# SNACK SERIES

TEAM DEFENCE INFORMATION
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Session 3 - 30th September 2025

# CRITICAL RAW MATERIALS

## CROWDING IN FOR IMPACT: DEVELOPING A STRATEGIC RARE EARTH MAGNET ECOSYSTEM




Leaders from three pioneering companies – Ionic Technologies, Less Common Metals (LCM), and HyProMag – have underlined the UK's growing strength in rare earth magnet recycling and manufacturing, presenting a united vision for a resilient, circular supply chain that supports both industry and national defence.

The session, part of the ongoing Snack Series briefings, showcased how the companies together span the full magnet lifecycle. Ionic Technologies focuses on hydrometallurgical recycling to extract rare earth oxides; LCM converts these into specialist alloys; and HyProMag manufactures magnets from both virgin and recycled feedstock. Their collaboration, they said, is designed to reduce reliance on imports and ensure the UK can sustain its own supply of these strategically vital materials.

### Building a Circular Supply Chain

Presenters outlined the innovative processes underpinning the effort: Ionic's long-loop hydrometallurgical recovery of rare earths, LCM's electrolysis-based alloy production, and HyProMag's patented hydrogen processing of recycled magnets. Together, these technologies are set to enable the reuse of critical materials in electric vehicles, wind turbines and defence systems – areas where supply security is paramount.

### Strategic Importance and Policy Challenges

With China currently dominating the global rare earths market, speakers stressed the urgency of securing a domestic supply chain. Key challenges identified include sourcing sufficient feedstock, preventing the export of valuable end-of-life magnets, and ensuring that UK policy creates the right environment for recycling businesses to grow. Future opportunities were also highlighted, including designing new industrial and defence equipment with disassembly and reclamation in mind, to simplify recovery of rare earth magnets at the end of their life cycle.

### Defence Sector Engagement

The session placed particular emphasis on the defence sector's role. Industry leaders called for:

Stronger policy to retain end-of-life magnets within the UK. Defence procurement targets that incorporate recycled content and design-for-disassembly principles.

Support for scaling up domestic recycling and manufacturing facilities.

Validation of recycled magnets through defence testing and adoption.

Measures to reduce reliance on Chinese-dominated supply chains.

### Key Outcomes from the Session

The UK's rare earth magnet supply chain is effectively covered by three domestic companies, working across recycling, alloy production and magnet manufacturing. Both short-loop (rapid turnaround) and long-loop (high-purity) recycling processes will be needed to balance speed with quality. Expansion is underway to support production of 1,000 tonnes of NdFeB magnets annually. Rare earth security is recognised as critical to national resilience, particularly against risks of global competition and export controls. Defence and industrial platforms should be designed with recyclability in mind.

### Collaborative Projects Underway

An £11 million Advanced Propulsion Centre-funded project is already advancing the UK supply chain, involving automotive and defence partners. Discussions with the Ministry of Defence, the Department for Business and Trade (DBT), and other policymakers are ongoing, with industry leaders urging stronger regulatory support and long-term investment.

### A Sovereign Supply for the Future

The companies agreed that ensuring a secure, sustainable and sovereign magnet supply chain is not just an industrial opportunity but a matter of national resilience. With recycling technologies now proven and collaborative projects gathering momentum, the UK is positioning itself to lead in the circular economy of rare earths – provided policy, investment and defence procurement align behind the effort.

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