

## **Making America Make, Again!**

### **Rare Earth Elements - The Poster Child of China's Manufacturing Dominance**

America has more high quality, accessible Rare Earth Elements (REE) in the ground than it could ever use, but China controls the value chain that turns REE ores into useable parts. China has a monopoly over RE parts manufacturing, not RE resources.

Until a manufacturing value chain is restored to the United States, no amount of mining (or the nationalizing of mines) can succeed. Even when Molycorp was up and running (at a loss), it sent its ores to China for manufacturing. Molycorp magnets were made in China.

By focusing its monopoly on the parts manufacturing process, China now controls all aspects of the REE upstream and downstream industries. Just as China can make any REE mine uneconomical, in the blink of an eye it can also shut down REE parts to any industry, nation, or nation's military.

#### *Implications of China's REE Hegemony*

China uses its REE manufacturing monopoly to force much of the world's advanced manufacturing and associated jobs into its economy. Along with those jobs, it acquires the world's best intellectual property, the most advanced technologies, a stronger trade balance, enhanced geopolitical power, and a mechanism to disrupt the national security value chains of the free world.

Even the WTO decision forcing China to supply American industries with more REEs simply strengthened America's dependency on China and resulted in a drop in the global REE price. This in turn ruined China's upstream competitors Molycorp and Lynas, the only two significant non-Chinese REE ore separation facilities at the time. As long as China maintains a monopoly over finished parts, it will come out the winner against any challenge.

#### *Free Market's Inability to Respond*

The demand for REE parts by large well-funded end users is not diminishing. However, today, only China's parts making industry would be able to connect these end users with the vast unlimited REE resources lying in dormant mines and tailings piles across the United States. China, of course, has intentionally priced any challenge to its value chain out of the Free Market and ensured that Free Market solutions will continue to fail.

#### *Cooperatives – An American Institution*

Possible solutions to market failures are large government subsidies, or the nationalization of mines or value chains. However, a much better and cheaper solution exists. In the United States, cooperatives have long been an answer to market failures.

A REE manufacturing value chain is cost prohibitive for any one technology company. However, if allowed the anti-trust protections afforded to cooperatives, end users could combine resources to build an American REE manufacturing value chain for the REE parts they all need. China could not undercut the profits of a cooperative, since cooperatives focus on delivering end products at cost without profits.

**A proposed Executive Order that would allow for a privately funded and privately managed Rare Earth Manufacturing Cooperative in the United States is now being considered by White House staff. Investors are ready and only waiting for an invitation from the White House to act.**

# The Hill

## A rare earth cooperative for critical minerals could be just what America needs

By Ned Mamula and John Adams, opinion contributors - 07/27/17 04:20 PM EDT



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China is by far the world's leading producer and exporter of minerals and metals. The nation also is proving increasingly expert at using its mineral resources to influence geopolitics. Even those minerals and metals that are mined outside China find their way there via the world's most sophisticated supply-chain networks – all according to the design of Beijing's leaders.

By contrast, the United States is 100 percent import-reliant on more than 20 key minerals and metals essential both to a healthy economy and our national security. Most of these are partially, if not totally supplied by China, which enjoys near complete market power over the all-important rare earth parts industry.

Rare earth elements (REEs) are essential components of modern, high-tech electronic equipment. Notably, REEs enable the high-tech magnets used in everything from iPhones to joint direct attack munitions (JDAMs), from the white-noise-concealment stealth technology used for helicopter rotors to ship and aircraft motors. REEs are found in every computer, flat screen, guidance system, directed energy weapon and laser, among many more critical technologies. In short, REEs are indispensable to our economy and national defense.

China's monopoly of the global REE market should be no surprise. Almost 30 years ago, Deng Xiaoping boldly stated, “The Middle East has its oil, China has rare earth.” From then until now, China steadily has increased its rare earth dominance to roughly 97 percent of the market, using a combination of overproduction and price manipulation to drive out competitors. Because Western scientific efforts have thus far failed to develop new reliable, cost-effective REE substitutes, companies that need access tend to relocate to China.

China also has used its REE monopoly as a geopolitical bludgeon. Since the 1990s, Chinese authorities have pursued an explicit policy of controlling a resource they considered “strategic and critical.” China’s manipulation of the global supply of REEs received heightened attention in 2010, when they halted REE exports to Japan in response to a fishing dispute near a set of islands claimed by both countries.

U.S. domestic resource extraction offers no real solution, at least in the short term. Though the country is home to REE ores, the United States lacks the manufacturing chain to turn those ores into useable parts. Building a mine domestically takes upward of a decade, thanks to permitting and infrastructure issues. Domestic industry also would have to contend with China’s manipulation of the global supply chain. U.S. rare earth producers have tried to compete and been bankrupted in the past, including the biggest rare earth miner—Molycorp in 2015. Thus, a pressing question for the administration is how to address this reliance on China, a strategic competitor, to obtain what are critical and strategically important materials.

We propose forming a U.S.-based, privately funded and managed rare earth cooperative—comprising companies that require rare earths to manufacture magnets, electronics, alloys and rare earth metals—that would focus on turning REE ores into useable parts. A co-op would enable end users to act together, without violating antitrust law, to procure finished REE products that currently are available only from China. This value chain could provide a market for the United States' vast available REE resources, without being undercut by the Chinese monopoly.

Cooperatives have long been an American solution to market failures. For example, new-generation cooperatives (NGC), developed in the 1990s in California and the Midwest, are tailored specifically for use by modern capital-intensive industries that add value to primary products, such as those involved in the production of ethanol from corn. A rare earth co-op would function similarly by developing a domestic rare earth supply chain by and for the benefit of downstream American manufacturers and our allies.

Co-op members could be granted a federal “charter,” which would demonstrate a national commitment to overcome China’s dominance of the rare earth market, but without direct government involvement. A co-op model has the potential to redirect the flow of capital, jobs and technology related to the rare earth industry away from China and toward a reliable domestic solution—a highly desirable goal for this totally import-dependent group of minerals.

China can hardly be blamed for its clever use of global mineral resources. Decades of unsustainable U.S. mineral resource policies have contributed mightily to our present state of dependence. If a rare earth cooperative proves as successful as other American co-ops, not only would it alleviate rare earth supply problems, but it could represent a template for domestic

production of other critical minerals on which the United States is entirely or almost entirely import-dependent.

The Trump administration has pledged its commitment to embark on a massive infrastructure rebuilding program. Minerals and metals are the backbone of the nation’s infrastructure. With our national security at stake, the time to form a rare earth cooperative is now. Bold and resourceful action to create a domestic REE value chain can mitigate the national security risks of Chinese dominance of the rare earth market, while creating American capital and jobs.

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### U.S. Rare Earth Oxide & Metal Import Reliance at 100 Percent (2016)

