The Due Diligence That Washington Forgot: How to Build an American Rare Earth Magnet Industry

written by Jack Lifton | November 17, 2026

“The United States cannot reproduce in a few years, through financial commitments alone, an industrial system that took decades to develop. Its task is to identify and support the industrial organizations, or combinations of organizations, that can deliver the materials American manufacturers actually require. The distinction between capacity and capability is the distinction between an industrial policy that exists on paper and an industry that exists in reality.” – Jack Lifton, Co-Founder & Co-Chair, Critical Minerals Institute (CMI).

The United States government cannot manufacture a single rare earth permanent magnet by announcing a new mine, financing a separation plant, subsidizing a metal refinery, or celebrating a magnet factory under construction. A magnet is manufactured only when the necessary raw materials have been converted, through a sequence of industrial processes, into a finished product that meets a customer’s specifications and can be produced repeatedly, reliably, and at an economically sustainable cost. Until that happens, no functioning supply chain exists. There is only a collection of industrial assets, technologies, and financial commitments whose ability to operate together remains to be demonstrated.

This is the fundamental distinction that Washington has failed to make in its attempts to establish an American rare earth permanent magnet industry. The federal government has committed

billions of dollars to developing domestic critical minerals capabilities, but the amount of money committed is not a measure of industrial progress. Neither are announcements of planned production capacity, projected employment, or the market valuations of the companies receiving support. The meaningful measure is the actual production and delivery of qualified materials to customers who can use them. By that standard, the success of federal rare earth industrial policy remains to be demonstrated.

I believe that the principal deficiency in the government's approach has been its failure to establish a comprehensive system for evaluating industrial capability before selecting recipients of public support. The problem is not simply that Washington may have selected the wrong companies. It is that Washington has not consistently shown it can distinguish an enterprise capable of producing a commercially acceptable product from one capable of raising money to try.

I have spent more than six decades in the business of technology metals, and one lesson has remained constant throughout. Industrial production is not a financial abstraction. It is the successful, continuous conversion of raw materials into products customers need, can use, and are willing to buy at prices that make continued production economically possible.

The fundamental error in much of the American government's approach to critical minerals has been to begin at the wrong end of the supply chain. We begin with mineral deposits, proposed separation plants, or announcements of new manufacturing capacity, then try to construct a commercial justification for them. This is precisely backward. Industrial supply chains must be designed backward from the requirements of the original equipment manufacturer, the OEM. The customer defines the product. The product defines the materials. The materials define

the manufacturing processes. Those processes, in turn, define the required raw materials and their specifications.

This is not a revolutionary concept. It is the foundation of successful industrial procurement. Yet it seems to have been displaced in Washington by the belief that financing enough individual projects will somehow produce a functioning domestic industry.

I would replace that approach with a single, mandatory industrial qualification test for every applicant seeking substantial federal support. Before public money is committed to commercial construction, the applicant should be required to demonstrate, through independently verified evidence, that its proposed operation can contribute a specified quantity of material meeting the requirements of an identifiable industrial customer, at a documented cost, within a credible timetable. Where full-scale performance cannot yet be demonstrated, the government should finance the necessary pilot or demonstration work rather than assume that commercial operation will succeed.

The test would begin with the customer. The applicant must identify the finished product, its specifications, anticipated demand, qualification requirements, and expected selling price. Neodymium-iron-boron magnets are not interchangeable commodities. Their compositions, magnetic properties, temperature resistance, dimensions, coatings, and tolerances vary by application. Some require dysprosium or terbium, while other applications use samarium-cobalt magnets. Automotive, aerospace, robotics, and defense customers have different requirements. An aggregate estimate of national demand expressed in tonnes is not an adequate substitute for evidence of a market for a particular product.

The applicant must then demonstrate how that product will be

manufactured. The applicant must identify every stage, from feedstock preparation through separation, metal-making, alloy production, and magnet manufacturing, and the company responsible for each. The output of each operation must meet the input specifications of the next. The investigation must establish whether each process is commercially operating, demonstrated at pilot scale, under construction, or merely proposed. The weakest indispensable link determines the supply chain’s actual maturity.

Technical evidence must include representative-feedstock testing, independently reconciled material balances, reproducible recoveries, product purity, production yields, and realistic estimates of energy, reagent, labor, maintenance, and waste-treatment requirements. A plant designed to process 5,000 tonnes annually has not demonstrated it can produce 5,000 tonnes of saleable material. Nor does a successful laboratory experiment establish that a process can operate continuously and economically at industrial scale. The government must distinguish theoretical throughput from qualified output.

The applicant must also establish enforceable access to its raw materials and the right to acquire and sell the resulting products. Ownership of a mineral deposit does not necessarily establish control over its future production. Supply contracts, financing agreements, marketing rights, intellectual property, and third-party claims must be examined to determine who actually controls the materials at each stage. Companies must disclose dependencies on foreign suppliers, particularly China, rather than obscure them with claims of domestic vertical integration.

The final technical test is customer qualification. The intended customer must determine whether the finished material meets its specifications and whether the proposed manufacturing process

can produce it consistently. A successful sample is not the same as a qualified production process, and qualification is not the same as recurring commercial deliveries. The government should recognize these as distinct milestones.

Finally, the applicant must demonstrate that it possesses the management, engineering, and financial resources to carry out its proposal. The people responsible for constructing, commissioning, and operating the facilities should have relevant industrial experience. Capital and operating costs must be independently assessed, and the resulting economics tested against realistic international market prices. The government must know whether it is financing an enterprise capable of eventual commercial independence or a strategically necessary operation that will require continuing public support.

Paying a premium for materials essential to national security is not inherently irrational. Governments have always done so. But such expenditures should be recognized as national-security procurement decisions, not as evidence of commercial competitiveness. Government orders can support strategically necessary factories, even at high cost. They cannot indefinitely substitute for the productive economy, skilled workforce, competitive materials, investment, and customers required to sustain an industrial system.

This industrial qualification test would also expose financial arrangements that have little to do with production. Who owns the assets and intellectual property? Who has claims on future output? Who receives the economic benefits of federal assistance? Public money intended to build productive capacity should not primarily refinance earlier investors or inflate a company’s market valuation. The government should receive enforceable performance commitments in return for its investment.

Federal financing should be released against independently verified milestones. Feasibility studies and laboratory work may justify limited early support. Pilot-scale operation, validated engineering, and customer qualification should precede major construction commitments. Commissioning payments should depend upon demonstrated progress toward production, and long-term purchase agreements should be linked to qualified deliveries. Failure to achieve a milestone should trigger an independent review rather than an automatic funding increase. Money already spent does not justify additional expenditure.

Who should administer this system? I do not believe that the answer is simply another large federal bureaucracy. The United States already possesses substantial scientific, engineering, and financial expertise in its national laboratories, universities, industrial companies, and defense establishments. What is missing is a coordinated mechanism for applying that expertise to investment decisions.

I would establish an independent industrial review authority composed of experienced mineral processors, separation chemists, metallurgists, metal and alloy manufacturers, magnet production specialists, OEM procurement executives, project engineers, financial analysts, and contract lawyers. Its members should be selected for demonstrated industrial experience, with strict disclosure of conflicts of interest. It should have access to confidential commercial information and the authority to commission independent technical audits. It would not replace the agencies legally responsible for allocating funds but would establish an evidentiary standard that those agencies must address before committing substantial public resources.

The Department of Defense has already recognized the need to connect mining, separation, metallization, alloy manufacturing, and magnet production. Federal agencies have financed projects

at several of these stages, some of which may ultimately establish valuable domestic capabilities. The issue is not whether Washington understands that these stages exist. It is whether it has consistently required convincing evidence that the companies it supports can connect them into a functioning industrial system.

The Government Accountability Office has previously identified deficiencies in defense supply-chain visibility and information sharing. Those findings do not establish that every rare earth investment has been inadequately evaluated, but they reinforce the importance of independent verification. The central question remains whether investment decisions are based upon demonstrated industrial capability or projections of what applicants hope to achieve.

The government should measure success by the quantity and value of qualified magnets delivered reliably to American customers, the range of products manufactured, domestic value added, production costs, and the continuing public support required. It should also identify the actual bottlenecks preventing expansion. These may include inadequate feedstock, insufficient metal-making capacity, unqualified alloys, shortages of skilled personnel, or a lack of customers willing to purchase the finished products at sustainable prices. Removing a demonstrated bottleneck may create more industrial value than financing another nominally integrated project.

Washington also seems reluctant to confront a historical reality. The United States is not attempting to recreate a mature domestic rare earth permanent magnet industry that once existed here and subsequently disappeared. Modern commercial rare earth permanent magnet manufacturing developed principally in Asia, where technical skills, equipment suppliers, manufacturing experience, and customer relationships accumulated

over decades. China subsequently established extraordinary depth in rare earth processing and magnet manufacturing.

The United States cannot acquire that accumulated industrial experience simply by appropriating money. It must develop or obtain the necessary skills, processes, equipment, and customer relationships. This requires time, disciplined investment, and the willingness to learn from those who have actually manufactured these materials.

Nor should the government assume that a single American corporation must own every stage of the supply chain. Vertical integration is a possible business structure, not a substitute for industrial competence. A network of independently operated, qualified suppliers may be more reliable and economically efficient than a nominally integrated company trying to master several unfamiliar technologies at once.

The appropriate objective is a secure, reliable, and commercially functional supply chain, with the degree of domestic production and allied-country participation determined by national-security requirements and industrial economics. Japan, South Korea, and Europe possess significant industrial capabilities and their own requirements for secure access to critical materials. Cooperation with these economies may accelerate the development of dependable supply chains. National security requires assured access to materials; it does not necessarily require identical nationality or corporate ownership at every stage.

Ultimately, the industrial qualification test can be reduced to three questions.

1. Can the applicant demonstrate, through independently verified operating evidence, that its process produces

material the next stage of the supply chain can actually use?
2. Can it identify the industrial customer that has qualified, or has committed under a credible program to qualify, the finished product, together with the specifications, volumes, and commercial conditions involved?
3. Can it demonstrate that the complete supply chain will operate at a commercially realistic cost, or identify precisely the continuing national-security subsidy required to sustain it?

These questions are straightforward. Answering them properly requires considerable technical, commercial, and financial expertise. That is precisely what industrial due diligence is supposed to provide.

I have no objection to the federal government supporting the development of an American rare earth permanent magnet industry. A secure supply of materials essential to modern manufacturing and national defense is a legitimate national objective. My objection is to the assumption that financing industrial proposals equals creating industrial capability.

China’s rare earth industry did not become dominant merely because its government financed mineral deposits or announced manufacturing capacity. It developed an increasingly integrated industrial system, accumulated manufacturing experience, expanded production, and established relationships with customers. Whatever one thinks of China’s industrial policies, the resulting manufacturing capabilities are real.

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industrial organizations, or combinations of organizations, that can deliver the materials American manufacturers actually require.

The distinction between capacity and capability is the distinction between an industrial policy that exists on paper and an industry that exists in reality.

I would conclude with a question every federal agency financing the American rare earth permanent magnet supply chain should ask: **What qualified product, in what quantity, for which customer, at what cost, and by what demonstrated industrial process will the American taxpayer receive in return for this investment?**

Until Washington can answer that question consistently, it will continue to finance the possibility of an American rare earth permanent magnet industry rather than its actual creation.