Washington's Rare Earth Fantasy Is Running Out of Reality

written by Jack Lifton | November 10, 2026

"A factory is not an industry. A collection of factories is not necessarily a supply chain. And a supply chain without qualified customers is not a commercial enterprise." – Jack Lifton, Co-Founder & Co-Chair, Critical Minerals Institute (CMI).

The United States is committing billions of dollars in public and private financing to create a domestic rare earth permanent magnet industry without first establishing whether that industry can produce magnets commercially, competitively, and in quantities manufacturers are prepared to buy. Washington measures progress by investment announcements, financing for proposed facilities, and plant construction whose future output is routinely described as if it were already commercially available. But a financed mine is not a producing mine, a commissioned separation plant is not necessarily a commercially viable source of separated rare earths, and a magnet factory with an announced nameplate capacity is not an operating business with qualified customers. The difference between the ability to produce something and the ability to manufacture and sell it reliably at a profit is the difference between an industrial capability and a commercial industry. This distinction seems to have disappeared from American critical minerals policy.

A more fundamental problem remains. The commercial rare earth permanent magnet industry that Washington proposes to reshore was never principally an American industry in the first place. Although American scientists and companies made essential

contributions to the invention and early commercialization of rare earth permanent magnets, mass production, continuous improvements in manufacturing processes, and integration into the products that created their enormous global markets took place predominantly in Asia. First Japan, then South Korea as a major manufacturing center for magnet-enabled products, and ultimately China developed the industrial ecosystems within which these materials became indispensable. The United States is therefore not trying to restore an industry it once dominated and later lost. It is attempting to build an American version of an industrial system that evolved elsewhere over decades in response to the requirements of manufacturers now largely located outside the United States. Assuming that financing a collection of American factories can accomplish this is a rare earth fantasy.

I believe this misunderstanding stems from an American view of industrial history that has not been updated since the end of the Second World War. From the conclusion of the Civil War until 1945, the United States possessed an almost unique combination of natural resources, skilled labor, technological innovation, manufacturing capability, and an enormous, increasingly prosperous domestic market. American industry could develop new technologies, manufacture the machinery required to commercialize them, and sell the resulting products to domestic consumers without depending upon foreign manufacturing systems. This was the industrial America that became the world’s greatest manufacturing economy. It was also an America whose economic circumstances no longer exist. Yet much of our contemporary industrial policy seems to rest on the assumption that government financing and political will can recreate those circumstances.

The Second World War began transforming this industrial world. The extraordinary expansion of American manufacturing

accelerated the development and application of metal and materials based technologies that had previously been scientific curiosities or specialty products. Aluminum, magnesium, titanium, nickel-based superalloys, and a growing range of electronic and magnetic materials became essential to increasingly sophisticated military and industrial equipment. But the war's most consequential result was not simply the further expansion of American industrial power. It was the emergence of the scientific, technological, and economic conditions that would eventually make that dominance unsustainable. The reconstruction of America's former enemies and allies, followed by the industrialization of the Asian economies, created a global manufacturing system in which technological innovation and industrial production were no longer necessarily centered in the United States.

The subsequent history of rare earth permanent magnets illustrates how completely American policymakers have misunderstood this transformation. Following the war, the rebuilding of Japan and Western Europe, and later the industrial development of South Korea, Taiwan, and China, created an enormous new global market for increasingly sophisticated manufactured products. These economies did not have to repeat every stage of America's industrial development. They could adopt newer technologies, manufacturing methods, and organizational structures while American manufacturers continued to run industrial systems built around enormous investments in existing equipment and established practices. The American assumption that technological leadership would automatically translate into permanent manufacturing leadership proved to be one of the most expensive mistakes in our industrial history.

American consumers and manufacturers initially welcomed inexpensive imported products. Japanese radios, televisions, cameras, and automobiles were followed by increasingly

sophisticated electronic equipment, calculators, computers, and communications devices. The common explanation for the success of these imports was that Asian manufacturers enjoyed lower labor costs. This was certainly true in many cases, but it obscured a much more important development. Asian manufacturers were becoming extraordinarily good at manufacturing. They were developing sophisticated production engineering, quality control, materials processing, precision equipment, and supply-chain management capabilities. Their governments, financial institutions, universities, and industrial companies increasingly understood that technological leadership required not merely invention but the ability to manufacture new products reliably, economically, and in enormous quantities. These skills and capabilities, rather than simply cheap labor, became the foundation of Asia's industrial success.

The history of rare earth permanent magnets illustrates this transformation almost perfectly. American scientists and companies made fundamental contributions to developing rare earth magnetic materials. Samarium-cobalt magnets emerged from research in which American institutions played a leading role, and General Motors (NYSE: GM) was instrumental in developing and commercializing neodymium-iron-boron magnets through its Magnequench business. It would therefore be historically incorrect to say that the United States never manufactured rare earth permanent magnets. It did. But inventing a technology, establishing an initial commercial manufacturing capability, and maintaining leadership in its global mass production are three entirely different achievements. The United States participated significantly in the first two. Japan, and later China, dominated the third. The American contribution to the science of rare earth permanent magnets should not be confused with the development of the commercial industry that now supplies most of the world's manufacturers.

Japan’s success was not an accident, nor was it simply due to inexpensive labor. Japanese manufacturers recognized that high-performance permanent magnets were enabling components for a rapidly expanding range of products, including precision motors, automotive systems, industrial machinery, consumer electronics, and eventually the miniature devices that transformed communications and information technology. Japanese industrial companies developed not only magnet-manufacturing processes but also the metallurgical, mechanical, and electrical engineering capabilities needed to incorporate those magnets into commercially successful products. They understood that the market for a magnet is not determined by the existence of a magnet factory. It is determined by the requirements of the manufacturers that design and produce the equipment in which the magnet will be used. The magnet manufacturer and the finished-product manufacturer developed together, each contributing to the other’s technology, manufacturing efficiency, and competitiveness.

South Korea followed Japan in developing a sophisticated manufacturing economy based on electronics, automobiles, machinery, and advanced materials. China subsequently developed the largest and most comprehensive industrial ecosystem, combining access to rare earth raw materials with chemical processing, separation, metal and alloy production, magnet manufacturing, and an immense domestic market for products incorporating those magnets. China did not become dominant in rare earth permanent magnets simply because it possessed rare earth mineral deposits. It became dominant because it developed the industrial capability to transform those minerals into finished components and, more importantly, because its own manufacturing economy became one of the world’s largest consumers of those components. The Chinese rare earth industry is not simply an export industry serving foreign customers. It

is an essential component of China's domestic manufacturing economy, and that fact is fundamental to assessing the future availability of Chinese rare earth products to the rest of the world.

This is the historical development that American policymakers seem determined to ignore. The world's rare earth permanent magnet industry did not develop independently of the industries it serves. It grew alongside the Asian manufacturers of automobiles, electric motors, electronic equipment, industrial machinery, and consumer products. The geographic concentration of magnet production followed the geographic concentration of the manufacturing industries that consumed magnets. The relationship was reciprocal. Magnet manufacturers benefited from proximity to demanding customers, while those customers benefited from proximity to specialized suppliers that could modify materials, improve performance, reduce costs, and meet increasingly exacting specifications. Over time, this created a depth of industrial knowledge and experience that cannot be duplicated merely by purchasing equipment and constructing buildings. Asian magnet manufacturers' true competitive advantage is not simply their production capacity. It is their accumulated industrial capability and integration into their customers' manufacturing systems.

The American automotive industry provides an especially revealing parallel. During the period of its greatest industrial dominance, the American automobile industry was substantially vertically integrated. General Motors, Ford (NYSE: F), and Chrysler possessed extensive internal capabilities in metallurgy, foundry operations, machining, tooling, component manufacturing, and engineering. They understood the materials and processes required to manufacture their products because they performed much of that work themselves. As automotive manufacturing became globalized, American companies increasingly

adopted outsourcing, just-in-time inventory management, and internationally distributed supply chains. These practices were often justified by their immediate financial advantages, but they also contributed to the movement of manufacturing knowledge and supplier capabilities away from the United States. Just-in-time manufacturing was not inherently destructive; in its original Japanese form, it was part of a highly disciplined and integrated production system. The problem arose when American management increasingly treated supply-chain organization primarily as a means of reducing inventory, capital commitments, and short-term costs rather than as an essential component of industrial capability.

The same transformation occurred throughout much of American manufacturing. Financial management increasingly displaced manufacturing management as the principal determinant of corporate strategy. Companies were rewarded for reducing capital intensity, outsourcing production, and improving quarterly financial results. Developing manufacturing skills, specialized equipment, and long-term supplier relationships became someone else's responsibility. American universities and research institutions continued to produce extraordinary scientific discoveries, but the industrial mechanisms needed to turn those discoveries into domestically manufactured products grew progressively weaker. Federal civilian research did not disappear, but the connection between publicly supported research and sustained domestic commercial manufacturing was increasingly neglected. Meanwhile, Asian governments and industries continued to develop the institutions and industrial relationships necessary to commercialize new technologies at scale. America increasingly financed innovation while Asia increasingly mastered its manufacture.

We are now witnessing the consequences of this history in Washington's approach to critical minerals. The federal

government has embraced the idea that it can create a domestic rare earth permanent magnet supply chain by financing each stage. A mine will produce rare earth-bearing minerals. A processing plant will produce a concentrate. A separation facility will produce individual rare earth compounds. A metallurgical operation will produce metals and alloys. A magnet factory will produce finished magnets. The resulting sequence looks impressive in a government presentation or an investor relations announcement. Unfortunately, it is not necessarily a commercial supply chain. It is a collection of proposed industrial operations whose economic viability depends on customer relationships that may not exist. Completing one stage does not guarantee the commercial viability of the next, and the availability of a domestic raw material does not mean the finished product can be sold competitively in a global market.

The fundamental question is not whether America possesses rare earth resources, or whether American engineers can separate rare earth elements, reduce their compounds to metals, manufacture alloys, and produce permanent magnets. We know that these things are technically possible. The questions are whether these operations can be performed at commercially competitive costs, whether their products can meet actual customer specifications, whether they can produce sufficient quantities reliably, and whether those customers have any economic reason to buy American products rather than those supplied by established Asian manufacturers. A plant that can produce a magnet is not necessarily a plant that can sell a magnet. A plant that can sell a qualification sample is not necessarily a plant that can produce thousands of tons of qualified magnets at a profit. The announced capacity of a manufacturing facility is a statement of engineering intention. It is not evidence of commercial achievement.

I have spent more than sixty years working in what I now call

technology metals, and I have learned that industrial supply chains must be built backward from the requirements of original equipment manufacturers. The OEM determines the specifications, quantities, delivery schedules, and prices that its suppliers must meet. Those requirements determine the necessary manufacturing processes, equipment, materials, and ultimately the mineral resources required. The American government's present approach too often reverses this sequence. It begins with a mineral deposit or a proposed processing technology, finances its development, and assumes that a market will somehow appear for the resulting product. This is not industrial planning. It is speculation supported by public money. The fact that the resulting facilities may be technically capable of producing materials classified as critical does not establish that anyone will purchase those materials in the quantities and at the prices necessary to sustain production.

Washington must confront another fundamental distinction. Creating a domestic manufacturing capability for national security purposes is not the same undertaking as creating a globally competitive commercial industry. The United States may reasonably decide that certain permanent magnets are so essential to its military systems that it must maintain domestic production regardless of cost. In that case, the government should identify the specific products required, establish their technical specifications, qualify suppliers, and enter into procurement arrangements sufficient to sustain the necessary industrial capability. Such an undertaking may require continuing public financial support, just as other essential national security capabilities do. Paying a premium for assured domestic availability of strategically necessary products is not inherently irrational. What is irrational is pretending that the government's willingness to pay that premium proves the resulting industry is commercially competitive.

But that is not the same as claiming that government financing can create an American rare earth permanent magnet industry capable of competing commercially with the established manufacturers of Japan and China, or with the wider Asian industrial system that consumes their products. Commercial competitiveness cannot be legislated into existence, and a grant, loan, tax credit, or government equity investment cannot guarantee it. Sustained production, customer qualification, reliable delivery, continuous technological improvement, and profitability must demonstrate it. Government-funded capacity does not establish any of these conditions. Indeed, the more we emphasize financing facility construction than demonstrating commercial performance, the greater the risk that America will create expensive industrial monuments to political ambition rather than viable manufacturing businesses.

Nor should we assume that the Asian industrial economy will remain stationary while America attempts to recreate capabilities that Asia has spent decades developing. Chinese manufacturers are not simply producing magnets for export to American customers. They are supplying an enormous and increasingly sophisticated domestic manufacturing economy. As China’s own demand for electric motors, industrial automation, robotics, automobiles, electronics, and other magnet-enabled products grows, its manufacturers will have powerful commercial incentives to serve those customers first. Japan and South Korea, meanwhile, will keep developing their own materials and manufacturing technologies. The United States is not attempting to catch a stationary target. It is trying to enter an industry whose established participants keep improving their productivity, technology, and integration with their customers. Even if American companies eventually reproduce the manufacturing capabilities Asian companies possess today, there is no reason to believe those Asian companies will not have

advanced further by the time American facilities become operational.

None of this means that the United States should abandon the development of domestic rare earth processing, metallurgy, or permanent magnet manufacturing. It means that we should stop confusing industrial capability with industrial capacity and stop treating the availability of financing as evidence of commercial feasibility. American companies have legitimate opportunities to develop specialized materials, improved separation processes, more efficient metallurgical technologies, and manufacturing capabilities that serve clearly identified customers. There may also be opportunities to supply allied manufacturers whose strategic interests favor diversification away from China. But those opportunities must be evaluated individually, based on their actual technical and economic merits, rather than incorporated into an imaginary national supply chain whose completion is always promised for some future date. Success must be measured by the production and sale of qualified materials and components, not by announcing another financing agreement or the ceremonial opening of another factory.

If the United States wishes to develop a commercially sustainable rare earth permanent magnet industry, it must begin by identifying the manufacturers that will purchase its products. Where are those manufacturers located? What products do they manufacture? What magnet compositions, dimensions, magnetic properties, coatings, and performance characteristics do they require? What are their qualification procedures? What volumes will they purchase, at what prices, and under what contractual commitments? Why would they replace established, qualified suppliers with American producers? Until these questions have credible answers, announcements of new mines, separation plants, alloy facilities, and magnet factories tell

us remarkably little about the likelihood of commercial success. Capital availability is not the same as market existence, and market existence is not the same as the ability to compete successfully.

The American industrial economy that existed between the Civil War and the Second World War no longer exists. The world has changed, and the United States played a central role in bringing about that change. We helped develop the technologies that enabled the globalization of manufacturing, and our corporations enthusiastically moved production to the regions where those technologies could be manufactured most economically. We cannot now reverse seventy years of industrial evolution simply by declaring that certain industries must return to America. In the case of rare earth permanent magnets, much of the commercial industry we propose to bring home was never principally located here in the first place. We are not restoring our grandparents' manufacturing economy. We are attempting to create a new industrial capability within a global economy whose manufacturing structure has been transformed by the very technologies that American science and engineering helped make possible.

The rare earth fantasy is the belief that money can substitute for the accumulated knowledge, skills, customer relationships, production experience, and industrial discipline that make an industry successful. It cannot. America can create strategically necessary manufacturing capabilities if it is prepared to pay their full cost, and it may develop competitive commercial businesses where genuine market opportunities exist. But it cannot recreate the industrial world of 1945 by financing an imitation of the Asian manufacturing economy of 2026. The difference between the ability to produce something and the ability to manufacture and sell it reliably at a profit is the difference between an industrial capability and a commercial

industry. That is the standard against which every publicly financed American rare earth project should ultimately be judged.

A factory is not an industry. A collection of factories is not necessarily a supply chain. And a supply chain without qualified customers is not a commercial enterprise. Until Washington understands these distinctions, the American rare earth permanent magnet industry will remain less an industrial achievement than an expensive exercise in wishful thinking.