

# RAMACO

## Independent Preliminary Economic Assessment Report from Fluor Corporation Confirms Commercial and Technical Feasibility of Ramaco's Brook Mine Rare Earth Deposit

LEXINGTON, Ky., July 1, 2025 /PRNewswire/ – Ramaco Resources, Inc. (NASDAQ: METC, METCB) ("Ramaco Resources" or the "Company") is pleased to announce that the Fluor Corporation ("Fluor") will deliver its full Preliminary Economic Assessment ("PEA") of Ramaco's Brook Mine on or before July 8, 2025. Today, Fluor has provided Ramaco with the summary results of that report which the Company is disclosing in a separate letter to Shareholders from Ramaco's Chairman and Chief Executive Randall Atkins.

The Fluor PEA states that the project is both commercially and technologically feasible. This report marks a significant step forward and builds on Fluor's earlier interim preliminary techno-economic analysis. The Brook Mine holds what is believed to be the nation's largest unconventional deposit of rare earth elements and critical minerals sourced from coal and carbonaceous ore.

### Key Highlights:

- **Shareholder Letter:** In conjunction with today's press release, the Company is releasing a shareholder letter from Randall Atkins, Ramaco's Chairman and Chief Executive describing the economics and the Company's vision for the Brook Mine rare earth element and critical mineral project. The shareholder letter can be found on the Company's website.
- **NPV & IRR:** The results of the Brook Mine PEA outline NPV8 (net present value using an 8% discount rate) of \$1.197 billion and NPV10 (net present value using a 10% discount rate) of \$898 million (pre-tax) and an IRR (internal rate of return) of 38% with a total initial capital cost estimate of \$473 million (excluding a 22% capital expenditure contingency).
- **Annual Economics and Production:** The results of the Brook Mine PEA outline that based upon the current mine plan of a 2 million ton per annum production of coal that the adjusted EBITDA (see footnote for definition) from the rare earth and critical mineral operation would be \$134 million by 2028. Steady state adjusted EBITDA of \$143 million would be reached by 2029 on \$378 million of annual revenue. At steady state, 1,242 annual short tons of oxide are projected to be produced, which include 456 tons of gallium, germanium, scandium, terbium, dysprosium, neodymium, and praseodymium. Given the size of the Brook Mine deposit, this level of both mining and processed oxide production is scalable.
- **Full PEA:** The full Preliminary Economic Assessment from Fluor will be available on or before July 8<sup>th</sup> on the Company's website. The Company's recently updated Exploration Target from Weir International Inc. remains unchanged and is on the Company's website. As a reminder, it shows a total rare earth oxide of up to 1.7 million tons from the currently permitted 4,500-acre area of the Brook Mine. An additional approximately 11,500 acres remain for future exploration and development.

We believe that the updated Preliminary Economic Assessment conducted by Fluor offers compelling new confirmation of the Brook Mine project's viability. This independent evaluation not only validates Ramaco's current development strategy but also provides strong momentum to advance the project's next phases.

Unlike traditional rare earth element (REE) deposits, which often involve complex, high-cost processing and the management of radioactive elements contained in the ore, the Brook Mine deposit is composed of soft, friable, clay and rock associated with coal and negligible radioactive elements. This unique geological profile significantly reduces the cost and requirement for energy-intensive processing typically required in hard rock mining.

As a result, the project is expected to benefit from a more efficient separation and extraction process with lower capital intensity than with hard rock deposits. Additionally, the simplified mineralogy supports a streamlined flow sheet, which could reduce operational complexity and lead to lower overall capital and operating costs.

Specifically, a flowsheet for the Brook Mine project comprises a conventional comminution circuit, a multi-stage liberation process, followed by purification, separation, and calcination to produce separated critical mineral oxides. Aspects of this flowsheet contain proprietary intellectual property.

In terms of the details, the capital cost estimate was completed by Fluor to an AACE Class 5 estimate including a 22% contingency and escalation. This is shown below.

Capital Costs	(\$MM)
Mine	\$ 30
Processing Plant	\$ 439
Infrastructure	\$ 4
Total Before Contingency	\$ 473
Contingency & Escalation (22%)	\$ 106
<b>Total Initial Capital Cost</b>	<b>\$ 579</b>

Specifically, a successful bench-scale test work program managed by Fluor, supports flowsheet development and confirms exceptional light and heavy rare earth element leach extractions averaging 90%, and overall leach extractions including critical minerals achieving mid-80's %.

On the production front, the chart below shows projected annual production levels.

Annual Production Rare Earth Oxides (Steady State)	(short tons)
NdPr	254
Gallium	98
Scandium	65
Dysprosium	25
Germanium	9
Terbium	5
Total of Above	456
Other	786
<b>Total Rare Earth Oxide Production</b>	<b>1,242</b>

The project cost estimates are shown below.

Annual Costs (Steady State)	(\$MM)
Mining (net)	\$ 27
Processing	\$ 195
Production Taxes	\$ 9
SG&A and Other	\$ 4
<b>Total Annual Costs</b>	<b>\$ 235</b>

On the revenue front, long term rare earth and critical mineral pricing forecasts for domestic sourced materials were obtained from industry sources. The chart below shows the prices for our most valuable products together with their projected revenue and production metrics.

Brook Mine Summary				
	Tons (Short)	Revenue (\$ MM)	Price (\$/Metric Ton)	%Of Production
NdPr	254	\$30	\$130,000	20.4 %
Gallium	98	\$68	\$770,000	7.9 %
Scandium	65	\$222	\$3,750,000	5.3 %
Dysprosium	25	\$19	\$850,000	2.0 %
Germanium	9	\$21	\$2,435,250	0.8 %
Terbium	5	\$14	\$3,000,000	0.4 %
<b>Total</b>	<b>456</b>	<b>\$374</b>	<b>\$904,711</b>	<b>36.7 %</b>

Other REEs	786	\$3	\$4,806	63.3 %
<b>Total</b>	<b>1,242</b>	<b>\$378</b>	<b>\$335,189</b>	<b>100.0 %</b>

The chart below shows that Adjusted EBITDA of \$143 million is anticipated by 2029 at steady state production on the back of \$378 million of annual revenue.

Annual Revenue & Adjusted EBITDA (Steady State)	(\$ MM)
Total Revenue	\$ 378
Total Costs	\$ 235
<b>Total Adjusted EBITDA</b>	<b>\$ 143</b>

An initial mine life of 42 years is assumed in the PEA. However, the initial mine life consumes less than 4% of the estimated total mineral inventory at the Brook Mine deposit. This highlights the large-scale long-term potential of this mine to be a major domestic producer of rare earths and critical minerals.

Initial mining activities have commenced at the Brook Mine to procure representative ore for the upcoming pilot scale metallurgical testing. These efforts will support the construction and commissioning of an onsite pilot plant, targeted to begin in the fourth quarter of 2025. The on-site pilot plant will support commercial design and product development and is anticipated to be fully operational by mid-2026 to ship product to potential customers for testing.

"This report marks an important milestone in Ramaco's transition to become both a rare earth and critical mineral, as well as metallurgical coal producer. The development of our Brook Mine deposit is important not only to Ramaco but also to our country," said Randall Atkins, Chairman and CEO of Ramaco Resources. "Importantly, this analysis from Fluor, an internationally recognized independent engineering firm, validates our continued pursuit of the development of this potentially valuable and nationally strategic deposit.

"When we are in production, the Brook Mine will be one of only two domestic sources of rare earth elements. However, it will be the only domestic source of both heavy rare earth elements and critical minerals that are vital to our nation's defense industry. Based on just the magnet rare earth oxides projected to be produced at current levels, we believe the Brook Mine would support 3-5% of total United States permanent magnet demand or more than 30% of the demand for U.S. defense applications estimated at 10% of total U.S. magnet metal demand.

"Today is an exciting day for Ramaco's transition, but also for a new supply line for the country's critical need for rare earth elements. China may now be dominating these critical materials. But this will be America's rare earth mine.

"We will continue to keep our shareholders apprised of important developments along our path to full-scale commercialization. I would encourage you to read my shareholder letter that outlines our vision for the Brook Mine."

#### **About Ramaco Resources, Inc.**

Ramaco Resources, Inc. is an operator and developer of high-quality, low-cost metallurgical coal in southern West Virginia, and southwestern Virginia and a developing producer of coal, rare earth and critical minerals in Wyoming. Its executive offices are in Lexington, Kentucky, with operational offices in Charleston, West Virginia and Sheridan, Wyoming. The Company currently has four active metallurgical coal mining complexes in Central Appalachia and one coal mine and rare earth development near Sheridan, Wyoming in the initial stages of production. In 2023, the Company announced that a major deposit of primary magnetic rare earths and critical minerals was discovered at its mine near Sheridan, Wyoming. Contiguous to the Wyoming mine, the Company operates a carbon research and pilot facility related to the production of advanced carbon products and materials from coal. In connection with these activities, it holds a body of roughly 76 intellectual property patents, pending applications, exclusive licensing agreements and various trademarks. News and additional information about Ramaco Resources, including filings with the Securities and Exchange Commission, are available at <https://www.ramacoresources.com>. For more information, contact investor relations at (859) 244-7455.

#### **INFORMATION REGARDING SUMMARY DESCRIPTIONS FROM FLUOR REPORT OF PROPRIETARY INFORMATION**

Please note that information and details contained in the summary of the PEA provided by Fluor has been generally summarized or redacted from inclusion herein. The summary or redaction of the details and Information provided by Fluor as it is presented herein does not affect the overall findings or conclusions presented herein. Ramaco reserves all its intellectual property ownership and rights to any and all of the information disclosed herein and does not waive its rights or ownership regarding the proprietary data, information and processes described herein.

#### **CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS**

Many of the statements contained in this letter constitute "forward-looking statements" within the meaning of the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements, other than statements of historical fact included in this letter, regarding our strategy, objectives, intended investigative, research and development efforts, future operations, estimated value of the REE deposits, projected costs, prospects, plans and objectives of management are forward-looking statements. When used in this letter the words "could," "believe," "anticipate," "intend," "estimate," "expect," "project" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. Forward-looking statements may include statements about:

- identification and implementation of commercially feasible extraction processes, and establishment of pilot and production extraction facilities.
- expected costs to develop planned and future operations, including the costs to construct necessary processing, refuse disposal and transport facilities.
- the availability of the equipment and components necessary to construct our pilot and production extraction facilities.
- estimated quantities or quality of our reserves.
- our ability to obtain additional financing on favorable terms, if required, to complete the contemplated development.
- maintenance, operating or other expenses or changes in the timing thereof.
- competition in REE and critical minerals mining and extraction markets.
- the price of REEs and critical minerals.
- compliance with stringent laws and regulations, including environmental, climate change and health and safety regulations, and permitting requirements, as well as changes in the regulatory environment, the adoption of new or revised laws, regulations and permitting requirements.
- potential legal proceedings and regulatory inquiries against us.
- the impact of weather and natural disasters on plant construction, demand, production and transportation.
- geologic, equipment, permitting, site access and operational risks and new technologies related to REE and critical minerals mining.
- transportation availability, performance and costs.
- availability, timing of delivery and costs of key supplies, capital equipment or commodities such as diesel fuel, steel, explosives and tires.
- timely review and approval of permits, permit renewals, extensions and amendments by regulatory authorities.
- our ability to comply with certain debt covenants; and
- risks related to weakened global economic conditions and inflation.

These forward-looking statements represent Ramaco Resources' expectations or beliefs concerning guidance, future events, anticipated revenue, future demand and production levels, macroeconomic trends, the development of ongoing projects, costs and expectations regarding the commercial feasibility of mining and extracting Ramaco's REEs, and it is possible that the results described in this letter will not be achieved. These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of Ramaco Resources' control, which could cause actual results to differ materially from the results discussed in the forward-looking statements. Any forward-looking statement speaks only as of the date on which it is made, and, except as required by law, Ramaco Resources does not undertake any obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. New factors emerge from time to time, and it is not possible for Ramaco Resources to predict all such factors. When considering these forward-looking statements, you should keep in mind the risk factors and other

cautionary statements found in Ramaco Resources' filings with the Securities and Exchange Commission ("SEC"), including its Annual Report on Form 10-K and Quarterly Reports on Form 10-Q. The risk factors and other factors noted in Ramaco Resources' SEC filings could cause its actual results to differ materially from those contained in any forward-looking statement.

**Non-GAAP Measure - Adjusted EBITDA**

Adjusted EBITDA is used as a supplemental non-GAAP financial measure by management and external users of our financial statements, such as industry analysts, investors, lenders, and rating agencies. We believe Adjusted EBITDA is useful because it allows us to evaluate our operating performance more effectively.

We define Adjusted EBITDA as revenue minus operating expenses, exclusive of net interest expense, depreciation, depletion, and amortization expenses; income taxes; and accretion of asset retirement obligations.

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