CHINA MACRO GROUP
policy · market · strategy

Understanding supply distortions of critical minerals powering the green energy transition

CMG Primer

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China Macro Group (CMG)

China Macro Group (CMG) – a specialized European management consulting and research firm

Corporate profile

- ✓ CMG is an agile, service-minded and innovative **European management consulting and research firm**
- ✓ CMG serves **international corporate, investment and public sectors** on China related questions
- ✓ It specializes in assisting **strategic decision-making** of governance, executive and functional bodies
- ✓ CMG combines three **core capabilities**: policy, business and strategy
- ✓ CMG operates with presences in **Zurich, Munich and Shanghai**

How we work

China InsideOut
Cross-cultural team, extensive networks in China, "reality checked" China analysis and also accountable to the Chinese discourse

Inter-disciplinarity
Business / strategy, public policy / political science, macro-economy, geopolitics / geoeconomics / trade

"Multipolar" analytically
For geopolitical / geoeconomic analysis actively use, seek and iterate with expertise and views from different "poles"

Epistemological and dialectical values
Original, fact-based and calibrated

Dialectics seen as resource and a process principle

Professional services DNA
Listening, ownership and co-creation as foundation to build trusted and tailored collaborations

Our value proposition – 6 service areas

1. **Consulting**
   - Strategy devising / review
   - HQ-subsidiary alignment
2. **Briefing**
   - Strategic business context
   - Market / competitive trends
3. **Sector/market/tech intelligence**
   - Value-chain, competitive and go-to-market
   - Tech, cluster and ecosystem analysis
4. **Partnering with Chinese firms**
   - Partner mapping and evaluation
   - Collaboration concepts
5. **Monitoring**
   - Policy / sector / market factors
   - Geopolitical / risk factors
6. **Learning & curation**
   - Learning conferences / fact-finding
   - Trainings, events and moderations

Executive Summary

Global supply situation and policy trends

- The most important critical minerals that power the green energy transition are **lithium, graphite, nickel, cobalt and rare earth elements (REE**
- These minerals are determined as **"most important"** by looking at which minerals overlap in the designation by the EU, US and China as "critical minerals" and for which global demand is expected to grow fastest during the next decade
- Though global reserves of these minerals are geographically rather evenly distributed, China dominates both the extraction of graphite and REE as well as the **global market for processing all of them,** plus is an **early-mover** in ensuring overseas supply to meet its own domestic demand

Global policy landscape and supply framework

- Most **countries rich in critical minerals** (mostly developing countries, plus Australia) are adopting some form of **investment and trade barriers** to better leverage this strategic resource for the development of the domestic economy
- The US and EU – both with industrial leadership ambitions in downstream technologies – are adopting policy measures to address **supply chain security concerns**, especially with regards to their **reliance on China**, and hence are planning to **ramp up industrial policies to strengthen the resilience of these supply chains** via international partnership and clubs
- A **case-study of China's overseas mineral engagement in Indonesia** shows that the Chinese government in 2013 as part of the Belt and Road Initiative launched a policy framework that facilitated the engagement of Chinese mining companies to first invest in extraction and – once Indonesia introduced export controls – then also into local processing capabilities, helping Indonesia build a complete mining value-chain and ensuring China's own supply
- Overall, the distortive effects from protectionist policies in key countries will **accelerate the fragmentation and reconfiguration of global supply chains,** providing the ground for the emergence of **country clusters or so called "mineral clubs"**

High-level implications for European business

- **Downstream businesses** should evaluate whether they need to develop dedicated mineral supply chains independent of China for their markets in case new policies use of minerals sourced from China in products, or whether there is a need to secure supply via investment or partnering in the upstream industry
- **Upstream mining and processing industries** will face an increasingly dynamic and competitive geopolitical environment, characterized by growing fragmentation and protectionist tendencies
- Given current trends, **corporate planning functions** should set up a planning for critical mineral supplies under a scenario of continuing US-China decoupling and monitor closely

Agenda

1 **Critical minerals for the green energy transition**

- Identifying “priority critical minerals”
- Identifying “key countries” and global supply chain concentration

2 **Landscaping mineral policies for key countries**

- Overview and country-level trends
- Deep-dive on China’s mineral policy, import, third-country engagement and domestic sector
- Global supply framework and trends

3 **Potential CMG support – how to respond strategically**

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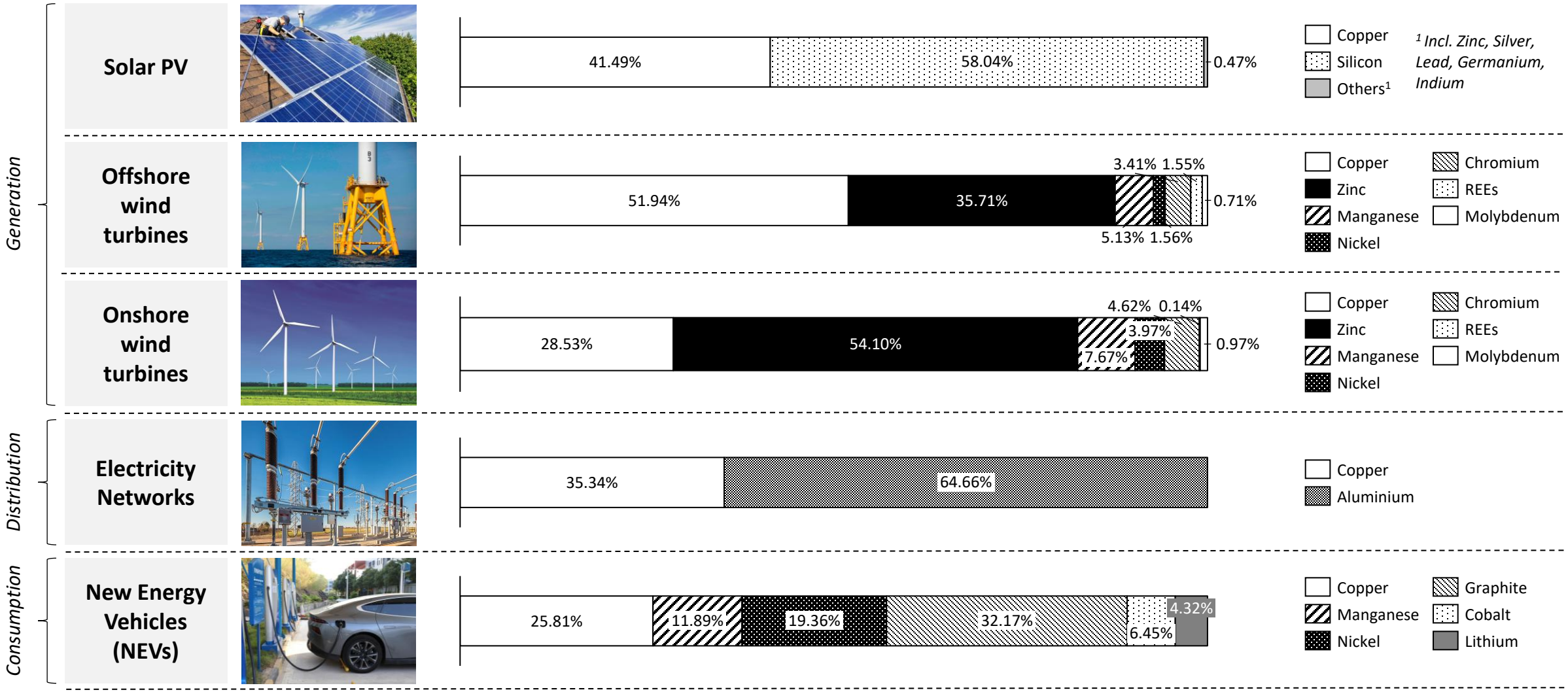
3 Potential CMG support – how to respond strategically

The green energy transition relies at least on 16 different minerals…

Relative use of minerals across selected renewable energy generation, distribution and consumption types



Source: International Energy Agency 2020 (IEA); Note: Steel and aluminum not included for generation types. REEs: rare earth elements

… 11 out of 16 listed as “critical minerals” by at least one trade bloc, with 5 commonly seen as “critical”…

Minerals	US List (2022)	EU List (2023)**	Chinese List (2016)*
 Copper	✗	✓	✓
 Silicon	✗	✓	✗
 Zinc	✓	✗	✗
 Graphite	✓	✓	✓
 Nickel	✓	✓	✓
 Manganese	✓	✓	✗
 Chromium	✓	✗	✓
 Cobalt	✓	✓	✓
 Lithium	✓	✓	✓
 REE	✓	✓	✓
 Molybdenum	✗	✗	✓

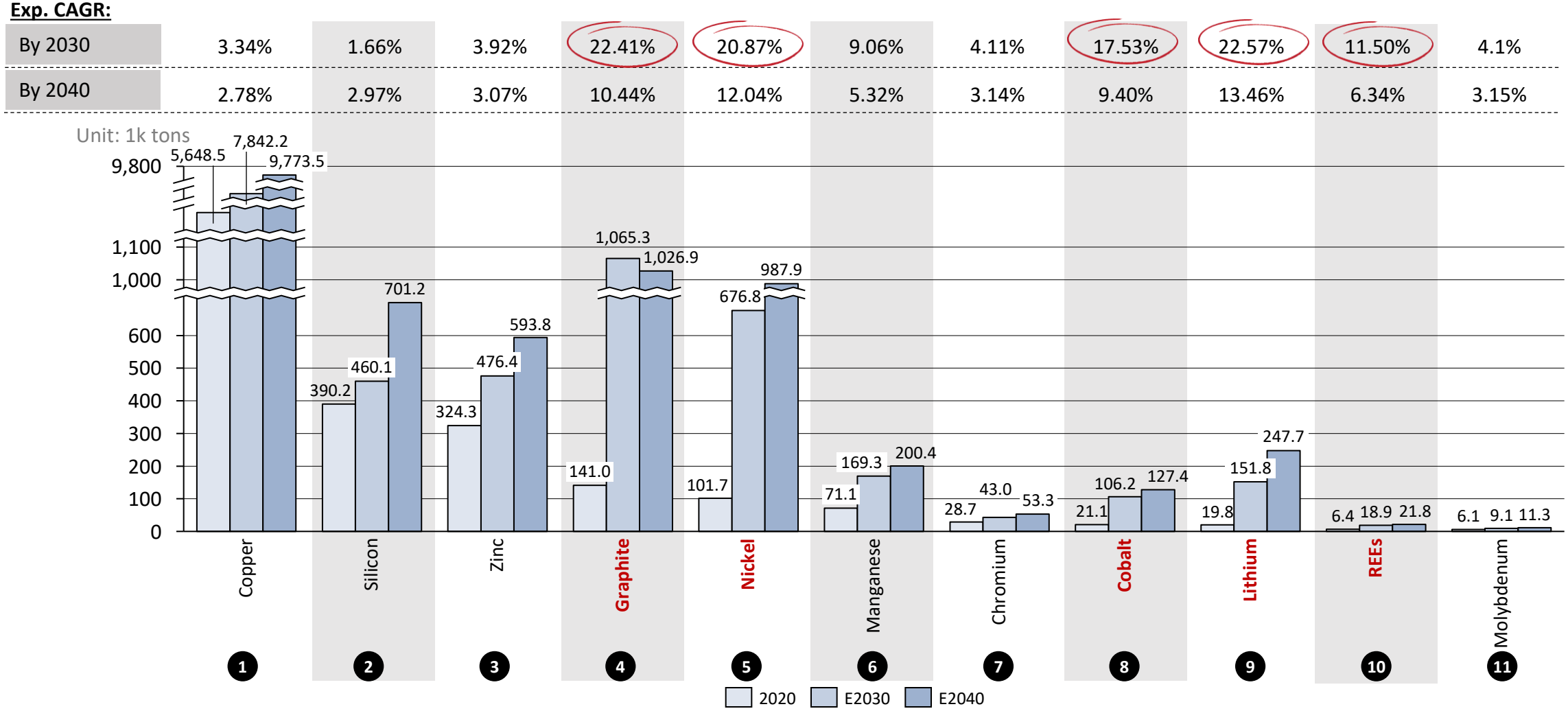
Note: Aluminum not included

**China’s 13th FYP (2016-2021) list has since been expanded to cover 36 minerals, however this new list is not publicly available*

*** EU: “Copper and nickel do not meet the CRM thresholds but are included on the CRM list as strategic raw materials in line with the Critical Raw Materials Act”*

… which overlap with the minerals for which global demand is expected to grow at CAGR >10% in next decade

Global critical mineral demand for renewable energy value chain in 2020 and growth expectations for 2030 and 2040



Note: Expected growth rates for 2030 & 2040 adapted from IEA's Stated Policies Scenario, an indication of where the energy system is heading based on a sector-by-sector analysis of today's policies and policy announcements; this is based on a more conservative estimate compared to scenarios that are consistent with the Paris Agreement goals

Source: IEA 2020

Hence, these 5 minerals identified as "priority critical minerals" for green transition, hence crucial in minerals supply security

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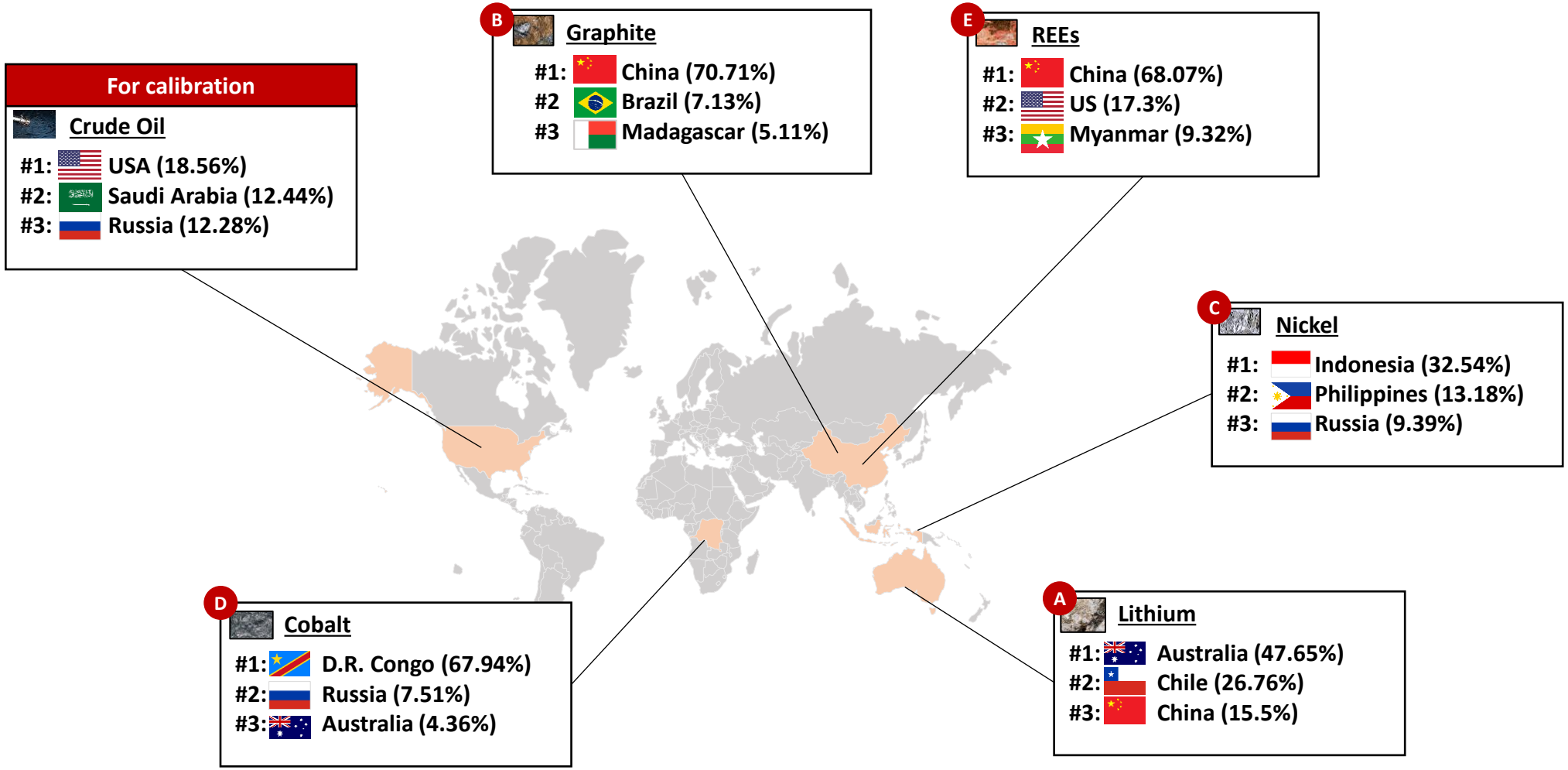
Extraction of these 5 “priority critical minerals” is currently very concentrated in a few countries…

Extraction: Top countries generally with very high extraction share – China by far the biggest extractor of graphite and REEs

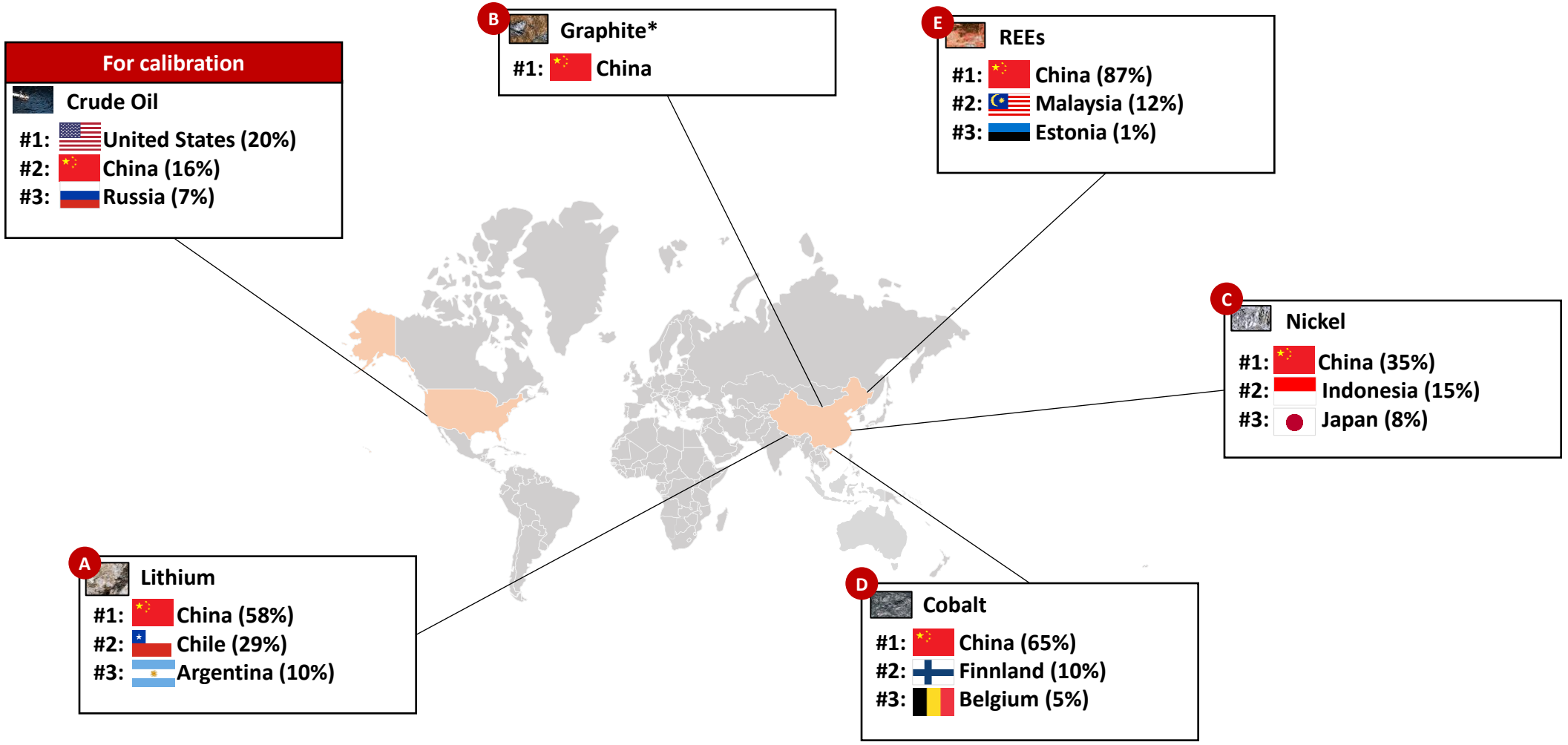


Source: BGS World Mineral Statistic 2020

China boasting two and DRC one so-called high extraction concentration for a specific critical mineral (>60% of global extraction)

…a phenomenon which is even more pronounced in the China-dominated processing of these minerals…

Processing: China dominating the processing of all the five priority critical minerals

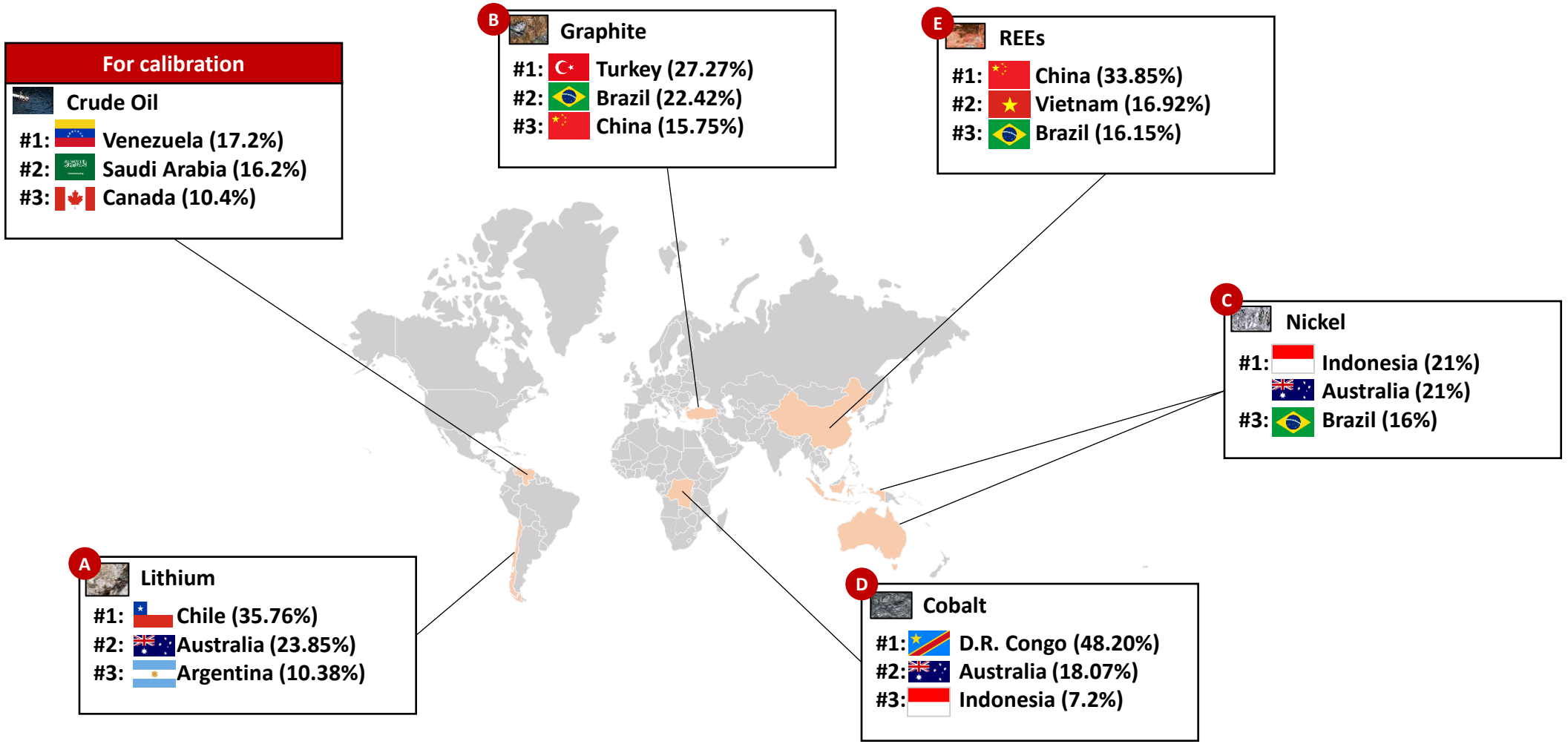


*Source: IEA 2019; *no IEA data available for graphite processing; USGS graphite factsheet 2023 states that «China processed most of the world's spherical graphite»*

China has developed a competitive edge in processing of many critical minerals incl. those only scarcely found in China (e.g. cobalt)

… while mineral reserves are geographically quite evenly distributed, which lays foundation for diversification

Estimated reserves: Critical mineral reserves overall less concentrated than current global extraction



Source: USGS Statistic 2022

Most mineral-rich countries above plus the leading industrial powers US, EU and China identified as "key countries"

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Overview: policy trends for nine key countries for "priority critical minerals"

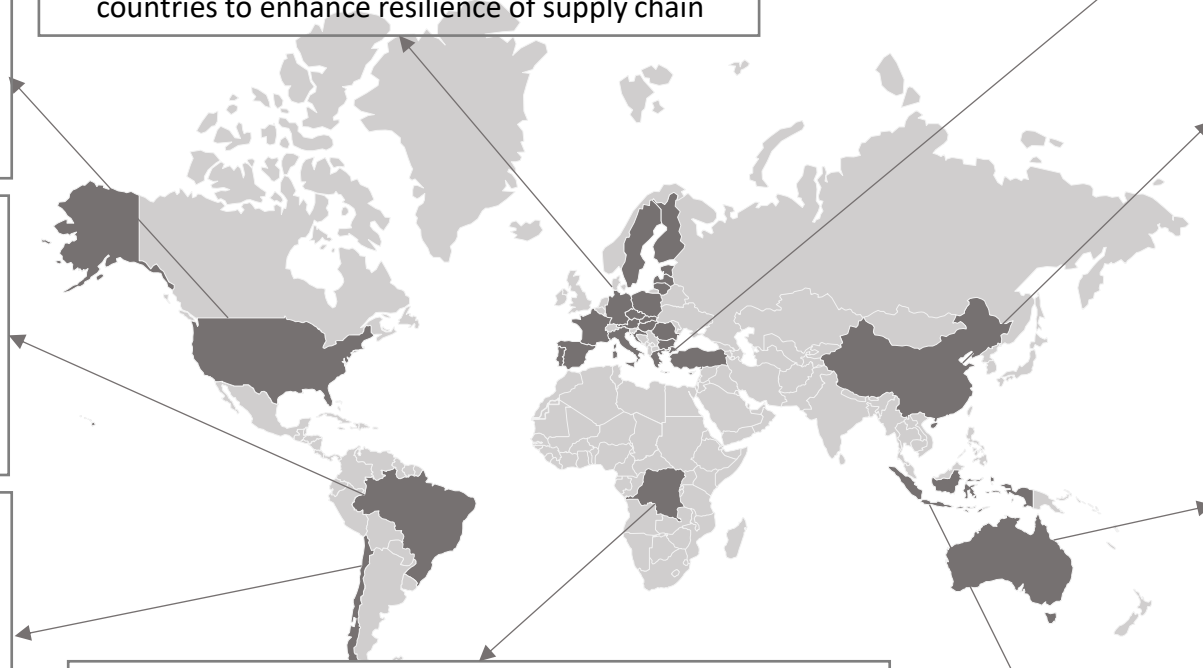
US
- Industrial policy offensive with numerous policies to **reduce dependence on China** and **build mineral security**
- Investments in **domestic critical mineral infrastructure and research** as well as increasing **cooperation with US allies** to diversify critical mineral sources
- Trump removes barriers to **accelerate private investment** in critical minimal production, aiming to **"Unleash American Energy"**

EU
- **Build resilient supply chain** by setting up industrial alliances
- **Reinforce domestic sourcing** by expanding local mining and processing, circular use of resources
- Widely form **strategic partnerships** and **free trade agreements (FTAs)** with resource-rich countries to enhance resilience of supply chain

Turkey
- **Lack of specific industrial plan** to utilize its graphite resources, which is not yet well utilized
- Its graphite resources **take more costly and difficult technology** for utilization, greatly limiting its potential to supply minerals

China
- **Ensure stable domestic supply in the long term** as China's top priority and treated as part of its **national security**
- **Explore overseas mineral resources** to diversify supply (e.g., in BRI countries)
- Intensify policy support for **exploiting critical minerals** highly reliant on imports
- Adopt **export restrictions** on more critical raw materials as sanction tools

Brazil
- With limited security concerns and overall rather neutral stance, policy focus lies on **attracting more FDI and international cooperation** for more sustainable and diversified development of the local mining industry



Australia
- Thrive to be "**a global critical minerals powerhouse**"
- **Tax exemption** for critical mineral production to incentivize processing
- **Stricter scrutiny over foreign investment entities** in critical mineral fields
- Focus on building global partnerships

Chile
- Pursuing a **progressive mining policy** that balances development of mining industry with **ESG concerns**
- **Restrictive regulations for lithium mining,** making it difficult for private lithium miners to access lithium reserves
- Chilean mining policy aiming to develop **diversified critical minerals**
- Increase collaboration with **international partners** to ensure resilient supply chains

Congo
- **Impose high royalties** and **local ownership requirements on international Cobalt miners** to increase domestic revenues and value creation
- Build **"mutually profitable public-private partnerships"** globally to tap into the DRC's vast mineral reserves
- Consider imposing **export quota on cobalt** to revive its price at record low due to oversupply

Indonesia
- **Ban export** of unprocessed nickel **and reduce export quota** for nickel, more minerals to be banned soon
- Incentivize **FDI into local processing**
- Under negotiation with US in FTAs of refined nickel for tax exemption to expand US markets

US: Clear concerns voiced by US officials for reliance on China for critical minerals

US vocal about the need to drastically reduce dependence on China...

"*China controls most of the global market in these minerals. And the fact that **we can't build a future that's made in America if we ourselves are dependent on China** for the materials that power the products of today and tomorrow. And this is not anti-China or anti anything else; it's pro-American. That's why I'm taking action...*"

— US President Joe Biden (February 2022)

"*The United States wants to **end its undue dependence on rare earths, solar panels and other key goods from China** to prevent Beijing from cutting off supplies as it has done to other countries.*"

— Janet Yellen, US Treasury Secretary (July 2022)

"*Our enemies like China dominate the supply chain of these increasingly vital [critical minerals…] threatening our readiness in an emergency situation and jeopardizing our national security. It's past time we take seriously **the risk we face if we fail to make important investments in securing critical and strategic minerals immediately**.*"

— Joni Ernst, Republican Party, US Senator (June 2022)

... while urging strategies to diversify critical mineral supply chains

"*We'll boost supply chain security and resilience by **reshoring production or sourcing materials from other countries** in sensitive sectors like pharmaceuticals and **critical minerals**...*"

— Antony Blinken, US Secretary of State, in response to reducing dependency on China (May 2022)

"*More action is going to be necessary to **get supply chains, including mining, processing, manufacturing and more, where they need to be domestically** to keep up with the growing demand for these critical minerals **instead of increasing our reliance on China**.*"

— Joe Manchin, Democratic Party, Chairman of the Senate Energy Committee (April 2022)

"***Clean-energy supply chains are at risk of being weaponized** in the same way as oil in the 1970s […] our objective is not autarky—it's resilience and security in our supply chains […] and this brings me to the second step in our strategy: **working with our partners to ensure they are building capacity, resilience, and inclusiveness, too***"

— Jake Sullivan, national security advisor to President Joe Biden (April, 2023)

US: ramping up efforts to develop domestic critical mineral supply chains and cooperation with allies

Multiple laws and regulations concern its mineral supply chain ...

Strengthening domestic supply chains	**Accelerating federal investment** in development of domestic supply chains related to critical minerals Key laws and initiatives: • **Bipartisan Infrastructure Law of 2021 (BIL)** • **Defense Production Act of March 2022** • **American Battery Materials Initiative of 2022** • **E.O. 14017 on America's Supply Chains** (100-day supply chain review)
Subsidy for domestic products	**Providing tax credits** to critical mineral mining companies in the US and consumers of US-made EVs (without China-sourced minerals) Key laws and initiatives: • **Inflation Reduction Act of 2022**
Improving domestic regulatory environment	**Reforming outdated US mining laws and regulations** to secure domestic supply of critical minerals Key laws and initiatives: • **Fundamental Principles for Domestic Mining Reform of 2022**
Partnering with allies	**Strengthening critical mineral partnerships** with US allies Key laws and initiatives: • **Minerals Security Partnership of 2022** • **US-Canada Joint Action Plan for Minerals Cooperation of 2020**

...with 5 key instruments aimed at securing critical supply chains

Phasing out the use of China-sourced minerals used in EV batteries
- Starting in 2025, to qualify for tax credits, EV batteries must exclude any critical minerals from a "foreign entity of concern" including China

Tax benefits for US mining companies related to critical minerals' production
- Tax credits equal to 10 percent of costs incurred from production

Investments in domestic critical mineral infrastructure and research
- For example, **$35 million** awarded to MP Materials Corp. for the construction of a heavy rare earth elements processing facility
- Over **$74 million** allocated for critical mineral mapping in 30 states
- **$7 billion** in BIL funding to strengthen US battery supply chain

Increasing cooperation with US allies and other countries to diversify critical mineral sources
- Focus on minerals that are inputs for EVs and advanced batteries
- The Joint Statement on Cooperation on Global Supply Chains initiated in 2022 with other countries including EU and Switzerland to make global supply chain secure and resilient

Established an Interagency Working Group (IWG) on Mining Reform as well as an IWG on Supply Chain Disruptions
- Task force mandated with **identifying gaps and reform statutes and regulation** to lay the legal framework safe and sustainable mining of domestic critical minerals

US Industrial policy "offensive" to reduce dependence on China for critical minerals with investments in domestic critical mineral infrastructure and research as well as increasing cooperation with US allies to "friendshore" supply chains

Deep-dive: Minerals Security Partnership (MSP) as a new plurilateral initiative on critical mineral security

US initiated Minerals Security Partnership (MSP) with 13 members…

New US-led initiative	• Time: founded in **June 2022**, kept expanding afterwards • Leadership: initiative **convened and led by US** • Scope: MSP focuses on **critical minerals essential for the clean energy transition** • Geopolitics: also referred as the "**Metallic NATO**"
Membership	• Only developed countries/regions: US, France, Canada, Australia, UK, Germany, Japan, South Korea, Finland, Italy, Norway, Sweden and European Union (EU) • Few producers: except AU, **no major producing country** • Try to expand: US **tries to include more producing countries** into MSP, who are not traditional US alliances; other countries such as India also under negotiation
Aim to secure supply chain and promote ESG standards	• Goal: US State Dept: "MSP aims to ensure that critical minerals are **produced, processed and recycled in a manner that supports countries** in realizing their full potential...It will attract investment and promote high **ESG standards** along critical minerals supply chain."
Reduce dependence on China	• Although not written in official document, reducing CN dependence seen often in speeches: "We for too long let our **supply chain drift overseas particularly to China**," White House adviser Podesta, "They have a **stranglehold particularly on processing of critical minerals**."

…with 4 key instruments to enhance critical mineral security jointly

Catalyze critical mineral investments	• MSP helps to **increase both government and private sector investments** across critical mineral value chain • By March 2023, MSP has **screened 200 initial proposals and narrowed down on 12-15 investments**, projects under consideration incl. midstream processing in Africa and LATAM, and a battery materials plant in the Pacific
Strengthen information sharing among partners	• MSP hosts **regular ministerial-level meetings of partner countries'** critical mineral related ministries, in order to strengthen information sharing among MSP members • MSP members aim to **mutually share info** on critical mineral **financing, technology, and ongoing projects**
Co-develop technologies and standards	• MSP plans to **jointly develop critical mineral recycling technologies** in the future, although not yet started • MSP has **issued standards with high ESG requirements** for critical mineral mining and processing
Cooperate with non-member countries	• **Improve cooperation with non-member countries** (mostly producing countries) using MSP as a channel • For example, MSP members issued a statement in Feb. 2023, on **Principles for Responsible Critical Mineral Supply Chains with 7 African countries** incl. Angola, Botswana, DRC, South Africa, Tanzania, Uganda, Zambia

By cooperating within MSP and reaching out to more countries, US is building an alliance to handle mineral security concerns

EU: seeking sustainable and secure supply of critical minerals in its green transition

EU reducing dependence on 3rd countries' minerals

*"…raw materials are essential for Europe to lead the **green and digital transition**…we **cannot** afford to **rely entirely on third countries–for some rare earths even on just one country**. By diversifying the supply from third countries and **developing** the **EU's own capacity**…we can become more **resilient** and **sustainable**"*

— Thierry Breton,
EU Commissioner for Internal Market,
announcing "Action Plan on Critical Raw Materials" in 2020

Ambitious objectives set and comprehensive actions taken for a secure supply chain

Policy objectives

- As explained in 2020 "Action Plan on Critical Raw Materials", 2023 "Critical Raw Materials Act" and EU strategic dependencies and capacities, EU aims to:
  - Develop **resilient value chains** for EU's industrial ecosystems
  - Strengthen **domestic sourcing of raw materials** within EU
  - **Diversify sourcing** from third countries, **remove trade distortions**

Observed policy instruments

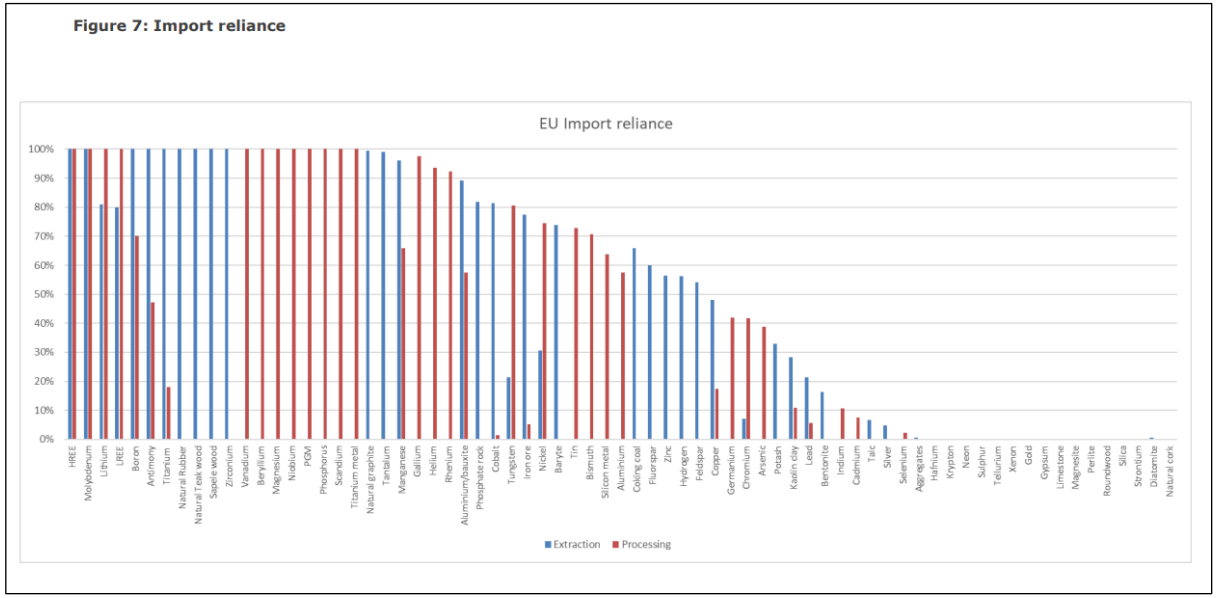
- **Knowledge & intelligence support** for informed decision-making
  - Multiple reports issued to be **working guidelines** for EU members and their companies, incl. a **critical minerals list** updated every 3 years; in the newest 2023 list, 17 out of 34 listed minerals are seen as critical to green energy use
- Establishment of **industrial alliance** to **support projects and attract investment**
  - In 2017, EU built European Battery Alliance (**EBA**) to "**secure sustainable supply of raw materials for battery**"; for this, EU says by 2020 EBA had mobilized investment at scale and increased percentage of domestic supply for related material demand
  - In 2020, EU set-up an European Raw Material Alliance (**ERMA**) to "**build resilience and open strategic autonomy for raw materials**" incl. those for the **EU Green Deal**
- **Easy financing** for green tech material projects
  - Since 2019, European Investment Bank (EIB) has adopted **preferential energy lending policy** for green tech material projects
- Strengthened **domestic sourcing**
  - EU is coordinating member states to **identify potential mining and processing projects** that can be operational by 2025, with priority for coal-mining regions
- Technological **innovation to improve resources reserve**
  - EU is promoting innovative tech solutions for resource exploration, operations, and environmental management via **Horizon Europe** project
- International **partnership to diversify supply of minerals**
  - Establish a Critical Raw Materials Club for **like-minded countries** willing to collaborate on strengthening global supply chains
  - EU start a pilot project with Canada in 2021, and meanwhile is looking for partnership in Africa and EU neighboring regions

* Analysis based on EU Documents on Critical Raw Materials (CRM)

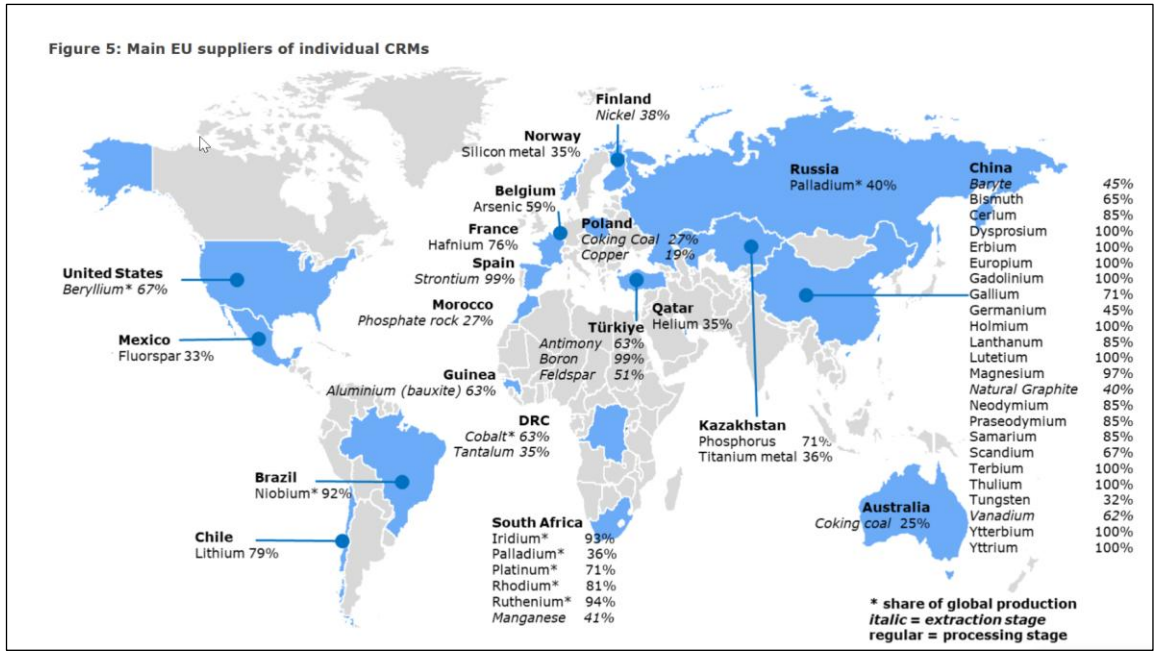
EU trying to build a resilient and diversified minerals supply in green transition with focus on like-minded countries

EU's high dependency on mineral imports, with lot of minerals sourced from China

EU's import reliance across its critical and strategic minerals



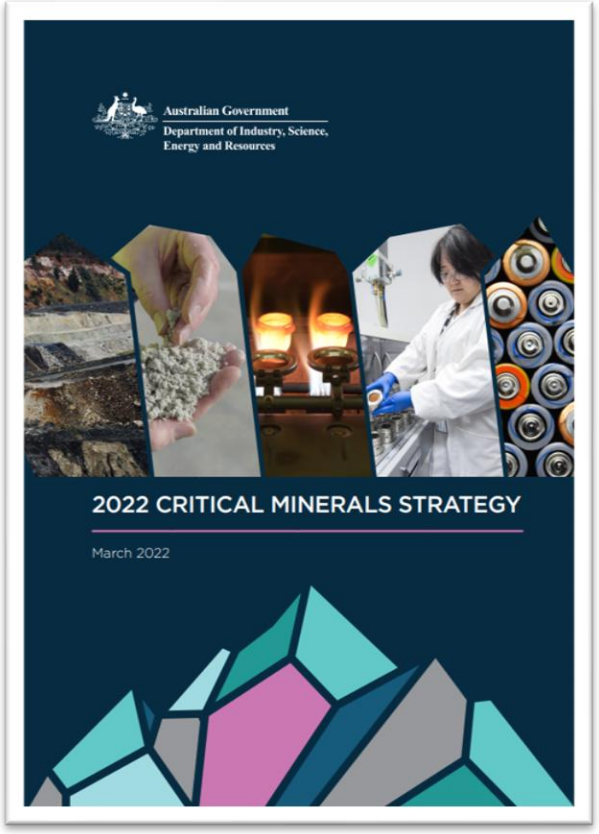
EU's top sourcing countries for critical and strategic minerals



Source: Study on the Critical Raw Materials for the EU 2023

Australia: seeking to fully leverage its rich mineral reserves to drive future economic growth

Provide a reliable critical mineral supply chain with like-minded countries



*"By 2030, Australia is **a global critical minerals powerhouse**. We are **integral to international critical mineral supply chains and technologies** crucial to the global economy"*

— Australia's 2022 Critical Minerals Strategy

Risk management

Reduce risks of critical minerals projects while supporting the industry's long-term viability

- **Attract private capital investment** via facilitating commercial partnerships with trade partners and target markets
- **Provide public loans** for private projects and **set up public funding** for research on techniques and processes

Create an enabling environment

Improve sector-wide framework conditions

- **Public R&D** to discover **new critical resources and on technical bottlenecks**
- **Regional hubs** to co-locate producers, users and exporters
- **Enhance ESG standards** and actively **participate in international standard setting**

International partnerships

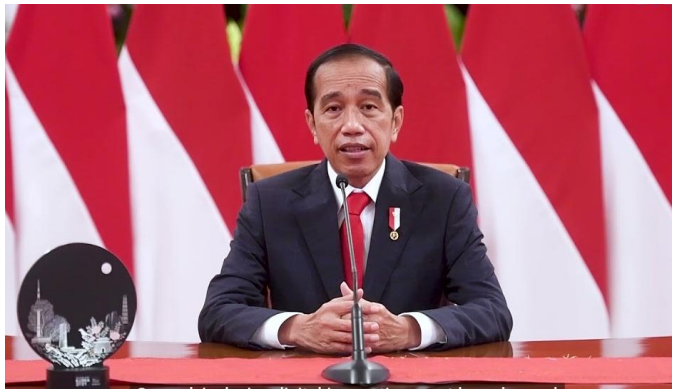
Improve collaboration via international partnerships

- National Prospectus to help **attract foreign investment**
- Continue strengthening **bilateral partnerships with "like-minded" countries** for **critical minerals investment and reliable supply;** for example, Australia is a member of the US-led MSP
- Focused on working with **other countries in the Indo-Pacific region** for **more diversified and secure critical minerals supply chains**

Though no formalized exclusion of any specific country, Australia seems to prioritize cooperation with like-minded countries

Indonesia: expansion of export controls to develop domestic downstream industries (e.g. battey, NEV)

Critical mineral viewed as sovereignty issue…



*"The government is committed to continually building **sovereignty in our natural resources sector**… Indonesia always exports raw materials, while it is better to **process and consume them through downstream industry or domestically**"*

*"Indonesia is facing a lawsuit at WTO **over banning nickel exports**. **And we lost**…Even though we may seem to be intimidated by losing the nickel issue at WTO, **we will persist**"*

— President Joko Widodo

… used as leverage to increase value-add for Indonesia's domestic economy and industry

Export ban of raw minerals

Complete ban of mineral ore exports to develop own downstream industries

- **Nickel and bauxite** raw minerals have been **banned from export** recently
- **Copper and tin** are on the list to be banned **soon**
- Reasons of the ban include:
  - 1. increase **domestic value add**, export processed instead of raw minerals
  - 2. develop **own NEV ecosystem**
  - 3. ensure **local mineral supply**
- **EU filed a lawsuit at WTO** against Indonesia's ban, which Indonesia lost in 2022

Guide FDI to domestic processing

Policies encourage FDI to expand local processing and upgrade technologies

- 2021 "**Positive List**" listed nickel as **prioritized FDI** if bringing **upgraded technologies**
- Over time, **foreign-owned** mining companies are required to **gradually divest equity to local shareholders** and **more than 51%** shares will be held by Indonesian shareholders by 10th year

Diversify export

Indonesia may lean towards China for nickel due to the IRA's protectionist effects

- Batteries containing Indonesian critical mineral are impacted by US Inflation Reduction Act (IRA)
- To be eligible for EV tax credit, **80% critical mineral in the battery must come from US or US-FTA countries** by 2026, as a result, Indonesia may shift to more cooperation with **other non-US-FTA countries like China**
- Indonesia recently suggests to have **a limited FTA with US for certain minerals**

Indonesia's strategic industrial policies to boost its domestic industrial upgrade and competitiveness, but distorting global market

DR Congo: seeking to position itself as key source of minerals in the green energy transition

DRC wants to play key role in critical mineral supply…

*"**Congo is back and Congo is open for business**…"*
*"The goal is to discover new deposits that can be the subject of calls for bids, with a view to concluding **mutually profitable public-private partnerships**"*

—President Felix Tshisekedi

Investing in African Mining Indaba Conference (Feb 2023):

- The DRC President announced **new explorations** conducted by the country's national geological service for **nickel and chromium** in Congo's Kasai region
- DRC is also looking **for partners to invest in cobalt, tantalum, tin and lithium processing**

… while shifting its mining policy towards a stronger localization of value chains


JOURNAL OFFICIEL
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République Démocratique du Congo

- **"New Mining Code"**: Adopted in 2018 and signed into law despite significant criticism and lobbying effort from several large international mining firms
- **Greater resource nationalism**: Reflects a shift in favor of the state, including a greater share of the proceeds from mining operations for the state, greater State ownership and increased emphasis on local development

Leveraging on "strategic minerals"	• **Royalties raised** across all metals and minerals, most notably imposing a special 10% royalty on minerals deemed as "strategic minerals" • Ministerial Decree (#18/042) identified cobalt, germanium, and coltan as three such strategic minerals, due to their global strategic relevance in the ICT industry, military applications, and the renewable energy transition
Tax and customs revisions	• A special "super profit" tax of 50% introduced, which applies to profits generated when commodity prices exceed prices used in project's feasibility study by more than 25% • Tax and customs incentives under New Mining Code only granted to subcontractors **when they are controlled by Congolese shareholders**
Local content and ownership	• Requires mining companies in the DRC to **hire local workers and purchase goods and services from local suppliers** • New requirement for 10% of the shares in a mining company to be held by Congolese locally-controlled companies
Domestic processing	• New requirements stipulate that **mining licenses are subject to the holder demonstrating the ability to process and beneficiate, to improve its properties, minerals within the DRC** and provide a written undertaking to do so

DRC policy seeking to increase domestic value-add in minerals via requiring domestic processing and downstream linkages

Chile: focusing on sustainability and diversification of its current copper-dominated mining industry

Chile's 2050 mining policy pursuing a progressive, ESG-focused growth model

*"Maintaining our leadership position by **supplying 28% of global demand for minerals by 2050** in the fight against global warming, addressing the consequences of climate change and generating value for our country."*

— Chile's National Mining Policy 2050

	Strategic industry	• Mining is an important **growth engine and strategic sector** for the Chilean economy contributing 12% of GDP, 56% of exports (copper accounting for 90% thereof) and created 840,000 direct and indirect jobs in 2020
Four pillars	***Institutional***	• Create **framework conditions** for sustainable development through stable institutions, a solid legal framework, a conducive policy environment and guarantees for attracting investment • Strengthen **State-owned companies** Codelco and Enami on the global stage
	Economic	• Increase **productivity** by 50% and raise mining industry's share of GDP to 20% by 2050 • Double **annual investment** in greenfield exploration by 2030 compared to average of last 5 years
	Environ-mental	• Being at the forefront of **managing resources and the environment**, addressing its impacts and generating a net gain in biodiversity
	Social	• Improving the **quality of life of workers in the industry**, harmonious and socially inclusive development and adding value to communities and the country
Two Critical Mineral Strategies	***Diversi-fication strategy***	• Pursue a **diversification strategy** by 2050 with the aim of increasing the production of critical minerals other than copper, such as lithium, rare earths, cobalt other strategic minerals
	Lithium strategy	• Chile possesses the **largest Lithium reserves** worldwide, but production volumes are proportionally low (barely 1% of exports, compared to copper which accounts for 50+%) • Chile's **restrictive regulations** require private lithium miners to form Private-Public Partnerships and give the state a majority stake in all new contracts (according to new 2023 Lithium policy) • **Royalties** are by far the highest globally with a marginal rate **up to 40%** • Goal by 2030: **Lithium carbonate production** to be increased to 380k tons per year (up from around 120k tons in 2020, which results in a CAGR of 12.2%)

Restrictive regulations and high royalties contributing to a relative decline of Chile's global lithium supplies over the past years

Turkey: mining policy focused on reducing Turkey's dependency on energy import

Minerals mining primarily intended to help reduce energy import dependency

*"**The National Energy and Mining Policy**, which we announced in 2017, is guiding us and our energy sector during this period. The purpose of our work, which we carry out with the principle of **'more domestic, more renewable'** is to meet our energy needs through domestic and national means with reasonable prices in a continuous and qualified manner"*

— President Erdoğan in 2021

- Overall, Turkey has set two goals for its mining industry:
  - **Decrease the imports in the mining sector**
    - Mainly by indigenizing mining technology
  - **Improve the mining sector via public-private cooperation**
    - Enhance consolidation in the mining market
- For the selected 5 critical minerals for the green transition, Turkey is **only having reserves of graphite,** of which mining requires more advanced technology. This has greatly **deceased the strategic importance of Turkey** in the green energy transition
- On the other hand, Turkey, as a country lacks energy resources such as gas, must **prioritize extracting resources to decrease its dependency on energy imports** in its mining policy
- With little policy focus on and support for its graphite resources, **technology and investment challenges for mining graphite in Turkey not expected to be addressed in the short term**

OYSU Graphite project in Kutahya, Turkey, whose graphite generally takes more costly and difficult purification technology

Turkey likely won't be able to significantly improve mining of its graphite resources in the near future

Brazil: at an early stage of building strategic mineral supply chain, attracting investment as priority

Business calling for policy on green transition minerals

ABPM
Associação Brasileira de Empresas de Pesquisa Mineral e Mineração

"Brazil is already a major global producer of iron ore and niobium, but the energy transition underway points to greater demand for raw materials such as copper, nickel, lithium, cobalt…"

"We need long-term policies and strategies to attract investments to develop more projects in areas that will serve greater demand from clean energy projects…"

– Miguel Antonio Cedraz Nery in 2021,
Executive Manager,
Brazil Association of Mineral Research and Mining Companies

Focus on encouraging investment and development of identified strategic minerals

Long-term planning

PNM 2050
MINERAÇÃO BRASILEIRA

- As early as in 2011, Brazil published its national plan for mining sector: **Plano Nacional de Mineração (PNM) 2030**, which includes green tech minerals (e.g. mentioned rare earth, lithium) into "strategic minerals"
- PNM 2030 aims to **support development of "strategic minerals"** in resource exploration, opening new mines and build value-added industries
- Newest PNM 2050 will be released later in 2023, of which one target will be to **diversify the mining portfolio**, incl. minerals for green transition

List of strategic minerals

- In 2021, Brazilian Ministry of Mines and Energy published a **list of minerals to be of strategic interest of Brazil's high-tech products**, 7 out of 16 minerals are key for the green energy transition

Industrial policy

- In 2021, Brazil adopted **National Strategic Pro-Minerals Policy** (Decree 10.657.) to prioritize government efforts to implement projects for strategic minerals. It has been considering setting up lithium OPEC with countries like Chile
- Observed key efforts so far include:
  - **Eased market access**: ease the environmental licensing for production and processing of projects of strategic minerals
  - **Investment support**: strategic mineral projects are likely to receive support from **Programa de Parcerias de Investimento (PPI)**, Brazil's infrastructure PPP program providing preferential policy "e.g. Tax reduction" for private / foreign investment

Source: *Ministério de Minas e Energia, International Energy Agency, Ministério da Economia*

Strategic mineral security not pronounced yet, current attention mostly on attracting more investment utilizing its resources

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1 Critical minerals for the green energy transition
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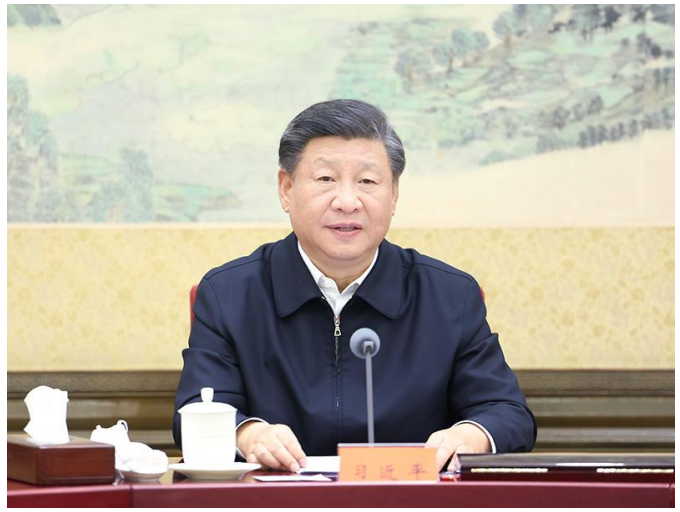
- **Deep-dive on China’s policy, market and cross-border cooperation**
- Global market development scenarios

3 Potential CMG support – how to respond strategically

Bottom-up synthesized

China's overall mineral policy: China increasingly emphasizing mineral security as part of its national security*

Critical minerals seen as security topic



*"Increase **economic resilience**, …, ensure food security, **energy and mineral security** (能源矿产安全), critical infrastructure security, enhance protection of overseas interests and security"*

– Xi Jinping in the Central Political Bureau meeting in November 2021 on **economic security (经济安全), one of the five key national security concepts**

Three-pronged policy program

1 *Expand mineral resources*

Enhance domestic mineral exploration to increase mineral resources, 3 key pillars:

- 1) New round of the Chinese government-led **"National Mineral Exploration Strategic Campaign"** (新一轮找矿突破战略行动) to increase mineral resources
- 2) **Strategic minerals list (战略性矿产目录)** includes lithium, rare earth, graphite, etc. firstly introduced in National Mineral Resources Planning in 2016
- 3) **Establish national stockpiling reserves** of graphite, Lithium, REEs, etc.
- 4) Establish market reform of exploration rights trading through **competitive means**, aiming to increase exploration of mineral resources and enhance self-sufficiency

2 *Extraction control and efficiency*

"Coordinating" extraction activity and conservation of mineral resources to ensure long-term supply, different mineral extraction policies apply:

- Encourage mining of **lithium**, and orderly extract **rare earth** with quotas limit (enroll **imports** of rare earth into aggregate supply control in 2025)
- Only reasonably enlarge mining of **nickel and graphite**
- Overall, establish specialized **protection system** for strategic mineral exploration, adding critical minerals linked with national security into the strategic minerals list

3 *Import and export control*

Build a diversified supply system, utilizing domestic and overseas resources

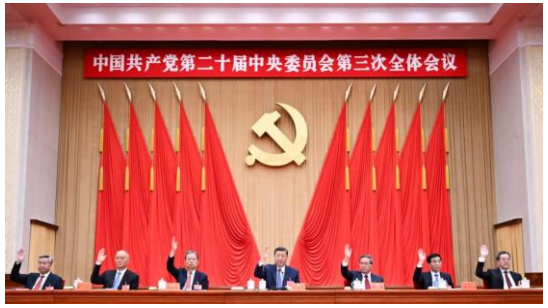
- Build internationally competitive mining companies
- Encourage investment along BRI countries for mineral exploration
  - Private companies' outbound FDI encouraged, assisted by bilateral trade diplomacy in form of MOUs in some cases
- Recently new export control: enroll **graphite** in the dual-item list, export licenses for **rare earth**, and control **lithium**-related technology exports, besides the previous controls
- Specifically, target **US** with strict export controls on graphite, Ga, Ge, Sb, etc.

* Analysis based on public speeches, concepts from the 13th FYP, ministerial meetings etc. as China stops publicly publishing all 14th FYPs regarding mineral resources, probably due to security concerns

Ensure stable long-term domestic supply as top priority, with possibility of limit domestic extraction and mineral export

… and recent policy implementation mainly focused on 3 key issues – under 3 distinct policy programs

20th Third Plenum with new emphasis…



*Enhance the resilience and security of overall industry supply chain….**coordinate exploration, production, supply, reserve and sales of strategic mineral resources** (战略性矿产资源探产供储销统筹和衔接体系)*

--The 20th Third Plenum Decision, July 2024

… with policy implementation focusing on 3 key issues in recent years

Issue 1: declining investment in exploration and decreasing domestic resources storage

- Mostly led government and SOEs, **China's overall investment in exploration** has been declining, incurring decreasing resources storage and increasing import reliance for some minerals
- Besides trying to mobilize more **private capital** (e.g. simplified approvement procedure for exploration), China has been continuously organizing more **new mineral exploration campaigns** led by SOEs – with detailed planning focused on several critical minerals
- Today's **Mineral Resources Law** will also be amended, expected to offer more policy support for domestic exploration

Issue 2: lack of systems to evaluate China's overall mineral security / supply security

- Utilization of China's current mineral resources has not been clear; in 2024, Ministry of Natural Resources **issued a method** to investigate the use of China' current mineral resources
- Moreover, it has been proposed in the 2024 "Two Sessions" to expand its **'critical minerals list'**, which is shorter than US', EU's and Japan's

Issue 3: technological inefficiency and market fluctuation risks along industrial value chain

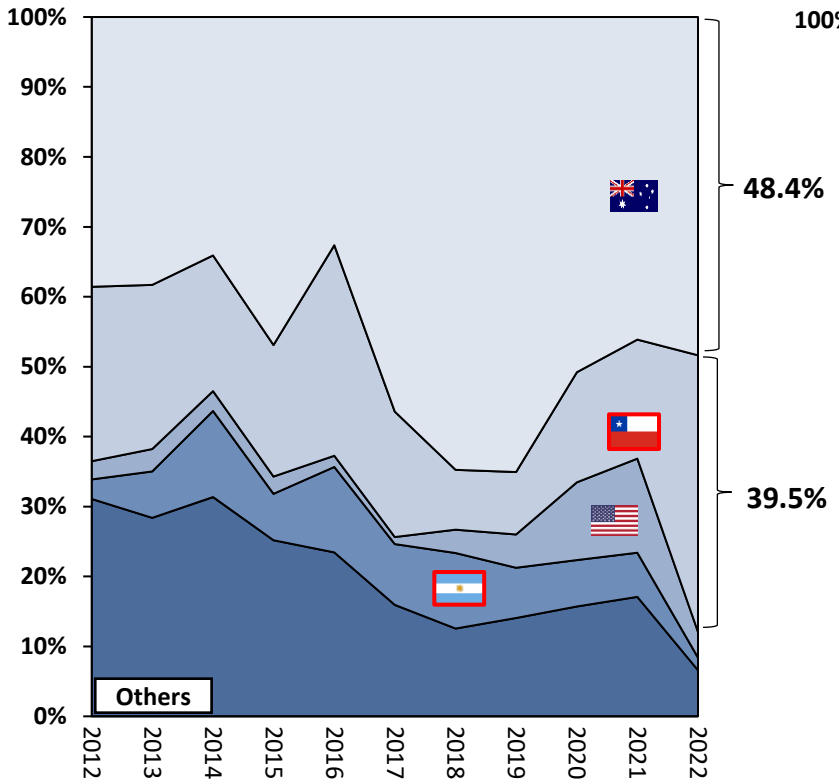
- Several **national R&D projects** and one **national technology innovation center** for rare minerals have been initiated
- Plus, since 2024, to mitigate market fluctuation risks, China requires to accelerate build up of **national mineral storage system** and coordinate **industrial activities along the value chain**

Less policy implementation on the 3rd policy program, "import and export control" which is mainly implemented by CN companies

Import: China has import dependencies for lithium, cobalt and nickel, as "priority critical minerals"

More lithium import from Chile since 2019…

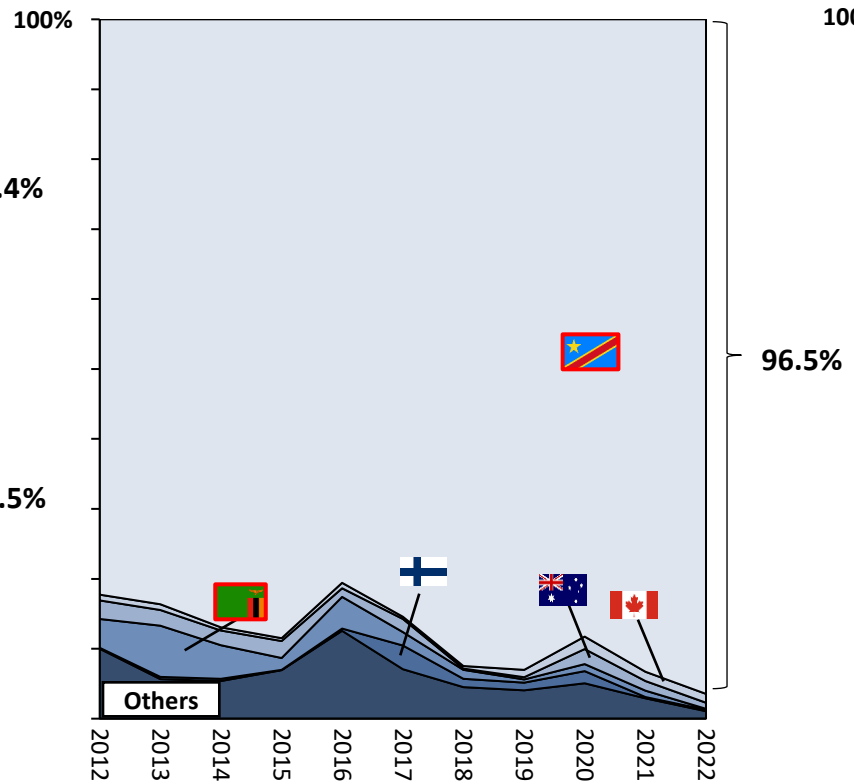
Chinese imports of unrefined and refined lithium (by share of total import value)



Notes: HS 2530.90 (basket category does not exclusively cover lithium minerals), HS 2825.20 ("Lithium oxide and hydroxide"), 2836.91 ("Lithium carbonites") and HS 2805.19, HS 2826.90 and HS 2827.39 (refined lithium compounds)

…but growing dependency on DRC for cobalt…

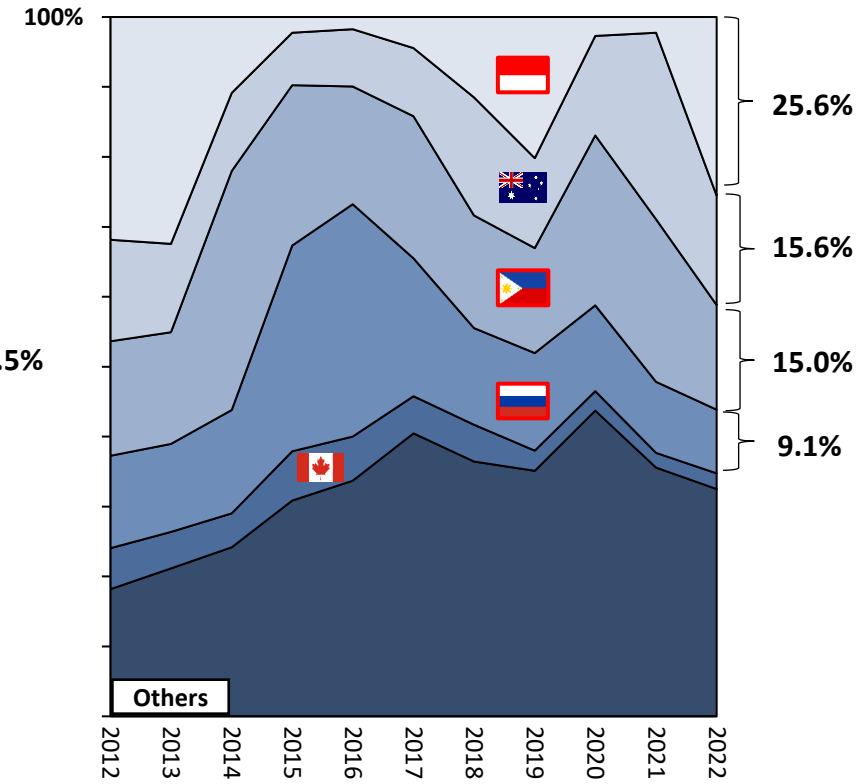
Chinese imports of unrefined and refined cobalt (by share of total import value)



Notes: HS 2605.00 ("Raw cobalt ores and concentrates"), HS 2822.00 ("cobalt oxides and hydroxides") and HS 8105.20 ("- Cobalt mattes and other intermediate products of cobalt metallurgy; unwrought cobalt; powders")

…while nickel imports are more diversified

Chinese imports of unrefined and refined nickel (by share of total import value)



Notes: HS 2604.00 ("Nickel ores and concentrates"), HS 75 ("Nickel and articles thereof")

BRI countries

Source: UN Comtrade

Since 2019, China has been able to diversify its imports, sourcing import-reliant critical minerals increasingly from BRI countries

3rd country engagement: decade-old policy framework, followed-through by ambitious Chinese firms

China engaged in Indonesia since a decade – BRI as framework

2013 Comprehensive Strategic Partnership

- **Comprehensive Strategic Partnership** signed in Jakarta in 2013, where Xi Jinping announced **Maritime Silk Road** :
  - China and Indonesia also signed a cooperation to establish IMIP in Central Sulawesi to develop local nickel mining and processing industry

"Extraction" wave

- **Chinese FDI in Indonesia's mineral sector experience a boom after launch of the BRI in 2013**
  - **G**rowing from USD ~3B between 2009-2012 to just more than USD ~15B between 2013-2016)

"Localization" wave

- **Indonesia's first raw nickel ban** in 2014 prompted many Chinese firms (esp. Tsingshan) to speed up investments into downstream activities to maintain access to nickel
  - Allowing it to circumvent this **export ban** via exporting locally processed nickel by Chinese companies

CATL will build a new nickel factory with 2 Indonesian SOEs

Ceng Yuqun, Chairman of CATL, announced the deal in 2022 and said "CATL is committed to helping Indonesia develop a "green" battery industry

CATL new Indonesian factory overview:

- Investment volume: **6 billion USD**
- Location: **FHT Industrial Park**, East Halmahera; **19.39 km²** planned area
- Production across value-chain: Mining, smelting, battery production, recycling, **> 60% nickel** will be produced into **end-product battery** locally
- Partnership: Joint Venture together with 2 Indonesian SOEs (PT Aneka Tambang and PT Industri Baterai Indonesia)
- Develop local industry: Battery **tech cooperation** to help local industry

A Chinese facilitated policy framework and overseas investment have helped China secure its supply chain with overseas resources

Overview of 11 Chinese deals to deepen engagement with key countries for improved minerals access to date

2020

- **Indonesia:** Weda Bay Park (nickel)

Tsingshan expanded in Indonesia by investing **5 B USD** in **Phase I of Weda Bay Park**, started operation in Q1 2020, Phase II under planning

2021

- **Indonesia:** Low-grade ore plant (nickel)

Weiming and Indigo invest **400 M USD** in a nickel plant with an output of **40k tons / year**, focusing on **low-grade ore** and tailings utilization

- **Indonesia:** Giant Shield plant (nickel)

Delong expanded in Indonesia by building a new plant with **2.7 B USD** investment, w. capacity of **180k tons / year** of nickel

- **Indonesia:** Battery plant (nickel)

CATL invested **6 B USD** with 2 Indonesian state-owned enterprises to build a **battery factory**, will **start production in 2024**

2022

- **Argentina:** mining (lithium)

Ganfeng acquired Lithea with **962 M USD**, can extract lithium from two salt lakes with capacity of **50k tons / year** of lithium carbonate

- **Argentina:** mining (lithium)

NIO invested **87 M USD** in Greenwing Resources, to **expedite lithium mining in San Jorge, Argentina** and will be priority client

- **Argentina:** explore and mining (lithium)

Tibet Summit invested **2.2 B USD** on 2 lithium projects, which can potentially produce up to **50k - 100k tons / year** lithium carbonate

2023 (January-April)

- **Indonesia:** new plant (nickel)

GEM invested **998 M USD** to build a new nickel plant, with capacity of **73k tons /year** nickel; phase II is under planning

- **Australia:** explore and mining (lithium)

Tianqi acquired Essential Metals with **92 M USD**, which has Pioneer Dome, with a potential total resource of **11.2 M tons of lithium**

- **DRC:** mining and smelting (cobalt)

Chengtun **expanded cobalt facilities** with 2 projects and can produce **3.6k tons / year** crude cobalt hydroxide

- **Chile:** new plant (lithium)

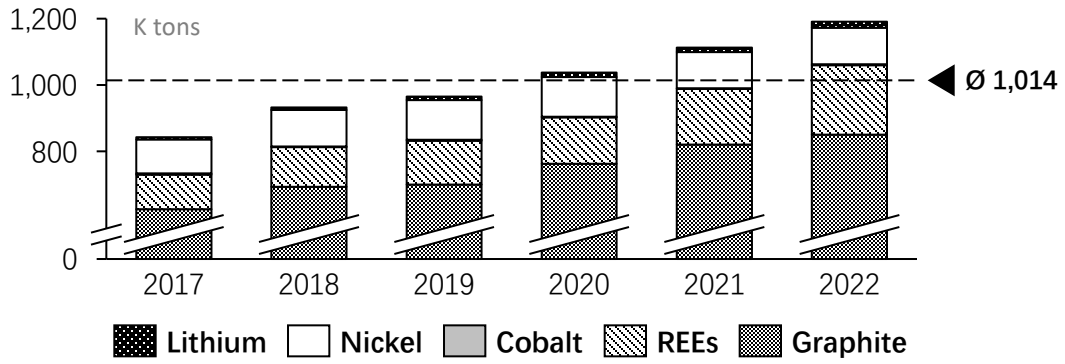
BYD expanded with **290 M USD** to build a new lithium plant; Before that, it was granted to mine an extra of **80k tons** lithium ore in Chile

Chinese companies are accelerating mineral investments abroad in recent two years, esp. in Latin America and Indonesia

Domestic processing: POEs as key players in China's critical minerals processing market, located across China

Processed critical minerals soaring since 2017 – POEs lead the market

Domestic production volume of the 5 priority critical minerals in China



Number of SOEs vs POEs as market leaders in processing the 5 priority critical minerals

Critical minerals	POE as market leaders	SOE as market leaders
Lithium	3	2
Nickel & Cobalt	3	1
REEs	0	4
Graphite	6	0

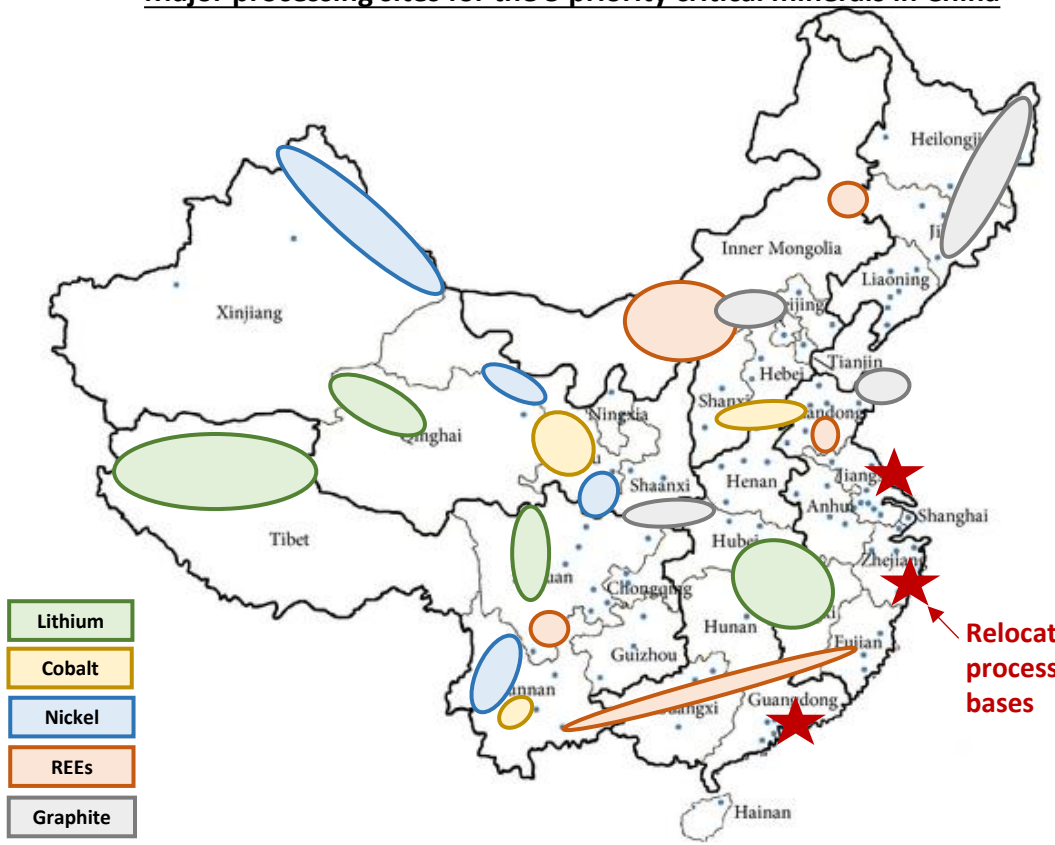
Among 19 market leaders in critical mineral processing, 12 POEs and 7 SOEs

- Subject to strict protection policy, **REE production concentrated in SOEs**
- **Graphite processing mainly in POEs**

* 19 samples consist of 3~4 largest companies by share in production/processing of each mineral

Processing next to sources, relocations to coastal region as new trend

Major processing sites for the 5 priority critical minerals in China



- While processing sites are built close to origin resources of raw minerals …
- … costal regions (Jiangsu, Zhejiang and Guangdong) becoming destinations for relocation, likely driven by downstream demand concentration in these regions

Over decades, China has developed complete local industrial chain from extraction to processing for all 5 priority critical minerals

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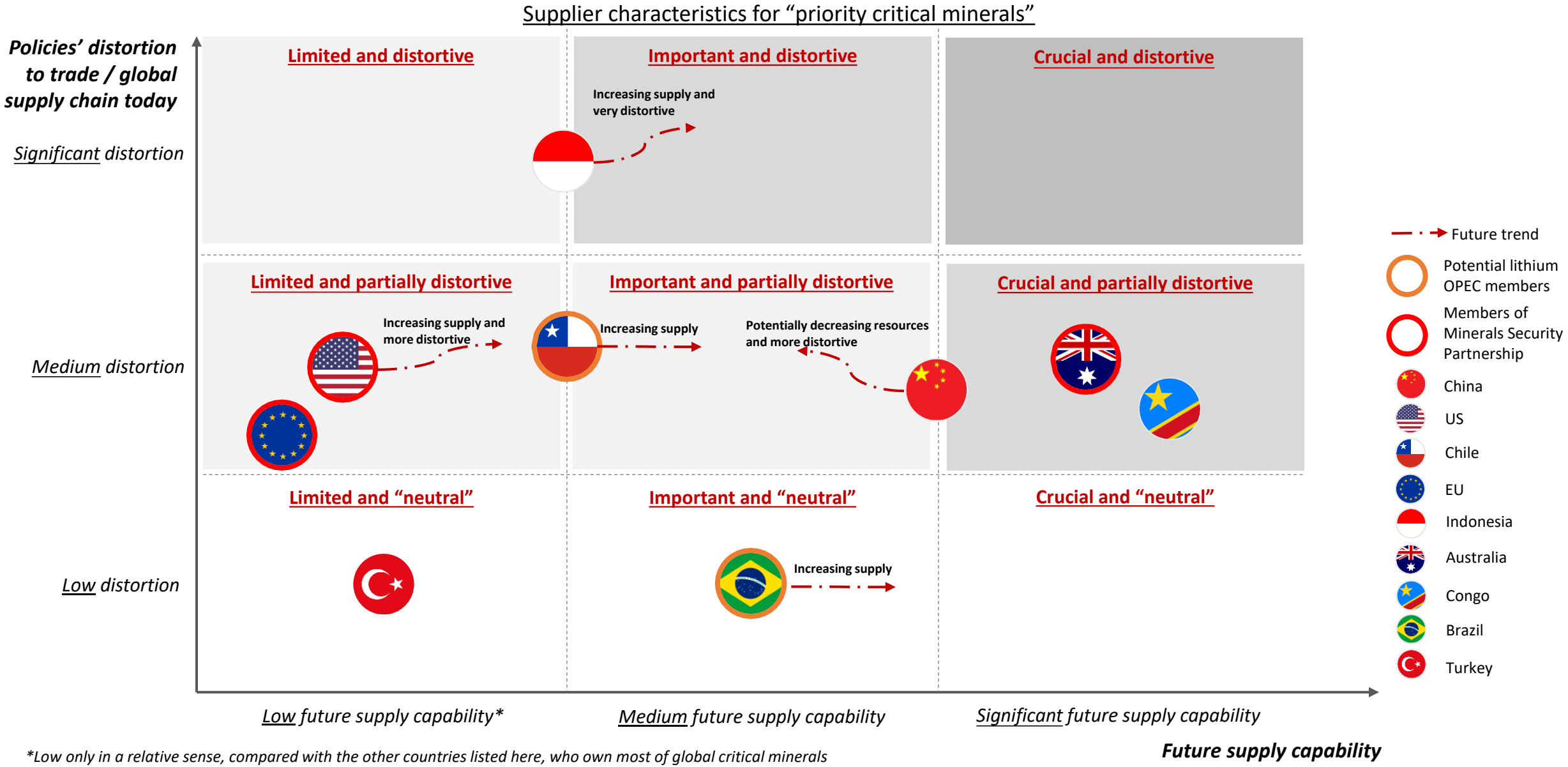
Evolving view – based on detailed bottom-up country profiling

Supply framework: distortions in supply chains for "priority critical minerals" have become a "new normal"



*Low only in a relative sense, compared with the other countries listed here, who own most of global critical minerals

Developing countries want to localize mining industry, while EU/US/China want mineral supply security plus leading downstream industries

As of now

Evaluation of key countries' future supply capability and domestic policies' distortion to global supply chain

X-axis: Future supply capability	US	China	EU	Australia	Indonesia	DR Congo	Chile	Turkey	Brazil
Production: share of production, indicating extraction capability	Low	Significant	Low	Significant	Medium	Significant	Low	Low	Low
Reserves: share of reserves of critical mineral production	Low	Medium	Low	Significant	Low	Significant	Medium	Medium	Significant
Aggregated "Reserves and extraction capabilities"	Low	Medium to Significant	Low	Significant	Low to Medium	Significant	Low to Medium	Low	Medium

Y-axis: Policies' distortion to global supply chain today**	US	China	EU	Australia	Indonesia	DR Congo	Chile	Turkey	Brazil
Mineral specific partnership building: with specific countries	Medium (MSP)	No	Medium (MSP)	Medium (MSP)	Potential (Nickel OPEC)	No	Potential (Nickel OPEC)	No	Potential (Nickel OPEC)
Supply chain exclusion: exclude certain countries' minerals from its supply chain, including FDI limits	Medium	Low	Low***	Medium	Medium	Medium	Medium	Low	Low
Export controls: limit to the export of certain critical minerals	Low	Medium	Low	Low	Significant	Medium	Low	Low	Low
Aggregated "Distortions to global supply chain"	Medium	Medium	Medium	Medium	Significant	Medium	Medium	Low	Low

Rating logic for production and reserves: Significant = >45% in 1; >30% in 2; or >15% in 3; Medium = >30% in 1; >20% in 2; >10% in 3; Low = < 30% in 1, replaceable

** Low for the Y-axis Including situations where there are no relevant policy measures ** aggregated result= highest result of all the result for the 4 factors below *** EU facilitates the general FDI screening by member states. But the rejection rate is extremely low, 1% in 2021*

Case-studies of policy approaches adopted by leading industrial trade blocs – US and EU using similar tools

Depth of cooperation

Case studies	China's approach	US' approach	EU's approach
Indonesia: #1 in nickel and #3 in cobalt (in global mineral reserves)	• *China has FTA with **Indonesia via both China-ASEAN FTA (2007) and RCEP (2022)** and **Indonesia as a member of BRI*** • *In 2013, Xi Jinping signed multiple agreements with Indonesia **including cooperation on minerals,** part of which is the important Tsingshan industrial park* • *In 2021, 27% of its nickel exported to China*	• *No **FTA with US** and **not a member of US-led Mineral Security Partnership (MSP)*** • *For competitiveness of its mineral industry under the US' IRA, Indonesia **recently seeks to have a limited FTA** with US focusing on certain minerals* • *In 2021, 3.5% of its nickel exported to US*	• *1st ASEAN country as EU **"partner"** (2014)* • *EU **Indo-Pacific Strategy** (2021), including supply chain diversification and critical raw materials* • ***Bilateral FTA (CEPA)** under negotiation since 2016* • *EU's case at **WTO ruled** against Indonesia's export ban and local processing requirement on nickel* • *No export of nickel to EU in 2021 from Indonesia*
Australia: #2 in lithium, #2 in cobalt and #2 in nickel (in global mineral reserves)	• ***AUS distanced itself from China** by cancelling Victoria's BRI agreement with China in 2021, but Bilateral relationship expected to improve* • *China has FTA with Australia via both China-ASEAN FTA and RCEP, but China de facto **banned imports** of many non-essential consumer goods* • *95.7% of exported lithium (2021) and 58% of nickel (2020) to China*	• ***FTA with US** and **member of the US-led MSP*** • *US has been **working closely with Australia for critical minerals security**, with measures such as **standard setting and financing** since 2021* • *0.9% of exported lithium (2021) and 12% of nickel (2020) to US*	• *EU-Australia Framework Agreement (2022) to **deepen cooperation on areas including minerals*** • ***EU-Australia FTA** under negotiation since 2018, both sides planning to conclude by summer 2023* • *Wants AUS to join **Critical Raw Materials Club*** • *2.5% of exported lithium (2021) and 1% of nickel (2020) to EU*
Brazil: #1 in nickel (in global mineral reserves)	• *In 2023, China and Brazil signed MOU for **cooperation including minerals and clean energy*** • *Recently, Brazil states willingness to negotiate **a FTA with China via Mercosur*** • *In 2021, 56% of exported nickel to China*	• ***No FTA with US** and is **not a member of MSP*** • *In 2020, US set up a **working group with Brazil for critical minerals**, to deepen cooperation; nonetheless, in 2022, Brazil claims it does **not intend to grant privileges to such partners*** • *In 2021, 10% of exported nickel to US*	• *EU-Brazil Strategic Partnership in 2007 to enhance **overall bilateral relationship*** • ***EU-Mercosur FTA**, concluded in 2019, not ratified by EU yet due to environmental concerns* • *New **"window of opportunity"** (with Lula) upcoming at EU-Latin America summit in July* • *In 2021, 25% of exported nickel to EU*
Observed mineral supply security strategy	**"Early mover"**: strategic bilateral agreements for **mutual economic development** and **broad cooperation**, CN firms follow with investments and adjust nimbly to local policy changes	**"Full tool-box"**: domestic **industrial policy** plus **3-layered approach**: bilateral agreements with US allies (e.g. Japan), broad convening as "club" (MSP) plus targeted FTA (e.g. Indonesia)	**"Nascent play"**: domestic **industrial policy** plus relying on **general trade policy**, only very recently broadening instruments to use **partnerships**, focus on "like-minded" countries

With China enjoying advantages in accessing critical minerals overseas, US and EU just starting their mineral security efforts

High-level implications for European business

- **For the downstream manufacturing industry**
  - Serving the European market with products that use critical minerals sourced from China will likely remain an option, as the EU does not seem to plan to explicitly exclude China from its minerals supply chains and instead rather focuses on diversifying supply chains in the short to mid term
    - However, building up extraction and processing capability in third markets takes time, leaving European business no option but to accept a certain degree of dependence on China's critical minerals supply, at least in the short term
  - Nonetheless, as a result of the Inflation Reduction Act (IRA), European business will evaluate how to respond to this US government policy asking for new electric vehicles (NEV) to exclude critical minerals sourced from China
  - European business will also need to weigh the pros and cons of a deeper localization of their production in China, both in case of further trade and supply chain disruption for critical minerals, but also due to China's general policy trend towards encouraging FIEs to localize more of their supply chains domestically by way of local content requirements

- **For the upstream mining and processing industry**
  - Cooperation with or acquiring Chinese companies in third countries remains an at times necessary option in the short term, especially as long as the necessary technology is not sufficiently advanced
  - Miners and processing businesses will face a dynamic and competitive geopolitical environment, characterized by growing fragmentation and protectionist tendencies

- **For corporate planning function**
  - Given current trends, corporate planning should set up a planning for critical mineral supplies under a scenario of continuing US-China decoupling

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How to respond to distortions of critical minerals due to accelerating geopolitics

Step 1: Framework building:

- **Policy base**: map **all key countries for your business' critical minerals** and understand their **domestic industrial policies** regarding these minerals
- **Geopolitical scenarios**: develop **geopolitical development scenarios**, featured by major bilateral relations such as US-China and EU-China
- **Extrapolation:** analyze how features of geopolitical scenarios impact key countries' domestic policies and extrapolate to a future state (5-10 years)

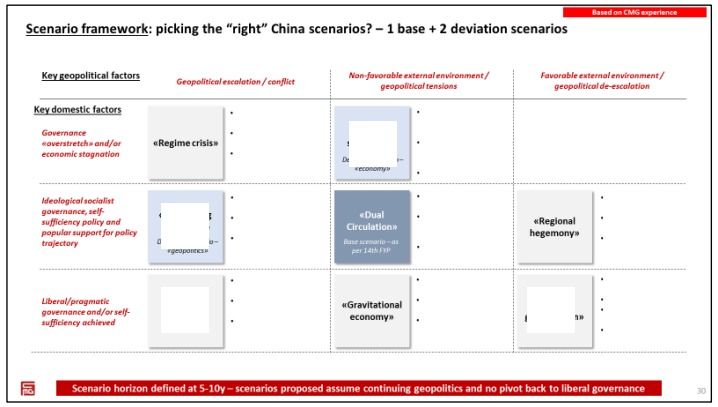
Step 2: Strategic review:

- **Global strategy**: analyze your global strategy against **the abovementioned extrapolation**, to identify **strategic recommendations,** including potential resilience measures, potential no-regret moves, immediate actions as useful, new opportunities as useful
- **Single country strategy (e.g., China)**: Analyze your country strategy similarly, and **derive alike strategic recommendations**

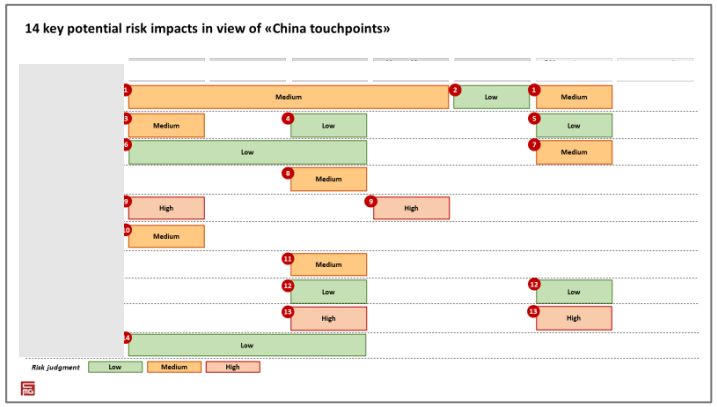
Step 3: Integration and implementation:

- Integrate derived strategic recommendations above into your strategy, also considering acceptable level of risks
- Implementation

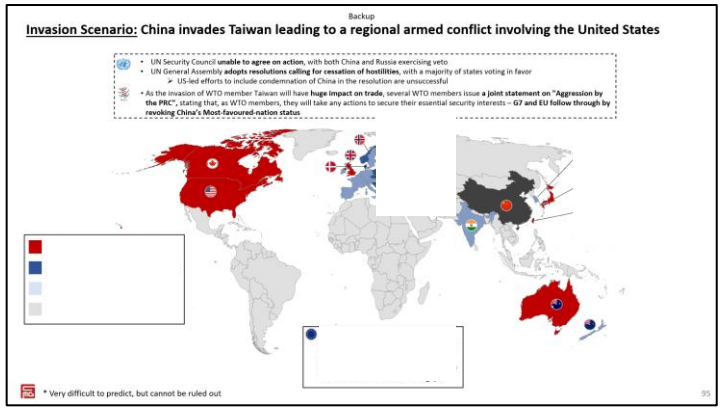
References: referential client work of CMG in geopolitical analysis for European business' growth and resilience



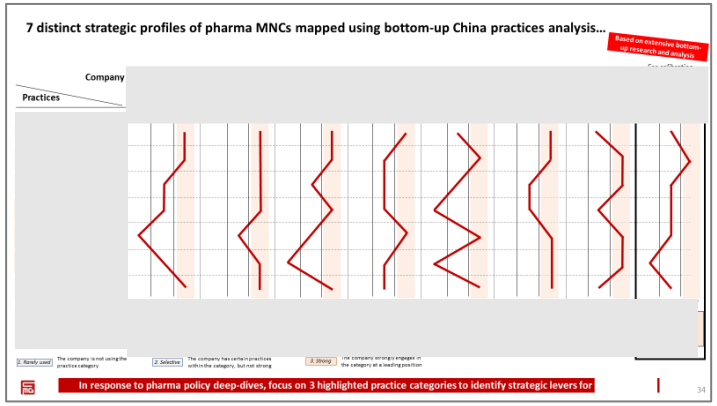
China development scenarios, driven by geopolitics and domestic development



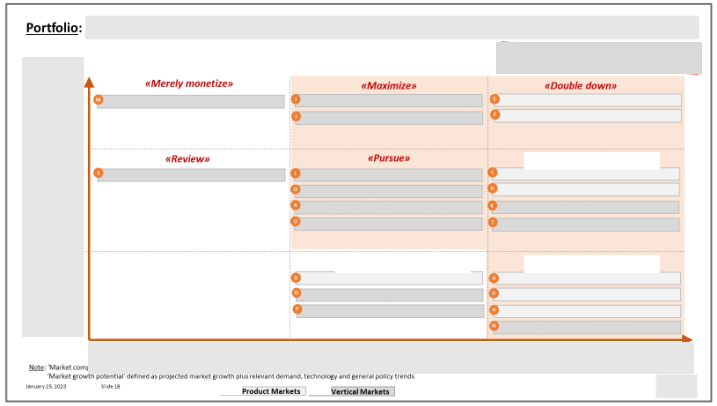
Review of **geopolitical and policy risks** on your **current supply chain in China**



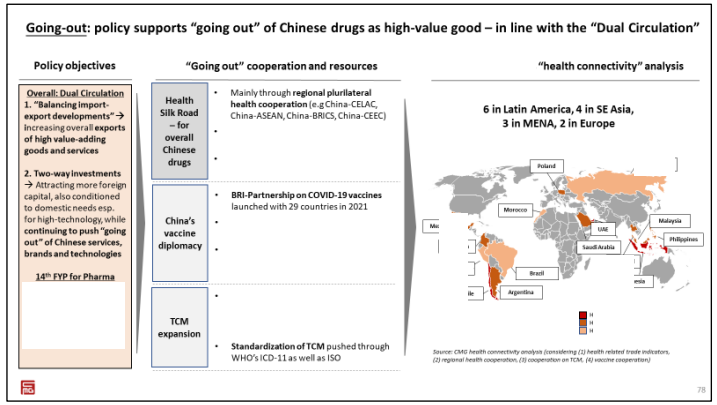
Predicted sanction patterns and impacts on business in **Taiwan escalation scenarios**



Peer/competitor benchmarking for success factors and operating model in China



Review of policy impacts on your business in China



Analysis of **China's connectivity with third markets** in the example of pharmaceutical

Your «China strategy agenda»

CMG value proposition – *tailored to your needs, complementing your internal capabilities, actionable*

China strategy review

- Reviewing your **China strategy** in the context of **policy trends under Chinas' 14th FYP and the 20th Party Congress**
- Providing **outside view on your markets in China** – market/tech trends, competitive dynamics and policy impacts
- Devising **functional strategies** (IR/Comms, Public/Gov. Affairs, HR, L&C, IT, etc.) and providing benchmarking/intelligence

Strategic resilience

- Preparing **internal logic** for internal cross-functional action protocols for dealing with risks related to «Taiwan issue»
- Analyzing potential **key disruptive events** for scenario planning and stress-testing of operational resilience
- Managing **political risks** in doing business in the Chinese market – due diligence, communication and compliance

HQ-subsidiary

- Facilitating **cross-cultural interactions** between HQ and China subsidiary to align on challenges and risk perceptions
- Establishing **joint monitoring process of market and policy trends** for alignment between HQ and China subsidiary
- Providing **input on China's political and economy system** and curating **baselining workshop** on beliefs and concerns

Sound decisions

- Supporting decisions or negotiations with **stakeholder/interest analysis, decision frameworks and strategy building**
- Preparing accessible and relevant **market, policy or stakeholder intelligence** to infrom your strategies and decisions
- **Negotiating on your behalf** with Chinese partners – businesses or subnational governments – for sustainable solutions

Please reach out to us for queries – we are happy to understand your needs and explore how we could support you

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