

Assessing China's Potential Rare Earth Export 'Bomb': Dud or Threat?

written by Melissa (Mel) Sanderson | April 10, 2023

Recent press reports suggest that China might ban export to the US of rare earth-related products and technologies, particularly magnets, in response to the US decision to restrict exports of chipmaking technology to China. Japan and the Netherlands have signed on to these restrictions, but so far, the EU has not. Perhaps part of the EU delegation visit to Beijing is designed to cool tempers and avert a broader "trade war."

I suspect they must be smiling in Beijing today at the degree of alarm these articles have produced. But let's take a collective breath and look at the potential consequences from a couple of angles and see if it makes geopolitical sense. After all, the Chinese are nothing if not pragmatic.

Rare earth magnets

Let's begin with magnets, the single most important product. China does not have a monopoly on production and arguably is not even making the best quality magnets. Bonded neodymium (neodymium, iron, and boron or "NdFeB") magnets are made in Japan, Korea, the Philippines, Thailand, Germany, the UK, and the US (albeit in small quantities) in addition to China. Rare earths ("RE") oxides are converted to metals in Vietnam and Thailand, as well as the UK. NdFeB alloys are made in Vietnam, Thailand, Japan, Germany, and the UK. The highest-performance sintered magnets in the world are made by Shin-Etsu in Japan. Hitachi is a close second. TDK Corporation is close behind. The Chinese magnet producers always try to close the gap in

performance with the Japanese.

All of this suggests that, from this angle at least, global sourcing could work around a Chinese product ban.

Rare earths refining

What about refining? Rare earths currently are refined in Malaysia by [Lynas Rare Earths Ltd.](#) (ASX: LYC) (although some recent political difficulties there for Lynas suggest that might change in the near future), in Estonia by [Neo Performance Materials Inc.](#) (TSX: NEO), in France by [Solvay SA](#) (ENXTBR: SOLB) and in Japan by [Shin-Etsu](#) (TSE: 4063) and [Mitsui](#) (TSE: 8031) subsidiaries.

The technology to refine both light and heavy rare earths is well known outside of China. The organic extractants to separate REEs were all imported into China for decades and are still produced by non-Chinese companies (Solvay, Albright & Wilson, and a collection of Japanese).

So, alternative sources also exist for refining, although China does remain the processing giant by output, accounting for approximately 85% of refining activity.

Returning to Chinese pragmatism, and its history of avoiding making the second mistake twice: the rare earth embargo China imposed in 2010 against Japan led to an important defeat for China in 2015 at the WTO, an organization China continues to view as useful to its strategic ends. Having a ruling already in place that export quotas violate trade rules imposes a significant constraint on history repeating itself.

US perspective

From a purely US perspective, however, the refining question is

troublesome and Washington knows it. The sole rare earth mining company operating in the US, [MP Materials Corp.](#) (NYSE: MP), currently sends its output to China for processing. That issue will change in a couple of years, since MP, with partial funding from the Department of Defense, has begun work on a processing facility near its operations. Australia's Lynas Corp is building two new processing facilities in Texas, one for Light Rare Earths and another for Heavy Rare Earths, also with US Government ("USG") funding assistance. Two other processing facilities reportedly are under consideration, one in Arkansas and yet another in Texas.

Thus, the processing issue is a real vulnerability for the US, as MP could not swiftly pivot to send its output to one or more of the existing processing facilities cited above, even if those would have space to accommodate additional flow on an urgent basis, which they might not.

From this perspective, China still has a means by which to "strike" the US if that truly were its intention – and perhaps it is. Interestingly, Presidents Xi and Putin met recently: one can wonder what sort of "economic penalties" against the US that Mr. Putin might have floated to a Chinese leader potentially irked by various recent US moves, including luring Taiwan SemiConductor to establish a huge factory in Arizona (visited by President Biden in March) or the potential ban of TikTok currently being bandied about in DC. Or – most irritatingly of all – the USG funding the growth of rare earths processing capability in the US. I would add that Washington needs to feel an equal sense of urgency and commitment to building more rare earth mines in the US to ensure secure sourcing of the minerals needed to transform the economy.

Rare earths and the automotive industry

Finally, let's look at a concrete example of an industry whose future seems irrevocably tied to access to rare earths – the automotive industry. Pat Ryan, Chairman and Chief Executive Officer of [Ucore Rare Metals Inc.](#) (TSXV: UCU) contributed:

“In the automotive world there are three primary markets, Europe, North America and the Far East. Risk mitigation in each of these markets is more important now than ever before, including the sourcing of critical metals, as supply chains must be independent of each other and shift from high dependency to diversified, sustainable, circular and innovative solutions.

This is absolutely necessary so that individual markets, including North America, are secure, costs can be understood and managed by OEM's and jobs created in the market where products are sold. Threats or posturing are just that, and never forget that decade after decade North America has been successful because of its innovation, openness and entrepreneurial ideas. That is a point of reference and confidence and with a global energy transition upon us, the sense of urgency is more paramount than ever.”

Final thoughts

So generally speaking, I can't share the current alarm. Not while so many other more subtle and effective means remain available to China if it really wants to make problems for the US economy. After all, the problem with a 'nuclear bomb' is that once used, it's impossible to contain the fallout.