Rebuilding the Rare Earth Industrial Base, the Role of Government

written by Jack Lifton | June 29, 2026

“The challenge has never been finding rare earths. The challenge has always been knowing what to do with them after they come out of the ground.” – Jack Lifton, Co-Chair, Critical Minerals Institute (CMI)

The rare earth supply chain has become one of the most strategically consequential—and structurally misunderstood—industrial systems in the modern economy. For decades, policymakers and investors have treated rare earths as a mining problem, assuming that increasing upstream production would naturally translate into downstream capability. This assumption has proven false. The real bottlenecks lie not in geology but in metallurgy, process engineering, and the capital-allocation incentives that shape industrial behavior. Rebuilding a resilient rare earth supply chain requires confronting these realities directly.

The core issue is that rare earths are not a commodity in the conventional sense. They are a sequence of interdependent chemical and metallurgical transformations, each with its own technical risks, cost structures, and learning curves. Mining produces concentrates, but concentrates are not usable materials. They must be separated into individual oxides, refined into metals, alloyed into magnet feedstock, and finally manufactured into permanent magnets. Each stage is capital-intensive, operationally unforgiving, and dependent on tacit knowledge accumulated over decades. The United States once possessed this full chain; today, China dominates nearly every

step.

This dominance did not emerge from resource endowment alone. It emerged from a deliberate industrial strategy that aligned state support, long-term capital, and technical expertise. China built separation plants when prices were low, subsidized unprofitable metallurgical capacity, and absorbed environmental and operational risks that Western firms avoided. Over time, this created a self-reinforcing ecosystem: metallurgists trained new metallurgists, process engineers refined flowsheets, and magnet producers benefited from proximity to upstream suppliers. The result is a vertically integrated system that is both economically efficient and strategically coercive.

Western policy responses have largely failed because they misdiagnosed the problem. Subsidizing mining does not create metallurgists. Funding pilot plants does not create commercial-scale reliability. And offering tax credits to magnet factories does not solve the absence of domestic metal and alloy production. The supply chain is only as strong as its most fragile link, and in the West, nearly every link below the mine gate is fragile.

The private sector alone cannot correct this. Rare earth metallurgy is a classic example of a market failure: high capital costs, long payback periods, uncertain pricing, and intense foreign competition make it unattractive to conventional investors. Firms behave rationally when they avoid these risks. The problem is not corporate cowardice; it is the structure of incentives. Expecting private capital to rebuild a strategically essential industrial base under these conditions is unrealistic.

This is where the Department of Defense must play a decisive role. DoD is the only U.S. institution with both the mandate and the risk tolerance to intervene at the scale required. National

security depends on permanent magnets for aircraft, missiles, sensors, and naval propulsion. Yet the Pentagon currently relies on supply chains that pass through geopolitical competitors. This is not a procurement issue—it is a structural vulnerability.

A credible strategy must therefore focus on three layers simultaneously.

First, the “as-is” chain must be mapped with brutal clarity. Where are the actual bottlenecks? Which processes lack domestic expertise? Which firms possess partial capabilities but lack capital to scale? This diagnostic step is often skipped, leading to policies that subsidize the wrong stages or overfund technologies that cannot reach commercial viability.

Second, the future allied system must be designed as a grid, not a pipeline. A resilient supply chain is not a single linear path from mine to magnet. It is a network of interoperable nodes across the United States, Canada, Australia, Japan, and Europe. Redundancy is not waste; it is insurance. The goal is not autarky but strategic optionality—multiple sources of oxides, metals, alloys, and magnets that can operate even under geopolitical stress.

Third, DoD must deploy tools that reshape industrial incentives. This includes long-term offtake agreements, cost-share programs, guaranteed pricing floors, and direct investment in metallurgical training pipelines. The objective is to shift the risk frontier: to make it rational for firms to build and operate facilities that would otherwise be uneconomic. Industrial capacity is not created by exhortation; it is created by predictable demand and protected margins during the years when plants are learning to operate.

Failure modes are easy to predict. If policy focuses only on

mining, the United States will produce concentrates that must still be shipped to China. If it focuses only on magnets, factories will sit idle for lack of feedstock. If it funds pilot plants without committing to commercial scale, projects will stall in the “valley of death.” And if it relies on short-term grants without long-term contracts, capital will remain on the sidelines.

The rare earth challenge is not a mystery. It is a test of industrial seriousness. Nations that treat metallurgy as a strategic capability will build durable supply chains. Nations that treat it as a niche environmental or economic issue will remain dependent on others. The United States has the scientific base, the industrial heritage, and the allied partnerships to rebuild this system. What it has lacked is a coherent strategy that aligns incentives with national interest.

Reconstructing the rare earth supply chain is not merely an economic project. It is a generational investment in technological sovereignty. The question is not whether the United States can do it. The question is whether it will choose to act with the urgency and clarity that the moment demands.