Lanthanum and Cerium: The Rare Earths Everyone Ignores Are the Ones America Uses the Most

written by Jack Lifton | July 20, 2026

For years, investors have been taught that only four rare earths matter: neodymium, praseodymium, dysprosium, and terbium. These are the so-called critical rare earths because they are essential to the permanent magnets used in electric vehicles, robotics, wind turbines, defense systems, and a growing range of advanced technologies.

There is truth in that observation. There is also a dangerous omission.

By tonnage, the rare earths imported into the United States in the greatest quantities are not the magnet materials. They are lanthanum and cerium. Because they are abundant and inexpensive, they receive little attention from investors, policymakers, or the financial press. Yet without them, much of the American industrial economy would become more expensive, less efficient, and in some cases unable to operate at all.

The first mistake is to confuse price with importance. Gold is expensive because it is scarce and desired. Limestone is inexpensive because it is abundant. Yet modern civilization cannot function without limestone. The same principle applies to lanthanum and cerium. These two elements account for the overwhelming majority of the rare earth content in most deposits mined worldwide. Their abundance depresses their prices. Their low prices then lead commentators to conclude that they have little strategic value.

That conclusion is wrong. Cerium is a workhorse of modern industry. Cerium oxide is essential to precision polishing. Semiconductor wafers, advanced optical lenses, flat panel displays, telescope mirrors, and numerous aerospace and defense components depend upon cerium based polishing compounds to achieve the surface quality required for modern manufacturing. The final cost of cerium may be small relative to the value of the finished product, but the product cannot be made to specification without it.

Cerium is also used in automotive catalytic converters because of its ability to store and release oxygen. It is found in specialty glass, ultraviolet resistant materials, petroleum refining catalysts, foundry applications, welding products, pigments, ceramics, and chemical processes that rarely attract investor attention but support large segments of the industrial economy.

Lanthanum is equally important. One of its largest uses is as a catalyst in fluid catalytic cracking employed by petroleum refineries. These catalysts are central to the conversion of crude oil into gasoline, diesel fuel, aviation fuel, and petrochemical feedstocks. Lanthanum improves the stability and performance of the catalyst under severe operating conditions.

In other words, lanthanum is embedded in the daily operation of the American refining industry. Lanthanum rich alloys are also used in nickel metal hydride batteries. Those batteries continue to power millions of hybrid vehicles and remain useful in industrial, transportation, and stationary applications where reliability, long service life, and safety are more important than fashionable claims about energy density.

Lanthanum compounds are also used in high index optical glass, camera lenses, scientific instruments, medical imaging

equipment, specialized ceramics, and other advanced materials. Once again, the quantity used in each individual product may be modest, but the function it performs is indispensable.

This is the paradox that the market repeatedly overlooks. Lanthanum and cerium are inexpensive because they are produced in large quantities. They are produced in large quantities because industry consumes them in large quantities. Their low price is not evidence of unimportance. It is evidence that a large and mature industrial market has developed around them. From an economic point of view, lanthanum and cerium resemble steel more than they resemble gold. No serious observer argues that steel is unimportant because it sells for less than platinum. Steel is important because it is used everywhere. The same is true of lanthanum and cerium.

There is another reason these elements matter, and it goes to the heart of the economics of rare earth production. A rare earth mine does not produce only the elements that investors happen to like. It produces a natural distribution of all the rare earths contained in the ore. In most deposits, lanthanum and cerium constitute most of that distribution. A producer seeking neodymium, praseodymium, dysprosium, or terbium cannot simply wish the lanthanum and cerium away. Those materials must be separated, purified, sold, stockpiled, or discarded. If they cannot be sold into functioning industrial markets, they become a burden on the economics of the entire operation.

This is one of the fundamental weaknesses of many Western rare earth projects. Their promotional materials emphasize the high value magnet elements while treating lanthanum and cerium as incidental by-products or, worse, as waste. Nature does not operate according to investor presentations. The periodic table does not negotiate. A commercially successful rare earth industry must find customers for the entire basket of elements

produced from the ore. It is not enough to identify a deposit containing neodymium and dysprosium. The producer must also have a realistic plan for the much larger volumes of lanthanum and cerium that will be produced by the same process.

This is where China’s industrial strategy has been consistently misunderstood. China did not merely build mines and separation plants. It built downstream industries capable of consuming the full range of rare earth products. It developed large domestic markets for polishing powders, refining catalysts, glass additives, ceramics, metallurgical products, battery alloys, automotive catalysts, and chemical intermediates.

Those industries absorbed the high volume output of lanthanum and cerium, which made the production of the smaller volume, higher value elements economically sustainable. The United States, by contrast, has too often approached rare earths as a mining problem. It is not a mining problem. It is an industrial systems problem.

The relevant question is not whether the United States possesses deposits containing rare earths. It does. The relevant question is whether American industry can separate, refine, qualify, purchase, and consume the products of those deposits at a commercial scale. That question must include lanthanum and cerium.

American refiners, glass manufacturers, semiconductor producers, optical companies, catalyst manufacturers, battery producers, chemical companies, and metallurgical operations depend upon reliable supplies of these materials. A disruption in supply would not necessarily produce dramatic headlines. There might be no sudden shutdown of the entire economy. Instead, costs would rise. Delivery schedules would slip. Manufacturers would struggle to qualify substitute materials. Margins would shrink.

Production would move toward countries with more secure and more integrated supply chains.

That is how industrial decline usually occurs. It does not always arrive as a crisis. More often, it appears as a gradual loss of competitiveness. For decades, I have argued that rare earth supply chains must be understood from the perspective of OEM procurement rather than from the perspective of mining promotion. Original equipment manufacturers do not buy mines. They do not buy geological resources. They buy qualified materials, delivered consistently, in the required form, at a price that permits them to manufacture competitive products. The strategic value of lanthanum and cerium lies in that reality.

They are not glamorous. They do not command spectacular prices. They do not fit easily into promotional narratives about electric vehicles, wind turbines, or defense independence. They are simply used throughout the industrial economy. And that is precisely why they matter.

China did not become dominant in rare earths because it possessed the best deposits. It became dominant because it built the processing capacity, technical knowledge, manufacturing base, and customer network required to use the entire rare earth basket. It found profitable industrial uses for lanthanum and cerium as well as for neodymium, praseodymium, dysprosium, and terbium.

That is the lesson American policymakers and investors continue to miss.

Mines do not create industries. Customers do. Until the United States rebuilds downstream capacity to consume the full output of rare earth production, including low priced, high volume lanthanum and cerium, it will not have a secure rare earth supply chain.

It will merely have more mines.