddie) Tsao**  
PhD Student  
Purdue University *Recovery  
of Critical & REEs from Coal-  
based feedstocks*

# Independently Appraised Asset Value

Amassed substantial asset base at a very significant discount to replacement value, with very low leverage to support massive growth opportunities

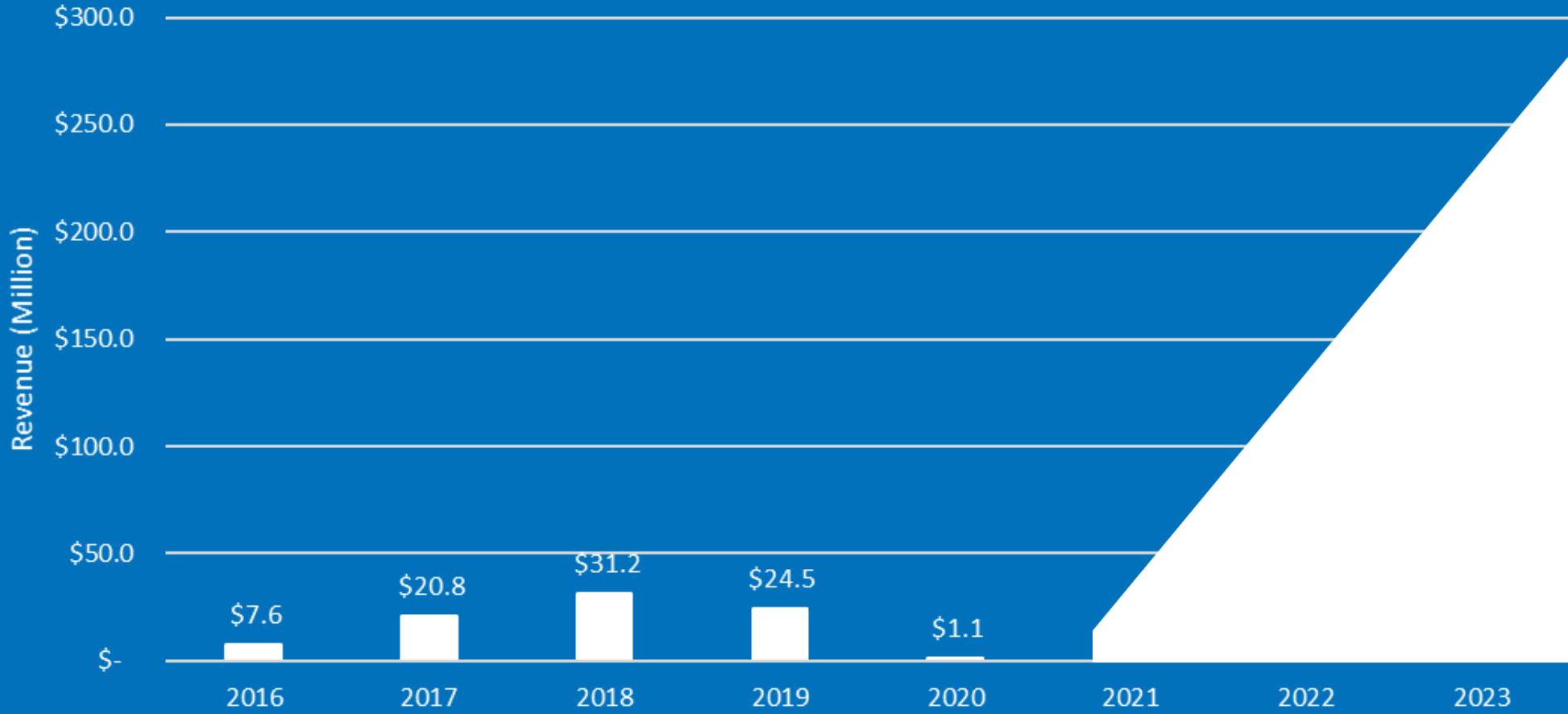
American Resources Corp's Asset	Appraised Value <sup>1</sup>
Wyoming County Coal; Mineral	\$17,408,545 <sup>2</sup>
Wyoming County Coal; Facilities	\$18,026,700 <sup>2</sup>
McCoy Elkhorn Coal; Mine Infrastructure	\$68,140,150 <sup>2</sup>
McCoy Elkhorn Coal; Processing & Handling Facilities	\$76,324,400 <sup>2</sup>
Perry County Resources; Processing & Handling Facilities	\$73,497,570 <sup>3</sup>
Knott County Coal; Processing & Handling Facilities	\$22,614,637 <sup>3</sup>
Deane Mining; Processing & Handling Facilities	\$45,229,274 <sup>3</sup>
Equipment	\$53,006,118 <sup>4</sup>
<b>TOTAL</b>	<b>\$374,247,394</b>

## American Resources Corporation Asset Values Total Value: \$374,247,400



1: Appraised replacement value or implied replacement value is based on appraisals completed on the Company assets or using metrics based on appraisals for implied replacement value; 2: Darco Appraisal; 3: Implied on Darco Appraisal of McCoy Elkhorn Coal; 4: Purchase Price, Hilco Appraisal and Replacement Cost

# Year Over Year Sales



# Equity Value Contributors



## Acquisition Opportunity Inc. NASDAQ: AMAOU

American Resources Corporation receives the SPAC sponsor economics from AMAO. American Resources post closing and lock up intends to dividend % of shares to underlying investors.



## Graphene and Carbon Nanostructure Technologies

(Pursuing NASDAQ IPO)

AREC is focused on monetizing patents for graphene and carbon nanotube production for specific applications. American Resources post closing and lock up intends to dividend % of owned shares to underlying investors.



# Financial Snapshot

## NASDAQ: AREC

**~30%**  
Insider Held

- Management represent the largest combined shareholder of the company
- Intelligently Capitalized Balance Sheet

**~\$165M** Market Cap

**~2.0M** Avg. 3m Volume<sup>1</sup>

**~65M** Shares Outstanding<sup>2</sup>

1: As of December 31, 2021

# Investment Summary

Fastest Growing Producer of Met Carbon and Rare Earth Elements to the Growing Global Infrastructure and Electrification Markets



## Multiple High-Growth Opportunities

Ability to activate sites as global demand increases



## Competitive in Global Market

Low-cost structure allows for preferred pricing

Management team and strategy with proven expertise in operational excellence

