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Strategy &
Communities**

No magnets, no transition

Magnet supply as a strategic position

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REE value chains have become very concentrated

As magnets become critical in more areas, efforts are being made to diversify this concentration risk

NdFeB

The magnet behind EV traction motors and direct-drive wind generators

Nd + Pr

Light rare earths - the bulk of the magnet's magnetic strength

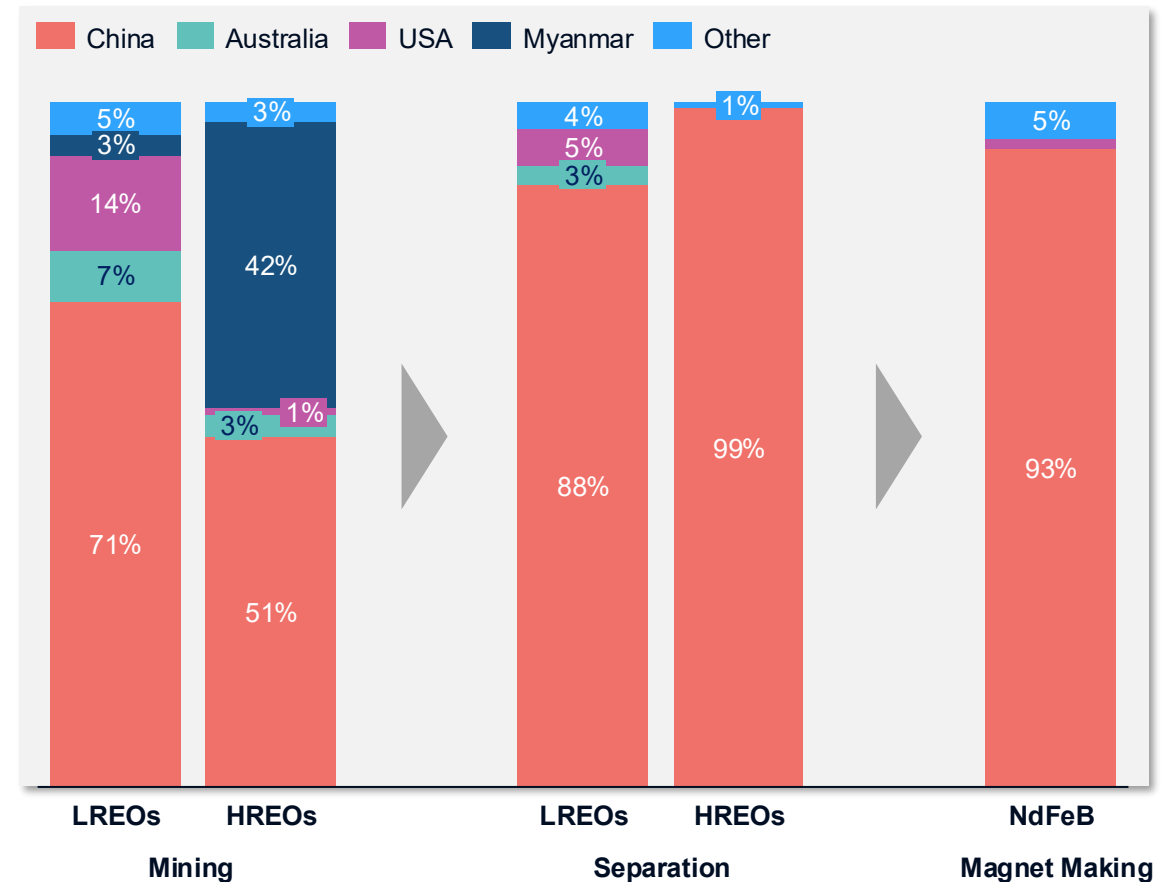
Dy + Tb

Heavy rare earths - added so magnets hold strength when hot. The scarce, most concentrated part.

(+Y)

Yttrium- behaves as a heavy REE, increasingly used for electronics and superconductors

Share of global rare earths supply by production stage and country, kt rare earth oxide, 2025



Energy and defence drive magnet demand

Dysprosium supply becomes a bottleneck

4-7x

Growth in Nd, Pr and Dy magnet demand by 2040 vs 2018¹

30-40%

Of new offshore wind uses direct-drive PM generators¹

160m

EVs on the road by 2030, most with PM traction motors

~90%

Of NdFeB magnet demand from e-mobility and wind by mid-2030s

5% of GDP

NATO defence spending pledge by 2035, up from 2%²

- PM motors give the power density and efficiency that long-range EVs and offshore turbines need
- Net-zero targets and EV mandates make demand inelastic in the short term
- Defence adds more: an F-35 holds ~410 kg of REE material; drones use 12-60 magnets per motor
- **Dy is the binding constraint: a small share of magnet mass, essential when hot, and the scarcest input**

Data: CRU ¹ IEA, 2025. ² NATO Hague summit, 2025

The chokepoint is separation, not just mining

For Nd and Pr the bottleneck is processing, not geology. For Dy and Tb it is both.

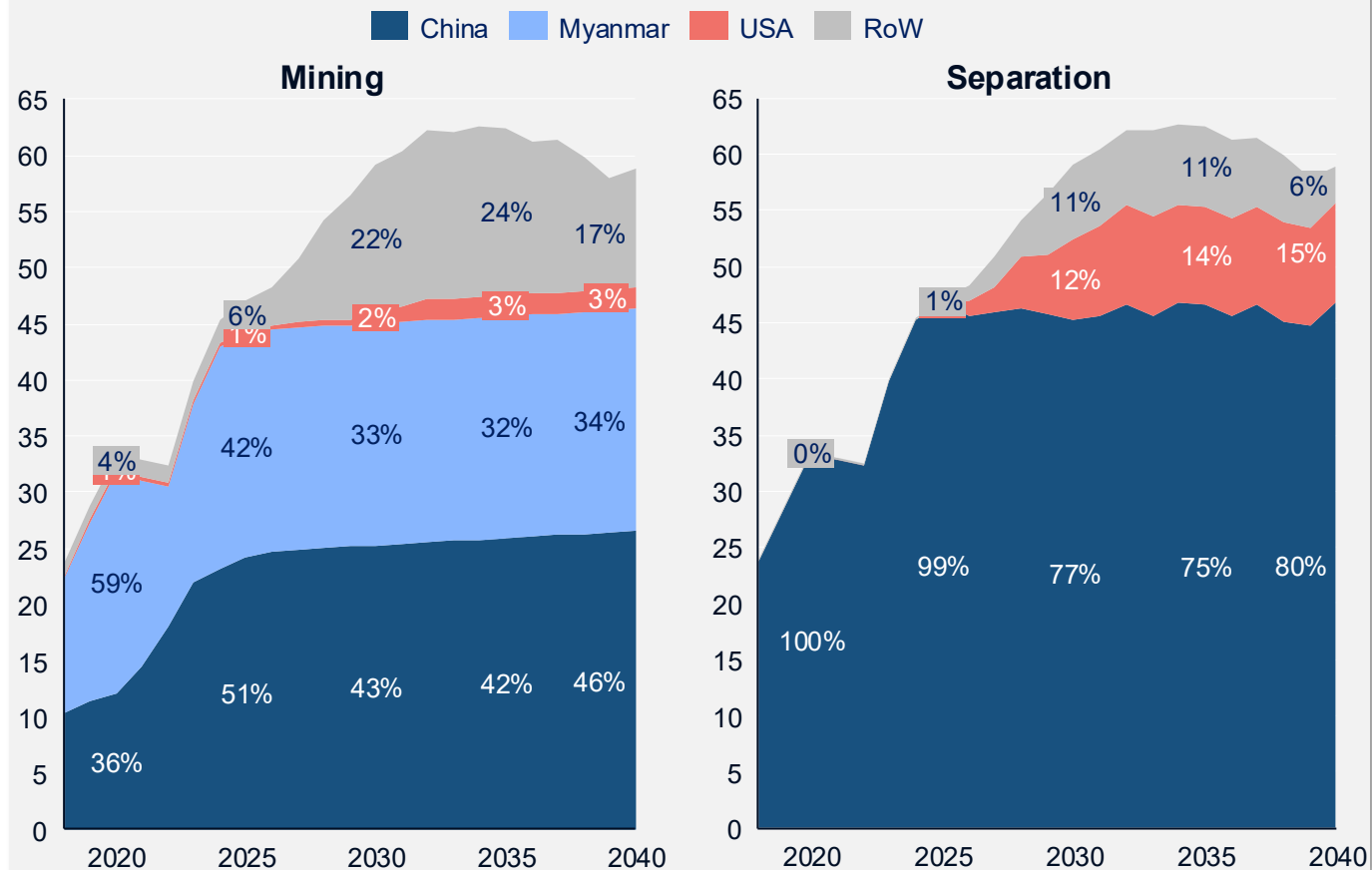
Regional concentration remains a challenge

- ~90% of finished NdFeB magnets come from China
- ~99% of Dy/Tb separation was in China in 2025; new capacity now ramping elsewhere
- Most Dy/Tb reserves sit in ion-adsorption clays - southern China and Myanmar
- Separation needs many complex solvent-extraction stages
- Regulation gaps distort cost: thorium waste to Western standards is costly; prices are set in China

But that is starting to change.

- Serra Verde (Brazil): first commercial ionic-clay heavy-REE mine outside Asia; Browns Range and Makuutu follow
- Lynas made the first Dy and Tb outside China in 2025; MP Materials is adding US heavy separation

Heavy REOs supply by region, kt REO, 2018-2040



Almost all rare earths mined in Myanmar are separated in China

Concentration means market price signals are weak

2010

China cuts export quotas; some rare-earth prices spike up to 2,400%¹

2015

Prices collapse; Molycorp files Chapter 11 and Mountain Pass idles¹

2025

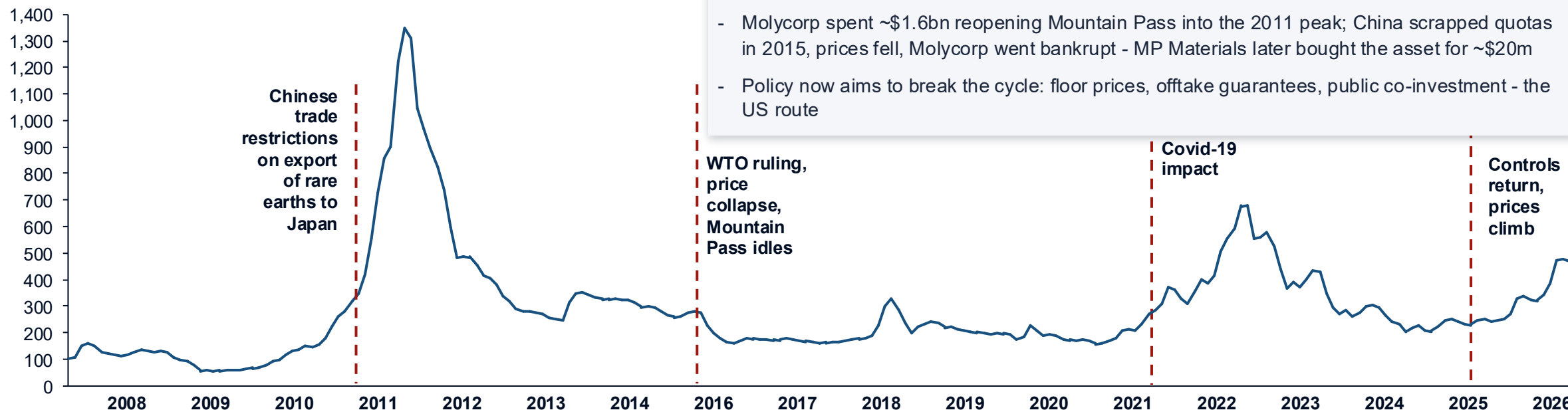
Controls return: NdPr oxide up ~40%, EU prices up to 6x Chinese levels²

2026

Dysprosium oxide up ~105% in Q1; most Western plants start after 2028³

Indexed PrNd Mischmetal Pr 25%, Nd 75% FOB China

Index June 2007 = 100



- Very concentrated supply means volatile prices and hard investment cases
- Molycorp spent ~\$1.6bn reopening Mountain Pass into the 2011 peak; China scrapped quotas in 2015, prices fell, Molycorp went bankrupt - MP Materials later bought the asset for ~\$20m
- Policy now aims to break the cycle: floor prices, offtake guarantees, public co-investment - the US route

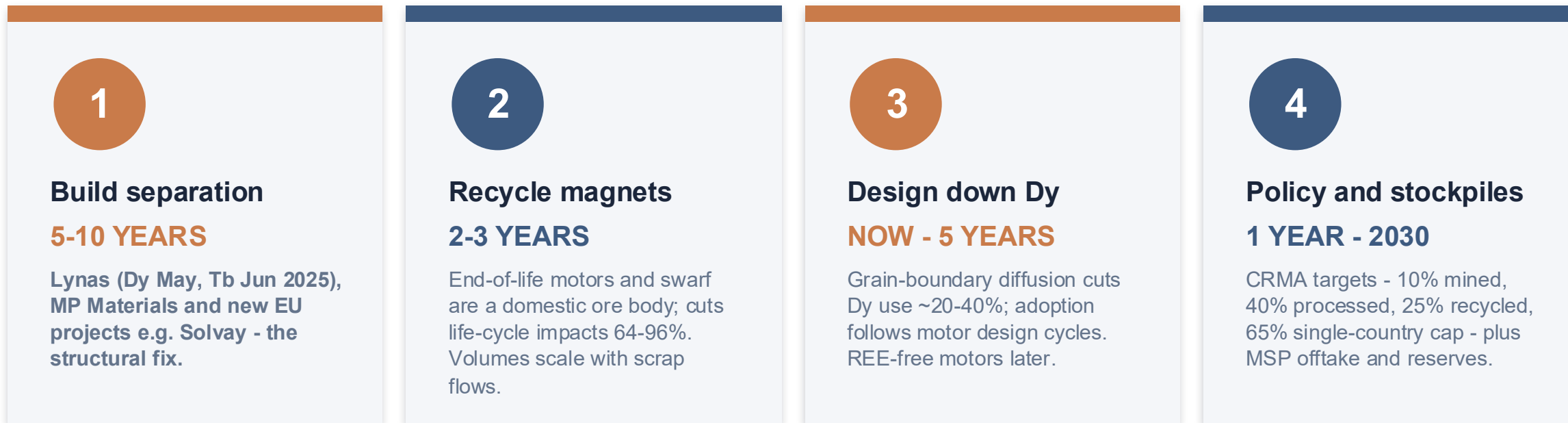
Data: CRU, company filings

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Four levers, running on very different clocks



Recycling and thrifting buy time; separation capacity buys independence. Serious programmes do both at once. Count the molecules: processing only transforms Dy - it cannot create it. If the atoms are not in Europe, no number of plants closes the gap.

Europe and the US are pulling the same four levers - in very different ways. Next two slides.

Europe is building a magnet supply chain, but offtake remains challenging

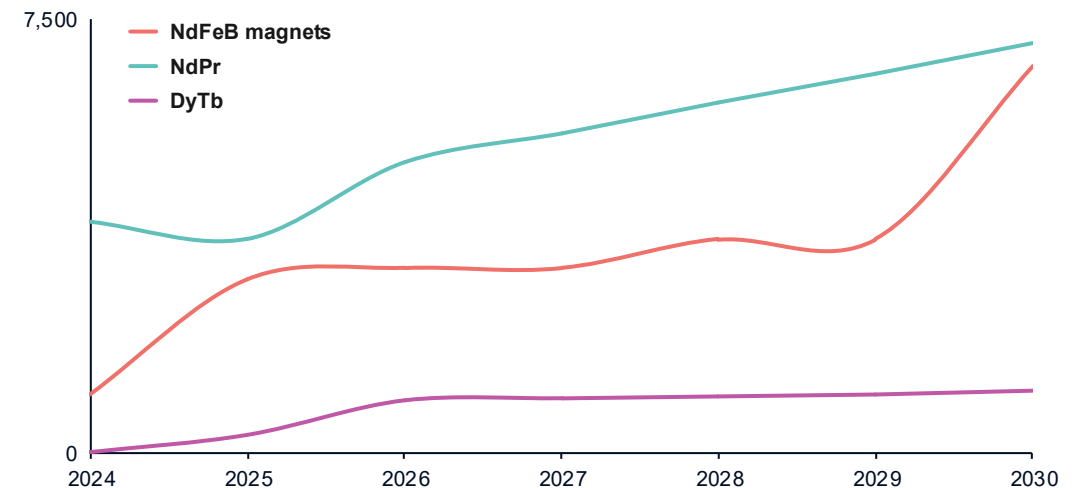
EU producers are building capacity...

	Price risk sharing	Financial backing	Offtaker	Expansion
	None	EU JTF grant up to EUR 18.7m	None signed - EV makers in talks	2,000 to 5,000 t/yr magnets; Dy/Tb oxide line; Silmet HRE line
	None	Self-funded; ~EUR 100m expansion on hold	Pending buyers	NdPr line live; Dy/Tb 2026; 30% of EU needs by 2030
	None	France EUR 106m + Japan (JOGMEC/Iwatani) EUR 110m	Japanese offtake share	5,000 t concentrates + 2,000 t recycled magnets, late 2026

...but largely without state offtake

✓ No price floor ✓ No signed offtake ✓ Grants fund capex, not revenue

EU27+UK capacity, t product



The challenge: who pays? Lower-cost incumbents mean offtake must come first - GKN just cancelled its European magnet plant without it.

Data: CRU, ¹ Carester / Caremag, 2025

The US is underwriting demand, not just supply. A more active participant

US producers and allies are rapidly expanding...

	Price risk sharing	Financial backing	Offtaker	Expansion
MP MATERIALS	US\$110/kg NdPr oxides, metals and concentrates	15% DoD partnership for \$400 Mn, +\$150Mn separation loan	US DoD (100%)	Magnet capacity 1,000 to ~10,000 t/yr: Fort Worth + 10X plant from 2028.
Lynas	US\$110/kg NdPr oxides, metals and concentrates	\$258 Mn for Texas processing facility	US DoD direct supply contract	Uncertain for separation facility
Vulcan Elements	Oxides supplied ex-China by ReElement below price floor	\$620 mn Office of Strategic Capital loan	US DoD, private contracts	Pilot scale, expanding to 10,000 t.yr magnets
USA Rare Earth	- US\$110/kg Nd and Pr oxide - US\$575/kg for Dy \$2,050/kg for Tb	\$750 Mn US DoW investment SPV for Serra Verde	Various US government agencies (100%)	End-to-end supply targeting 10,000t/yr magnets at Stillwater
NOVEON MAGNETICS	Unknown	\$35 Mn DoD initial investment, 2026 financing round	Nidec Motors, General Motors	2,000 t capacity for virgin/recycled material

...leveraging state backing

✓ A price floor

DoD guarantees USD 110/kg for NdPr for ten years - removing the price risk that stalls European projects.

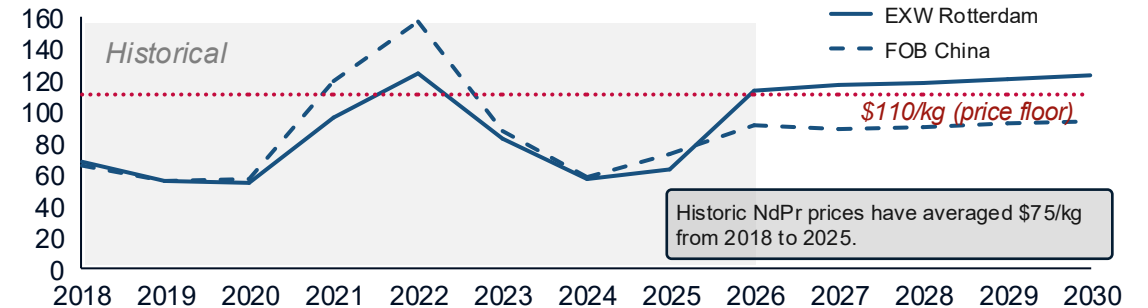
✓ Certainty before concrete

Offtake and floor price come first, so financing follows rather than waits.

✓ Feedstock from allies

Noveon has raw-material agreements with **Lynas** and **Solvay** - US magnets, allied separation.⁴

NdPr price forecast \$/kg NdPr oxide



Europe funds supply; the US buys demand. A floor price and signed offtake make a project bankable.

Trade rules shape the market, not carbon tariffs

Free trade in magnets has already gone.

It cuts both ways: Jun 2026, China blacklisted MP Materials and USA Rare Earth.

What restricts trade

US Section 232 and defence rules

Rare-earth magnets sit under national-security tariff action; from 2027 Chinese-origin rare earths are barred from US defence supply chains.

China's 0.1% rule

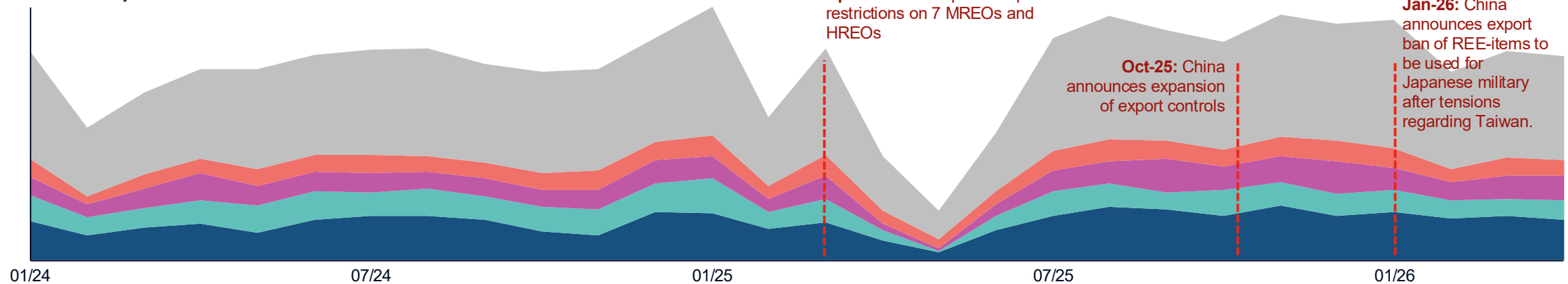
Since Oct 2025, licences reach goods made anywhere if just 0.1% of value is Chinese rare earth: the first extraterritorial use of the regime.

EU mandates and US subsidy

CRMA targets, ELV recycled-content rules for Nd, Dy, Pr and Tb, and the DoD price floor - support that is also market distortion.

China exports of rare earth permanent magnets, kt, January 2024- April 2026

Germany US South Korea Vietnam Other



Data: CRU

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Conclusion: Treat magnet supply as a strategic position

1

Magnet demand is growing really fast

Nd, Pr and Dy demand rises 4-7x by 2040 - wind and EV programmes are currently reliant on primary materials

2

Access is political

Export licences, tariffs and recycled-content rules now shape access as much as price

3

Engineer the exposure down and capacity up

Recycle and design down Dy
Fund separation and magnet capacity
Clocks run 2-10 years - decisions date from today



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Thank you.

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