Eyes on Korea: The Emerging Epicenter of the Rare Earth Supply Chain

written by Jack Lifton | August 11, 2023

South Korea, with its thriving tech giants and world-class OEM automotive industry, is transforming into a hub for the rare earth supply chain. While many look to China, the US, and Japan as key players in the rare earth game, Korea's role is frequently overshadowed, despite its growing clout and demand.

Firstly, one must dispel misconceptions. South Korea is not a reservoir for rare earth elements. Nevertheless, its demand is robust due to its dynamic industrial base. Surprisingly to some, for example, Samsung Electronics Co., a Korean enterprise, surpasses even Apple Inc. (NASDAQ: AAPL) as the world's premier cell phone manufacturer. Each phone requires a fraction of a gram of permanent magnet. Given their production volume, this accumulates to a significant demand. Furthermore, Korea boasts two of the globe's top three battery producers: LG Energy Solution (LGES) and Samsung SDI Co., Ltd., subsidiaries of industrial giants, LG and Samsung, respectively.

Complementing this, Korea is home to Hyundai and Kia, renowned automotive brands that have gained a reputation for producing quality electric vehicles at competitive prices. The Hyundai Ioniq, for instance, was one of the initial electric cars introduced to the US market, utilizing permanent magnet motors and lithium-ion batteries. Notably, every raw material essential for these devices must be sourced from outside Korea.

This international sourcing is where companies like Australian Strategic Materials Limited (ASM) (ASX: ASM) come into the

picture. Recently, ASM confirmed a five-year contract to provide USA Rare Earth, LLC with neodymium iron boron (NdFeB) magnet alloy from its Korean Metals Plant. This alloy, pivotal for creating permanent magnets in electric vehicles and wind turbines, underscores the intersecting interests of companies spanning continents.

Moreover, ASM isn't limiting its partnerships to one US-based enterprise. They've also inked an agreement to sell a substantial 100 tonnes of this alloy to U.S.-based rare-earths magnet manufacturer, Noveon Magnetics Inc. In tandem, they're also sourcing rare-earth oxides from Vietnam as feedstock for their Korean Metals Plant while concurrently developing a rare-earths mine in Dubbo, New South Wales, Australia.

From a personal vantage point, I recall my endeavors half a decade ago to bring LG Energy Systems into a partnership with the US Defence Department. The aim was for LG to manage rare earth permanent magnets for the Department of Defense. However, the looming threat of Chinese retaliation led to a withdrawal from LG, emphasizing the geopolitical sensitivity surrounding these minerals.

Now, representatives from Korean tech titans, including LG and Samsung, are traversing the globe in search of rare earths, with endeavors even in metallurgy and possibly magnet production. Additionally, ASM's joint venture in Korea with Kiron – a domestic, Korean venture, funded by a significant Korean (rare earth permanent magnet end-user) corporation – underscores the collaborative nature of this industry.

To sum up, while the global discourse frequently orbits around China and the US, the Korean rare earth landscape is bustling. Their relentless quest to develop a comprehensive domestic supply chain for rare earth permanent magnets will invariably

lead to a demand spike, which may catch many by surprise.

So, as the competition intensifies to secure these critical materials for the next generation of tech and transport, one thing’s clear: don’t underestimate Korea.