Hallgarten's Rare Earth Reality Check Shatters Western Myths

written by Tracy Hughes | July 2, 2025

Rare earth elements, once the inscrutable footnotes of the periodic table, have muscled back into the foreground of global industrial strategy—dragging a tangle of politics, engineering headaches and stubborn misconceptions with them. In a new 58-page note, Hallgarten & Company analysts Sergei Shulin and Christopher Ecclestone argue that the West's scramble to diversify supply is "akin to giving a razor to a monkey," because the fundamentals of rare earth chemistry remain poorly understood even among policymakers who now approve funding checks with record speed.

Hallgarten's diagnosis begins with a reminder: the "boom of 2009-2011" made household names of neodymium and dysprosium, yet public memory faded just as swiftly when prices crashed. Today, the analysts write, **"old myths die hard and the level of ignorance of where REEs (rare earth elements) come from, how to process them and the (lack of) economics remains as high as in the previous upsurge."** That ignorance matters, because Chinese dominance—especially in the heavy rare earths such as terbium, dysprosium and lutetium—is "fading," opening a fleeting window to level the playing field before Beijing resets the rules.

The report titled ***The Essence of Rare Earths – Dispelling the Myths*** paints a picture of Western governments "in panic mode," dangling grants and tax credits from Washington to Canberra. Yet Hallgarten calls some initiatives counterproductive. Australia's decision to bankroll Arafura Rare Earths Limited (ASX: ARU) while simultaneously toying with a price-support scheme for

materials its own industry scarcely uses, they note, “talks fecklessly of creating a price support/stockpiling policy for a group of minerals that Australian industry does not use.” Meanwhile, China still “sit[s] on the prices of REEs to dissuade interlopers,” keeping oxides artificially subdued just long enough to starve would-be competitors of revenue.

Investors chasing the electric-vehicle boom have fixated on NdPr (magnetic metals) —the neodymium–praseodymium cocktail essential to high-strength magnets—but Hallgarten warns that the lens is too narrow. **“The obsession with NdPr … goes on, to the detriment of the less well-known but arguably more critical REEs like erbium and gadolinium,”** the analysts write. Those elements underpin optical fibers, lasers and nuclear-medicine tracers, yet attract scant venture dollars.

Even when capital is available, turning rocks into oxides is harder than it looks. Rare earth separation spans “more than 20 cascades” of solvent-extraction stages, each equipped with rows of pumps, mixers, evaporators and reverse-osmosis units. The process “is incredibly complex, expensive, and requires a lot of financial resources, time, and intellectual firepower,” Hallgarten reminds its readers, and the specialized resins and extractants themselves are a supply-chain risk. Without domestic producers of those reagents, Western plants could swap one dependency for another.

The cooling of the EV frenzy, paradoxically, buys time. Lower demand growth means “breathing space to source alternative supplies,” yet juniors struggle to finance pilot projects without government “blessing (read, funding).” With China still vacuuming up concentrate on the spot market—often at prices above prevailing bids—Hallgarten doubts the West can establish parallel refining capacity unless policymakers move beyond panic and toward a coordinated industrial strategy that values cerium

tailings as much as fashionable magnet metals.

In short, the essence of rare earths is less about their rarity than the rarity of clear thinking, and the next chapter in this elemental drama may hinge on whether Washington, Brussels and Canberra can master the alchemy of chemistry, capital and patience before the window of opportunity contracts once more.

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