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Hearing on:

"Unleashing U.S. Energy Dominance and Exploring New Frontiers"

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MOMENTUM
TECHNOLOGIES

Testimony of

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Chairman Gosar, Ranking Member Dexter, and distinguished Members of the Subcommittee: thank you for the opportunity to appear today. My name is Mahesh Konduru, and I am the CEO of Momentum Technologies, Inc. (MTI), a U.S.-based technology company recovering and processing lithium, nickel, cobalt, copper, and rare earth elements from primary (mining) and secondary (battery scrap, magnet waste, coal tailings, and other) sources. Momentum's mission is to deliver safe, scalable, sustainable, and commercially attractive processing technology that strengthens domestic supply resilience for critical minerals.

The title of this hearing, *"Unleashing American Energy Dominance and Exploring New Frontiers,"* speaks directly to the challenge in front of us. Every frontier of American energy strength—AI power demand, grid-scale energy storage, advanced defense energy systems, motors that convert electricity into motion, and domestic manufacturing—depends on stable access to critical minerals. These minerals *are* the energy system: they are how we store energy, how we move energy, and how we convert energy into mission-critical work.

We support this Subcommittee's oversight efforts to reduce reliance on foreign sources, particularly China, for rare earths and critical minerals. Momentum wants to work with you, your colleagues, and this Administration to advance national security and improve domestic supply chain resilience to unleash U.S. energy dominance and the resurgence of advanced manufacturing in America.

I. Introduction

Momentum Technologies, Inc. (MTI) was founded in 2016. Our headquarters and demonstration facility is in Carrollton, Texas with 25 employees with the potential to grow and create more than 500 new jobs over the next five years. MTI has raised over $20M in funding from investors, including Tailwater Capital and TechMet, a U.S. government backed investment firm, and funding has been used to scale the demonstration facility and commercialize modular processing units for domestic critical minerals supply.

In Carrollton, Texas we process a range of feedstocks covering battery materials and rare earth elements. Our technology is versatile and can process feedstock from primary sources including from mining and from secondary sources including battery materials waste, magnet swarf, production waste, and coal and mining tailings. Our proprietary Membrane Solvent Extraction (MSX®) technology was developed in partnership with Oak Ridge National Laboratory (ORNL) under the U.S. Department of Energy's Critical Materials Innovation (CMI) Hub and validated with support from the Defense Logistics Agency (DLA) and Department of War (DoW). We use minimal solvents and energy, which means we generate nearly zero hazardous waste and reduce the lifecycle CO2 emissions by up to 75% at the plant.

In 2025 we delivered commercial-grade purity (>99%) battery materials at scale, producing battery-grade nickel sulfate and other refined salts for industrial use. In October 2025, we expanded our platform to support the national rare earth elements supply chain, adapting MSX® process flows for magnet and rare-earth recovery and scaling modular processing capabilities and have high recovery rates (>90%) for lithium, cobalt, nickel, and both light and heavy rare earth elements. We have secured supply agreements and MOUs representing over $150 million in potential revenue across battery recycling, rare earth refining, and copper recovery applications and our commercial pipeline demonstrates immediate market demand for domestic processing capacity. MTI is ready and able to play an active role in advancing Congress' and the Trump Administration's goal to power our energy, defense, and technology supply chains with critical minerals and REEs that are mined and processed in the United States.

II. Background on Processing Critical Minerals Including Rare Earth Elements

While the U.S. Geological Survey (USGS) is mapping new domestic deposits and advancing the science to better understand how geology influences their quality, size, and viability for extraction, the real bottleneck in the supply chain is processing - the conversion of raw ores, scrap, or other feedstocks into high-purity metals that manufacturers can use directly. Processing encompasses the full material lifecycle, from mining, metal intermediary generation, final product manufacturing, and end-of-life reuse and recycling.

According to a November 2025 report on Metals Processing published by the Department of Commerce's National Institute of Standards and Technology:

> "Making metals processing more sustainable and resilient against supply chain disruptions and resource scarcity is key to promoting U.S. innovation and industrial competitiveness while strengthening economic and national security[1]."

Roughly 90 percent of the separation and processing of critical minerals and REEs is happening in China[2]. This means even if we mine or recover critical minerals and REEs here at home, they are sent to China for separation and processing and then back to the U.S. This processing bottleneck is not only extremely expensive and environmentally intensive, it represents a more significant vulnerability than mining (China controls 70% mining). The implications are significant: even if the U.S. secures through domestic sources or agreements with aligned trading partners sufficient raw materials, without robust, high-purity processing capabilities onshore, those materials cannot be effectively transformed into the magnets, batteries, or alloys needed for critical infrastructure applications. This creates both national security risk and economic disadvantage, as the U.S. remains dependent on foreign supply chains for components that are essential to satellites, AI data centers, semiconductors, drones, and advanced weapon platforms and equipment.

To achieve true energy dominance and supply-chain resilience, the U.S. must control the entire critical-mineral lifecycle – from extraction to high-purity processing and downstream manufacturing. Momentum Technologies' approach addresses this gap, with proven technology and scalable infrastructure, turning domestic feedstocks into commercially usable, military-grade materials, thereby reducing strategic dependence and strengthening the industrial base.

III. Mines to Magnets & Mines to Batteries: Momentum Technology is Solving Supply Chain Bottlenecks

Momentum's MSX® technology is unique in its ability to recover high-value metals from diverse, complex feedstocks, including mined materials, production scrap, battery black mass, magnet swarf, and mining waste including coal tailings. In the rare earth element supply chain, we can also process and separate both light and heavy rare earths which is difficult because they have nearly identical chemical properties making it extremely hard to separate them from one

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[1] https://www.nist.gov/news-events/news/2025/11/building-sustainable-metals-infrastructure-nist-report-highlights-key

[2] https://www.csis.org/analysis/chinas-new-rare-earth-and-magnet-restrictions-threaten-us-defense-supply-chains

another[3]. Unlike metals like iron or copper, rare earths do not exist in distinct, easy-to-mine lumps. They are found mixed in a variety of rocks and geological formations, requiring complex analysis and extraction from the start. Separating and purifying heavy rare earth elements is an incredibly complex process that can require hundreds of steps. Mastering the process requires decades of experience, specialized knowledge, and a large investment of capital and time to scale up from a laboratory to an industrial level. Besides Momentum Technologies, very few companies have demonstrated this capability to process and separate both light and heavy metals. We are in the process of installing equipment in our facility in Carrollton, Texas to begin processing light and heavy REEs on a larger scale and to the best of our knowledge, no company outside China has yet produced the full range of separated rare earth oxides at volume, especially the heavy REEs like terbium or dysprosium, which are needed in high-performance magnets used in fighter jets (F-35 for example) and other key US defense applications.

To unleash U.S. energy dominance, we need to dominate the entire supply chain: mine to magnets and mine to batteries. As stated, a key gap is U.S. companies that can recover, process, and recycle critical minerals and rare earth elements from existing feedstocks. MTI is working towards scaling up and deploying our technology at commercial scale to onshore this supply chain.

IV. Permitting and Co-Location Advantages

As the Subcommittee is aware, a major barrier to scaling U.S. critical mineral capacity is permitting requirements. Streamlined, efficient, regulatory processes are critical. In response to President Trump's Executive Order, *Immediate Measures to Increase American Mineral Production*, the Federal Permitting Improvement Steering Council (Permitting Council) announced 50 critical mineral and mining infrastructure projects had entered the FAST-41 program, demonstrating federal commitment to reducing permitting bottlenecks.

Momentum's MSX technology with its closed-loop, minimal waste generation and modular processing approach aligns perfectly with this strategy to reduce permitting bottlenecks. Closed-loop processing with minimal waste generation, possible due to the re-use and recovery of key reagents, allows for lower permitting requirements than conventional processes. Modular processing allows for starting up a plant fast at smaller capacities, translating into lower permitting thresholds, while having the option to increase production with increased feedstock capacity. Finally, by co-locating next to feedstock sources permitting requirements to transport feedstock are eliminated. For example, we can co-locate directly at mines, magnet processing facilities, battery material producers, waste collectors, and even remote defense installations. This minimizes environmental and community impact while demonstrating immediate return on federal investment. Construction takes approximately one year versus 3-5 years for conventional facilities. There is a minimum installation capacity of just 500 TPY – a fraction of competitors' 4,000-30,000 TPY requirements.

V. Workforce Pipeline Opportunities

Expanding domestic critical minerals processing requires a skilled workforce, spanning chemical processing, materials science, engineering, manufacturing, and computer science. There are

[3] https://rareearthexchanges.com/news/why-separating-and-refining-rare-earth-elements-is-so-difficult-to-scale/

plenty of talented engineers in oil and gas, mining, coal and others that can be motivated to transition to this field. This can be started at the university level where internships can be offered across multi-functional areas of critical minerals, including AI, which must be emphasized at all educational levels because computing, robots, drones all need critical minerals, and the use of AI can dramatically improve engineering design, construction time, and manufacturing.

Momentum collaborates with local universities and training programs to develop talent pipelines. For example, we had a Texas A&M student interning this summer and he combined his passion for AI with critical minerals by working on a modeling project. We see opportunities for federal support to accelerate training and workforce readiness in critical minerals processing and recycling.

VI. Business Perspective on Unleashing U.S. Energy Dominance

Government Funding: Congressional authorizations and appropriations for funding opportunities to build small, modular critical-minerals processing projects are needed because private sources of capital have proven to be insufficient for the speed and scale of investments needed to compete with China. Without government intervention, China will continue to consolidate their control over critical mineral and rare earth supply chains. These smaller projects create immediate domestic refining capacity, reduce dependence on foreign supply chains, and build the technical and operational track record needed to scale. Federal dollars do not need to build the whole plant; they just need to de-risk the first module so private capital follows. Congressional funding can level the playing field for U.S. companies in a market that is being manipulated by foreign adversaries.

Executive Orders: The Administration has demonstrated remarkable leadership in connecting federal financing mechanisms to commercially ready technologies that can scale quickly, directly supporting national security and energy dominance. Recent Executive Orders, including the March 2025 Executive Order (EO) expanding domestic mineral production, have broadened the definition of critical minerals to include a wider range of materials essential for national defense, clean energy, and advanced technologies. These EOs not only highlight growing recognition and prioritization of the strategic importance of critical minerals but also provide clear policy signals to private sector innovators that their technologies and processes are central to U.S. priorities.

Congressional Oversight: I commend the work of this Subcommittee and the full Committee for your continued oversight efforts to highlight the importance of critical minerals and rare earths in powering our economy, national security, and everyday lives by holding hearings like this. In addition, we support your efforts to identify ways Congress can cut red tape and promote American technology capable of processing critical minerals and REEs to solve the supply chain bottlenecks and removing the barriers to unleash U.S. energy dominance.

Financial Mechanisms to Support American Businesses:

EXIM Bank: The Export-Import (EXIM) Bank plays a critical role in supporting American businesses to compete for global sales. We are now in active discussions with clients in Europe, India, and Korea to export our technology to our allies, with project sizes ranging from 300 TPY to 10,000 TPY and CAPEX in the $10–200 million range. We are well positioned to ensure this U.S.-developed technology is deployed globally to reduce dependence on China.

U.S. International Development Finance Corporation (DFC): The Development Finance Corporation's (DFC) has had a significant impact on efforts to secure U.S. critical mineral supply chains and enhance global competitiveness. For example, the DFC's series of equity investments in TechMet established a successful precedent for how government support can be deployed responsibly to speed up project development programs, crowd in additional private capital, and realize returns for U.S. taxpayers. The statutory authority of the DFC lapsed with expiration of the BUILD Act on October 1st, and we urge Congress to both reauthorize and strengthen the DFC as quickly as possible. In particular, the DFC's efforts to unleash U.S. energy dominance could be improved by lifting the current budget cap, establishing a revolving fund for equity investments, and updating country eligibility requirements. TechMet, which is partially owned by the U.S. government through the DFC equity investments, is a major investor in Momentum.

Department of War's Office of Strategic Capital (OSC): OSC recently announced significant conditional loan commitments to support rare earths manufacturing and processing capabilities. These actions are meaningful and illustrate how public-private collaboration can rapidly unlock investment in strategic, commercially proven projects, particularly those that expand domestic recycling and processing of high-purity critical materials. It would be tremendously helpful if OSC can focus on funding smaller scale projects in addition to their current focus.

Creating Supply-Chain Consortiums: Momentum Technologies benefited from the creation and funding of the U.S. Department of Energy's (DOE's) Critical Materials Innovation (CMI) Hub, established in 2013 at Ames National Laboratory. It is a research consortium focused on reducing U.S. dependence on targeted rare earth elements used in magnets and lighting and has expanded its scope to include materials essential for batteries and semiconductors. While we support CMI's strategic objectives, we encourage Congress to consider creating a supply-chain consortium that co-locates processing, recycling, and manufacturing. The idea would be to bring battery recyclers, magnet manufacturers, and critical mineral refiners into shared industrial campuses. Co-location lowers logistics costs, shortens permitting timelines, and accelerates project development — but these hubs require early-stage government capital to assemble stakeholders, acquire sites, and build shared infrastructure. Federal support would allow these consortiums to develop projects *faster and at lower risk*, strengthening the U.S. critical-minerals ecosystem end-to-end.

Momentum Technologies is uniquely positioned to capitalize on these mechanisms immediately. With demonstrated success at our Carrollton demonstration plant and a clear path to modular commercial scale-up, MTI can accelerate domestic availability of lithium, cobalt, nickel, and rare earth elements. By leveraging federal funding, financing, procurement programs, and supply-chain consortiums, we can strengthen national security, reduce reliance on foreign sources, and establish a resilient, sovereign supply chain for critical materials essential to the economy, national security, and everyday lives.

VII. Conclusion

Momentum Technologies is ready to partner with the Subcommittee and federal agencies to expand domestic processing and recycling capacity for critical minerals and rare earths to power our economy, enhance national security and reduce our reliance on foreign adversaries like China.

As export controls on battery materials (2023) and rare earths (2025) tighten globally, and with the EU targeting 40% domestic processing by 2030, the window for U.S. leadership is narrowing.

With targeted federal support, the U.S. can rapidly increase the share of domestic, high-purity critical materials, reducing strategic dependence on foreign sources while delivering secure, affordable inputs for defense and AI industries.

Thank you for the opportunity to testify. I look forward to your questions.