Rare Earth Dearth

First, the United States became dependent on oil from the Middle East. Now, it has become dependent on rare earths from China. Recently China indicated what is to come, when it announced that it would reduce the amounts of rare earths that it would sell to other countries.

To solve the oil problem, the United States has to do two relatively simple things: drill for oil offshore and in Alaska, and build nuclear power plants. These are not difficult decisions technically, just politically. But the rare earths situation is different. In this case, the Chinese have control over about 95% of rare earth element production. These metals include neodymium for neodymium-iron-boron magnets; samarium for samarium-cobalt magnets; lanthanum for automotive lithium-ion batteries; and other rare earths for lasers, sensors, and LCD screens.

These components are critical to the operation of computers, cell phones, and the multitude of small motors in today's automobiles. However, even more important applications are for military equipment. From jet fighters to ships and tanks, military communications, sensors, and missiles depend more and more on the small size and high power provided by rare-earth magnets and actuators.

All of this was explained by speakers at the Defense Metals Technology Center conference on Strategic Materials in Cleveland in February. The conference focused on government policies related to metals required for national defense, especially the rare earth elements. Representatives from the military and industry made the case that it is imperative to develop a national policy to acquire a reliable source of rare earth metals. Experts have been warning of the dangers of U.S. reliance on Chinese rare earths for many years, and the recent Chinese announcement of cutbacks to exports has shown that a crisis is looming.

Just in time, a mine at one of the world's largest deposits may soon re-open. Held by Molycorp Minerals in Mountain Pass, California, the mine has been closed since 1998 because of environmental concerns and high costs. However, re-opening a mining and processing facility is a complex endeavor that will take time. The company needs to develop advanced extraction technologies to ensure success, and also needs to navigate the regulatory minefield. If it is to be the resource the country needs, bureaucrats and politicians must recognize its importance and help it along rather than erect roadblocks.

In a way, this is a test case for all manufacturing. Wealth is created when entrepreneurs take rocks from the ground and turn them into neodymium, and others turn the neodymium into magnets, and still others turn the magnets into motors and actuators. If government bureaucrats can find a way to cooperate with these entrepreneurs, they may even learn how to cooperate with manufacturers of steel, automobiles, TV sets, cameras, and computers. At that point, manufacturing would return to the United States, and prosperity along with it.

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