

Jack Cracks the US Critical Minerals Policy Safe

written by Jack Lifton | July 23, 2024

Everyone seems to have an opinion on the impact that the election of Donald Trump or whoever is the nominee of the Democratic Party may be on the future demand for critical minerals in the United States. Here's mine: There will be no impact on actual current sourcing decisions by survival-worthy end-users.

What do I mean by survivable? They are those corporations that do not depend on subsidies (aka, taxes or socialization of debt) for cash flow or profitability.

My colleagues at the U.S. Departments of Defense and Energy have frequently told me that the national government's interest in domestic or friendly nation sourcing of critical minerals is "bipartisan." They say that it won't matter which party captures the White House later this year; the policy will not change.

But, of course, the open issue is "What is the policy of the U.S. government on securing sufficient sources of critical minerals for consumer product manufacturing independence? I am saying "consumer products," because the Defense Department has its own agenda.

Let's look at what we know about Defense Department policy. The DoD doesn't seem to care much about battery metals. Field portability is the interest driver here by the DoD. Anything you can do to lighten the load of a "radio man's" burden of a 60 pound battery-powered radio is welcome, although extending the life and capacity of the batteries is probably much more important than a grunt's back. Combat vehicle and weapon

effectiveness is simply beyond the scope of rechargeable batteries. Only technically illiterate Hollywood scriptwriters can imagine a main battle tank using an electric motor instead of a turbo-fossil fueled engine. Imagine a 60+ ton Abrams towing a 30 ton battery followed by a 50 mile extension cord. Even Godzilla would see the specific targeting opportunity.

Another story is about the military's demand for rare earth permanent magnets. For survivability from EMPs, aircraft need trim actuators, communications, and weapons electronics that use high-coercivity "radiation-resistant" rare earth permanent magnets of the samarium-cobalt type. Only one domestic American company produces samarium-cobalt magnets for the DoD in the United States. Another American company also makes them, but in Switzerland. Both companies, however, use Chinese samarium and cobalt processed in China from minerals mined in the Congo.

No neodymium iron boron rare earth permanent magnets are made in the USA from domestically produced rare earth precursors (minerals, refined products, metals or alloys).

The DoD has a plan to make itself independent of China for rare earth permanent magnets, and I think I have figured it out. My theory is that, first, the DoD has agreed to fund a rare earth separation facility in Texas to be built, supplied with raw materials, and operated by the Lynas Rare Earths Ltd. (ASX: LYC) of Australia. Second, the DoD has funded a formerly German corporation, Vacuumschmelze (VAC), to move its principal operations to South Carolina and build a rare earth permanent magnet manufacturing operation there, and it, in turn, is negotiating with a U.K. based company, Less Common Metals (LCM) to build a satellite rare earth metal and alloy plant adjacent to the VAC plant. Third, the DoD has given some funding to MP Materials Corp. (NYSE: MP) to develop added facilities for separating heavy rare earths, and fourth, the DoD is considering

a major investment in Canada's [Ucore Rare Metals Inc.](#) (TSXV: UCU | OTCQX: UURAF) to build a dedicated facility in Louisiana for the separation and purification of heavy rare earths.

My theory is that the DoD is:

1. Supporting Lynas to mine (in Australia) and final refine light rare earths and its samarium rich light-rare-earth-refining residue in Texas,
2. Funding a rare earth permanent magnet manufacturing facility to be built by VAC in South Carolina,
3. Encouraging the U.K.'s LCM to build a rare earth metal and alloy plant adjacent to VAC's facility,
4. Considering funding a heavy rare earth separation plant in Louisiana to be built by Ucore as a backup(?) to the Lynas' facility in Texas, and
5. Funding MP as a backup supplier of separated rare earths from its own mining operations.

The missing part of the DoD plan is a secure non-Chinese source of heavy rare earths needed for high coercivity neodymium iron boron magnets.

I don't think that the DoD requires much more than one thousand tons of rare earth permanent magnets per year and that mostly of samarium cobalt magnets, but no component of a supply chain limited to that output would be economically viable, so the DoD has, for this reason only, given a small boost to the consumer market demand for domestic American rare earth permanent magnets. It does seem, additionally, also ready to subsidize the magnet manufacturer.

The American consumer market has little understanding of how to support a total domestic American rare earth permanent magnet supply chain, and it wouldn't be interested in it if it were not

for the restrictions on tax credits for American-made EVs, which depend on non-Chinese component sourcing.

Today, there is just one viable operational domestic American producer of light rare earth ore concentrates, MP Materials. There are just two companies, MP Materials and [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), with operational light rare earth separation plants. There are no operating or credibly planned, in the near term, rare earth metal, alloy, or magnet manufacturing plants for the consumer market.

The current demand for rare earth permanent magnets of the neodymium iron boron type by domestic American OEM manufacturers (principally automotive) is around 10,000 tons per year. That does not include those needed for rare earth permanent magnet electric motors for EVs and Hybrids.

There are no domestic American manufacturers of such motors that use domestically produced magnets.

Each one million EVs and/or Hybrids in any combination manufactured domestically will use a minimum of 2,500 tons per year of REPMs in addition to the 10,000 tpa base.

China's current manufacturing capacity for rare earth permanent magnets is 400,000 tons per year! America's is ZERO.

Rare earth permanent magnets and motors are not commodities; they are specialized devices tailored to customer specifications.

The so-called American government "policy" for supporting the domestic manufacturing of consumer oriented EVs and Hybrids with totally non-Chinese components is, to be polite, not feasible in any short term without massive government intervention and a coordinated effort by the American higher educational system.

Will either or both of America's political parties support this, if the Green New Deal, goes the way of global cooling?

The jury is out.

Note from the Publisher: Jack Lifton, a world-renowned critical minerals expert, will be a featured speaker at the upcoming [Critical Minerals Institute \(CMI\) Summit III](#). This prestigious event will take place at the National Club in Toronto on August 21st and 22nd, 2024. Under the theme "Connecting Leaders, Advancing Critical Minerals," the CMI Summit III promises to be a 2-day landmark event for industry leaders, investors, and experts at the forefront of the critical minerals sector. For more information, [click here](#)