COMPENDIUM

Edited by Dr John Coyne and Iris Reinhold

From exposure to endurance:

Views from *The Strategist*, Darwin Dialogue special edition

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The Hon Madeleine King MP
Minister for Resources and Northern Australia

The 2026 Darwin Dialogue comes at a critical time in world affairs.

This year's theme, From Exposure to Endurance, sums up the issues that are front of mind for policy makers, industry and analysts in Australia and around the world.

The conflict in the Middle East, disruption to energy supplies and other impediments to trade have made the world more uncertain.

There are undoubtedly geopolitical, economic and technological shifts going on around us.

When it comes to critical minerals and rare earths, those changes have been significant.

Talks with trading partners about critical minerals and rare earths elements have shifted in recent years – from discussions about mining and production to high-level Ministerial fora at the pinnacle of global leadership, such as the G7, that place critical minerals at the heart of national security and economic resilience.

Put simply, the world is more alert than ever to the vulnerabilities that arise from potential disruption to the supply of critical minerals and rare earths.

Australia – with our abundant deposits, long-established resources and energy supply chains, and the expertise to extract and process those minerals – is committed to taking a global lead on critical minerals and rare earths. This government has stepped up, produced the policy and ensured that Australia has a significant say at the top table of global negotiations on the pivotal diversification of supply chains.

ASPI's Darwin Dialogue has been an important part of that strategic discussion from the start.

The Darwin Dialogue is important platform that brings together government, industry, investment and analysis on critical minerals and their importance to national and economic security.

I look forward to this year's Dialogue and discussions.

Introduction

Dr John Coyne

We no longer face a knowledge problem on critical minerals. We face a coordination failure, and the cost of that failure is already visible in delayed investment and persistent dependence. Governments understand the risk. Industry recognises the exposure. Markets reflect the volatility. Yet supply chains remain concentrated, fragile and contested.

The gap now sits between intent and execution.

The Darwin Dialogue exists to close that gap. From the outset, it was built as a multi-year effort. No single meeting could resolve a system-level problem built over decades. Progress depends on continuity, trust and iteration across governments, investors and industry.

When ASPI first moved to convene the Dialogue in 2021, critical minerals sat at the edge of strategic policy. By 2023, the diagnosis had settled: supply chains, particularly in processing, refining and magnet manufacturing, had become structurally concentrated. Exposure no longer required explanation. It required a response.

Policy responded with speed. Governments expanded financing tools, tightened export controls, launched bilateral agreements and redirected industrial policy towards supply chain resilience. Activity increased. Unfortunately, coherence didn't.

We now confront a harder truth: current approaches risk entrenching the very vulnerabilities they seek to solve.

Fragmentation defines the system. Governments pursue parallel strategies. Policies diverge in eligibility, scope and intent. Capital fragments where it should aggregate. Demand signals remain weak where they should align. We are building adjacent systems rather than a single competitor in the global market. In doing so, we risk institutionalising fragmentation as policy. That isn't a transition.

Markets respond accordingly. Investors don't lack opportunity. They face a surplus of complexity.

The private sector navigates overlapping financing instruments, inconsistent standards, shifting regulatory frameworks and uncertain procurement signals. Each element reflects rational policy design. Together, they create friction. Complexity has become a tax on capital. Capital becomes selective. Projects slow. Dependence persists.

Failure won't present as a collapse. It'll present as persistence. Continued dependence. Higher costs. Reduced strategic choice.

Breaking that cycle requires a shift in how decisions are made.

Critical minerals supply chains don't operate as discrete projects or bilateral arrangements. They operate as interconnected systems of systems – linking geology, finance, infrastructure, processing, manufacturing, logistics and demand. A systems approach changes the decision. It prioritises alignment over optimisation. Without that shift, policy will continue to optimise parts while the system fails.

The Darwin Dialogue is designed to force that shift through action.

It's not a conference. It is not a platform for prepared statements or policy signalling. Presentations don't build supply chains. Decisions do – and most forums avoid them. The Dialogue replaces scripted consensus with contested problem-solving. It brings together governments, investors, industry leaders and technologists not to restate positions but to test them against operational reality.

Diversity of thought underpins that design. The Dialogue convenes an intentionally broad mix of perspectives, across countries, sectors and disciplines, because the challenge cannot be solved within institutional silos. Different incentives, constraints and risk appetites must collide if alignment is to emerge.

ASPI has anchored the Dialogue around three objectives.

First, move beyond describing the problem. Diagnosis no longer limits progress. Implementation does.

Second, force engagement between perspectives. Governments must confront the constraints faced by capital. Investors must engage with policy risk. Industry must articulate operational realities.

Third, drive granularity in solutions. Broad strategies won't deliver supply chains. Specific mechanisms will. Financing structures, demand aggregation models, standards frameworks and permitting pathways determine whether projects proceed or stall.

Each session reflects that focus on action.

Finance and offtake discussions move beyond announcements to execution. Participants confront the mismatch between patient strategic capital and short-cycle market capital. Blended finance, sovereign risk-sharing and coordinated offtake commitments must translate political intent into bankable projects. The objective is direct: move from memorandums to money.

Assured demand and standards discussions address the absence of credible market signals. Investors require certainty. Manufacturers require reliability. Governments must align procurement, standards and strategic reserves to shape markets rather than react to them. Fragmented standards increase cost and complexity. Aligned standards create a competitive advantage.

Speed and sustainability discussions tackle the institutional barriers that delay delivery. Permitting timelines, regulatory fragmentation and late-stage community engagement constrain progress as much as capital or technology. Trusted partners must demonstrate that projects can move faster without compromising environmental integrity or Indigenous partnership. Speed and legitimacy must reinforce each other.

Together, these themes reinforce a single proposition. Supply chain resilience will not emerge from isolated interventions. It will emerge from coordinated systems built through deliberate action.

Darwin is a strategic choice.

Debates over critical minerals often occur where policy is written or capital is allocated. Supply chains succeed or fail where systems operate. Darwin sits at the intersection of energy, infrastructure, logistics and Indo-Pacific trade routes. Northern Australia connects resource basins to industrial precincts and regional markets. Defence posture, transport corridors and energy systems converge here.

Darwin isn't where the conversation is easiest. It's where execution is most plausible.

Holding the Dialogue in Darwin grounds strategy in geography. It tests whether ideas translate into systems that function under real conditions.

Darwin Dialogue 2026 marks the third iteration of that effort. More countries join. New participants enter. Returning voices deepen the exchange. Continuity matters. Trust compounds. Informal conversations shape outcomes as much as formal sessions.

The work doesn't end here. Each Dialogue sets the conditions for the next. Strategic context will evolve. Markets will shift. Policy will adapt. The Dialogue will evolve with it, expanding its network, sharpening its focus and raising its expectations of delivery.

The chapters that follow don't describe the system. They interrogate where it fails – and interrogate how to fix it.

They begin with strategic context. Critical minerals now sit at the intersection of economic security, industrial policy and geopolitical competition. Market outcomes reflect deliberate state action as much as commercial dynamics. Diversification must therefore compete at a system level.

They confront the financial constraint. Midstream processing remains the critical bottleneck. Capital does not fail due to a lack of interest. It fails due to misalignment. Long-term, capital-intensive projects compete against short-cycle investment expectations. Without a new financial architecture, projects stall.

They address demand and standards. Investors require credible signals. Manufacturers require a reliable supply. Governments must create structured demand through procurement alignment, long-term commitments and coordinated standards. Demand must be shaped.

They examine governance and delivery. Permitting timelines, regulatory fragmentation and community engagement determine whether projects proceed. Systems must deliver speed and predictability without compromising legitimacy.

They expand the concept of supply. Recycling, substitution and circular approaches form part of a resilient system.

They reinforce geography. Infrastructure, energy and logistics determine viability. Northern Australia, and Darwin in particular, offers a strategic node where these elements converge.

They highlight cooperation. No country can build complete supply chains alone without incurring cost and inefficiency. Trusted partners must align policy, capital and industry through focused cooperation.

Success won't be defined by strategy. It'll be defined by supply chains that function across trusted partners at scale.

For those not in the room, the implications remain immediate – not abstract.

Critical minerals supply chains will shape economic security, industrial capability and strategic competition over the next decade. Current approaches will not deliver resilience at scale. Fragmentation will continue to delay investment. Complexity will continue to deter capital. Without alignment, exposure will persist.

The path forward is not complex. It is difficult.

Align capital with policy.

Align demand with supply.

Align national strategies with collective action.

Build systems, not projects.

The Darwin Dialogue provides the environment to test whether that alignment is possible.

The number of statements issued will not measure progress. It will be measured in projects financed, facilities built and supply chains that function.

Execution will determine whether we build resilience or formalise dependence.

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Strategic competition and critical minerals

Darwin Dialogue 2026 aims for aligned industrial strategy

John Coyne

Image: Grant Charsley/Unsplash.

The speed of critical-minerals policy evolution has been unmistakable. In the past year alone, governments across the Indo-Pacific have tightened export controls, expanded sovereign investment vehicles, announced new agreements, and redirected defence industrial policy toward supply-chain resilience.

Yet Australia and its partners remain heavily exposed to concentrated processing and refining capacity, volatile markets and rising geopolitical risk. The task now isn't more unilateral announcements, but disciplined coordination.

When ASPI first began trying to convene the Darwin Dialogue in 2021, critical minerals were still too often treated as a subset of resources policy rather than as a pillar of economic security. It took two years to build the trust and strategic alignment necessary to establish a serious forum linking senior government officials, investors and industry leaders from Australia, Japan, the United States, India and South Korea. That timeline reflected the policy tempo of the moment: deliberate, cautious and exploratory.

By 2023, the conversation had shifted decisively to diagnosis. Strategic reviews across like-minded countries acknowledged that concentration in rare-earth separation and magnet manufacturing was a structural vulnerability. China's dominance in processing and refining has persisted even as demand for energy-transition minerals accelerates. Exposure was measurable in refined output shares, downstream manufacturing dependency, and the narrow geography of midstream capability.

In 2024, policy responses accelerated. Governments expanded export credit mandates, activated defence production tools and pursued new bilateral and plurilateral arrangements. Australia sharpened its Critical Minerals Strategy. The US strengthened its industrial policy settings. Japan and South Korea deepened financing and offtake engagement. But acceleration has also produced fragmentation.

Instead of a coherent market-shaping architecture, we're seeing a proliferation of unilateral initiatives, overlapping agreements and differing eligibility criteria. For the private sector—particularly institutional investors navigating long development cycles—this creates complexity rather than clarity. Price volatility, global competition and uncertain policy settings have already made commercial sanctioning difficult for new projects. Layered regulatory regimes and shifting incentives compound that risk.

At the same time, demand dynamics are intensifying. Global demand for key energy-transition minerals is projected to rise sharply through 2035, yet supply remains geographically concentrated. The paradox is stark: rising long-term demand alongside short-term price volatility and oversupply cycles that deter investment. In such an environment, capital becomes more selective. Investors need predictable frameworks, aligned procurement signals and confidence that diversification efforts will endure beyond electoral cycles.

China's 2025 export restrictions on rare earths and related materials sharpened the strategic stakes. They weren't a surprise; they were a stress test. They demonstrated how licensing regimes and processing concentration can translate into leverage. But the appropriate response isn't to decouple or escalate a trade war. Bifurcation would further fragment already thin markets and increase costs across defence and clean-energy systems. The objective must be to restore competitive balance, not to replace one distortion with another.

This is the strategic frame for the 2026 Darwin Dialogue: From Exposure to Endurance: Building a Secure Critical Minerals Value Chain by 2030. The Dialogue's purpose is to align on implementation.

Minilateralism is central to that effort. Broad multilateral forums remain essential for norm-setting, but industrial execution requires tighter coordination. Bilateral deals, while useful, risk duplication and policy divergence. A focused grouping of trusted partners—Australia, Japan, the US, India and South Korea—combines resource endowment, advanced manufacturing, capital markets and aligned security interests. Acting in concert, they can shape market structure rather than chase it.

A practical Indo-Pacific critical minerals compact should rest on three reinforcing pillars.

First, finance alignment. Memorandums of understanding don't build separation plants. Capital-intensive midstream projects require coordinated sovereign de-risking, export credit, equity guarantees, concessional finance and offtake-backed mechanisms, structured in ways that crowd in private investment rather than

substitute for it. Templates and interoperability matter more than one-off announcements.

Second, assured demand. Defence primes, electric-vehicle manufacturers and renewable energy firms must provide multi-year procurement signals that reduce revenue volatility. Harmonised standards and coordinated strategic reserves can transform strategic ambition into credible demand. This reduces the cost of capital and mitigates price swings that otherwise stall projects.

Third, speed with integrity. Streamlined project approvals, infrastructure investment and workforce capability to sustain Australia's mineral competitiveness are needed. Predictable permitting timelines, early Indigenous partnership and interoperable regulatory systems are strategic assets.

Darwin isn't incidental to this discussion. Northern Australia sits proximate to deposits, energy infrastructure, defence posture and Indo-Pacific sea lanes. It's a logical node for midstream processing and value-adding activities that anchor resilience in physical geography.

By 2030, progress must be measurable: diversified heavy-rare-earth separation capacity, expanded magnet production outside China, aligned strategic reserves, and reduced regulatory friction for investors. The pace of policy response since 2021 has increased markedly. The next phase demands coherence. The 2026 Darwin Dialogue is designed to help make the shift from reactive policy accumulation to aligned industrial strategy.

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Just what we need: US calls key countries together on critical minerals

John Coyne and Justin Bassi

Image: Daniel Torok/The White House/Flickr.

Governments need to move beyond faith in market self-correction and legacy institutions and instead build disciplined arrangements in small groups of countries to align public policy with private capital. US Secretary of State Marco Rubio's Critical Minerals Ministerial meeting on 4 February will be an important step in this approach.

While it is uncertain which nations other than Australia and India have been invited, Rubio's calling together of counterparts for the inaugural meeting in Washington is a clear signal that critical minerals have moved from a sectoral concern to a macro-strategic problem. It can be assumed that Rubio will leverage the Pax Silica group, established in December. The United States-led initiative focuses on critical minerals and technologies and includes countries such as Australia and Japan. Canada, Taiwan and the European Union are currently observers, and India is expected to join.

Rare earth elements and other critical minerals—essential to defence systems, clean energy, advanced manufacturing and digital infrastructure—are now embedded in markets where normal price discovery and risk allocation no longer function.

Countries that do not want to be dependent on and vulnerable to China's ability to withhold the export of critical minerals as a coercive tool, including Australia, should aim to ensure that the ministerial is the starting point and not a one off.

ASPI's longstanding work on critical minerals, including through the 2023 and 2024 Darwin Dialogues, demonstrates that the current challenge isn't cyclical volatility but structural market failure. While rare earths are mined in several countries, value is captured overwhelmingly downstream. China controls roughly 70 percent of global rare earths production but, more critically, it controls close to 90 percent of worldwide processing and refining capacity, including separation and magnet production.

That degree of concentration is incompatible with market competition. It has resulted in uncompetitive and unfair practices to put political pressure on not only smaller powers but, increasingly, the US and major European countries. It reflects Beijing's sustained industrial policy, non-transparent state support and a willingness to absorb losses to secure long-term strategic advantage. We have watched the free market be bought, stolen and subsidised in a deliberate strategy to reduce China's dependence on the world while increasing the world's dependence on China.

It is now clear that geography and geopolitics are finally outweighing geology in determining economic security outcomes. Concentrated processing capacity exposes importing states to coercion, supply disruption and strategic leverage.

The limits of traditional multilateral responses have been exposed. Institutions such as the World Trade Organization weren't designed to manage strategic competition in sectors where commercial behaviour is inseparable from state power. Topics such as intellectual property theft, diplomatic coercion and monopolies are seemingly beyond scope or, sadly, even reform. WTO processes are slow, retrospective and poorly equipped to address non-transparent subsidies, informal export controls and state-directed pricing.

Even where cases have been won—as with Japan's vital win in 2014 relating to China's blocking of rare earths—the WTO findings process takes years and, after a temporary reprieve, Beijing merely returns to global coercive and unfair trade practices. Most coerced countries choose short-term compromise rather than facing the time, money and effort it takes to achieve an international ruling. Australia and the EU have both started and then stopped WTO cases against China. Australia ended two cases (wine and barley) in 2023, one of which had been with the WTO for more than three years. This means that, for critical areas such as minerals, a national policy that relies on WTO remedies isn't risk management; it's strategic complacency.

Unilateral responses—such as public statements and investments in domestic rare earth capacity—by nations facing such coercion are necessary but insufficient. No single country can replicate an entire critical-minerals production chain (mining, processing, manufacturing and recycling) at scale without accepting high fiscal costs, creating inefficiencies and introducing new vulnerabilities. Subsidies alone cannot create resilience. Supply chains are ultimately built by firms responding to credible demand signals and manageable risk profiles, not by policy declarations.

This is why minilateralism is the most credible response—for the economy, security and sovereignty. Smaller coalitions of trusted partners can align policy, capital and industry in ways that global frameworks can't, at least presently.

In the field of critical minerals, Australia and Canada are logical anchors. Both offer large, geologically diverse resource bases; stable regulatory systems; and deep technical capability that should be viewed as complementary, not competitive. When paired with the industrial scale, capital markets and technological depth of the US, Japan and South Korea, these countries form a nucleus capable of supporting resilient, diversified value chains without excessive fiscal leakage. It is then feasible to have these regional powers formally join with European powers to create a truly global partnership that prioritises trusted and reliable supply chains, not just cheap ones.

Such resilience has a price, but sovereignty is about fighting for freedom, not expecting it for free. Diversifying supply chains will raise costs in the short to medium term. Policymakers must acknowledge this explicitly. Pretending otherwise leads to underinvestment, policy churn and misallocated subsidies. The policy task is not to eliminate costs, but to decide which costs are acceptable to reduce systemic risk.

Crucially, governments cannot resolve this problem without structured, ongoing engagement with the private sector. Mining companies, processors, financiers and manufacturers understand project timelines, capital intensity, permit-provision risk and market volatility far better than most policymakers. Without that insight, public policy will continue to misprice risk.

Security imperatives also don't justify abandoning environmental, social and governance standards, including those around modern slavery. Failures in these areas are material supply-chain risks. Projects that lack social licence face delays, litigation and capital withdrawal—outcomes that directly undermine resilience objectives.

This is why the Critical Minerals Ministerial should be backed. If it succeeds, it will accelerate a shift from fragmented national responses towards disciplined minilateral cooperation grounded in commercial reality. Ongoing failure will mean that critical-mineral markets will remain distorted, capital will remain cautious and strategic vulnerability will deepen.

The ministerial would also demonstrate that democracies such as Australia can manage different threats simultaneously. Those worried about what a changed US means for allies can argue against President Donald Trump's tariffs and position on Greenland while still working with the US to constrain and counter the control China has on our economies and technological ecosystems. That, in fact, would be consistent foreign policy in the national interest.

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Indonesia's critical minerals push is key to defence self-reliance

Febry Triantama

Indonesia's establishment of its Mineral Industry Agency is critical in realising its vision of resource nationalism, independence in military production, and strategic autonomy. By establishing a national critical minerals supply chain, Indonesia can enhance its bargaining power as a global critical minerals powerhouse and reduce its dependency on imported weapons technologies and related parts.

Indonesia's Ministry of Energy and Mineral Resources designated 47 types of critical minerals in 2023. It defined them as those that were essential for the national economy and national defence and security, were exposed to supply disruptions and had no suitable substitutes. Among them were aluminium, copper, molybdenum, nickel, lithium and rare earth elements.

When President Prabowo Subianto established the Mineral Industry Agency in August, he stressed that Indonesia needed to be able to use and preserve its critical mineral resources and that they would have a significant impact on the nation's future, notably in the defence sector. Not long after, the ministry prohibited the export of rare earths.

Prabowo's rationale for enacting two resource nationalism initiatives during his administration resembles that of his predecessors. President Joko Widodo implemented a mineral downstreaming program to boost Indonesia's economic benefits from the mineral industry and strengthen its bargaining power in diplomacy. This has risen in importance as critical minerals have featured in a trade war between the United States and China.

These policies also support Indonesia's longstanding vision for self-reliance in defence production. The Ministry of Defence increasingly sees the control of critical minerals as the initial step in this. The explicitly stated primary goal of the Mineral Industry Agency is to manage strategic mineral industries for the benefit of the defence industry. The minister of defence was even appointed by the president to be the chair of the MIA Advisory Board.

Indonesia has 10 national defence industry priority programs covering radar, military satellites, fighter jets, underwater sensing systems, submarines, unmanned combat aerial vehicles, medium tanks, rockets, missiles and propellants. Although the need for critical minerals, including rare earths, will vary, these programs cannot run without them.

Europe's weapons technology sector demonstrates the crucial importance of self-sufficiency in owning and processing critical minerals. Making battle tanks requires neodymium and yttrium. Aluminium, lithium, nickel and copper are used in warships. Nickel, yttrium, aluminium and molybdenum are needed in precision-guided munitions, radar and sonar. Titanium is a key material in fighters and missiles.

Indonesia has significant potential in the critical minerals that are needed for developing advanced weapons technology. It is the world's largest nickel-producing nation and has the seventh-largest copper reserve. Indonesia also has great potential for aluminium production, since its bauxite reserve is the fifth largest in the world. It could produce titanium from its large ilmenite reserves. Yttrium, a rare earth, can also be sourced in Indonesia.

Nonetheless, Indonesia's defence industry remains dependent on imported raw materials. PT Pindad, maker of the Anoa armoured personnel carrier, continues to import aluminium alloy sheets. PT Dirgantara Indonesia still relies on imported aluminium alloy to make the CN-235-200 transport aircraft.

As defined by Defence Industry Law, the Indonesian defence industry ecosystem comprises four tiers: the raw material industry (fourth tier), the component industry (third tier), the main component industry (second tier) and the main equipment industry (first tier). Independence in making military equipment cannot be achieved by solely relying on the first tier. Yet research shows that the value of inter-tier transactions is only 9 percent of the value of all the defence industry's transactions.

Without making and supplying its own raw resources, Indonesia will continue to rely on imports and remain vulnerable to pressure and influence from other countries. This needs to change, given the technological decoupling within the defence sector as well as the US–China trade war.

Even though the pursuit of self-reliance is extremely difficult for Indonesia, the new agency and the rare-earths export ban are more than just examples of the global resurgence in resource nationalism. Securing domestic access to critical minerals and consolidating their management will help Indonesia improve its defence industry capacity, bargaining power and strategic leverage in international diplomacy.

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Australian innovation is needed to break China's grip on critical minerals

Robert Monterosso

No single country—regardless of its wealth or will—has the combination of mineral reserves, scale, and low-cost labour and energy to compete with China's centrally planned critical-minerals industry. To break China's grip on critical minerals, Australia, the United States and its allies need to shift their focus to innovation.

The current focus on treaties, subsidies and tariffs can be positive in the short term, but long-term success will depend on how quickly we can develop innovative critical-mineral processing technologies. Australia should position itself as the world's laboratory for developing and commercialising these new mining technologies.

The US is attempting to build a critical minerals trade bloc, termed FORGE, ahead of the resumption of China's rare-earth export controls in November this year. This initiative, while still in development, seeks to circumvent China's dominance through import tariffs, price floors and subsidies.

This can help in the short-term, but coordinating 30 different countries on tariffs, price floors and investments will be expensive, risky and difficult to maintain.

At best, the bloc acts as a unified front and counters China's monopoly. At worst, it risks devolving into a resource scramble if limited new supply comes online. Long-term success will be measured in years, not months, and requires a more concerted effort towards leapfrogging China's long headstart through innovation.

History offers a roadmap for this moment. In the wake of the 1973 oil crisis, the US's initial response was to bolster alliances and build multilateralism, creating the International Energy Agency. But the agency's framework and rules were not sufficient in preventing a second price shock in 1979, and FORGE could face similar challenges. Ultimately, the Middle East's monopoly on oil production was not broken by treaties; it was broken by innovation. Increased fuel efficiency, advancements in offshore drilling in the North Sea, and the eventual shale revolution tipped the scales towards the West. Likewise, innovation holds the best chance of breaking China's monopoly on critical minerals.

Progressing technologies in mine waste extraction, deep sea mining and more efficient processing can unlock new critical minerals supply. ElectraLith, an Australian startup, is rapidly scaling up a clean, versatile and cost-effective method to extract and refine lithium, which could completely cut Chinese processing facilities from the supply chain.

Investments into improving material efficiency and developing new technologies that don't require critical minerals could reduce overall demand as well. Electric-vehicle makers are already innovating away from cobalt batteries to mitigate risks associated with the Democratic Republic of the Congo's supply dominance. In future, electric-vehicle batteries could be powered by abundant commodities such as sodium, iron and carbon.

Innovation needs to be central to FORGE's long-term strategy, and partners must collaborate on research and development, pilot projects, and deploying technologies.

Australia is uniquely positioned to be the world's laboratory for this innovation. It has strong scientific and environmental, social and governance credentials; a history of developing novel mining technologies; and world-leading mining companies with the capital to deliver. Its rich natural resources make it an obvious candidate for pilot projects. A combination of coordinated policy efforts, venture capital and a willingness for allied countries to accept higher prices for critical minerals will be key.

Australia's Critical Minerals Strategy, which is under review this year, needs a renewed focus on innovation and research. While current initiatives such as the Critical Minerals Research and Development Hub are an excellent start, they need the firepower of venture capital to avoid the valley of death between prototype and profit. The Australian government should consider whether establishing an innovation fund, like the US's Compass Fund, could help develop homegrown innovations to break China's dominance.

In innovation, the goal is not to outcompete China's subsidised production on price; it's to build resilience into supply chains by unlocking alternative production. Just as offshore oil extraction in the North Sea is considerably more expensive than Middle Eastern production, it gives the West a crucial supply backstop. Consumers recognise the value of diversified supply and are willing to pay a premium for it.

FORGE partners rightly acknowledge that moving away from artificially low, subsidised prices is the first step to incentivising industry to take risks on new technologies. Australia must advocate for the partnership to shift its focus away from trying to compete with China, and instead focus on innovations that allow the West to produce critical minerals without China

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To avoid a Ukraine-style quid pro quo, Australia needs to work with the US on critical minerals

Raelene Lockhorst and John Coyne

Image: Rodney Braithwaite: Department of Defence

With Donald Trump back in the White House, Washington is operating under a hard-nosed, transactional framework in which immediate returns rather than shared values measure alliances. For Australia, this signals a need to rethink its approach to the US relationship.

A key step would be to work with the United States in the extraction and processing of Australian critical minerals. By partnering with the US in this area, and freeing both countries from reliance on China, Australia can solidify its alliance position. It can raise itself further above the level of Ukraine, whose vast reserves of critical minerals (including rare earth elements) have become a mere bargaining chip in negotiations with Washington.

Trump's objective with Ukraine—a minerals-for-security quid pro quo—is emblematic of the new US foreign policy doctrine, in which assistance is granted not on principle but in return for something tangible. Since Australia is a top-four global producer of rare-earth elements, with reserves critical to US defence and technology industries, a question arises: could Trump demand a similar deal from Australia?

Australia should not wait for the request to come but rather put forward a strategy, or series of proposals with the US and other partners such as Japan, that are in the interests of itself and global security.

Unlike Ukraine, which seeks military aid to fight an immediate existential threat, Australia has an alliance with the US that is still based on the shared strategic interest of regional stability and deterrence of aggression. Articles III and IV of the ANZUS Treaty oblige the parties to 'act' in response to threats against the other, but interpretation of that has always been uncertain.

Under Trump's America First doctrine, coming to Australia's aid could be accompanied by a compensating demand for greater access to Australia's rare earth elements, lithium, cobalt and titanium.

Unlike Ukraine, however, Australia is not merely a resource supplier. As a regional power with strategic assets of immense military value to the US, it has a far stronger bargaining position.

Trump's approach to alliances is brutally simple: nations must prove their worth in tangible, immediate terms. This is where Australia has an advantage. Beyond critical minerals, it provides the US with something far more valuable: strategic positioning and intelligence infrastructure. Robertson Barracks in Darwin hosts rotational US Marine deployments, bolstering US force posture in the Indo-Pacific without the cost or political sensitivity of permanent basing. Joint Defence Facility Pine Gap is essential to US intelligence, surveillance, and reconnaissance, providing real-time missile warning and electronic signals intelligence that the US cannot easily replicate elsewhere. Harold E Holt Naval Communications Station is one of the US's primary links to its submarines, securing its undersea deterrence in the Indo-Pacific. Northwest Cape and Cocos Islands radar installations are vital to US Space Command, tracking adversary satellites and space debris amid China's expanding orbital footprint.

If Trump sees Ukraine's rare earths as leverage, Australia must ensure that its strategic assets are recognised as even more valuable. The risk lies in failing to assert this before any transactional demands are made.

Australia cannot afford to passively assume alliance obligations will hold under a leader who views diplomacy as a business process. Instead, Canberra must shape the terms of engagement, reinforcing why its role in the Indo-Pacific delivers more long-term value to the US than simple access to its minerals. This requires a more assertive, transactional approach that speaks Trump's language of hard bargains while safeguarding Australia's sovereignty.

Australia should pursue a strategic critical minerals agreement with the US that reduces both nations' dependence on China's dominance of rare earth supply chains and processing. A deal that prioritises joint investment in refining and manufacturing capacity, rather than just raw material supply, will strengthen sovereign capabilities, enhance supply chain resilience, and ensure long-term security for both economies.

This type of practical initiative would complement Canberra's framing of the alliance as one of true partners, with emphasis on joint military infrastructure, intelligence cooperation and Indo-Pacific stability as assets of equal value worthy of security guarantees. Strengthening leverage before negotiations are forced to start by some third-party action is essential to ensuring the US recognises that Australia's strategic geography, intelligence facilities and force integration are irreplaceable advantages.

Expanding resource partnerships with like-minded nations such as Japan and EU members will reduce dependency on any single power's economic coercion tactics. Pre-emptively signalling non-negotiable red lines will reinforce that while Australia is willing to cooperate, access to sovereign resources cannot be dictated under duress.

For the US, Ukraine's rare earths are a short-term geopolitical play. In contrast, Australia's strategic positioning and alliance role are long-term necessities. As the Indo-Pacific becomes the central theatre for global competition, the US needs Pine Gap, RAAF Tindal, HMAS Stirling and Robertson Barracks. The difference between Ukraine and Australia lies not just in geography but in bargaining power. In Trump's transactional world, Australia must ensure it negotiates from a position of strength, not subservience.

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Australia can reap the benefits of critical-minerals rivalry

Ian Satchwell

Image: PLS via X.

Accelerating geoeconomic competition to control supply chains for critical minerals is disrupting global markets and threatening security. Resource-rich Australia is delicately positioned between rival great powers but also faces unique opportunities to increase its influence in global markets and reap the economic benefits.

How Australia manages multiple supply chain risks and leverages its leading position in minerals investment and production at home and abroad will be key to determining success in enlarging and diversifying its markets and geo-economic positioning.

Industrialised nations that depend on critical minerals as inputs for advanced manufacturing are hastening efforts to build new supply chains that do not depend on China-based processing. But they have been slow in committing to the new mechanisms needed to enable investment in alternative minerals production.

ASPI's new report—*Disruption and opportunity: Australia and critical minerals in a changing global order*—examines evolving international supply chain initiatives while challenging an assumption that the very active efforts by the United States to build alternative critical minerals supply will deliver for Australia a substantial alternative market to China.

The report finds that that the US is unlikely to evolve into a major minerals market for Australia, despite being its largest investment partner and most consequential strategic ally. While the US offers some niche opportunities for certain critical minerals such as rare earths, China is a much, much larger overall resources market for Australia that will remain vital to the Australian mining industry and economy. Japan and South Korea follow in market importance, with the European Union and India offering potential but slow to take action to invest and commit to minerals offtake.

What is clear is that Australia is well positioned to take advantage of minerals supply competition with its worldleading geological endowments, a global footprint of successful mining operations, and hardwon capabilities built over more than 60 years of modern mining and processing. Australian companies aren't just domestic producers; they're global investors, operators and technology leaders. Demand for their products is only rising as the energy transition, digitisation, automation and defence modernisation accelerate.

But market opportunity alone is not enough. Australia's ability to convert its mineral strength into strategic advantage is being tested by volatile global prices—often shaped by market manipulation—contradictory and changing policies among likeminded nations, and rising competition from other mineralrich nations. Domestically, high construction and energy costs, an uncompetitive company tax system, acute skills shortages, regulatory uncertainty and long approval timelines threaten to blunt Australia's competitive edge.

While commercial and security partners across Europe, Asia and North America increasingly look to Australia not only for resources but also for leadership—technical, environmental, commercial and strategic—progress has been slow in turning desire into minerals demand.

Many countries, along with the EU, have signed agreements with Australia to build more secure, sustainable and diversified criticalminerals supply chains. Yet too many of those agreements remain aspirational, overtaken by market realities or stalled by implementation hesitancy.

Australia and its partners must now pivot from signing partnerships to fully activating them. That means prioritising the partners and markets where real supplychain integration and volume markets are achievable. Japan and South Korea—longstanding, hightrust customers and investors—remain central.

Britain and EU nations offer so far unmet potential for deeper integration. India presents opportunity, albeit with high transaction costs.

Canada, Australia's closest minerals peer in scale, global investment reach, capability and commitment to sustainable mining, should be treated not as a competitor but as a strategic collaborator in shared supplychain development. Working together, the two middle powers can wield greater market and geopolitical influence.

Crucially, Australia must recalibrate its approach to onshoring. While valueadded processing remains desirable, policies built solely around domestic downstream ambitions risk underestimating the reality of global supply chains and overestimating Australia's cost competitiveness.

The more strategic path is to position Australia as a dominant force across multinode criticalminerals supply chains—linking Australian concentrates and intermediate products; production of Australian companies operating abroad; trusted partners' processing, manufacturing and technology ecosystems; and, of course, end users.

While the US remains a vital investment and trade partner across all sectors, its volatile geoeconomic posture means Australia shouldn't expect to expand minerals supply into the US market relative to other destinations. Australia should pursue the US market and implement the 2025 minerals investment agreement, while simultaneously doubling down on other markets where trade, investment and policy alignment offer a clearer pathway to scale.

To seize this moment, Australia should also restore the predictability and competitiveness of its own investment environment. That means streamlining approvals, ensuring reliable energy at competitive prices, investing in infrastructure and skills, reforming the tax system and reviving productivity growth. Without those fundamentals, even worldclass geology, capability and environmental standards can't guarantee a worldclass industry.

Ultimately, the choice before Australia isn't whether to be a criticalminerals superpower; it's whether to be an indispensable node in the world's most important supply chains. That requires ambition, disciplined policymaking, deeper strategic partnerships and a relentless focus on execution.

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For critical minerals, Darwin's the place to be

John Coyne

Image: Flickr

Critical minerals supply chains are shaped as much by geography as policy or finance. Yet much of Australia's national debate still centres on regulatory frameworks and capital markets rather than the physical places where processing and logistics happen. If Australia wants to capture more value from its critical-minerals

endowment, it needs to deliberately develop northern Australia, particularly Darwin, as a strategic industrial platform within the country's broader industrial ecosystem.

I am often asked why the Darwin Dialogue on Critical Minerals is held in Darwin. Surely Perth is Australia's home of miners. Sydney is where financiers cluster. Canberra is where policy is written. Those observations overlook something fundamental: resilient supply chains are physical systems that depend on energy availability, ports, logistics corridors, regulatory certainty and workforce capability.

Darwin sits where many of those conditions converge.

This doesn't diminish the central roles played by other Australian cities. Perth will remain Australia's mining capital, Sydney its financial hub and Canberra the centre of policy design. But resilient supply chains also require industrial nodes located close to energy resources, logistics infrastructure and Indo-Pacific markets.

The Darwin Dialogue reflects this reality. The forum brings together governments, investors and industry leaders to address the practical challenges of building trusted critical-minerals supply chains, including financing midstream processing capacity, aligning offtake agreements and strengthening international industrial cooperation. Holding these conversations in Darwin reflects the growing recognition that many of the physical foundations required for mineral processing are emerging in northern Australia.

Supply-chain resilience is ultimately physical. It requires reliable energy, deep-water ports, transport corridors, industrial land, skilled workforces and regulatory coherence. Without these foundations, downstream processing remains a policy aspiration rather than an industrial reality.

Energy availability is the most immediate constraint for midstream mineral processing. Many critical minerals, particularly those used in batteries, magnets and advanced defence technologies, require energy-intensive refining and separation processes. Energy costs, therefore, play a decisive role in determining whether projects are commercially viable.

Northern Australia's energy base offers important potential in this regard.

The Inpex Ichthys liquefied natural gas complex near Darwin demonstrates the scale of industrial development possible in the region. It's one of the largest and most technologically sophisticated energy projects ever built in Australia, linking offshore resources, advanced processing infrastructure and global markets. Ichthys shows that northern Australia can support complex, capital-intensive industrial projects when energy systems, logistics and investment align.

Resources in the Beetaloo Basin could further strengthen the region's industrial energy base if developed responsibly. Gas alone won't define Northern Australia's energy future, but it can provide the firming capacity needed to expand renewable generation and support large-scale industrial demand. At the same time, renewable-energy investment across northern Australia is increasing, creating the potential for a diversified energy system capable of supporting energy-intensive mineral processing.

Energy alone, however, isn't enough. Geography and logistics matter just as much.

Northern Australia sits closer to many Indo-Pacific markets than Australia's southern industrial centres. From Darwin, shipping routes connect directly into Southeast Asian supply chains and the broader Indo-Pacific industrial ecosystem. As governments and companies seek to diversify processing locations and reduce concentrated supply-chain risks, this proximity becomes strategically important.

Darwin's port infrastructure and logistics networks provide another structural advantage. Ports, transport corridors and industrial precincts enable minerals to move efficiently between extraction, processing and export. For partners seeking trusted supply chains, northern Australia offers a location where resources, processing and logistics can operate within a stable regulatory and strategic environment.

Darwin also sits at the intersection of Australia's evolving regional security partnerships. The United States continues to expand its presence through the United States Force Posture Initiatives, while Japan is deepening energy investment and industrial cooperation across northern Australia. Other Indo-Pacific partners increasingly view Darwin as a gateway for engagement with Australia's northern economy.

This convergence has strategic implications. Infrastructure that supports the defence posture, ports, airfields, logistics hubs and transport corridors also strengthens the foundations for resilient industrial supply chains. At the same time, trusted mineral supply chains are increasingly recognised as critical to defence industrial resilience across allied economies.

For critical minerals, this creates an important alignment between economic resilience and national security. Secure supply chains require more than access to resources. They depend on reliable transport corridors, stable regulatory frameworks and trusted industrial ecosystems.

Northern Australia offers the opportunity to integrate these elements. Industrial planning in areas such as the Darwin–Middle Arm region illustrates how energy systems, infrastructure investment and logistics networks can be coordinated to support emerging processing industries. Realising this potential will still require substantial infrastructure investment, workforce development and careful regulatory planning. But the foundations for clustered industrial ecosystems are increasingly visible.

Some will inevitably read arguments like this as a form of practical regionalism or advocacy for northern Australia. That would miss the point. The issue is not regional promotion but a national perspective. Too often, Australia's economic and policy debates remain anchored in Canberra and the southern states, even as the country's strategic geography shifts northward toward the Indo-Pacific.

For policymakers in Canberra, the lesson is clear. Building resilient critical-minerals supply chains requires more than funding announcements or export strategies. It requires coordinated industrial planning. Defence infrastructure development, energy policy and critical minerals strategy should be aligned to support clustered industrial ecosystems, supported by integrated port development, industrial precinct planning and transport infrastructure.

Northern Australia should therefore be understood not as a peripheral development challenge but as an increasingly important node in Australia's future critical minerals supply chains.

And that is why the Darwin Dialogue belongs in Darwin.

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Just like fuel, fertiliser supply chains are a hidden vulnerability

Raelene Lockhorst

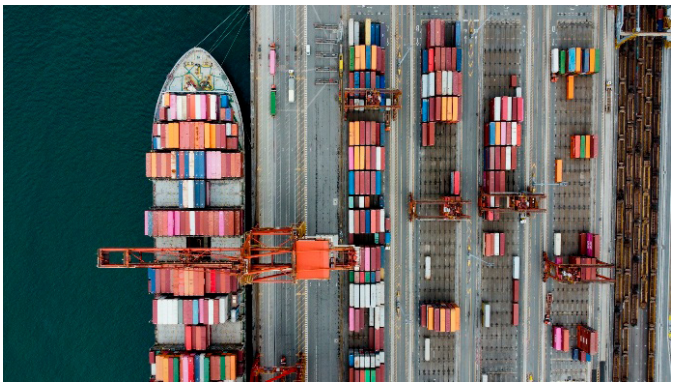

Image: Daniel Miksha/Unsplash

While fuel shortages attract attention, disruptions to shipments in fertilisers or chemicals are just as damaging to our national economy. Australia needs a broader resilience strategy that minimises the vulnerabilities of complex supply chains.

Global supply chains of fertilisers, chemicals, pharmaceuticals and manufacturing inputs depend on maritime flows through a small number of chokepoints which, if disrupted, can rapidly cause shortages. These can occur far from the origin of the disruption, and Australia's distance from much of the world offers little protection. Australia has limited domestic production capacity in many sectors and relies heavily on imports through global supply chains.

The Covid-19 pandemic exposed the fragility of global supply chains. Shortages of medical equipment, pharmaceuticals and manufacturing inputs revealed the risks of relying on production hubs. Governments moved quickly to prioritise domestic needs, reshaping global markets through export controls, production restrictions and disrupted logistics. During the crisis, Australia renewed discussions about sovereign capability, supply chain diversification and economic security. Yet several years later, progress in many sectors remains slow.

Australia's overreliance on imports was again exposed in 2021 when China restricted exports of urea, a key component of the diesel exhaust fluid AdBlue used in trucks and heavy vehicles. Australia was at risk of shutting down its national road transport fleet, potentially affecting supermarket deliveries, fuel distribution and agricultural logistics within weeks.

The government eventually installed emergency measures and diversified supply chains, but the incident demonstrated how disruptions in a relatively minor industrial input could quickly become a national vulnerability.

The government needs to continue improving its domestic production capacity, the key structural solution for strengthening sovereign supply. Project Ceres, the development of a major fertiliser and urea facility in Karratha, represents a significant step, but it's still years away from full operation. With an investment of US$4.5 billion (about A$6.4 billion), the facility will become Australia's largest urea plant, producing around 2.3 million tonnes annually. The project aims to strengthen national food security and reduce reliance on imported fertilisers, backed by a 20-year gas supply agreement with Woodside and an offtake agreement with Incitec Pivot.

Complex fertiliser supply chains, on which both agricultural security and food security depend, expose a deep connection between economic resilience and national security. Agricultural productivity relies heavily on imports of nitrogen, phosphate and potash. Supply disruptions would reduce yields and eventually raise food prices or limit supermarket stocks. Therefore, simply expanding domestic food production doesn't guarantee food security, if it continues to rely on fertiliser imports that are vulnerable to global disruption.

Twelve months ago, ASPI released a landmark *Food Security Preparedness Green Paper* highlighting the importance of upstream supply chains that underpin food production. Fertilisers, chemicals and other industrial inputs support both agriculture and the broader food system. These initiatives recognise the need for a coordinated approach that synchronises preparedness across production, transport, logistics, processing, manufacturing, retailing and consumer awareness. In late 2025, a National Food Council was established and the government announced the development of a *National Food Security Strategy, Feeding Australia*.

Emerging research also highlights the importance of sovereign capability in food biotechnology and biomanufacturing. A November 2025 report released by the Australian National University, *Made & Grown: The Future of Food,* illustrates how technologies could strengthen food system resilience. These approaches expand the idea of food production beyond traditional agriculture into advanced manufacturing systems. Developing sovereign capability in these areas represents a once-in-a-generation opportunity for Australia to reshape its

food system, strengthen domestic resilience and become a leader in bioeconomy.

Many Australian industries beyond agriculture depend on imported chemicals, machinery components and advanced materials. These include pharmaceuticals, food processing, packaging and advanced manufacturing. When supply chains tighten, shortages in one sector can cascade across multiple industries.

Supply chains and domestic logistics are also vulnerable to disruptions to transport routes caused by climate change, particularly across northern Australia. Seasonal flooding regularly cuts road links and disrupts the movement of food, fuel and essential goods to remote communities and regional centres. As climate volatility increases, building resilience in domestic logistics will become as important as global supply chains.

National resilience cannot be measured solely in defence spending or military capability. It also depends on the stability of supply chains that sustain everyday life. Fuel shortages capture public attention, but shortages of fertilisers, chemicals, pharmaceuticals and manufacturing inputs are just as consequential. The Covid-19 pandemic and the AdBlue crisis showed how supply chains of individual products can quickly become strategic vulnerabilities on a national scale. As geopolitical tensions, logistics disruptions and climate pressures intensify, Australia needs a broader resilience strategy that encompasses the full network of imports, domestic production and infrastructure in every industry.

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EU and US critical-minerals strategies: same goal, different methods

Ivana Damjanovic

Image: Sebastian Pichler/Upslash

The United States and the European Union are both working to reduce their dependence on China for critical minerals, but they're taking markedly different approaches. As both powers pursue critical-mineral independence through different means, the EU may struggle to keep up with the US's more assertive policy. This matters to Australia as a trading partner of both those economies.

Critical-mineral reserves are geographically concentrated, as is the capacity to refine and process them. China controls more than 90 percent of global processed supply of key energy minerals. More worryingly, the EU still sources all of its heavy rare-earth elements from China. These elements are the building blocks of advanced manufacturing, including fifth generation weapons systems and advanced industrial componentry.

Intense supply-side market concentration leaves buyers of critical minerals vulnerable to disruptions and market manipulation. China's punitive use of export controls has demonstrated the validity of global concerns about these vulnerabilities, and Europe has suffered collateral damage during US–China trade spats.

To reduce dependence on China, the US and the EU have been developing new supply strategies. Significant differences exist between these approaches.

The EU's approach, centred around its 2024 *Critical Raw Materials Act* (CRMA) has three goals: to attract, streamline and facilitate investment in strategic projects within and outside the EU; to strengthen economic security domestic measures, such as mechanisms for screening foreign direct investment and rules on foreign subsidies; and to introduce sustainability standards for traceability along EU supply chains, including through the Corporate Sustainability Due Diligence Directive, the EU Battery Regulation, the Digital Product Passport system. It also explicitly enshrines the CRMA's sustainability objectives.

The EU approach seeks to balance security with sustainability while serving the higher goal of strategic autonomy.

In contrast, the almost entirely security-driven US strategy is focused on public–private partnerships, price controls, long-term offtake agreements and direct government investment in commercial projects, particularly targeting the defence sector.

Such intervention, at odds with the market-driven US economy, is justified on national security grounds. Critical minerals, alongside tariffs, form part of a broader strategy to reinforce supply-chain security and balance China's historical market dominance.

A 2024 memorandum of understanding between Australia and the EU seeks to enable Australian companies to apply for EU strategic projects under the CRMA, which facilitates improved access to existing funding mechanisms and beneficial co-financing arrangements. This memorandum was reinforced by Australia's 2025 declaration of intent with the European Investment Bank.

While EU strategic projects have not yet been approved in Australia, several Australia-linked companies are involved in such projects inside and outside the EU. During her visit to Canberra this week, the President of the European Commission Ursula von der Leyen endorsed four 'major projects' covering production of rare earths, lithium and tungsten.

A new Australia–EU Free Trade Agreement should provide a further boost to this partnership by facilitating EU investments and eliminating existing EU tariffs on critical minerals. The agreement

will also provide a legal framework to support the building of secure and sustainable supply chains and the promotion high economic, social and governance standards.

In contrast, the Australia–US critical-minerals framework, agreed upon in October 2025, committed both sides to 'take measures to provide' at least US$1 billion (A$1.4 billion) in funding for projects based in both countries within six months. This spending will be in addition to already committed equity stakes in Alcoa's gallium refinery in Western Australia and Arafura's rare-earths project in the Northern Territory.

Critical minerals sit within a broader US–Australia alliance, centred around developing and deepening defence capabilities and cooperation. They're therefore more directly tied to Australia's national security interests.

The EU has signed 15 strategic partnerships and designated 67 mining projects as strategic, but its efforts have been too slow in diversifying supply chains. While EU funding is available, it's scattered across different programs, and onerous project approvals remain a significant bottleneck.

This is unsurprising given the EU's institutional structures and complex division of competences. It also has a historical focus on longer-term regulatory frameworks and diversifying supply chains to avoid reliance on single non-EU actors (the target is no more than 65 percent supply from a single source for each of its strategic minerals).

In contrast, the US comes with money, speed and a decidedly anti-China approach, with which the EU can hardly compete.

The most recent EU initiative, RESourceEU Action Plan, seeks to accelerate EU efforts by mobilising additional resources (3 billion euros) over the next 12 months, imposing tighter regulatory approval deadlines and more coordinated action. But the funding gap with the US remains significant.

In departure from its unilateral policies, the US has taken the initiative to create a critical-minerals club as a standards-based trading system with a floor price mechanism, seeking to unite nations against China's dominance. As a critical-minerals supplier, Australia could benefit from this by providing an alternative to the purported unfair trade practices and low governance standards characteristic of the Chinese market, should such demand and willingness to pay higher prices materialise.

For Europe, the balance is more critical. While China seems to be a common ground, there are other issues – for example, Greenland and Ukraine – where US and EU interests diverge and conflict. The US will always put its interests first, but partnering with the US should not come at the cost of marginalising EU supply chains, strategic-autonomy objectives and values.

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Financing the midstream

Critical minerals need reliable financing frameworks

John Coyne

Image: Pixabay/Pexels.

In critical minerals policy, one of the costliest things we can say is 'we signed a memorandum of understanding'. Public announcements can signal intent, but they don't build processing plants, turn ore into usable materials or keep factories running when supply is tight.

What must change is how projects in the middle of the supply chain are funded and backed. Without steady, coordinated finance that links miners to the manufacturers that depend on their materials, good intentions won't translate into real capacity or secure supply.

The hard truth is that there are no quick fixes, and not only because of China's scale or technical capability. The constraint is structural. Resilient supply chains require a synchronised response across early-stage development, midstream processing and downstream manufacturing. If policy pushes only one segment at a time, the system defaults to established offshore processing networks backed by patient capital and integrated offtake.

The core problem isn't geology. Australia and its partners have resource potential and growing strategic alignment. The binding constraint sits in the midstream: chemical separation, refining and precursor capability that convert ore into usable industrial inputs. This is where projects most often stall: credible feasibility studies are followed by a prolonged struggle to reach financial close.

We don't need to guess what this looks like in practice. Lynas's Kalgoorlie rare earths processing facility has been described by the company as an A$800 million build delivered in less than two and a half years from receipt of full construction approvals. Iluka's Eneabba rare earths refinery illustrates the capital intensity and funding complexity at the next step: Iluka has stated Eneabba's expected capital cost rose to between A$1.7 billion and A$1.8 billion after front-end engineering and design, alongside a A$1.25 billion non-recourse loan via the Critical Minerals Facility administered by Export Finance Australia, and Iluka has also disclosed a A$200 million cash equity contribution.

Those figures matter because they explain why the valley of death persists. Midstream assets are large, lumpy investments. Commercial caution is rational: projects are exposed to price cycles, construction and commissioning risk, and policy inconsistency. They operate in markets where an incumbent has scale and influence over pricing dynamics, which can erode confidence in future revenues. Even technically sound projects struggle to secure debt without credible assurance that cash flows can withstand volatility and that offtake will endure beyond a single political cycle.

That creates circular dependency. Magnet manufacturers want assured feedstock at predictable pricing. Processors need binding offtake to unlock finance. Miners want buyers willing to support a longer chain of custody. Each node waits for the others, and investment decisions are deferred.

China's advantage isn't simply dominance; it is integration—processing capacity is linked to manufacturing demand and is supported by patient capital operating at scale. That integration creates a benchmark that's hard to match through isolated Western transactions. Treating midstream activities as a series of bespoke deals rather than repeatable industrial infrastructure is the deeper flaw.

Policy tools exist, but they're applied episodically. The Japan Oil, Gas and Metals National Corporation explicitly provides debt guarantees, as well as equity support and loans. Since 2022, that remit has covered domestic ore processing and smelting. Australia's Critical Minerals Facility has already demonstrated the role of concessional finance in de-risking midstream build-out, including the A$1.25 billion Iluka loan. The gap isn't a lack of instruments; it's the lack of a coordinated template that aligns them up front.

A more credible approach would be a coordinated Indo-Pacific de-risking platform built around three elements: risk-sharing, offtake underwriting and export credit alignment. The key improvement is institutional, not rhetorical: use existing national mechanisms, but coordinate them as a standing playbook rather than one-off bargains. In practice, that means Australia convening a small core group of finance and industry policy agencies (for example, Export Finance Australia and relevant economic and industry portfolios) with counterparts in Japan and the United States, so that equity, guarantees, and export credit can be structured against common project criteria and shared assumptions, rather than negotiated from scratch each time.

Industry also has to move. Investors should stop treating midstream as an exotic niche and start demanding bankable, repeatable structures that price sovereign risk transparently.

Manufacturers, including magnet makers, need to be prepared to enter into longer-term offtake arrangements if diversification is truly a strategic priority. Project developers should design proposals around financeability, standardised offtake terms, clear construction and commissioning milestones, and realistic risk allocation, rather than hoping the capital stack will assemble itself after approvals are won.

This is why the 2026 Darwin Dialogue will place finance and offtake at the centre of its agenda, bringing governments, export credit agencies, institutional investors, manufacturers and project developers into the same room. No single actor can resolve the midstream financing gap on their own. The value lies in forcing these perspectives together to test assumptions, expose constraints and clarify where responsibilities properly sit. That process may not deliver full agreement, but it can narrow uncertainty, accelerate practical alignment and move us closer to financing models capable of underpinning alternative, resilient supply chains.

If the midstream remains unbankable, diversification remains rhetorical. The lesson from the projects already underway is not that the government must do everything, but that finance, offtake, and policy settings must be designed as a system. Memorandums have their place. But if we want operating plants rather than paper promises, we need repeatable financing architecture that makes diversification investable, again and again, at scale.

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To secure mineral demand, align with original equipment manufacturers

John Coyne

Allied governments want resilient critical mineral supply chains. Investors want contracted revenue. Capital does not finance separation plants and magnet facilities based on strategic aspiration; it finances credible, long-term demand.

Policy still leans too heavily on supply. Grants, concessional loans and strategic reserves help at the margin, but they don't address the financing constraint at the centre of heavy rare-earth separation and magnet manufacturing. Policymakers across trusted partners should align procurement frameworks with purchasing strategies of original equipment manufacturers (OEM) to create assured, multi-year demand for non-Chinese magnet production and heavy rare earth processing, particularly where China controls the overwhelming majority of global capacity.

Market structure explains why demand matters so much.

Heavy rare-earth markets are tiny by global commodity standards. Annual trade volumes of dysprosium and terbium measure in the hundreds or low thousands of tonnes. Even larger magnet feedstocks, such as neodymium-praseodymium, remain small relative to bulk industrial inputs. Thin and opaque markets amplify volatility and complicate risk hedging. Lenders cannot rely on deep futures markets. Equity investors discount revenue projections heavily when pricing mechanisms lack transparency.

China built dominance in rare earth separation and neodymium magnet manufacturing by aligning state-backed capital with assured domestic demand. Electric vehicle producers, wind turbine manufacturers, electronics firms and defence industries absorbed output at scale. Processors expanded capacity, knowing downstream OEMs would purchase predictable volumes.

Western capital operates under different constraints. Private investors price concentration risk, policy volatility and liquidity limitations into project models. Developers outside China must often build midstream infrastructure from scratch while competing against vertically integrated incumbents. Without a contracted offtake, boards delay final investment decisions.

OEMs sit at the centre of the solution.

Automotive manufacturers, aerospace firms, defence primes and advanced electronics producers determine input specifications and sign supply contracts. Electric-vehicle (EV) manufacturers shape volume demand. Defence procurement shapes credibility and risk perception. Both influence whether new processing capacity reaches financial close.

Multi-year OEM offtake agreements reduce revenue uncertainty. Predictable volumes lower perceived risk and compress the cost of capital. Banks model contracted cash flows differently from speculative spot sales. Even modest improvements in financing terms can determine whether a separation plant proceeds in a thin market.

EV manufacturers already sign long-term agreements for lithium and other battery materials. Rare-earth magnets and heavy rare-earth oxides should follow the same logic. Industry consortiums can pool demand across multiple OEMs and achieve scale that no single firm can generate alone. Aligned procurement frameworks across Australia, Japan, the United States, Canada and Europe would aggregate demand to levels capable of underwriting new capacity.

Defence procurement can anchor early demand but cannot dominate it.

Defence demand remains modest in volume compared to EVs and wind, but it carries disproportionate signalling power. Fighter aircraft, submarines, guided weapons and radar platforms rely on high-performance magnets. Long-term acquisition programs provide decades of visibility. Governments should convert that visibility into explicit commitments to purchase certified non-Chinese magnets and separated heavy rare earth oxides over defined timeframes.

Government demand must complement, not crowd out, commercial markets. If defence absorbs too large a share of early output, producers risk dependence on sovereign buyers rather

than building diversified commercial customer bases. Balanced frameworks should secure baseline defence volumes while preserving space for EV and industrial OEM contracts. Diversified demand deepens liquidity and strengthens resilience.

Strategic reserves and floor prices can stabilise markets but cannot replace them.

Stockpiles can buffer shocks, particularly where non-Chinese processing remains embryonic. Floor prices can shield early movers from predatory pricing in concentrated markets. Neither tool creates a durable commercial ecosystem. Governments fill reserves and step back. Producers then confront the same thin demand conditions that deterred private capital.

Sustainable supply chains require recurring commercial transactions at transparent pricing formulas between processors and OEMs. Assured demand must persist beyond political cycles.

Standards and certification reduce friction and reinforce signals.

Trusted magnet certification and harmonised processing standards across allied jurisdictions can verify origin, processing location and security compliance. Common standards lower transaction costs and allow magnets processed in one partner country to integrate seamlessly into another's defence or automotive supply chain. Procurement rules should reference those standards. Defence acquisition plans and EV incentive regimes can set minimum thresholds for certified content.

Without coordinated demand, Western supply could consolidate into a thin and politically fragile alternative rather than a diversified allied ecosystem. Chinese capital remains patient, vertically integrated and state-aligned. Western capital demands risk-adjusted returns within defined time horizons.

Supply-side subsidies will not build resilient critical mineral supply chains. Bankable revenue will. OEM contracts, disciplined defence procurement and harmonised standards can convert small, concentrated markets into financeable industrial capacity.

Strategy now needs buyers, not speeches.

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Australia can narrow India's mine-to-magnet gap

Atom Singh

Image: Vikash Singh/Pexels.

India imported 53,748 metric tonnes of rare-earth permanent magnets in the year to March 2025, and its demand is projected to double by 2030. That's the mine-to-magnet problem in one line: India wants the clean-energy and defence platforms that use these magnets but still relies on others for a component that sits at the heart of modern motors and actuators.

So when India and Australia talk about critical minerals, I'd judge the partnership by a simple test focusing on the rare-earths subset of those materials: does it close the mine-to-magnet gap, or does this cooperation stop at mining?

Mining is rarely the choke point. The vulnerability sits in the missing middle, the industrial steps that turn feedstock into separated oxides, then metals and alloys, and finally magnets that meet the specifications of carmakers and defence integrators. When those stages are concentrated, or disrupted, price spikes and shortages quickly affect EV motors, wind turbines and precision defence systems.

India has signalled it wants to get out of this trap. On 26 November, the government approved a scheme for around 73.8 million Indian rupees (about A$1.5 billion) to build 6,000 metric tonnes per annum of integrated rare-earth permanent magnet capacity across the value chain.

That's not a symbolic pilot; it's an industrial bet. India wants to move from importing magnets to making them at scale, and it wants the upstream conversion steps—oxide to metal, metal to alloy, alloy to magnet—to happen domestically.

Australia matters because it can be more than a supplier of upstream inputs. It can support India through feedstock supply, processing know-how, investment, and reliable intermediate inputs for magnet production. At the same time, the partnership is not free from commercial tension. Australia also seeks to move downstream in critical-minerals processing, so some overlap with India's midstream ambitions is unavoidable. The realistic policy goal, therefore, is not perfect complementarity, but selective cooperation in which Australia strengthens input security while India develops magnet-making capacity that end-users will actually buy.

Reliability is the part everyone skips. Yet without reliable supply, diversification cannot be effective. In November, power disruptions at Lynas Rare Earth's Kalgoorlie processing facility were serious enough for the company to warn of a shortfall equivalent to about a month of production in the quarter.

This is a reminder that having a friendly source of supply does not alone create security of supply. Plants must run, infrastructure must be reliable and intermediate products must arrive on time.

This is why project identification and memorandums of understanding are the warm up, not the finish line.

What would change outcomes would be a shift from resources talk to manufacturing reality. That means aligning three things that rarely line up on their own: bankable demand, survivable risk-sharing and fast qualification.

Start by securing bankable demand. Midstream processing and magnet lines get funded when buyers commit to volumes and timelines, not when officials say the right words. India's scheme creates a chance to anchor demand through automotive supply chains (where quality discipline is relentless) and defence procurement (where resilience is a policy objective). If those demand signals are credible, they pull investment into the upstream conversion steps that magnets depend on.

Then design for volatility. Rare-earth markets swing, commissioning is hard and energy and currency risks are real. If a commercial design dumps all the downside on one party, the project stalls and everyone calls it geopolitics. A serious partnership spreads risk so private capital can live with it. This is achieved through contract structures that tolerate price moves and, where the payoff is strategic, targeted public finance that lowers the cost of capital for the missing-middle steps.

Finally, make qualification the centrepiece. Diversification of supply is only successful when an end-user qualifies and accepts the final product. That requires testing, standards, traceability and repeatability. If Australia and India want mine-to-magnet cooperation to mean something, they should prioritise a joint path that gets magnets qualified for specific use cases, rather than hoping capacity automatically turns into purchases.

If this sounds technical, it's because the missing middle is technical. That's where the leverage is and where the partnership can move from symbolism to security.

Here's the simplest way to measure progress by the end of the decade: can an Indian manufacturer buy a qualified, non-Chinese magnet at scale, with inputs that don't collapse under volatility or a single operational shock? India's 6,000-tonne plan makes that test urgent. Australia has a narrow window to help make it work by focusing less on the mine gate and more on the middle.

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Governance, communities and industrial legitimacy

Building stronger governance for Australia's critical-minerals future

Sally Henderson and John Coyne

Image: Michala Garrison/NASA.

Critical minerals now sit at the centre of Australia's strategic future. But geology alone will not secure national resilience or regional transformation. Australia must decide whether it will build a governance architecture capable of sustaining legitimacy, capability and disciplined sequencing across the full critical-minerals lifecycle.

In December, the House of Representatives Standing Committee on Primary Industries launched an inquiry into the factors shaping social licence and economic development outcomes in critical minerals projects across Australia.

Our submission to the committee argues that critical minerals occupy the intersection of economic development, national security and regional resilience. Advanced manufacturing, clean energy systems and defence capability all depend on secure and trusted supply chains anchored in reliable access to these inputs. Intensifying strategic competition has shifted the sector beyond commercial opportunity. Policy settings in critical minerals now shape Australia's industrial capacity and long-term strategic posture.

Australia's historic extraction model delivered prosperity, but it also entrenched structural vulnerabilities. Limited downstream capability increased exposure to concentrated processing markets and coercive leverage. Underinvestment in producing regions widened disparity and constrained durable transformation. Treating critical minerals as another price-driven cycle would reinforce those weaknesses rather than resolve them.

The strategic task extends beyond extracting more ore. Australia must position itself more intelligently within global supply chain architecture. Processing, intermediate production and selective advanced manufacturing—where commercially viable—should form part of that strategy. Industrial ambition must remain sequenced and regionally grounded. Government incentives should improve sustainable private investment, not distort immature markets or embed premature dependence on particular actors.

Social licence provides the foundation for that ambition. Projects stall when legitimacy erodes. Investor confidence weakens when engagement becomes transactional. Durable development requires locally anchored governance structures that embed projects within communities over multi-decade lifecycles. Engagement cannot operate as a procedural hurdle cleared on the way to approval. Companies must invest early in regionally literate capability, sustain it across commodity cycles and insulate it from short-term production pressures.

Free, prior and informed consent must operate as a substantive governance principle. Early, continuous and transparent engagement with Traditional Owners strengthens cultural integrity and project certainty. Broader community dialogue must equip citizens with balanced information about environmental, financial and long-term trade-offs. Informed consent reduces misalignment later in project lifecycles. Superficial consultation amplifies it.

Cumulative pressure presents the more complex strategic challenge. Remote and northern Australian communities often face overlapping consultation cycles, compressed timelines and technical documentation tied to various projects. Engagement saturation erodes trust even when individual projects meet formal compliance thresholds. Risk emerges at the ecosystem level rather than within a single project boundary.

Governments carry a heightened responsibility to assess and communicate cumulative risk. Labour market distortion, housing strain, infrastructure bottlenecks and service pressure often materialise gradually. Regional absorptive capacity must shape sequencing decisions. Transparent communication about system-wide exposure strengthens capability and reduces volatility.

Industrial geography also shapes outcomes. Clustering midstream processing within established industrial corridors can reduce duplication and lower unit costs for energy, water and logistics. Multi-user precincts can generate local innovation density and shared infrastructure efficiencies. Public co-investment must align with realistic commodity fundamentals rather than policy momentum.

Workforce localisation represents another structural pillar. Workforce shortages across northern Australia reflect demographic

and liveability constraints. Processing and advanced metallurgy require specialised technical capability. Training pipelines must align regional universities, industry, and technical and further education before projects reach peak demand. Indigenous and regional workers must access technical and managerial progression pathways rather than remaining confined to peripheral roles.

Liveability functions as industrial policy. Housing, education, healthcare, childcare and digital connectivity determine workforce retention. Without coordinated investment in these foundations, capital flows north while economic advancement flows south. Regional human capital must grow alongside infrastructure if critical minerals are to underpin genuine transformation.

State and territory governments act as connective tissue between national ambition and regional reality. Infrastructure resilience, road, rail, port and energy redundancy, underpins remote commercial operability. Regulatory simplification and clearer delineation of responsibilities can reduce duplication without lowering standards. Coordination should prioritise interoperable data systems, harmonised reporting and predictable sequencing across jurisdictions.

Provenance and traceability add further complexity. Sustainability-linked trade measures increasingly shape market access. Australia can leverage strong governance standards as a competitive advantage in allied markets. Nationally harmonised and proportionate systems aligned with export markets offer the most credible pathway.

Northern Australia demands restraint as well as ambition. Established industries, agriculture, energy, logistics and traditional mining anchor regional economies. Critical minerals development should complement rather than destabilise those foundations. Regional economies function as integrated systems. Weakening durable sectors in pursuit of speculative gains reduces resilience rather than enhancing it.

This year's Darwin Dialogue provides a platform to test governance maturity rather than amplify momentum. Australia's resource endowment remains clear. Coordination is still the constraint: aligning federal ambition with state implementation, investor expectations with community outcomes, and industrial capability with regional capacity.

Nation-building requires strategic patience. Institutions, skills ecosystems and community trust develop over decades, not announcement cycles. Legitimacy stands alongside security of supply as a core requirement of economic security. Critical minerals can anchor diversified regional growth and strengthen national security. But they can only do so if governance, sequencing and social licence are driven from and genuinely tethered to the local ecosystems that underpin the critical-minerals sector.

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Speed without shortcuts: minerals permitting can be a competitive advantage

John Coyne

Governments say they want diversified critical minerals supply chains. Yet many regulatory systems still require a decade or more to move new mines from discovery to production. Getting a processing plant going is similarly protracted.

Unless permitting systems deliver shorter and predictable timelines while maintaining high environmental and cultural safeguards, supply-chain diversification will remain slower than strategic demand requires.

The energy transition and advanced defence capability are underpinned by materials such as lithium, nickel, cobalt and rare-earth elements. Supply chains for many of these materials remain highly concentrated, particularly in refining and chemical processing. Governments seeking diversification require both new resources and regulatory systems capable of delivering projects at speed.

Demand growth reinforces the urgency. The International Energy Agency (IEA) estimates that demand for lithium from clean-energy technologies could grow by more than 40 times between 2020 and 2040 in scenarios aligned with net-zero pathways. Demand for nickel, cobalt and rare-earth elements will also increase sharply. Yet mineral development timelines remain long. Studies by the IEA and S&P Global show that the average time from discovery to first production is 15 to 20 years. Geological appraisal, environmental baseline studies, engineering design, infrastructure development and financing all affect this. Regulatory sequencing nevertheless plays a decisive role in determining whether projects move forward.

Investment economics magnifies the problem. Large mining developments frequently operate in volatile commodity markets and require capital investments measured in billions of dollars. Development delays increase financing risk, raise the cost of capital and reduce projects' net present value. Even modest delays can have significant financial consequences. Fraser Institute surveys of mining investors consistently identify regulatory uncertainty as one of the most important factors influencing exploration investment decisions.

Australia illustrates both the challenge and the opportunity. Major resource projects typically require approvals across various state and federal environmental regimes alongside heritage processes, water licensing and infrastructure planning. Each regulatory step serves a legitimate purpose. Sequential decision-making and duplication across agencies, however, can extend development timelines and create uncertainty for proponents. Canada faces similar pressures as new mining proposals emerge to meet growing critical-mineral demand.

Australia's Critical Minerals Strategy highlights environmental, social and governance performance as a strength in global markets.

Canada's Critical Minerals Strategy likewise positions responsible mining as central to its international supply proposition. Strong standards remain essential. The strategic challenge lies in delivering those standards with greater regulatory predictability.

Australia and Canada also share structural advantages that make collaboration particularly attractive. Both operate stable legal systems, maintain internationally active mining sectors and host globally significant mineral reserves. Companies headquartered in both countries operate projects across continents, and investors recognise their regulatory frameworks as among the most credible. Cooperation could demonstrate how high standards and predictable timelines reinforce each other.

Permitting reform should focus on three practical areas that improve regulatory efficiency without weakening safeguards.

Governments should harmonise environmental and heritage assessments. Parallel reviews across agencies frequently examine similar environmental evidence. Coordinated assessment frameworks can allow regulators to review projects concurrently rather than sequentially. Canada's integrated impact-assessment system and joint review mechanisms demonstrate how regulators can coordinate scrutiny while maintaining rigorous standards.

Governments should embed Indigenous partnerships early in project design. Early engagement enables Traditional Owners and project developers to identify cultural and environmental sensitivities before project plans are finalised. Indigenous Land Use Agreements in Australia provide a structured mechanism for negotiating land use and benefit-sharing arrangements. Early partnership strengthens social licence and reduces the likelihood of disputes that can delay projects later in development.

Regulators should pursue digital interoperability across approval systems. Mining projects generate extensive environmental modelling, geological data and monitoring information. Digital regulatory platforms allow agencies to review shared datasets simultaneously. Western Australia's Environment Online system and Canada's Impact Assessment Registry demonstrate how digital platforms can improve transparency, reduce administrative duplication and shorten decision timelines.

Financing gaps, infrastructure limitations and downstream processing capacity also shape critical-mineral project outcomes. New mines often require rail, port and energy infrastructure before production begins. Projects should also secure long-term offtake agreements to attract investment. Diversification requires coordinated development across exploration, mining, processing and manufacturing supply chains.

Permitting nonetheless remains a decisive, government-controlled lever. When approval timelines become uncertain, investors discount project value or direct capital elsewhere. Predictability in regulatory decision-making is therefore a strategic asset.

Countries seeking to diversify supply chains should test cross-jurisdictional trusted project pathways for critical-minerals facilities. Participating countries should align environmental reporting standards; recognise equivalent environmental, social and governance certification frameworks; and allow regulatory data submitted in one jurisdiction to support assessments in another. Projects meeting agreed environmental and Indigenous partnership benchmarks could then move through national approval systems with greater predictability.

Australia and Canada are well placed to lead that work. They already promote responsible mining as part of their offers to global markets. Joint leadership on regulatory cooperation could demonstrate that strong safeguards and efficient approvals can coexist in advanced regulatory systems.

Countries that combine credible environmental safeguards with reliable approval timelines will attract capital, bring responsible projects online faster and strengthen economic security. Speed without shortcuts will determine which economies succeed in building resilient critical-minerals supply chains.

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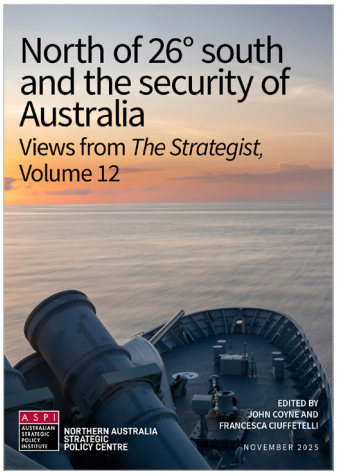

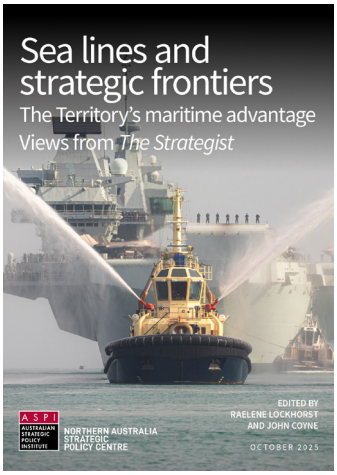

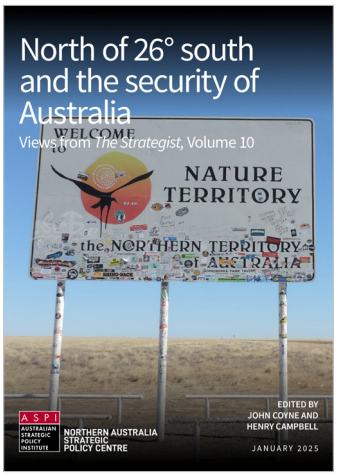


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