



クリティカルミネラルCritical Minerals

一般財団法人海外投融資情報財団ウェブセミナー
A presentation for Japan Institute for Overseas
Investment (JOI)

2022年12月5日（月）
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メイヤー・ブラウンLLP

MAYER | BROWN





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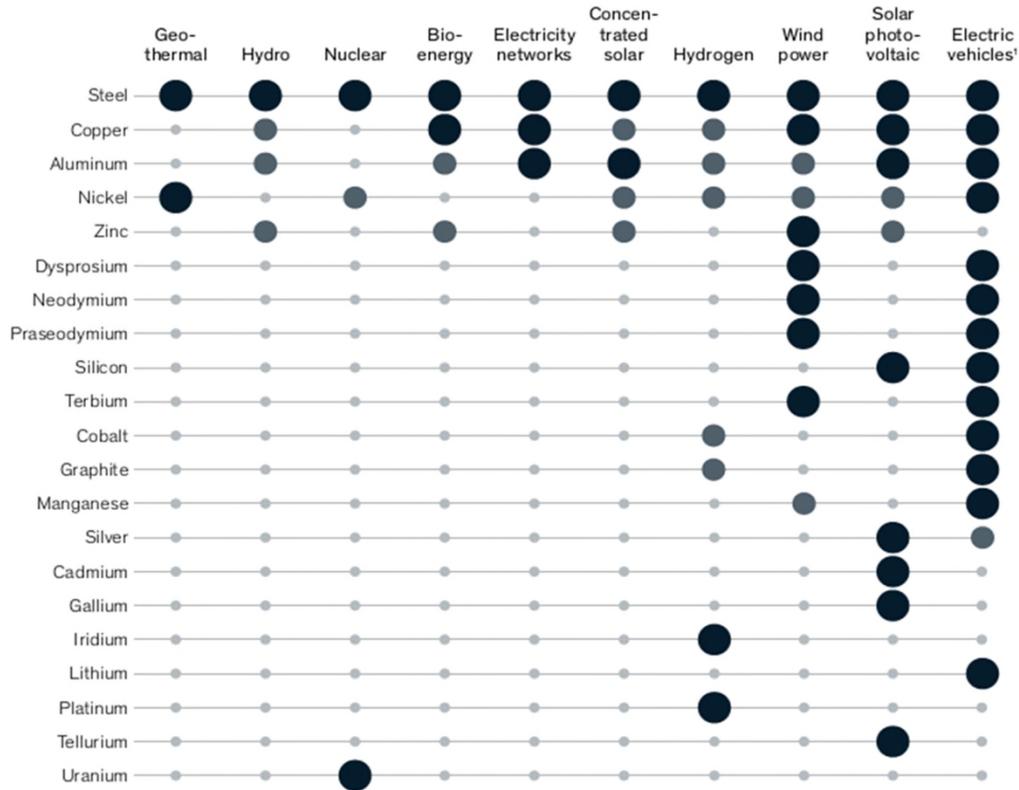


1. Background

- It is necessary to increase the production of critical minerals in order to meet the world's decarbonisation goals
- Clean energy technology deployment around the world has highlighted the strategic issue of security of critical minerals supply chains
- Competition over resources and clean energy manufacturing value chains is growing
- China's development of midstream and downstream capacities has turned it from a supplier of raw minerals and materials to a key consumer
- China's commanding position along critical minerals supply chains is a key factor that shapes other economies' strategic responses

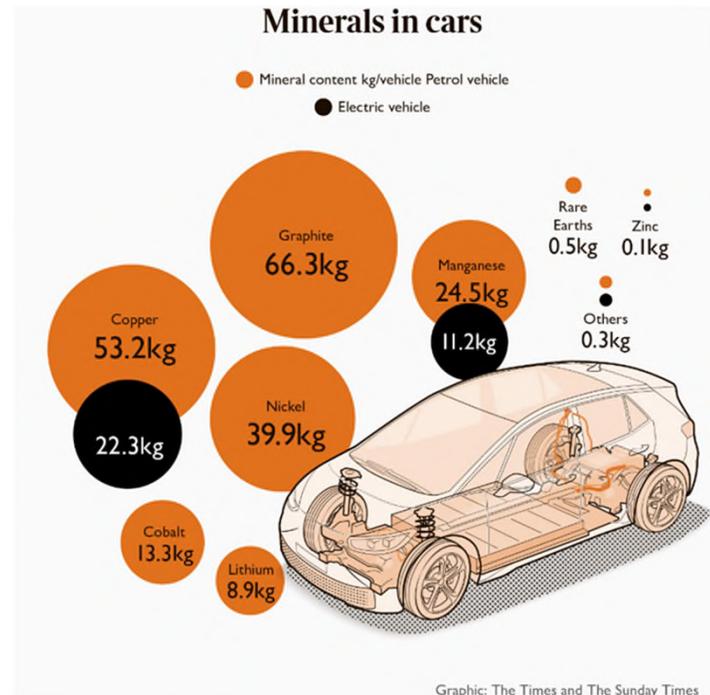
Materials critical for transition to a low-carbon economy, by technology type

Importance
Low to none High



¹Includes energy storage.
Source: Critical raw materials for strategic technologies and sectors in the EU, A foresight study, European Commission, Mar 9, 2020; The role of critical minerals in clean energy transitions, IEA, May 2021; McKinsey analysis

Source: McKinsey <https://www.mckinsey.com/industries/metals-and-mining/our-insights/the-raw-materials-challenge-how-the-metals-and-mining-sector-will-be-at-the-core-of-enabling-the-energy-transition>

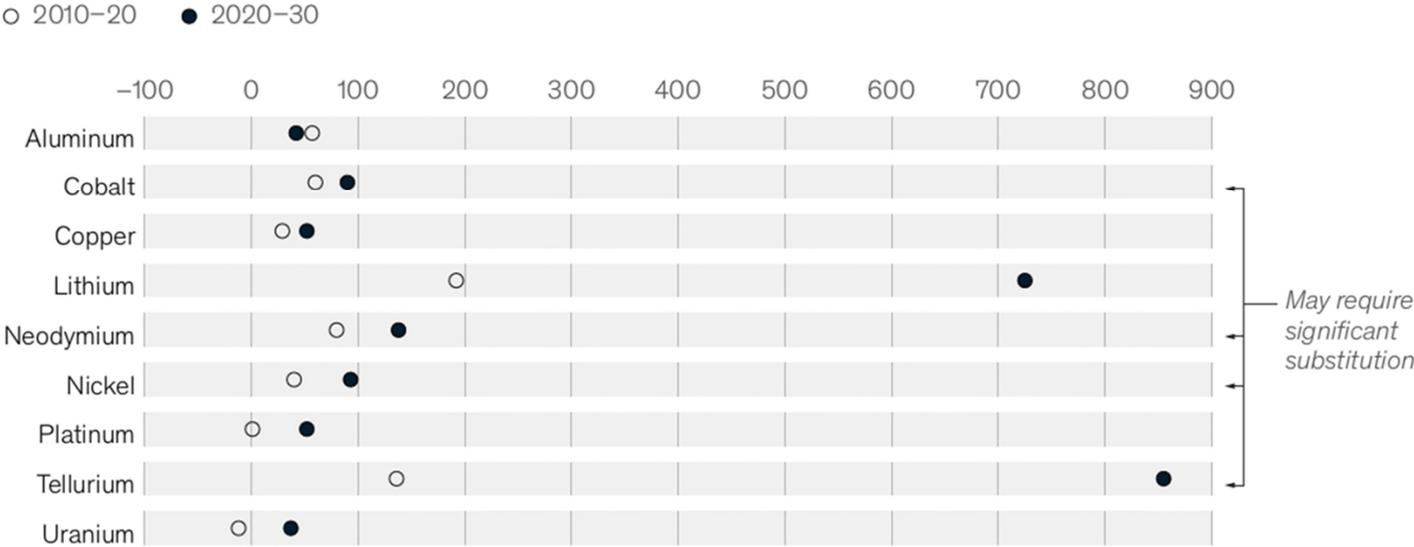


Graphic: The Times and The Sunday Times

Exhibit 3

If technology transition were to happen as expected today, raw-materials supply growth would need to accelerate significantly versus historical rates.

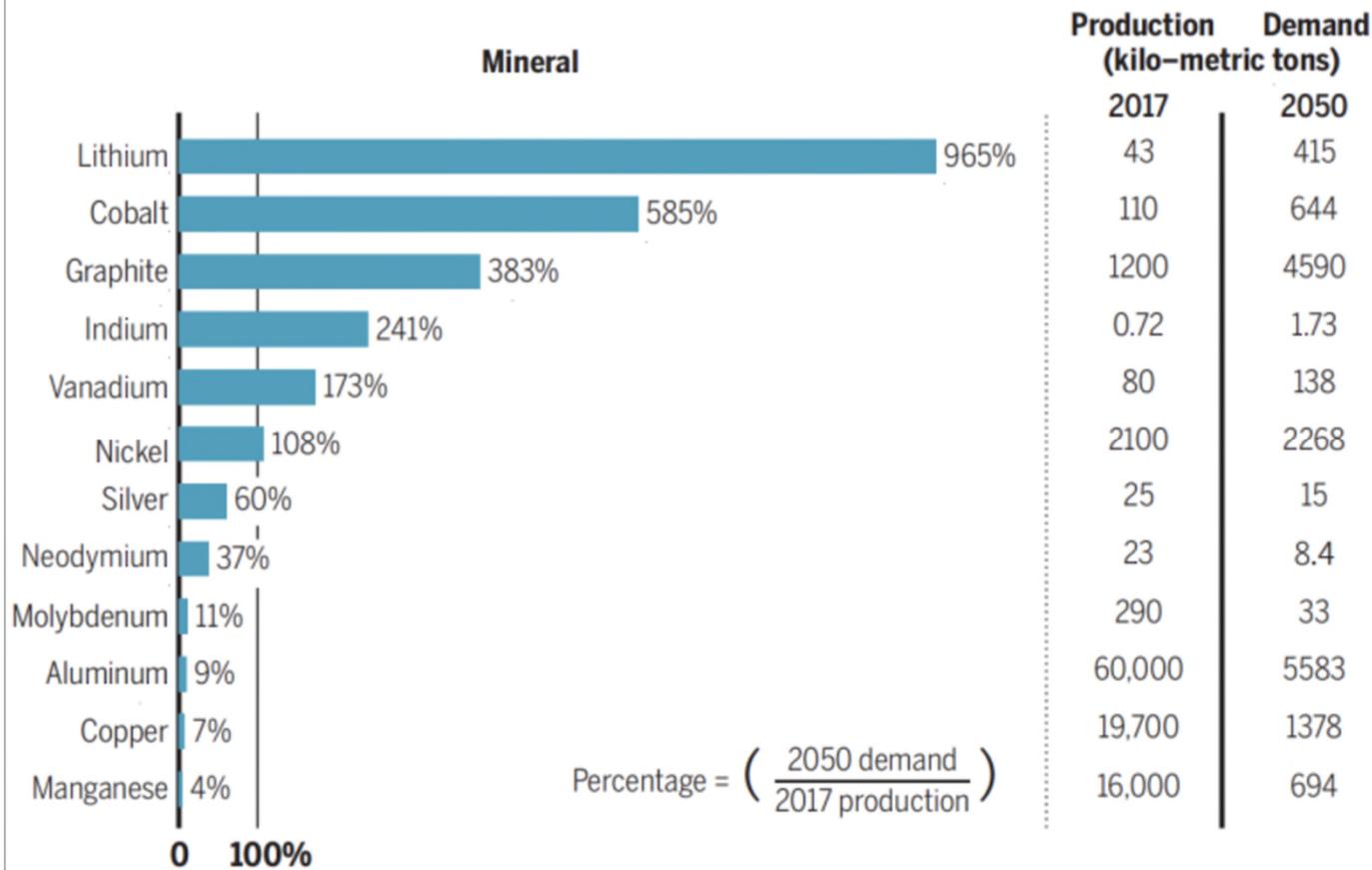
Supply change, 2010–20 vs required growth in 2020–30 in a 1.5°C degree pathway,¹%



¹One of the many possible scenarios used to illustrate the impact on raw-materials demand. Demand also includes other applications for each material. Source: *Critical raw materials for strategic technologies and sectors in the EU*, A foresight study, European Commission, Mar 9, 2020; US Geological Survey; World Nuclear Association; MineSpans by McKinsey; McKinsey analysis

Source: McKinsey <https://www.mckinsey.com/industries/metals-and-mining/our-insights/the-raw-materials-challenge-how-the-metals-and-mining-sector-will-be-at-the-core-of-enabling-the-energy-transition>

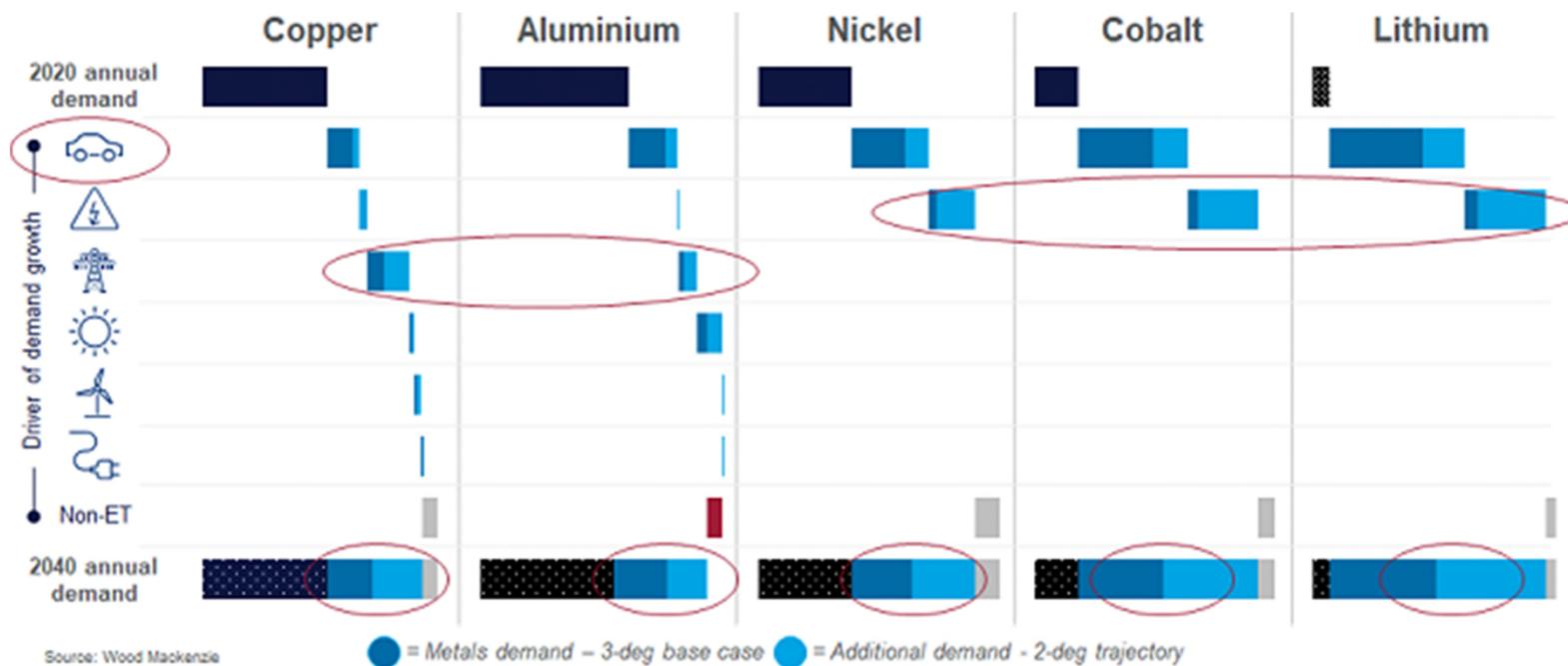
Growth in mineral needs for low-carbon energy technology



All production and demand data reflect annual values. 2017 data reflect annual production for all uses. 2050 data reflect estimated demand for or low-carbon energy technology uses. Data from (7).

Source: <https://bioage.typepad.com/.a/6a00d8341c4fbe53ef0240a4b11562200c-popup>

Growth in EVs, energy storage and wires will transform demand for the big 5 transition metals



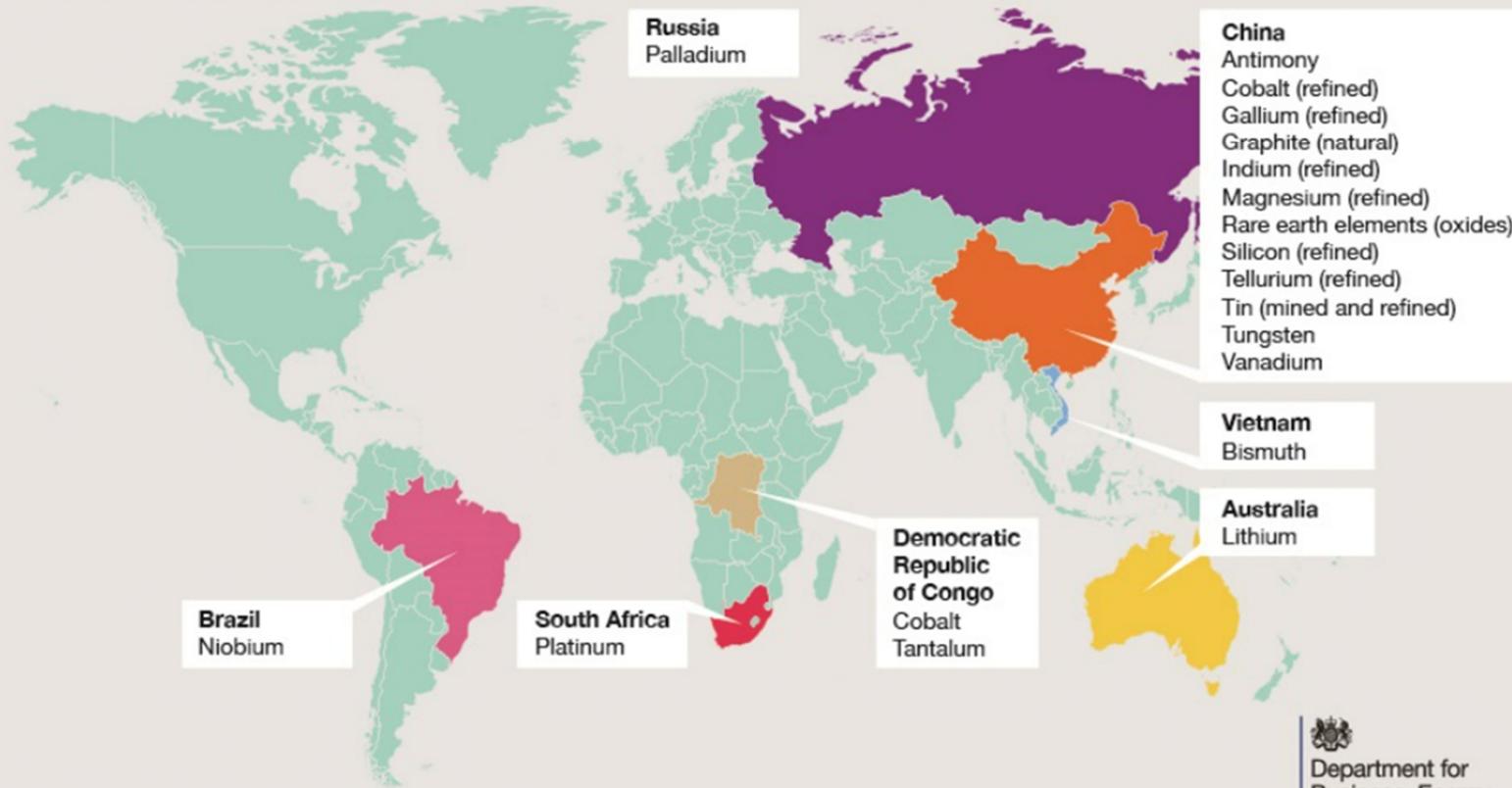
Source: The energy transition will be built with metals: Getting to grips with supply of the Big 5 – Simon Flowers, WoodMac - 30 October 2020
<https://www.woodmac.com/news/the-edge/the-energy-transition-will-be-built-with-metals/>

2. Supply Chain Issues

- Challenges arise from the location and concentration of both minerals in the ground, and processing capacity
 - E.g. Cobalt - DRC (in the ground)
 - E.g. Rare Earths – China (production & processing)
- There are certain locations that form particular centres of interest for critical metals
 - E.g. Lithium – LatAm triangle/Australia
 - E.g. Nickel – Brazil/Australia
 - E.g. Copper – Chile
- Issues are compounded by geopolitical trends (Russia/Ukraine, China, etc)

Top producers globally of the 18 critical minerals

Country with the highest production of each critical mineral; refers to mined production, unless otherwise stated.
5-year average production 2016-2020.

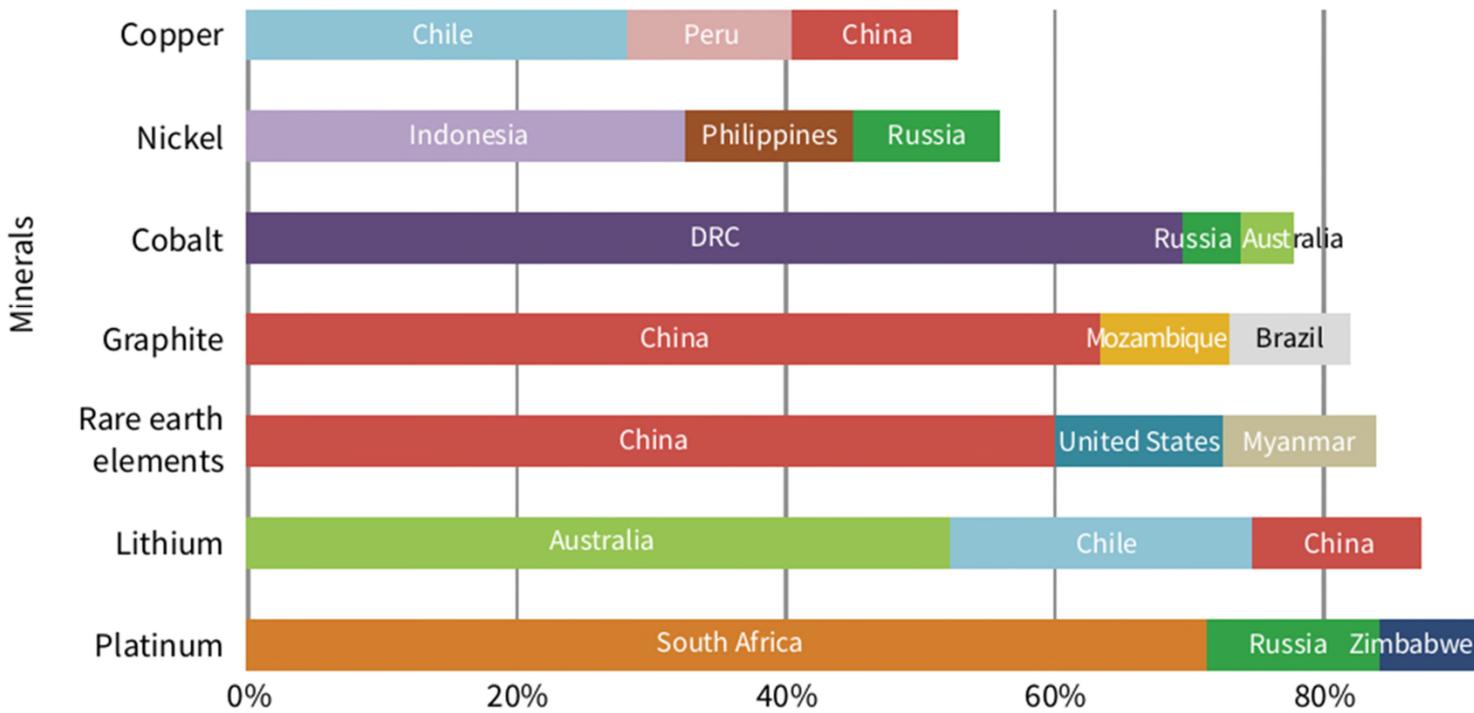


Source: Data from the UK Critical Minerals Intelligence Centre, 2022


Department for
Business, Energy
& Industrial Strategy

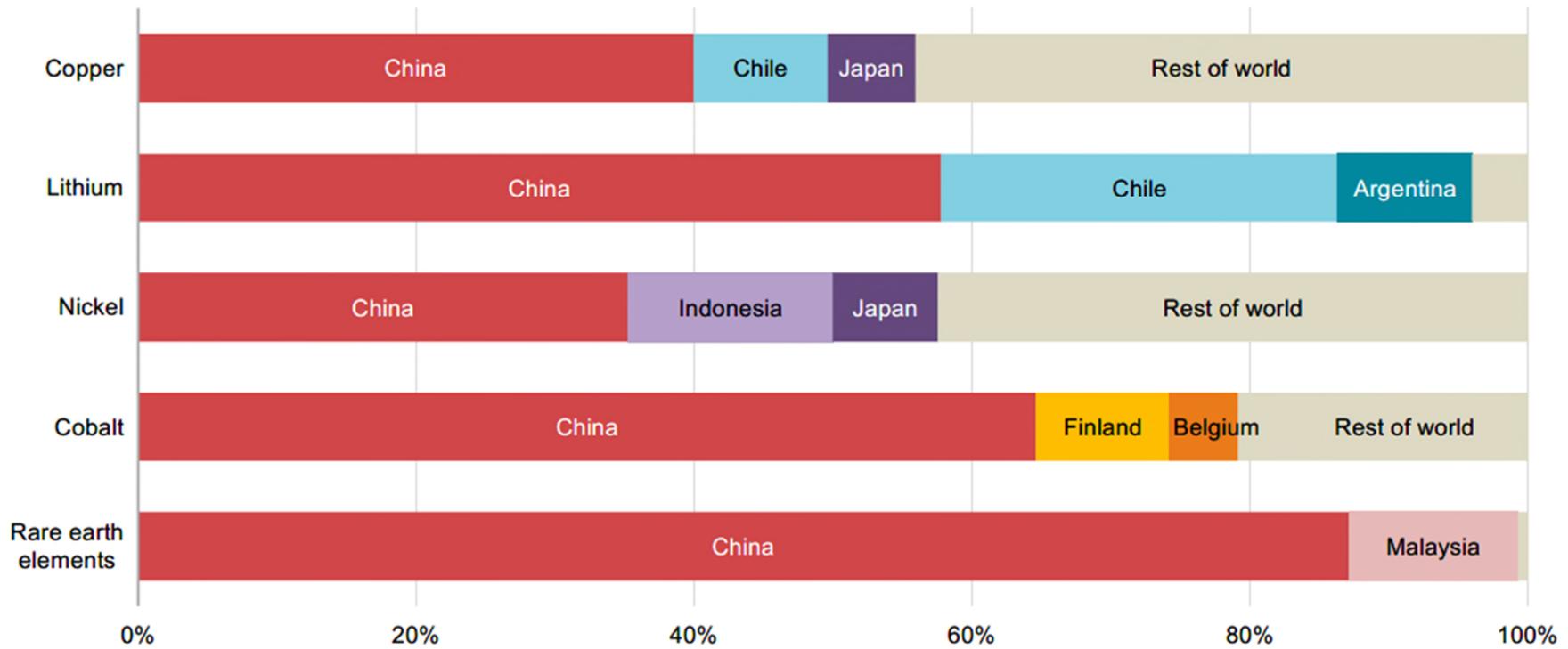
Figure 1: Production and processing of critical minerals, 2019

1a: Share of top three producing countries in total production for selected critical minerals, 2019



Source: IEA *The Role of Critical Minerals in Clean Energy Transitions*
<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

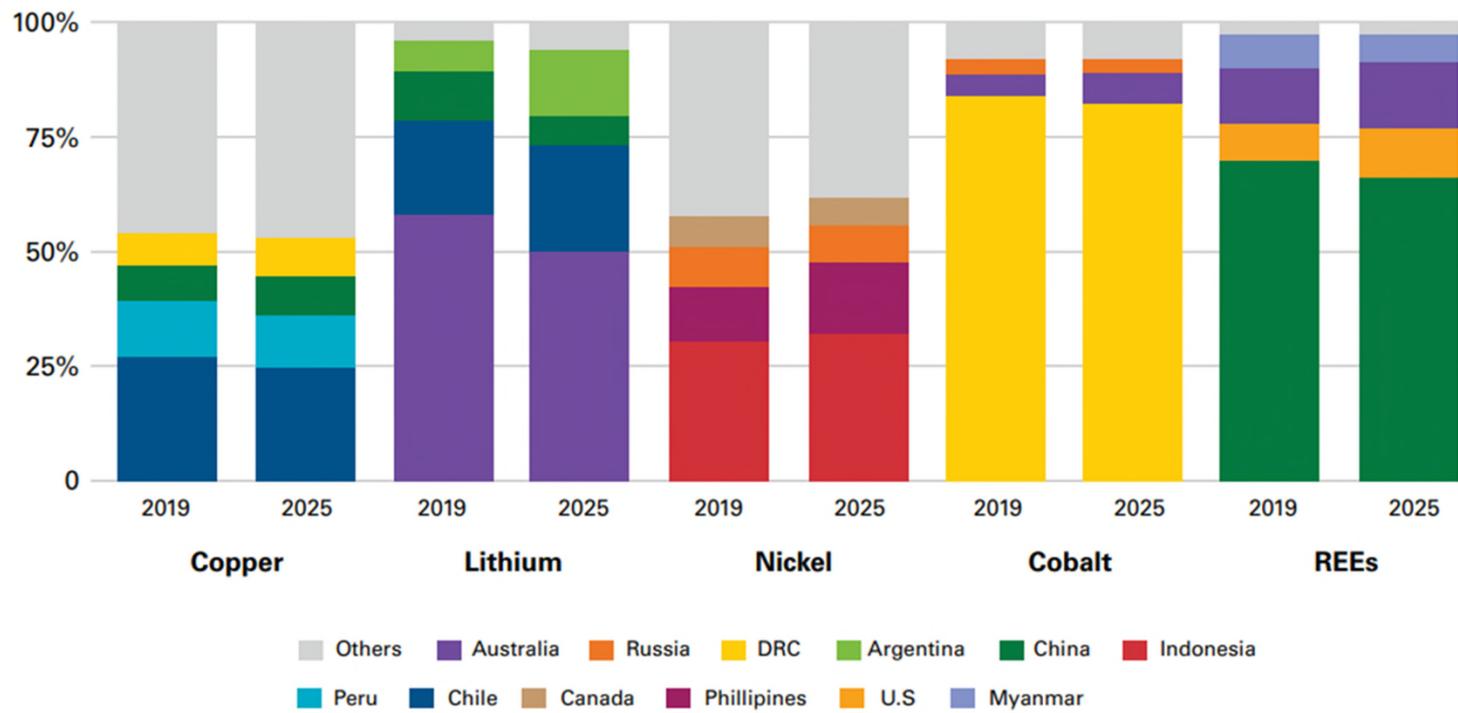
Share of processing volume by country for selected minerals, 2019



IEA. All rights reserved.

Source: IEA The Role of Critical Minerals in Clean Energy Transitions
<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

Projected Production of Critical Minerals (by country)

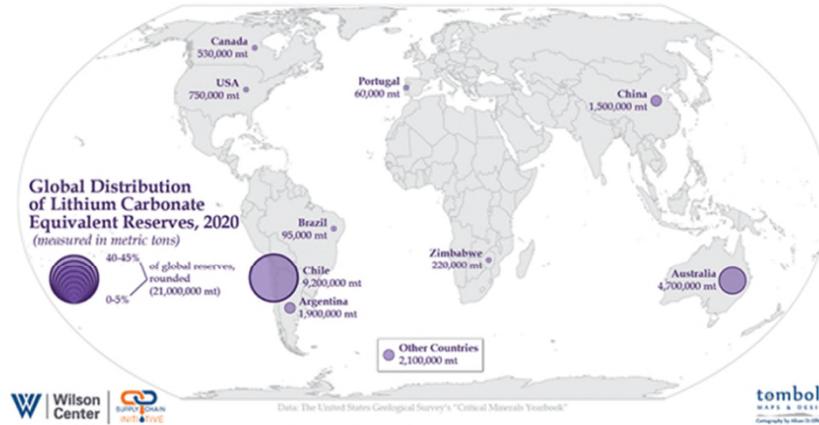


Source: IEA report (<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>)

Lithium Processing



Lithium Reserves



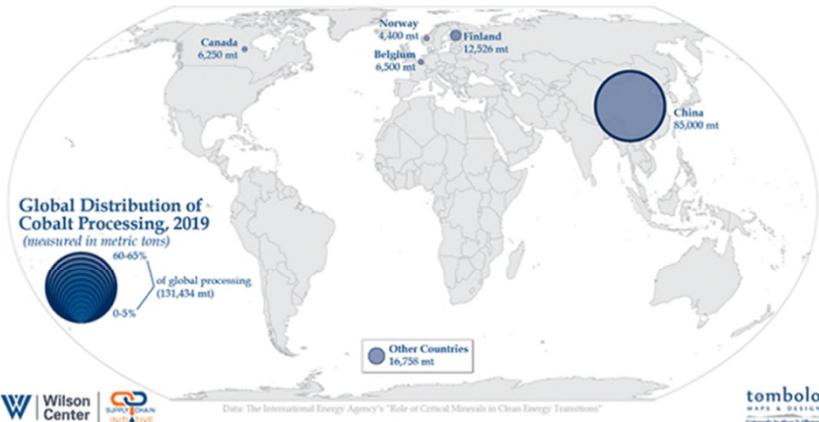
Nickel Refining



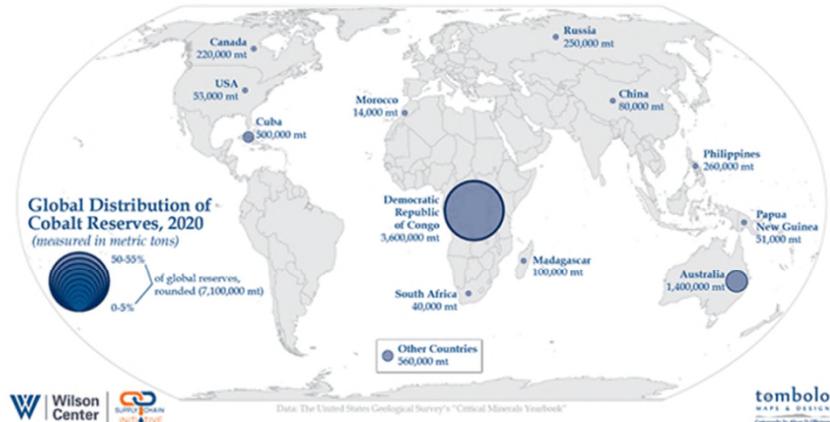
Nickel Reserves



Cobalt Processing



Cobalt Reserves



Copper Refining



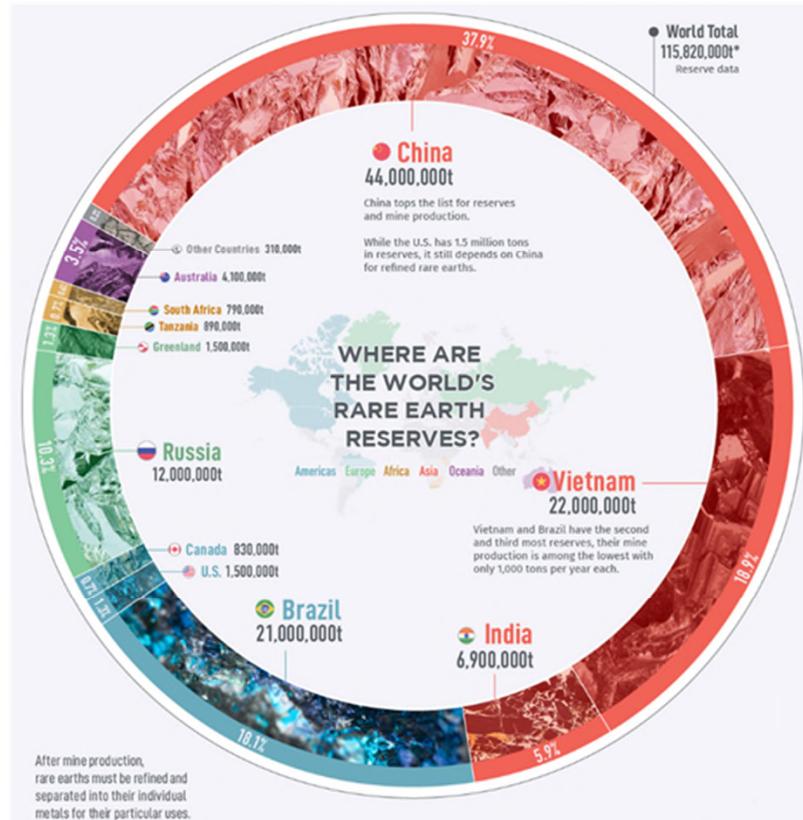
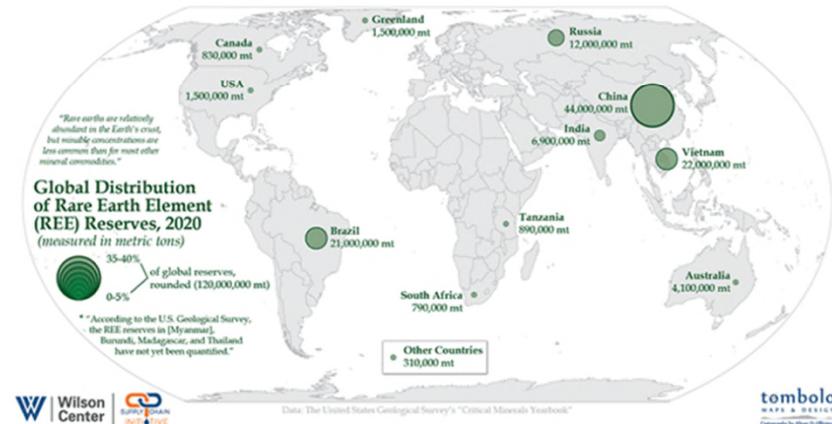
Copper Reserves



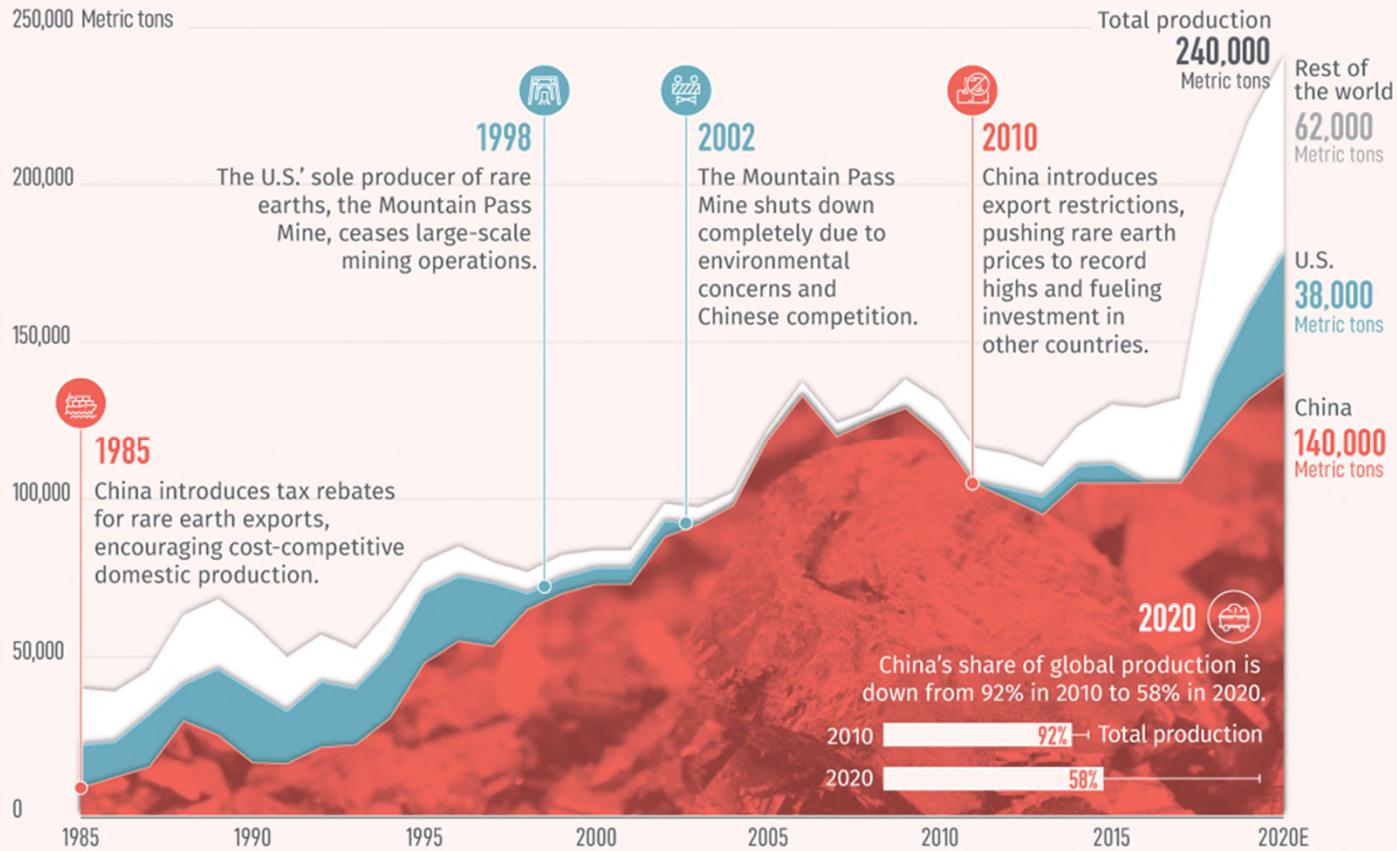
REE Refining



REE Reserves



MINE PRODUCTION OF RARE EARTH OXIDES (1985-2020)



Source: USGS Mineral Commodity Summaries, Bureau of Mines Minerals Yearbook (1932-1993)

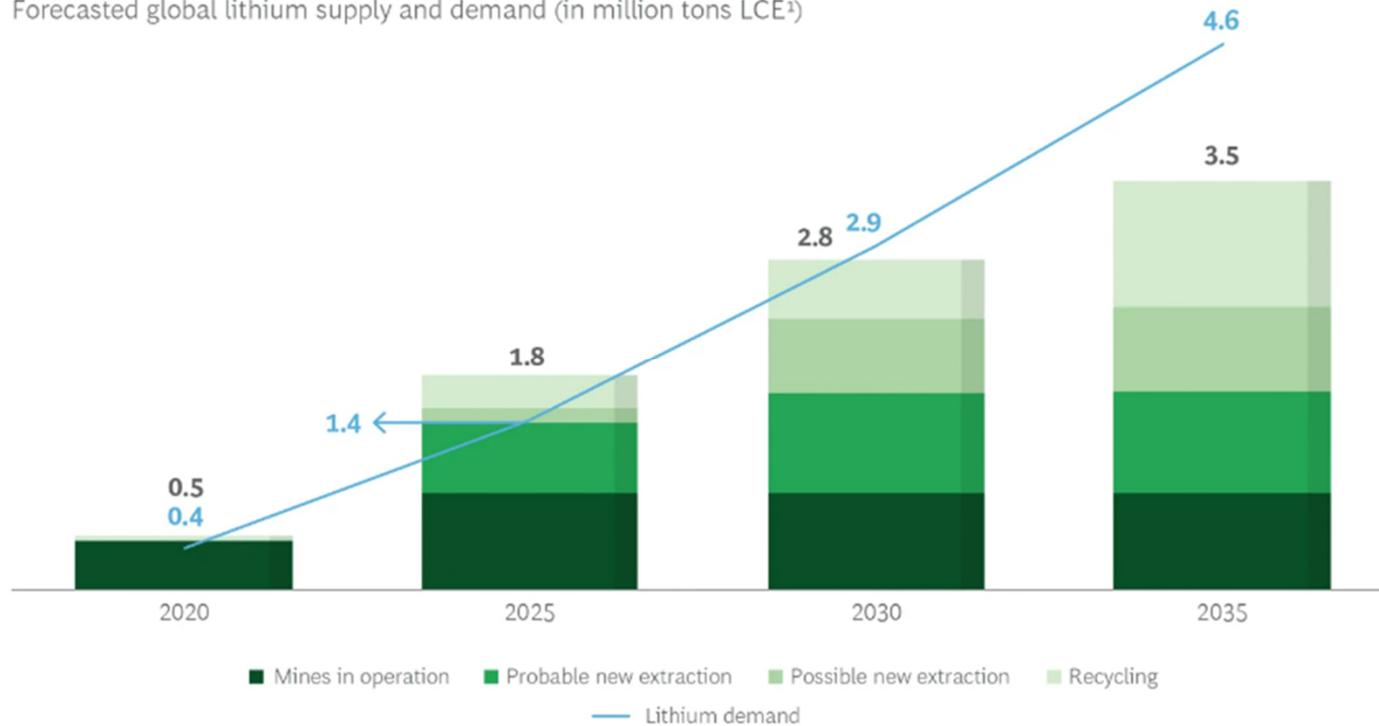


3. Price Curve Issues

- Economic challenges of investing in new projects to explore for and exploit critical mineral deposits
 - E.g. Lithium prices likely to drop as soon as new projects come on stream, which then presents challenges for the development and funding of new projects

Exhibit 1 - A Lithium Supply Shortage Is Expected by 2030

Forecasted global lithium supply and demand (in million tons LCE¹)



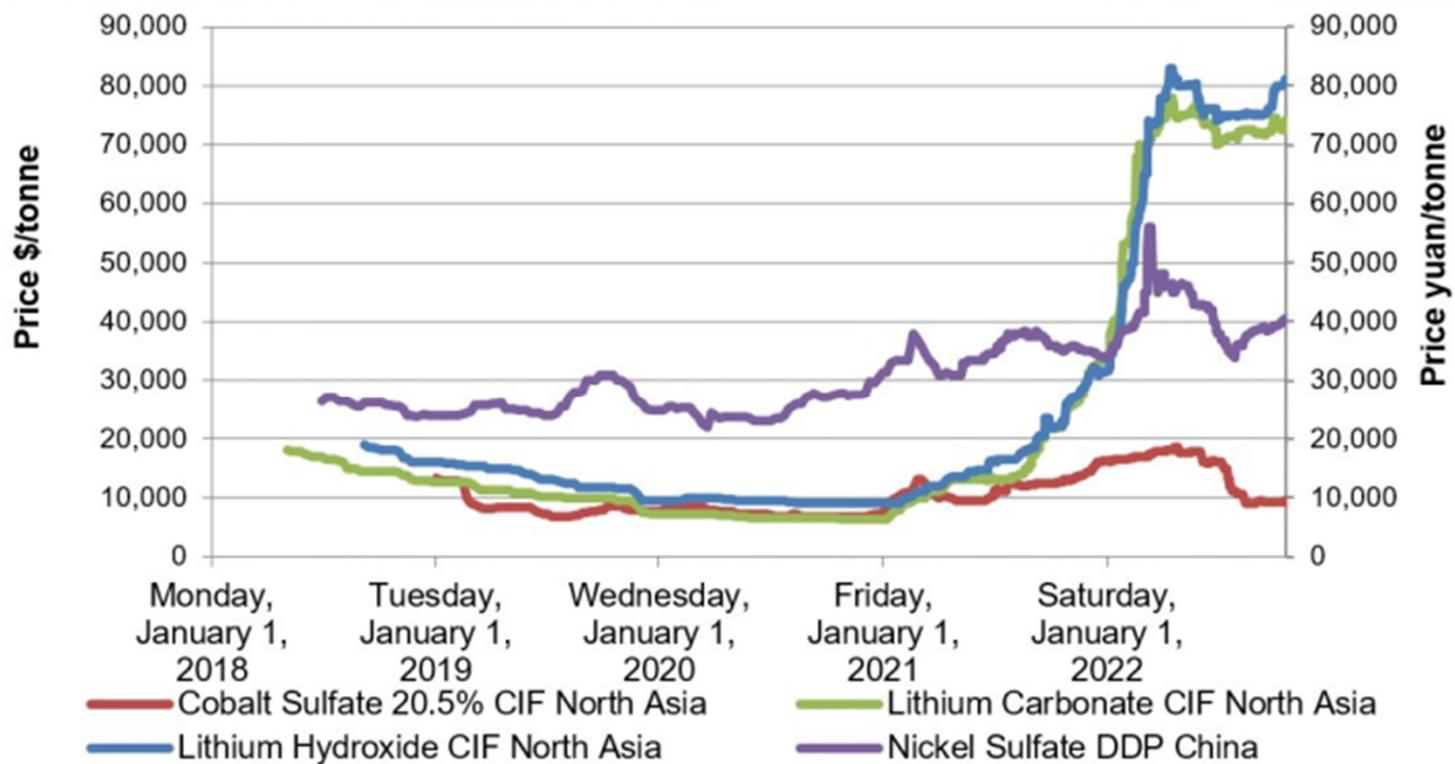
Sources: S&P Global Market Intelligence; BCG analysis.

Note: Lithium demand for 2025 and beyond are BCG forecasts.

¹LCE=lithium carbonate equivalent.

Source: <https://www.bcg.com/publications/2022/the-lithium-supply-crunch-doesnt-have-to-stall-electric-cars>

Pricing of key li-ion battery metals



Source: S&P Global Commodity Insights

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LITHIUM PRODUCTION BY COUNTRY

1995-2020

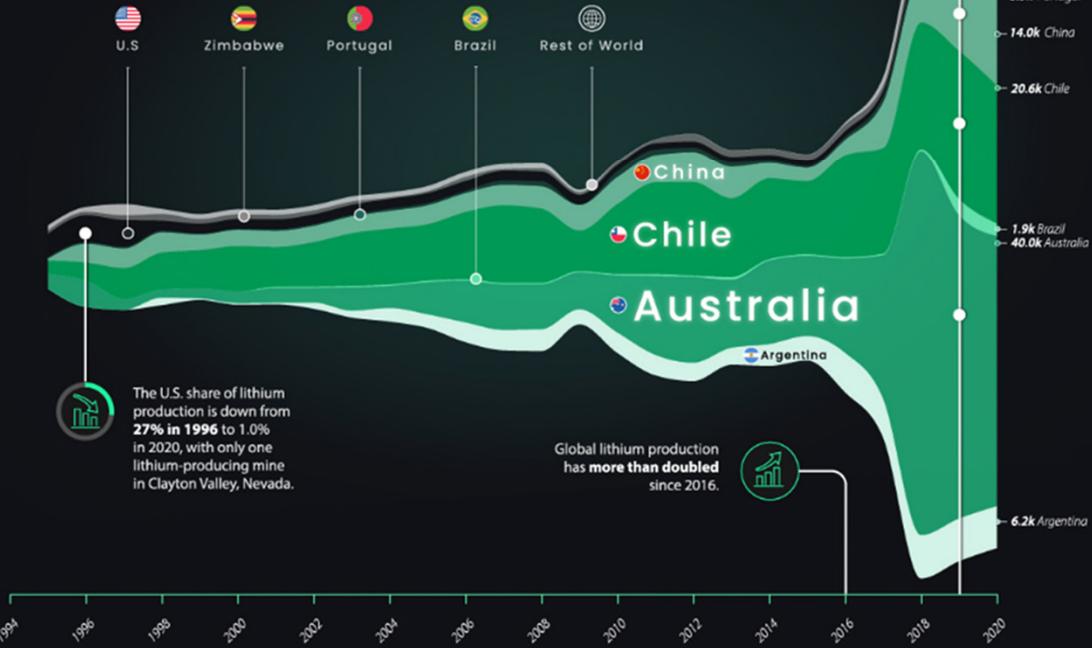
Increasing adoption of electric vehicles (EVs) and energy storage technologies has fueled a global boom in lithium production.

Here's a historical look at lithium production by country.

Mine Production of Lithium (tonnes of lithium content)

2020 Global Production
86,300 tonnes

Australia, Chile, and China accounted for **86%** of worldwide lithium production in 2020.



The U.S. share of lithium production is down from **27% in 1996** to 1.0% in 2020, with only one lithium-producing mine in Clayton Valley, Nevada.

Global lithium production has **more than doubled** since 2016.

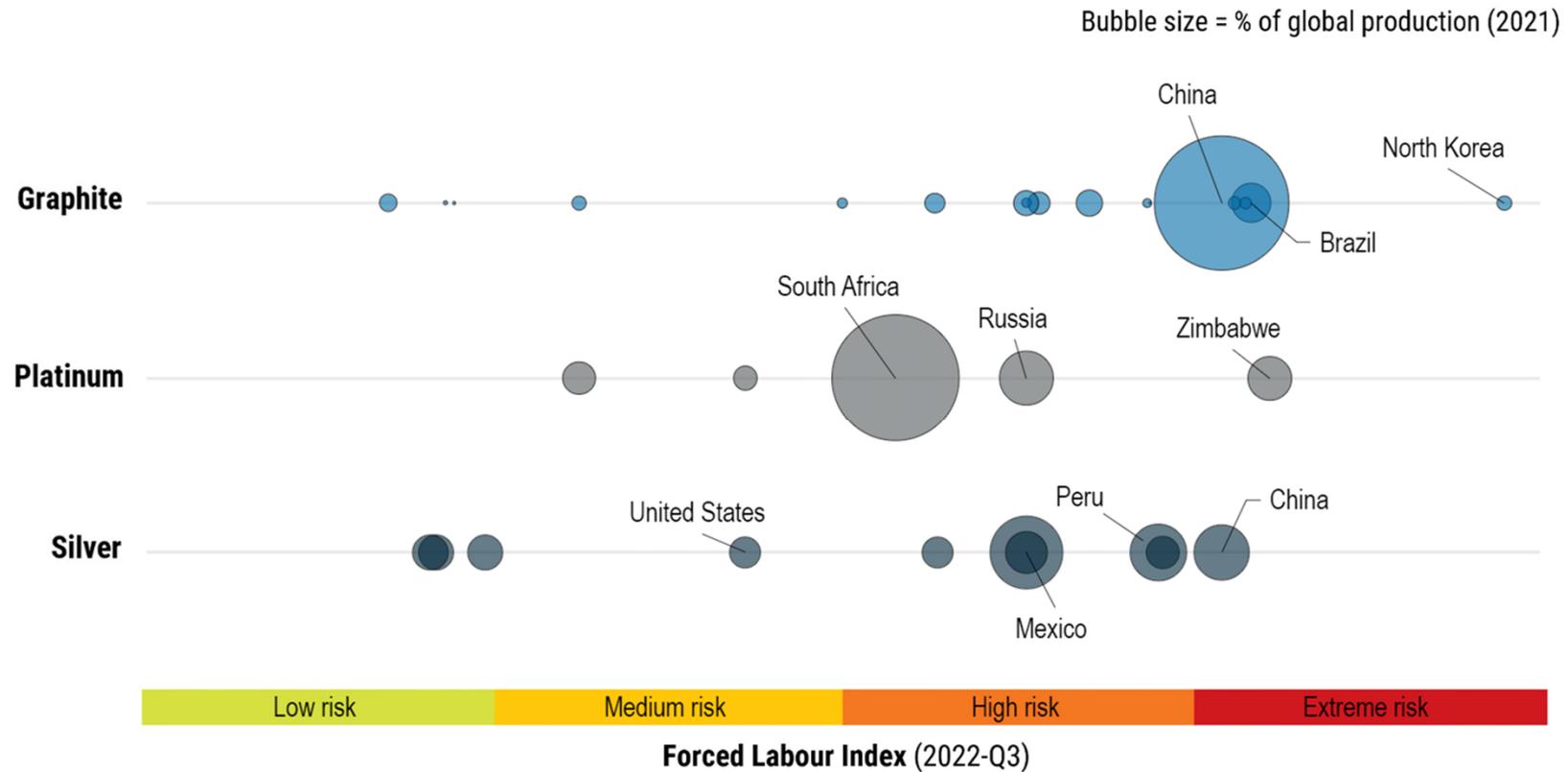
Source: BP Statistical Review of World Energy 2021

Source: <https://www.visualcapitalist.com/sp/charted-lithium-production-by-country-1995-2020/>

4. Enforcement of ESG related issues

- The election results in the US will make the environment for ESG policies more complicated.
- For US, supply chain issues are further complicated by aggressive enforcement of laws prohibiting importation of goods mined and/or produced using forced labour.
- While China gets a lot of the attention on this issue, it is by no means limited to China.
- US Government is making massive investments in enforcement resources and risk related to other sectors highlighted by NGOs (e.g. mining in Africa) could become enforcement priorities.

Production of key transition materials concentrated in countries with a poor record on forced labour



Source: US Geological Survey, Verisk Maplecroft

© Verisk Maplecroft 2022

Source: Forced labour polluting ESG credentials of lesser-known energy transition materials, Jess Middleton, Verisk Maplecroft 12 July 2022
<https://www.maplecroft.com/insights/analysis/forced-labour-polluting-esg-credentials-of-lesser-known-energy-transition-materials/>

The New York Times



By [Ana Swanson](#) and [Chris Buckley](#)

Published June 20, 2022 Updated Nov. 4, 2022

Red Flags for Forced Labor Found in China's Car Battery Supply Chain

Ties to potentially coercive labor practices could prove a problem for an industry that is heavily dependent on China, once a new law barring Xinjiang products goes into effect.



The electric battery assembly area of an auto parts factory in Hangzhou, China. Many goods produced using forced labor appear to flow into China's vast ecosystem of factories. Qilai Shen/Bloomberg

China's electric vehicle battery supply chain shows signs of forced labor, report says

PUBLISHED TUE, JUN 21 2022-9:11 PM EDT | UPDATED THU, JUN 23 2022-8:39 PM EDT

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The Logic Canada considering 'passport' for EV batteries in bid to apply ESG standards to growing industry

By [Anita Balakrishnan](#) Nov 7, 2022

Why is ESG so important to critical mineral supplies, and what can we do about it?

[K.C. Michaels](#), Legal Advisor, Office of Legal Counsel
[Louis Marechal](#), Policy Research and Advice
[Benjamin Katz](#), Policy Analyst
Commentary — 09 September 2022



OFFICE TO MONITOR AND COMBAT TRAFFICKING IN PERSONS

Forced Labor and the Clean Energy Transition: Finding A Responsible Way Forward



Letter: Don't forget rights in rush to find 'transition' minerals
From Phil Bloomer, Executive Director, Business & Human Rights Resource Centre, London EC2, UK

DRC NEEDS TO IMPROVE "ESG" OF COBALT TO BECOME KEY TO CLIMATE CRISIS

10th November 2022 [Cobalt](#)



Table 3: Selected Frameworks to Implement Guidelines for Responsible Mining

Name	Type of Initiative	Operated by	Participation	Mandatory or Voluntary	Materials Covered	Scope			
						Labor Standards	Environmental	Disposal/ Recycling	Raw Materials Provenance
Responsible Minerals Assurance Process (RMAP)	Third-party assessment of smelter/refiner management systems and sourcing practices to validate conformance with OECD and RMAP standards	Responsible Minerals Initiative	Cobalt smelters: <ul style="list-style-type: none"> • 7 conforming • 22 participating • 62 eligible 	Vol.	Co, Au, Ta, Sn, W	Y	N	N	N
Battery Passport	Data sharing (digital platform) of battery composition and features	Global Battery Alliance/World Economic Forum	Seeking participation from battery original equipment manufacturers (OEMs)	Vol.	n/a	Y	Y	Y	Y
Cobalt Industry Responsible Assessment Framework (CIRAF)	Reporting framework and management tool	Cobalt Institute		Vol.	Co	Y	Y	N	N
Responsible Sourcing Requirements	Defined and consistent implementation of existing labor and environmental standards	London Metal Exchange	All traders on the London Metal Exchange	Man.	Many	Y	Y	N	N

Source: EPRI, *Sustainability Aspects of the Lithium Ion Battery Supply Chain*, Table 7 on p. 11.

Source: *Building a Responsible Supply Chain Policy for Battery Energy Storage*
<https://energystorage.org/wp-content/uploads/2021/12/Responsible-Supply-Chain-Guidebook.pdf>



5. Issues for Japanese Companies

How do Japanese companies navigate US policies in the critical minerals sector?

- Extraterritorial application of US laws to Japan/Japanese business
- Similar trends in EU & other countries—Critical Minerals, ESG and Key Technology
- Complying with complex and varying country regulation
- Unprecedented sanctions against Russia re Ukraine
- Japan as the key economic and defense alliance partner of US in Asia



5. Issues for Japanese Companies

DILEMMA

- Heightened US-China Tensions—Technology, Trade, Strategic (Taiwan)
- China is Japan's largest trading partner
- China is key to production/supply chain and huge consumer market
- Geopolitical pressures from both US and China - Decoupling? New Cold War?
- Recent US Ban on key semiconductor exports to China



5. Issues for Japanese Companies

VIGILANCE

- Monitor and maneuver conflicting national (US, China) policies
- Japanese Government efforts to balance interests
- Japanese economic security legislation
- Risk/crisis management in volatile geopolitical times

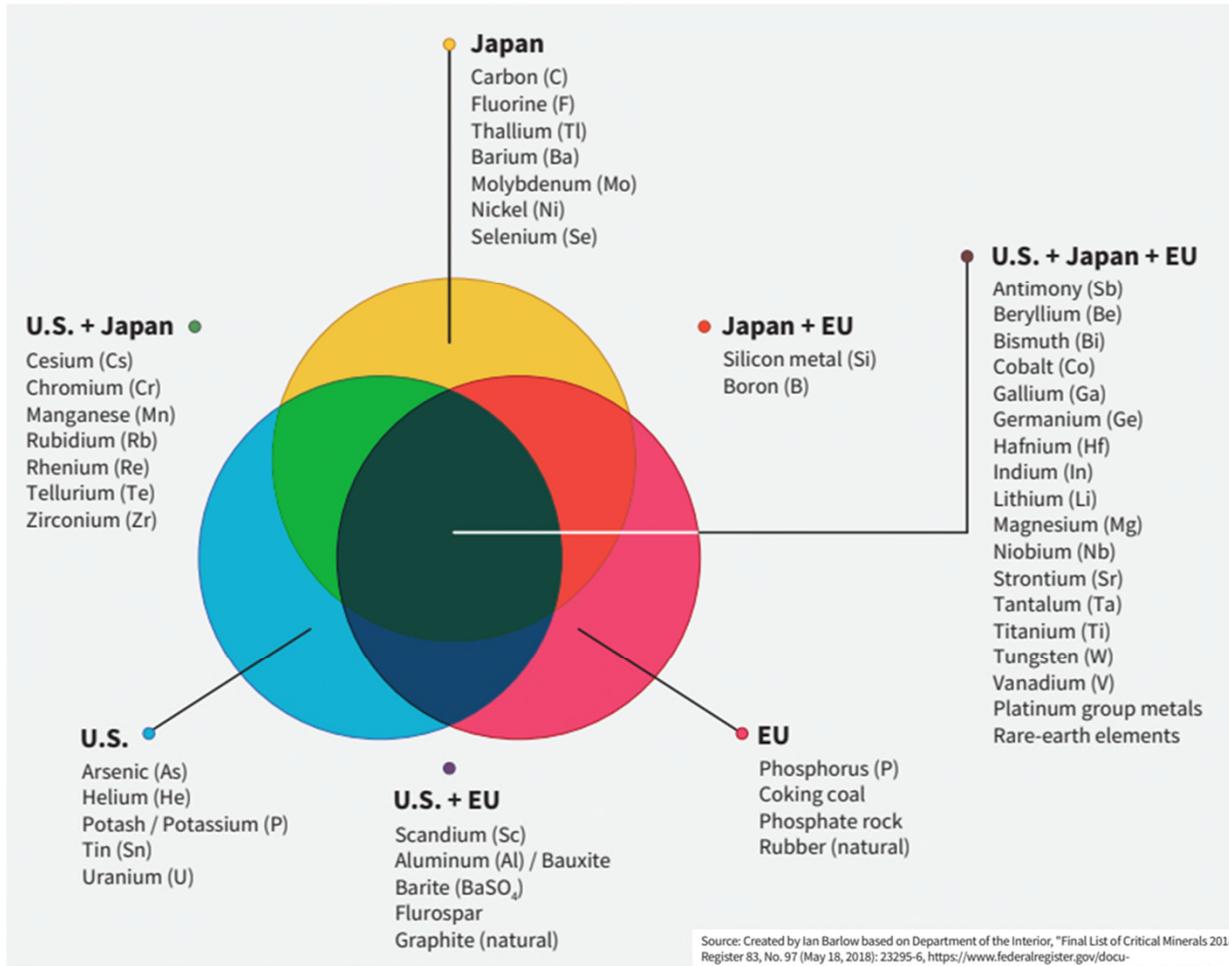
6. US and EU Policy

- Policy approaches to critical mineral shortages
- US/EU strategy papers listing relevant commodities and the need to find secure sources.
- Current US Administration has a whole of government effort:
 - Department of Interior Reports
 - White House Reports
 - Department of Commerce reports - matching key supply chain risks to trade flows

Resources: [https://www.iea.org/policies?topic\[\]=Critical+Minerals](https://www.iea.org/policies?topic[]=Critical+Minerals)

Minerals Identified as “Critical”

United States, Japan, and the European Union



Source: Created by Ian Barlow based on Department of the Interior, "Final List of Critical Minerals 2018," Federal Register 83, No. 97 (May 18, 2018): 23295-6, <https://www.federalregister.gov/documents/2018/05/18/2018-10667/final-list-of-critical-minerals-2018>; European Commission, Critical Raw Materials Resilience: Charting a Path towards Greater Security and Sustainability (Brussels: European Commission, September 3, 2020); Ministry of Economy, Trade and Industry, Issues for Consideration in Formulating A New International Resource Strategy [author's translation] (Tokyo: Government of Japan, October 4, 2019).

Source: Research Report - The Geopolitics of Critical Minerals Supply Chains, Jane Nakano Date: Mar. 1, 2021
Published by: Center for Strategic and International Studies (CSIS) - <https://www.jstor.org/stable/resrep30033>

Table 1 International critical mineral alliances

From: [The security of critical mineral supply chains](#)

Alliances	Time	Countries	Aim
European Raw Materials Alliance (ERMA)	2020	E.U	The Alliance addresses the challenge of securing access to sustainable raw materials, advanced materials, and industrial processing know-how
Supply Chain Resilience Initiative (SCRI)	2020	India, Japan, Australia	Counter China's dominance of the supply chain in the Indo-Pacific region
Five Eyes Critical Minerals Alliance (FVEY CMA)	Preparation	USA, UK, Canada, Australia, New Zealand	Strengthen cooperation in resource intelligence, mining finance, and technical expertise; develop integrated, secure, stable, sustainable, reliable, and resilient mineral supply chains critical to national and economic security; and reduce import dependence on China for these minerals
Energy Resource Governance Initiative (ERGI)	2019	Australia, Botswana, Canada, Peru, USA	Share and strengthen best mineral development practices, from mapping mineral resources to mine closure and reclamation
Critical Minerals Mapping Initiative	2020	USA, Australia, Canada	Build a diverse coalition of critical mineral supplies. Identify new sources of supply by mapping critical mineral potential by better understanding known mineral resources and determining the geological control of key mineral distribution by deposits producing byproducts

- Launched in June 2022, the **Minerals Security Partnership (MSP)** is a new U.S.-initiated alliance to bolster critical mineral (like rare earth elements, lithium and cobalt) supply chains essential in building future technologies such as electric vehicles. Japan is among 11 MSP partners alongside Australia, Canada, Finland, France, Germany, Korea, Sweden, the United Kingdom, the United States, and the European Union.
- October 2022: Japan and Australia signed a new partnership to help build secure supply chains for critical minerals between the two countries, and promote opportunities for collaboration, including research, investment and commercial arrangements between Japan and Australian projects. The pact sets out a commercial framework under which Australia will supply Japan with rare earths, lithium and other materials used for manufacturing low-emissions energy technology such as batteries, wind turbines and solar panels.
- October 2022: the Japanese government announced it is looking under the sea for rare earths to counter China's dominance of the critical minerals. The government intends to start developing the methods necessary to extract the elements near the Ogasawara islands in the fiscal year beginning in April, and aims to begin prospecting within five years.



7. US and EU Legislation

- Legislative initiatives in connection with critical mineral shortages.
 - US: Inflation Reduction Act – implementation will be lengthy and complicated. May lead to significant trade tensions that may (or may not) be resolvable
 - EU: projected European Critical Raw Materials Act

8. US Inflation Reduction Act (IRA)

- The primary US legislation designed to enable investment in critical minerals
- What, in particular, does IRA offer for Japanese companies/Japanese investors?
- Incentives in IRA are overwhelmingly US focused – intent is to drive the investment and manufacturing activity to take place in the US
- This is assumed to be to serve the US market but this is not a requirement, so the incentives can be used to turn US operations into export platforms

ARGUMENT *An expert's point of view on a current event.*

The Inflation Reduction Act Is the Start of Reclaiming Critical Mineral Chains

Green technologies depend on the supply of a few key resources.

By [Morgan D. Bazilian](#), the director of the Payne Institute and a professor of public policy at the Colorado School of Mines, and [Gregory Brew](#), a postdoctoral fellow at the Jackson Institute for Global Affairs at Yale University.

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September 29
2022

Strengthening the US Supply Chain for Critical Minerals and the Inflation Reduction Act – Opportunities and Challenges

Authors [Meaghan Connors](#) [J. Paul Forrester](#) [Kevin L. Shaw](#)

 Kleinman Center
for Energy Policy

INSIGHT

Impacts of the Inflation Reduction Act on Rare Earth Elements

OSCAR SERPELL | SEPTEMBER 24, 2022

EMERGING TECH

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How the Inflation Reduction Act Will Spur a Revolution in EV Battery Supply Chains

The IRA steps up the push for a made-in-the-USA supply chain for critical minerals.

October 12, 2022

By [Valentina Guido](#), [Nathan Iyer](#), [Stephen Lezak](#)

Mining
Technology | October 3, 2022

What's in the Inflation Reduction Act for miners?

What are the key features of the US's ground-breaking bill, and how could it incentive mining energy transition minerals?

Matt Farmer

S&P Global
Market Intelligence

Inflation Reduction Act creates new tax break for US critical minerals

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9. The evolving supply chain

- How are end users of critical mineral seeking to solve supply chain issues?
- Traditional supply chain (mining companies → trading companies/processors → mineral end user) seeing a trend in “cutting out the middle man”
- In particular, vehicle/battery manufacturers are investing directly in mining projects to secure supply – prior to 2021, there had been just two such investments; since January 2021 there have been more than 20
- Investments include partnerships with mines to secure short and long-term metals contracts and/or automakers investing into mining companies or mining sites.
- Still an early development, but raises questions for projects where JVs are being discussed that combine both upstream and downstream parts of the supply chain
- E.g. IRA tax credits can be “stacked” so a JV involved in the supply chain from processing of critical minerals through to production of the battery can claim the full range of tax credits
- The incorporation of mining into a company's portfolio also presents a new ESG risk for automakers

Vehicle/battery manufacturers forming new agreements to secure supply of critical metals



Charged

2 minute read · April 11, 2022 7:11 PM GMT+1 · Last Updated 7 months ago

Ford inks Argentina lithium supply deal with Lake Resources

By Ernest Scheyder

gm COMPANY COMMITMENTS STORIES BRANDS

General Motors and MP Materials Enter Long-Term Supply Agreement to Scale Rare Earth Magnet Sourcing and Production in the U.S.

NS ENERGY

Giga Metals, Mitsubishi to jointly develop Turnagain nickel project in Canada

By NS Energy Staff Writer 16 Aug 2022

THE ASSAY Mining investment news, insights and company profiles

Giga Metals And Mitsubishi Complete Joint Venture Transaction

by Colin Sandell-Hay, Contributor - The Assay — 2 months ago Reading Time: 1 min read

Minjng Journal Edition

Lake Resources has signed a non-binding MoU with a major Japanese partner, Hanwa

Offtake proposal for approx. 25,000 tpa of lithium from Kachi Project in agreement with Ford

Bloomberg UK

Lake Resources in Non-Binding Offtake MoU with Hanwa Co., Ltd.

April 1, 2022 at 11:07 PM GMT+1

LIVE ON BLOOM

proactive

Battery Metals



Jonathan Jackson

00:01 Fri 05 Aug 2022

European Lithium to partner with BMW as the car giant goes green under battery-grade lithium hydroxide deal

STOCKHEAD

Hats-off to European Lithium after partnering with BMW AG on Lithium MoU

Mining

August 5, 2022 | Special Report

CREAMER MEDIA'S MINING WEEKLY

QPM strikes \$69m deal with GM

INNOVATION NEWS NETWORK

QPM strikes \$69m deal with General Motors as part of sustainable electric vehicle development

Partner News | 12th October 2022



German Missions in Canada

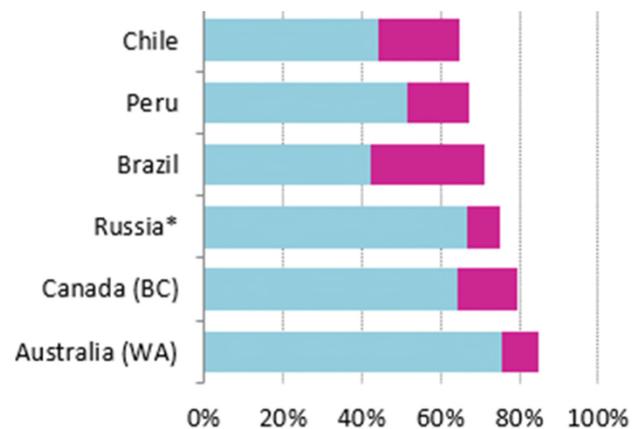
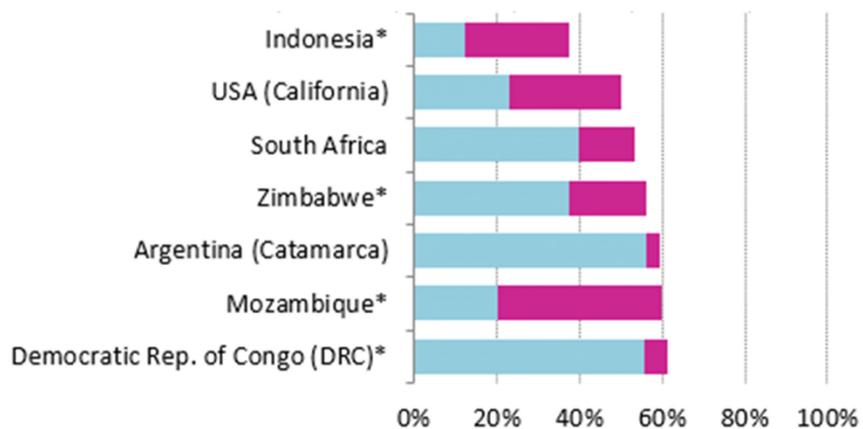
Government of Canada signs MoU with Volkswagen and Mercedes Benz

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10. Country analysis

- Which countries hosting critical mineral deposits offer the best investment opportunities?
- The importance of mining legislation
 - Virtually every paper written by those looking at the sector lists mining legislation as a key factor to encouraging investment
 - What is more they all assume the award of licences by government on a centralised basis
 - World Bank
 - Fraser Report – annually
 - Mining Journal World Risk Report

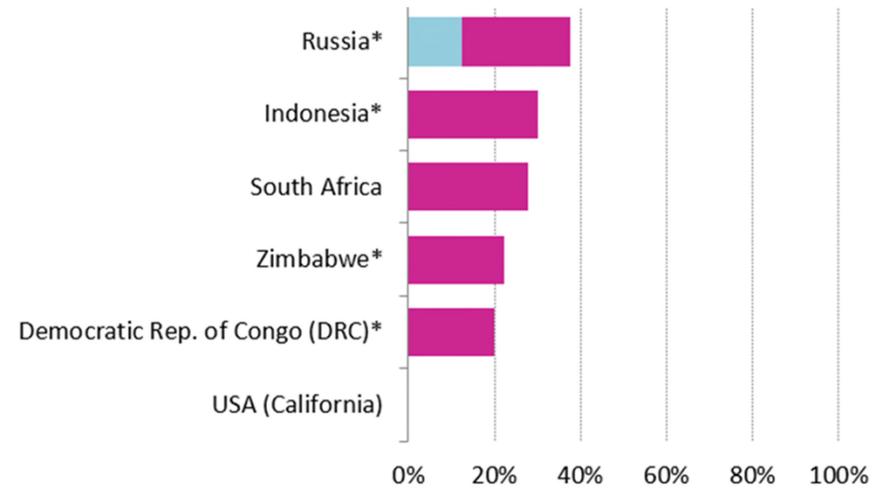
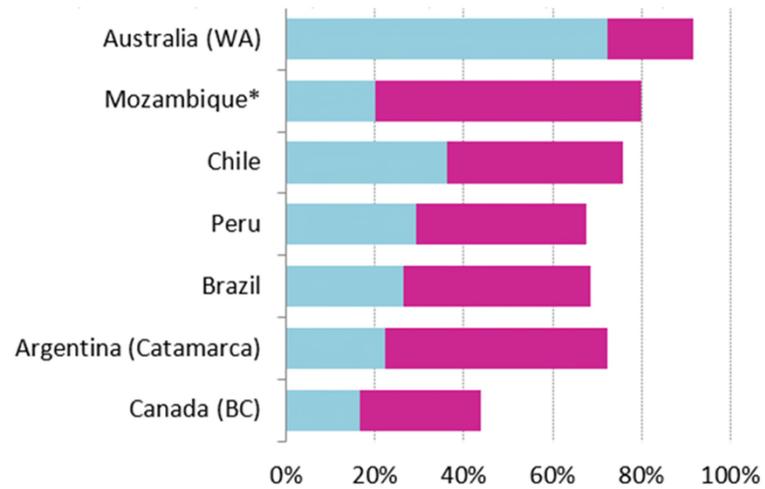
Best Practices Mineral Potential Index



- Encourages investment
- Weighted-- Not a deterrent

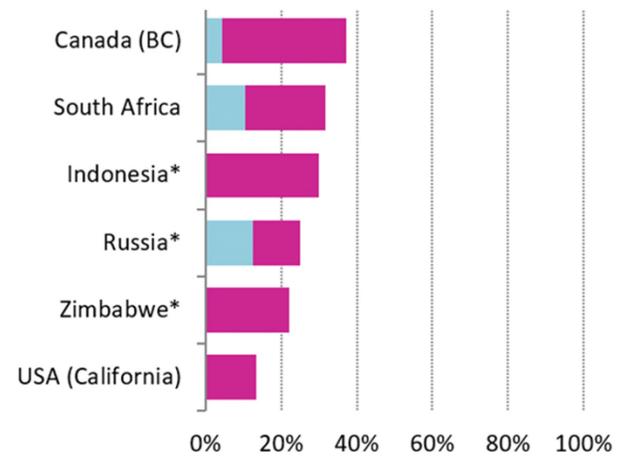
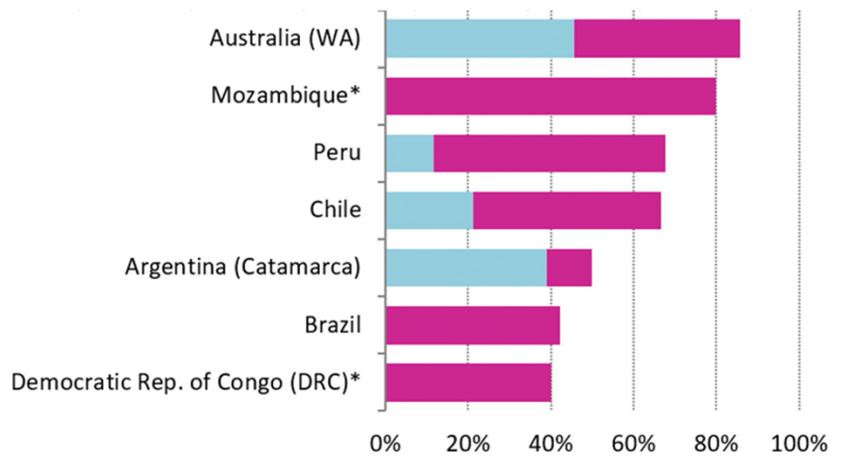
Source: Fraser Institute, Annual Survey of Mining Companies 2020 – Figure 5
<https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2020>

Uncertainty Concerning the Administration, Interpretation and Enforcement of Existing Regulations



- Encourages investment
- Not a deterrent to Investment

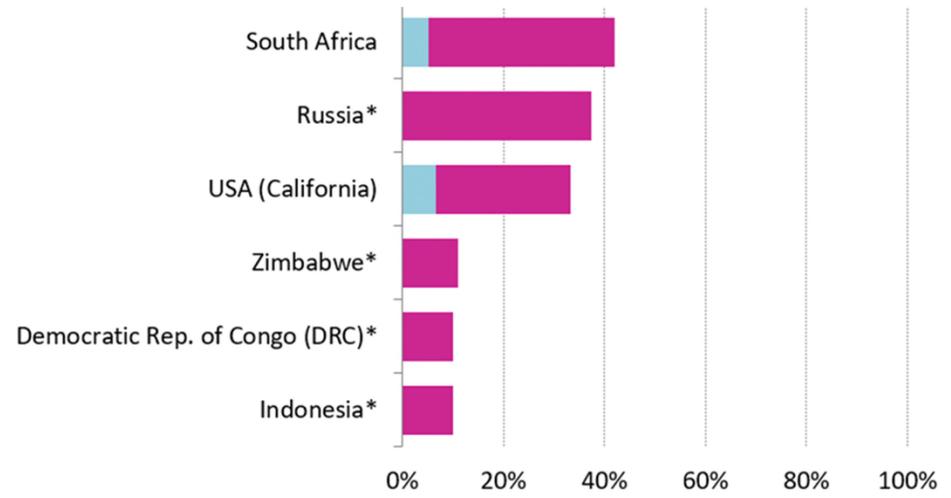
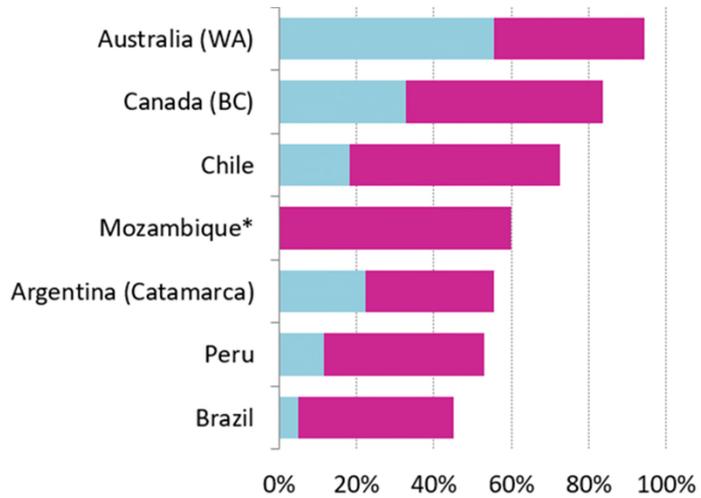
Regulatory Duplication & Inconsistencies



- Encourages investment
- Not a deterrent to Investment

Source: Fraser Institute, Annual Survey of Mining Companies 2020 – Figure 18
<https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2020>

Legal System



- Encourages investment
- Not a deterrent to Investment

Source: Fraser Institute, Annual Survey of Mining Companies 2020 – Figure 19
<https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2020>



11. Mining Joint Ventures

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Reasons to form a Joint Venture

- Original owner wishes to retain an interest
- Desirable to have a local partner
- Access to mining expertise/technology/relationships (government, financial)
- Sharing risks:
 - Geological
 - Political
 - Market downturns
 - Social and environmental
 - Natural disasters
- Sharing costs
- Bridge to M&A

Keys to Successful JV –planning

Identify and address needs and objectives to reduce issues while a JV partner

- What stage of the lifecycle is the mine at (e.g., construction/development, operational)?
- What is the purpose of the JV for your business (e.g., mid to long-term business plans)?
- What role(s) will you have in the JV (e.g., purely investment and management, day-to-day operations)?
- What does the JV partner(s) provide or offer to the JV that you don't have?
- What rights (commercial and/or operational) do you need in the JV?
- Understand your business and commercial objectives
- How does your existing or future business overlap with the JV?
- Impacts (1) restrictions on JV and JV partners and (2) future/existing business operations of you
- How long do you intend to remain in the JV?
- Can you operate the JV without the other JV partner?

Key Issues for the JV Agreement

- JV agreements often complex
- Govern exploration, development, construction, production, expansion, closure and even reclamation of the mine
- Key issues to be addressed include:
 - Contributions (financial and otherwise)
 - Decision making
 - Deadlock
 - Offtake and marketing rights
 - Other business considerations between the parties
 - Exits Rights and Lock Up – especially if the JV partner is the operator

Contributions

- Contributions based on funding programs e.g. construction program and budget
- Shares and/or loans
- Cash calls against an agreed budget
- Additional cost overruns
- Consequences of failure to fund:
 - Dilution, straight line or penal
 - Demand loads
 - Action for damages
 - Suspension of voting/income rights
 - Ultimately “forced” sale
- Elimination rights (frequently triggered at 10%)

Decision Making

- Depends on whether “50 : 50”; “majority : minority”; “multi-party”
- Possible Government shareholding/carry eg Chile
- Board Composition and voting
- Actions requiring “Special” approvals (see below)
- Actions requiring “Super majority” approvals (see below)
- Committees
- Local law requirements
- Directors’ fiduciary duties (to JVco)

Actions Requiring Special Approvals

- The following actions will require an affirmative vote of holders of at least [75]% of shares in JVco:
 - Annual operating plans and budgets
 - Material change in the facilities to be constructed pursuant to the construction plan and budget
 - Any single unbudgeted capital expenditure exceeding US\$[●]million
 - Voluntary curtailing of production by [25]% or more for 30 or more days
 - Voluntary termination of production other than on exhaustion of mineral resources
 - Incurrence of debt by Jvco /Mineco other than pursuant to an approved financing plan, or for ordinary course working capital needs
 - Settlement of litigation in excess of US\$[●]million

Actions Requiring Supermajority Approvals

- The following actions will require an affirmative vote of holders of at least [90]% of shares in JVco:
 - Hedging activities of JVco or Mineco
 - Other than in connection with the approved financing plan, grant of security over project assets or JVco shares in Mineco
 - Change in distribution policy of JVco or subs
 - Material change in constitutional documents of JVco or subs
 - Liquidation, dissolution, etc of JVco or subs
 - Changes in capital structure

JV Rights and Considerations: Transfer and Exit Rights

- Lock-up period
- Transfer restrictions (permitted transfers, call/put option, ROFO, ROFR, drag-along, tag-along)
- Defaulting members
- Geopolitical issues or bad actor partners
- New members – restrictions and limitations
- Exit rights (voluntary or involuntary)
- IPO
- Life of the JV (e.g., parallel with mine operation, winding down)



Deadlock

- Circumstances
- Resolution:
 - Escalation to senior execs
 - Inherent deadlock
 - Expert determination for certain matters
 - Short term “fix” for certain matters e.g. default budget



12. Our track record

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Mayer Brown Footprint

More than
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Lawyers

27
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Middle East

Clients'
global, cross-border
legal needs all fully
supported



ESG (Environmental, Social & Governance)

- Unified team of lawyers drawn from a range of disciplines (including corporate, environment, human rights, litigation, government relations, financial services, finance and trade) who provide integrated advice across the range of ESG risk factors and opportunities
- Global footprint allows us to support clients across the world
- Strong track record in helping clients address ESG issues
- Well-equipped to help clients wanting to be more attractive to investors looking for socially responsible enterprises, and to address the increasing regulatory and litigation exposures arising from ESG factors



Thought Leadership

Strengthening the US Supply Chain for Critical Minerals and the Inflation Reduction Act – Opportunities and Challenges

US Inflation Reduction Act – Corporate Minimum Tax and Stock Repurchase Excise Tax

Writing Cheques We Can't Cash? Critical Minerals and the Energy Transition

The Critical Minerals of Batteries

Battery Metal Supply Chain



GUEST COMMENT

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HEAD OF GLOBAL MINING
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Some commentators predict that by 2030 50% of all cars sold in the world will be electric. General Motors has also announced that it will stop producing internal combustion engine cars by that year. Each of these electric vehicles (EVs) will need a battery, a significantly more substantial and complex unit than the internal combustion engine model. With battery technology improving, a dynamically changing proposition, a single car lithium-ion battery pack might typically contain 3 kg of lithium, 33 kg of nickel, 20 kg of manganese, and 34 kg of cobalt.

The amount of these metals required to enable the projected production of EVs implies a startling increase to the current global production profile. Lithium production, for example, would need to increase seven fold between 2020 and 2030. While there is no shortage of lithium in the ground, that increased requirement implies an enormous investment in new projects. On the other hand, resources are concentrated.

More than 50% of lithium resources are in Chile. 80% of graphite resources – also required for batteries – are in China, Brazil, and Turkey. For nickel, the principal source is the concentration of high-grade production and resource in the Democratic Republic of Congo, more than 50% in each case.

While researchers are looking for ways to produce a battery which does not need cobalt, manganese, nickel, which has also recently increased significantly in price, none of the alternatives look particularly clear. Diversification (increasing the number where exploration activity is taking place). In the end, however, nothing can be done to move minerals in the ground to a different jurisdiction.

While recycling will be deemed an important factor, it is hard to see recycling contributing over the next 5 – 10 years. In addition, with the exception of cobalt content, recycling the metals in a battery is not technically easy or financially efficient – it is presently probably cheaper to mine lithium than to recycle it. Recycling capability is also currently concentrated in China, Japan, and South Korea.

EVs are already scheduled as part of the nation's global warming and related environmental issues, however this is by no means a one-way street. Mining has an environmental impact and the enhanced demand arising from the EV phenomenon will draw light on that impact. Sourcing lithium from salt in Chile and elsewhere in South America raises issues concerning the depletion of groundwater in an already arid environment. Child labor concerns in the DRC have always surrounded cobalt production. ESG considerations in supply chains have become an increasingly important, with guidelines such as those published by the OECD – now being followed in the EU. Critical minerals will also now increasingly regulated.

The geographic and other realities facing the sector floor are rich in the metals required for batteries (in addition to those already mentioned), they could also be a gift and source of rare earths. However, with the exception of diamonds, nobody has to date managed to exploit the resource in a commercially successful fashion.

Minerals in the ground are frequently geographically distributed from where they are required. Possibly the most extreme example is with rare earths, where something in the region of 80% of usable material comes from China. Whereas the US produces nothing and a 100% reliance on imports of geological grade bauxite for the production of aluminium. Governments, having taken up to the supply chain problems with these strategic materials, have been seeking policies to address them as a matter of state policy.

The US Department of the Interior published its initial list of strategic minerals in 2012. With the exception of copper, the list included virtually all the other metals. The US and the European Commission have similar committees and/or action plans. In the end though, while these initiatives may have the end in mind, finding a solution is more problematic, while something may be done to encourage further exploitation of minerals in the ground, nothing can be done to change their location. [www](#)

Critical Minerals Mining Experience: Lithium, Nickel and Cobalt

Lithium Argentina

LSC Lithium B.V. in connection with the sale of all of the outstanding shares of Lithea Inc., the owner of the Pozuelos-Pastos Grandes lithium mining properties located in the Province of Salta, Argentina, to GFL International Co., Ltd., a subsidiary of Ganfeng Lithium Co. Ltd., for a total consideration of US\$962 million.

Lithium Argentina

A major Japanese general trading conglomerate in its potential investment in the Sal de Vida Lithium Project (Catamarca/Argentina), and its potential investment in the Rincon Lithium Project (Salta/Argentina) prior to Rio Tinto's acquisition of Rincon Mining in December 2021.

Nickel-Cobalt Canada

Lenders in the refinancing and upsizing of Anglo Pacific Group PLC's existing revolving credit facility. Anglo Pacific Group PLC will use the facility to acquire a holding company that owns a 70 per cent net interest in a cobalt stream from Vale SA's Voisey's Bay nickel-cobalt-copper mine in Newfoundland.

Nickel United States

The Bank of Nova Scotia as administrative agent in the financing and construction of Lundin's Eagle Mine (nickel and copper) in the Upper Peninsula in Michigan and acted as local US counsel in connection with several follow on financings..

Nickel Finland

Lenders, including Finnvera, on the financing of the Kevitsa nickel mine in Finland.

Cobalt United States

Lenders on the project financing of Baja Mining Corp for the construction and development of the Boleo copper-cobalt-zinc-manganese project located in Baja California Sur, Mexico. We also advised the lenders on the complex successful restructuring of the project financing arrangements.

Nickel Zambia

Lenders on a senior debt facility for the development, construction costs and working capital for the Munal nickel mine in Zambia.

Nickel Tanzania

African Eagle Resources in the negotiation of project documentation for the Dutwa nickel project in Tanzania.



What We Offer





Q&A

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