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Confronting China's Critical Mineral Dominance

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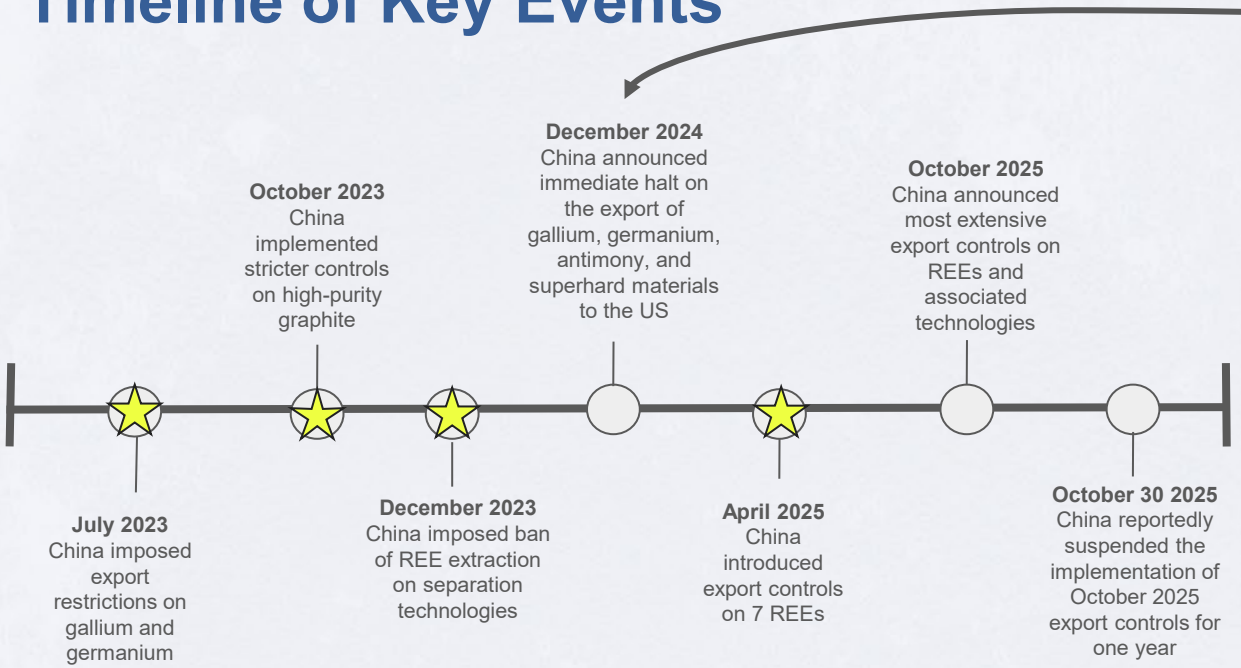
Timeline of Key Events

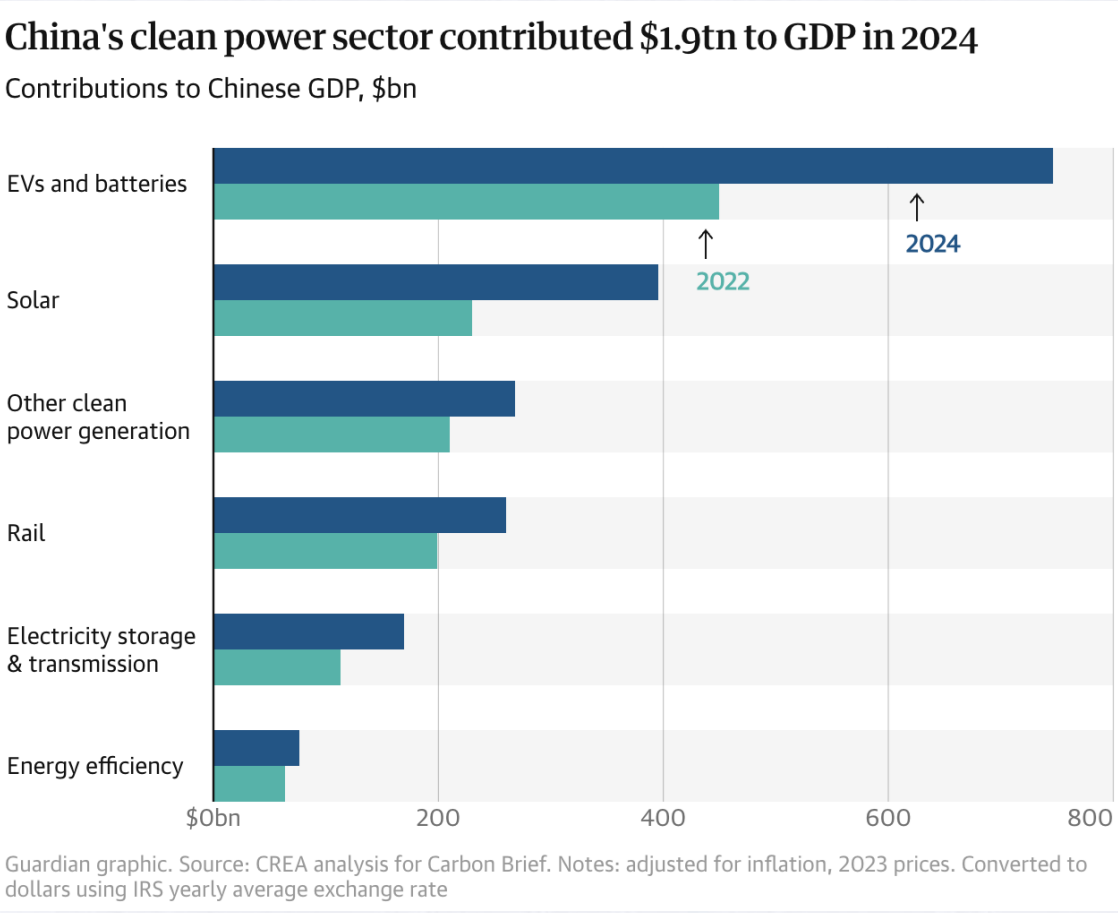


Most Recent Update (11/9):

Article No. 46 of 2024, halting the export of gallium, germanium, antimony, and superhard materials; and implementing stricter reviews of dual-se graphite items, **has been suspended**

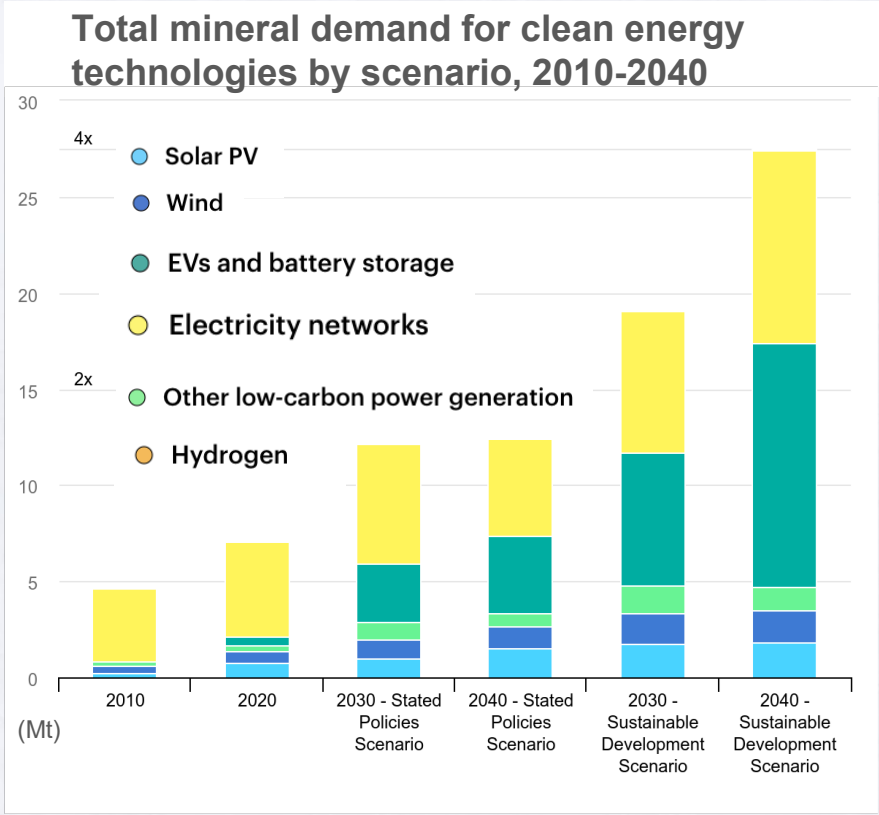
But: exporters must still apply for licenses for overseas sales

★ **Still in effect, fully or partially**



China’s industrial priorities have shifted since 2014-2015

Source: CREA analysis for Carbon Brief



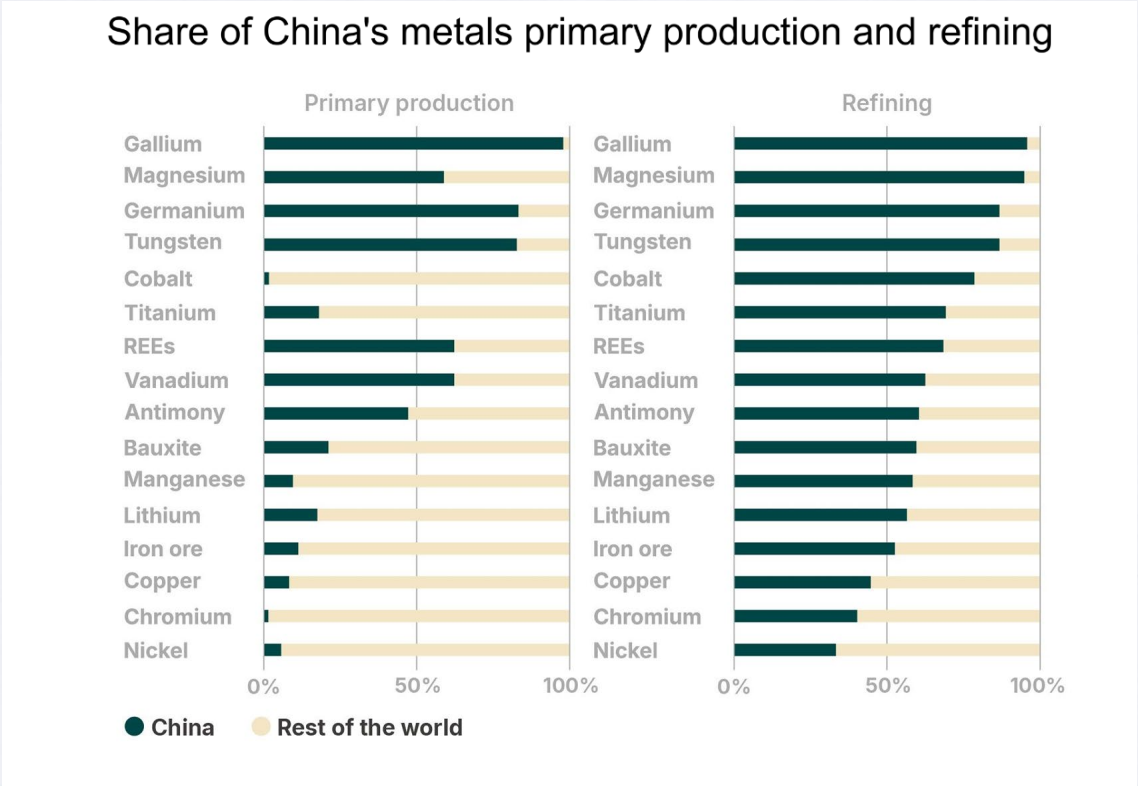
Total mineral demand for clean energy technologies, 2010-2040

Critical Mineral Needs for Clean Energy Technologies

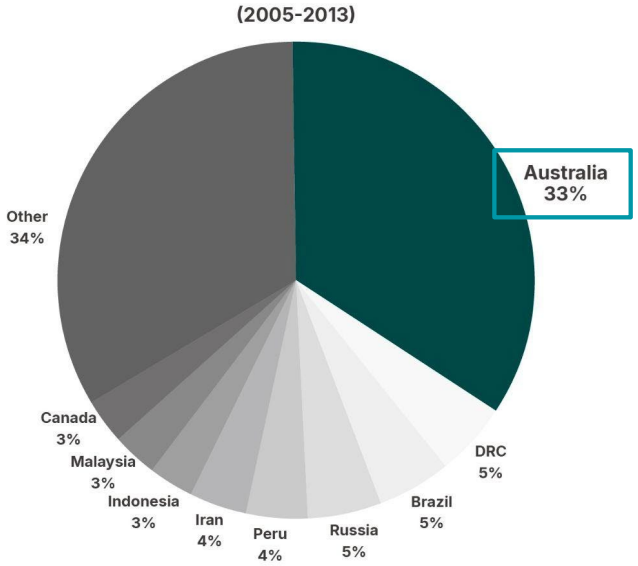
Growth in demand for selected renewables and battery-related minerals (2040 relative to 2020)

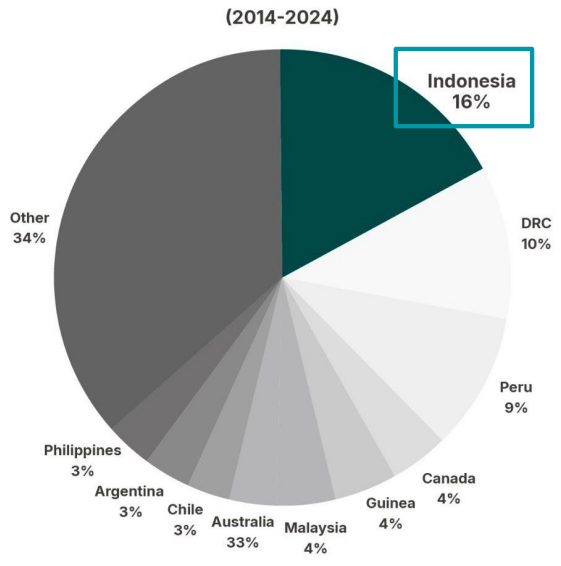
Selected Minerals	Growth Demand
Lithium	13 times
Copper	1.7 times
Cobalt	6 times
Nickel	6 times
Rare earth	3.4 times

China Dominates Refining, But Needs Raw Materials



Source: T. Lapi et al. (2025), China's foreign investments in the metal sector, Mineral Economics





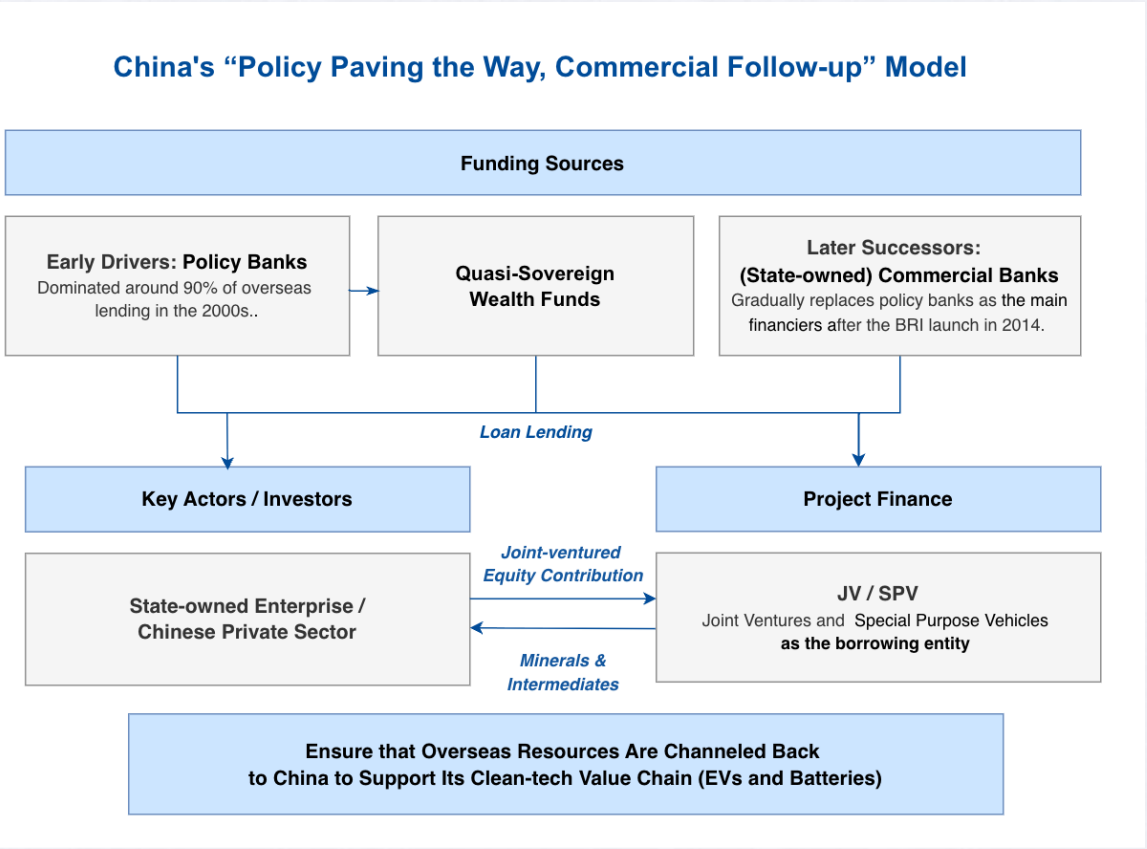
Chinese Investments in Indonesia to Access its Abundant Nickel Reserves

Geographic distribution of China's FDI in the metal sector

Source: T. Lapi et al. (2025), China's foreign investments in the metal sector, Mineral Economics

Indonesia's Strategic Critical Minerals Policies

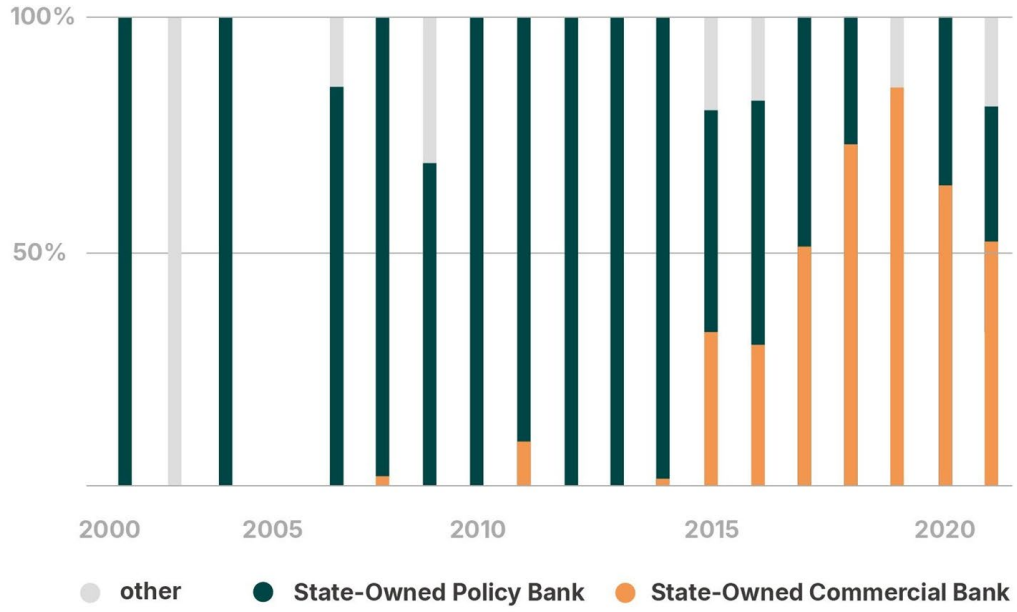
- The government of Indonesia has implemented successive policies on critical minerals since 2009 to boost government revenue, economic transformation, industrial development, and job creation.
- These policies focus on downstreaming, building high value-added industries, and banning the export of nickel ore.
- Economic development is the main justification for accepting Chinese investment, but the energy transition is increasingly used as a justification for investments in nickel smelting and refining.
- These policies successfully converted primary ore mining into more advanced, profitable on-shore smelting, refining, and battery industries, including industrial parks financed by Chinese joint ventures.



Data sources: AidData, Chinese official documents, etc.; compiled and illustrated by DSET.

Securing Resource Access Through Overseas Investments

Composition of China’s mineral lending portfolio by type of financier



Composition of China’s mineral lending portfolio by type of financier

Source: B. Escobar et al. (2025), Power Playbook: Beijing's Bid to Secure Overseas Transition Minerals, AidData

Three Phases of Chinese FDI: the Indonesia Morowali Industrial Park (IMIP)

1st Phase (2013-2017): Stainless steel and nickel pig iron

- Stainless steel and nickel pig iron development - primarily shipped to China
- Tsingshan Holding Group (青山控股集团) is the decisive investor

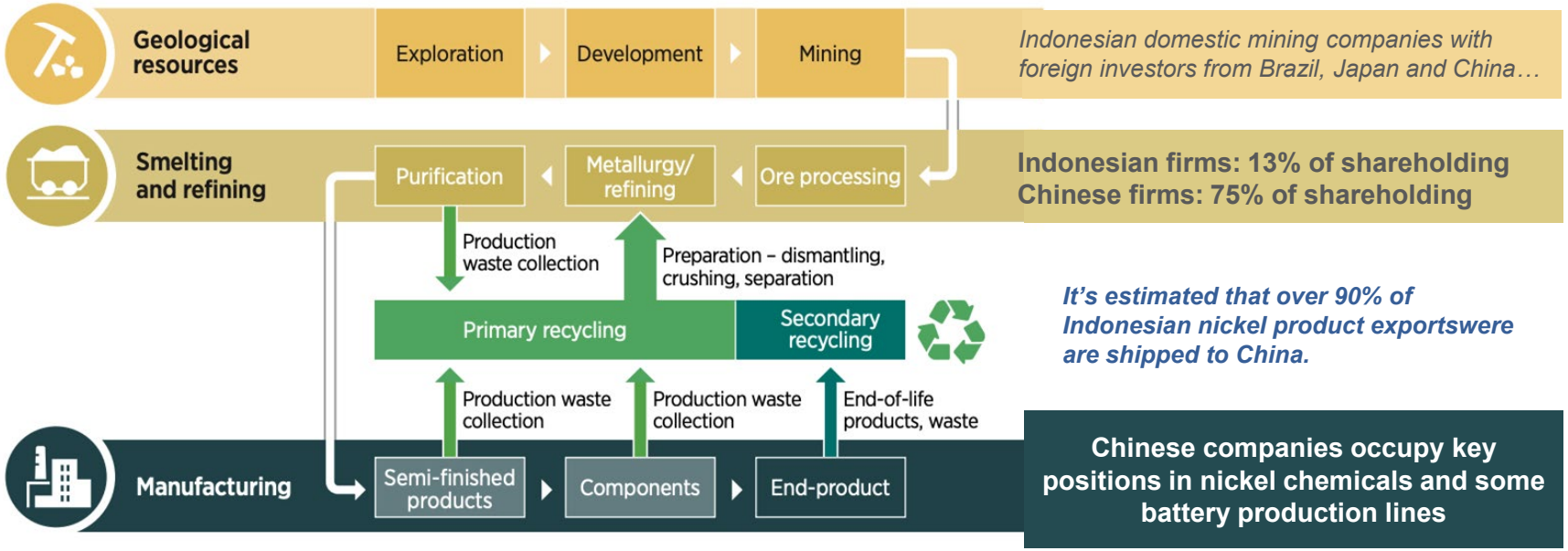
2nd Phase (2018-2022): Transition towards the new energy sector

- New joint venture with shareholders including GEM, Tsingshan, CATL - leadership of these companies is embedded within the CCP
- Still only producing intermediate products. Higher-value processing concentrated in China

3rd Phase (2023 onwards): Integration of battery-grade nickel chemicals

- Joint construction of a new HPAL plant
- Indonesian nickel company MBMA, CATL and GEM sign $1.8B HPAL plant deal in IMIP, construction begins Jan 2025
- Strengthened interdependency

Asymmetric Interdependence



Source: Ayuk *et al.* 2020 and CADAS (2025) ; compiled by DSET.

Economic and Political Impacts of Reliance on China

- China has become Indonesia's top source of foreign direct investment, especially in the energy, mining, and construction sectors.
- Many high ranking Indonesian political figures view Chinese investment favourably, but there is concern about over reliance on China
- Social, environmental, and political issues have arisen from Chinese investments into critical minerals in Indonesia: labour abuses, environmental pollution and degradation, patronage networks
- **Like-minded countries need to work together to minimise asymmetric dependencies on China**

Key messages

- **China's industrial priorities shift since 2014-2015**
- **China's expanding oversea investments into Critical Minerals**
  - The pattern of "Policy paving the way, commercial follow-up"
  - SOEs channel offtake volumes to Chinese importers/downstream manufacturers
- **Indonesia and China: Asymmetric Interdependence**
  - Chinese investment adapted to the Indonesia's downstream investment policy
  - Three Phases of Chinese FDI: the Indonesia Morowali Industrial Park (IMIP)
  - Concerns and way forward

Critical Minerals & Drone Batteries: Building a Resilient Supply Chain

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Demand signals for a non-red drone battery

>95% of the electrode active material in each battery cell comparison such advanced battery is composed from sources other than sources that are, or are in geographic areas that are, owned by, controlled by, or subject to the jurisdiction of foreign entities of concern

- ***Sec. 4865. Prohibition on acquisition of advanced batteries composed of materials from certain foreign sources (NDAA 2026)***

Exclusive: US drone makers Skydio, Anduril turn to Taiwan for key supply chain support

Chloe Liao, Taipei; Sherri Wang, DIGITIMES Asia | Monday 14 July 2025 | 0 Like 0

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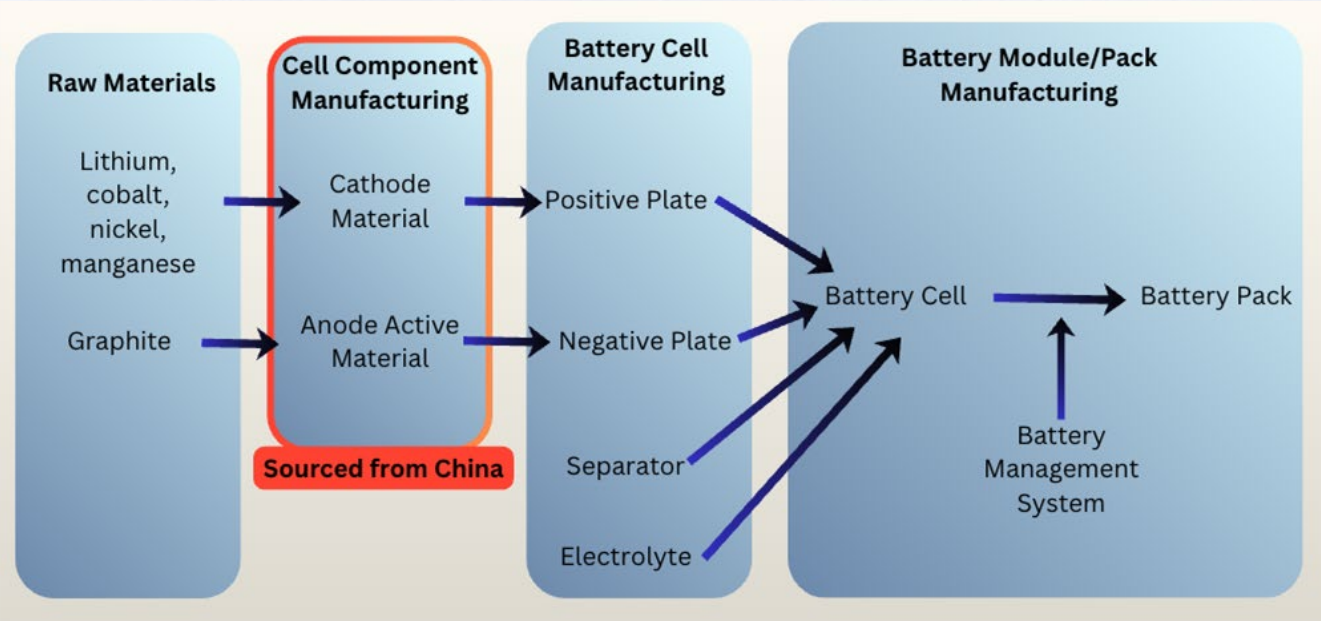
Critical Mineral Dependencies in Li-ion Batteries



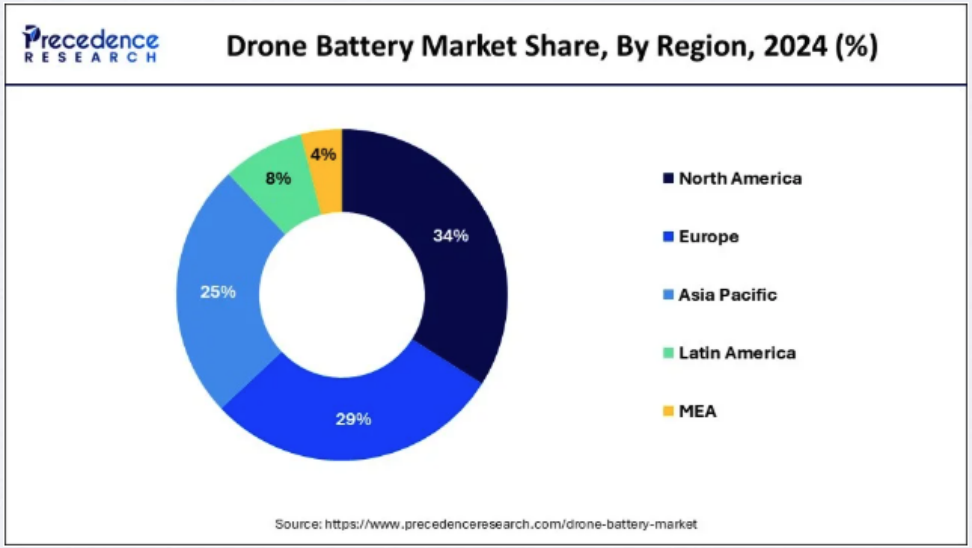
China's processing share for top five critical minerals required in drone batteries:

- Graphite: >95%
- Manganese: >90%
- Cobalt: 70%
- Lithium: 60%
- Nickel: 20%
  - 68% incl. ID

Obstacles and Strategies for TW Battery Manufacturers

4 factors influencing costs of battery cell

- Raw material price
- Mass production scale
- Facility costs
- Government subsidies (including electricity rates)



Taiwan's next steps

Domestic Action

- Develop funding mechanisms for projects in raw materials and battery R&D
- Critical minerals/materials list tied to deliberate national strategy
- Form or authorize a government organization to facilitate strategies

International Cooperation

- Coordinate industry standards
- Government policy alignment and private-private cooperation
- Jointly secure upstream materials

(Potential) Recycling & Stockpiling

- Leverage recycling technology to explore circular solutions
- Engage in national stockpiling strategies
- Explore regional stockpiling mechanisms

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