McKinsey & Company

Five building blocks to secure critical raw materials supply for the German industry

By joining forces, Germany can increase its resilience to price fluctuations and supply bottlenecks for rare earths and other critical raw materials.

October 2025

One million jobs in Germany directly depend on critical raw materials

Right now, rare earths are a hot topic. A topic with real world implications for many Germans since their employment depends on these raw materials. Recent McKinsey analysis revealed that around one million people in Germany work in sectors reliant on rare earth metals as raw materials, such as the automotive industry. Each year, these raw materials contribute some €150 billion to the gross domestic product (GDP), taking only those business activities that actually require rare earths into consideration.

Additionally, around three million workers in sectors like trade and hospitality depend on spending of employees in the industry. This results in follow-on value creation impact of around €220 billion. If the largest supplier country of rare earths were to fail, this would threaten total of around four million jobs and approximately €370 billion in value creation in Germany alone—about 9 percent of total GDP.[1] Other European countries face similar situations.

Due to their significant economic importance, the EU classifies rare earths such as neodymium, praseodymium, terbium, and dysprosium as critical raw materials. Lithium, copper, and cobalt are also on the list (see sidebar). Among other applications, these raw materials are used in numerous alloys and to produce magnets, electric motors, and batteries. Not only are these components essential for the automotive industry, they are vital to the aerospace and energy sectors as well (Exhibit 1). Further applications for critical raw materials are found in mechanical engineering, the chemicals industry, medical technology, and electronics.

What is a critical raw material?

The EU currently classifies 34 raw materials as critical raw materials (CRMs), including all elements referred to under the collective term “rare earths.” First introduced in 2011, the list is updated regularly, most recently as part of the EU Critical Raw Materials (CRM) Act of 2024. The classification of a raw material as critical comprises three criteria:

— Significant overall economic importance for the EU

— High risk of supply chain disruptions

— Lack of suitable and affordable substitutes

Beyond this, the EU—through the CRM Act—designates a subset of critical raw materials as strategic raw materials. These are essential for achieving high-priority EU objectives such as climate-neutral energy production, digitization, and defense autonomy. The production of strategic raw materials is particularly complex, and the associated supply chains are exposed to significant risks, such as high supply source concentration. The following are currently classified as strategic raw materials: lithium for battery production

[1] The calculation is based on the following industries: manufacturing of chemical products; manufacturing of pharmaceutical products; manufacturing of data processing equipment, electronic and optical products; manufacturing of electrical equipment; mechanical engineering; manufacturing of motor vehicles, motor vehicle parts, and other vehicle manufacturing. Classification according to https://www.destatis.de/DE/Methoden/Klassifikationen/Gueter-Wirtschaftsklassifikationen/Downloads/gliederung-klassifikation-wz-3100130089004.pdf. Sources for the calculation include the Federal Statistical Office of Germany, the German Economic Institute, and McKinsey’s data platform MineSpans.

and rare earths required for magnet manufacturing (neodymium, praseodymium, terbium, dysprosium, gadolinium, samarium, and cerium).[2]

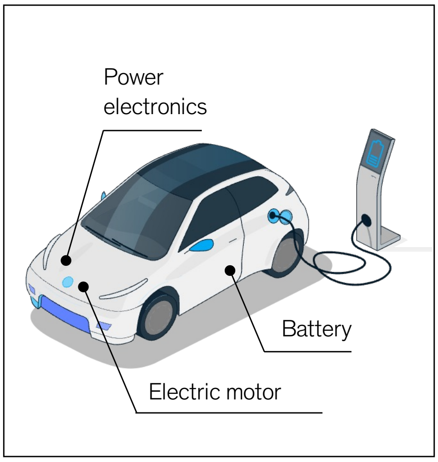
The EU and Germany are also reliant on importing other raw materials, such as iron ore, oil, and natural gas. Supply source concentration for these materials, however, is not as high as for critical raw materials, which makes finding alternatives easier should one supplier fail or if trade restrictions are imposed.

Exhibit 1

Access to critical raw materials is crucial for various industries

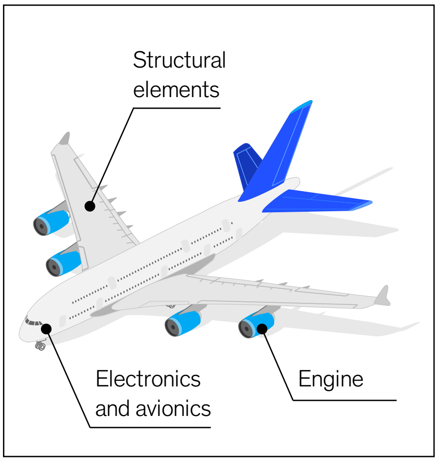
Illustrativ

Automotive



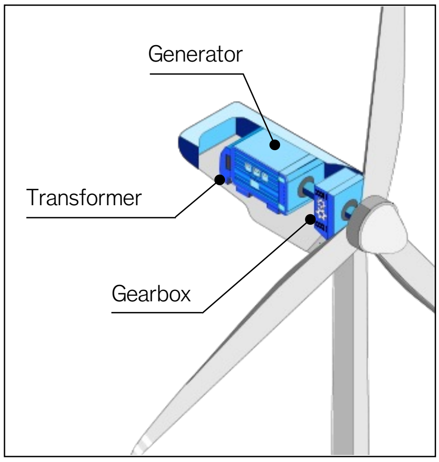
Copper | rare earths (e.g., neodymium, praseodymium, terbium)

Aerospace



High-strength metals (alloys utilizing titanium, nickel, cobalt molybdenum,)

Energy



Zinc | copper | manganese | rare earths

Source: European Commission; Critical Raw Materials and European Defence, March 2025; VDA

Critical raw materials already create significant value for the German economy. Simultaneously, they are a considerable cost factor for the industry (Exhibit 2). In the coming years, demand is expected to rise sharply, particularly for lithium. The stated objective of making Germany climate-neutral by 2045[3] can only be achieved if renewable energy sources see large-scale expansion. One example: Germany plans to increase its current wind power generation capacity of around 66 GW (2024) by an additional 145 GW up to 2030, with 115 GW onshore and 30 GW offshore.[4] Assuming average capacity of 3 MW per turbine, this would require building

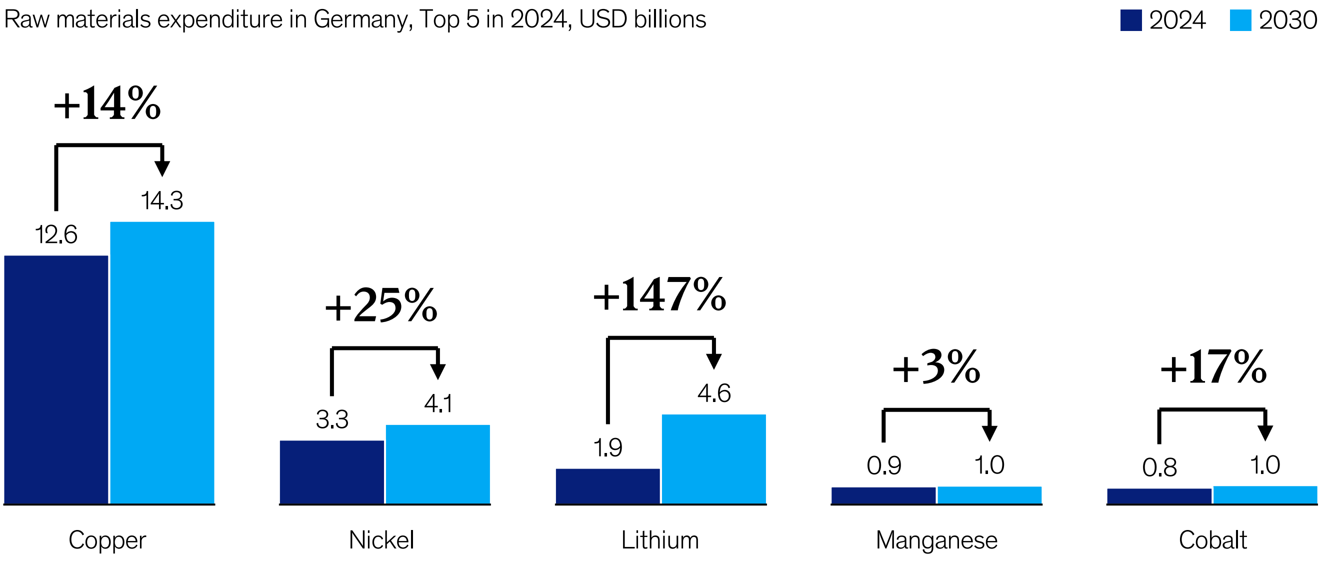
[2] European Council (2025), An EU critical raw materials act for the future of EU supply chains; European Commission, RMIS – Raw Materials Information System; ibau (2025), Kritische Rohstoffe: Deutschlands Versorgung in Gefahr
[3] Umweltbundesamt (2025), Treibhausgasminderungsziele Deutschlands
[4] McKinsey (2025), Zukunftspfad Stromnachfrage

nearly 50,000 new wind turbines. The first half of 2025 saw 406 new onshore wind turbines begin operations in Germany.[5] Building a single turbine requires up to 750 kg of rare earths.[6]

Exhibit 2

Expenditures for critical raw materials in Germany are expected to increase by the year 2030

Raw materials expenditure in Germany, Top 5 in 2024, USD billions



Source: MineSpans; McKinsey

Another prerequisite for achieving Germany's climate objectives is large-scale replacement of internal combustion engine vehicles with electric vehicles. This creates additional demand for raw materials such as lithium and the rare earths needed for permanent magnets. Even conventional combustion engines rely on rare earths; catalytic converters require the element cerium.[7]

Germany's economy also faces the challenge of renewing its industrial portfolio. According to a new McKinsey study, for Germany to remain internationally competitive, investments in electromobility and next-generation batteries must be complemented by the expansion of other dynamic areas for future growth such as AI, robotics, and nanotechnology.[8] This will further drive demand for critical raw materials like rare earths, copper, lithium, and cobalt.

Since these raw materials can hardly be found at all in Germany, they must be imported, primarily from overseas. Although Germany does sources some of these materials from European intermediaries, the origin of most critical raw materials lies outside Europe—

5 Deutsche Windguard (2025), Status des Windenergieausbaus an Land in Deutschland
6 Orsted (2024), Woraus Windräder bestehen; Lucie McGovern, Evdokia Tapoglou, Aliki Georgakaki (2024), Material requirements for wind turbines
7 Stanford Advance Materials, Applications of Cerium Metal: From Catalysts to Clean Energy; Michael Peer, Thomas Fehn, Alexander Hofmann, Burkhard Berninger, Werner Kunz (2024), Recovery of Cerium from Automotive Catalytic Converters
8 McKinsey (2024), McKinsey-Studie: Wachstumswende – Alle für Aufstieg und Aufstieg für alle

and some come predominantly from specific countries (Exhibit 3). China, for example, accounts for a 69 percent share of the global market for rare earths.[9]

The reliance on individual supply countries is even higher in downstream stages of the value chain (refining) than in the raw material extraction stage (mining). China, for instance, accounts for 99 percent of the world's rare earths processing.[10]

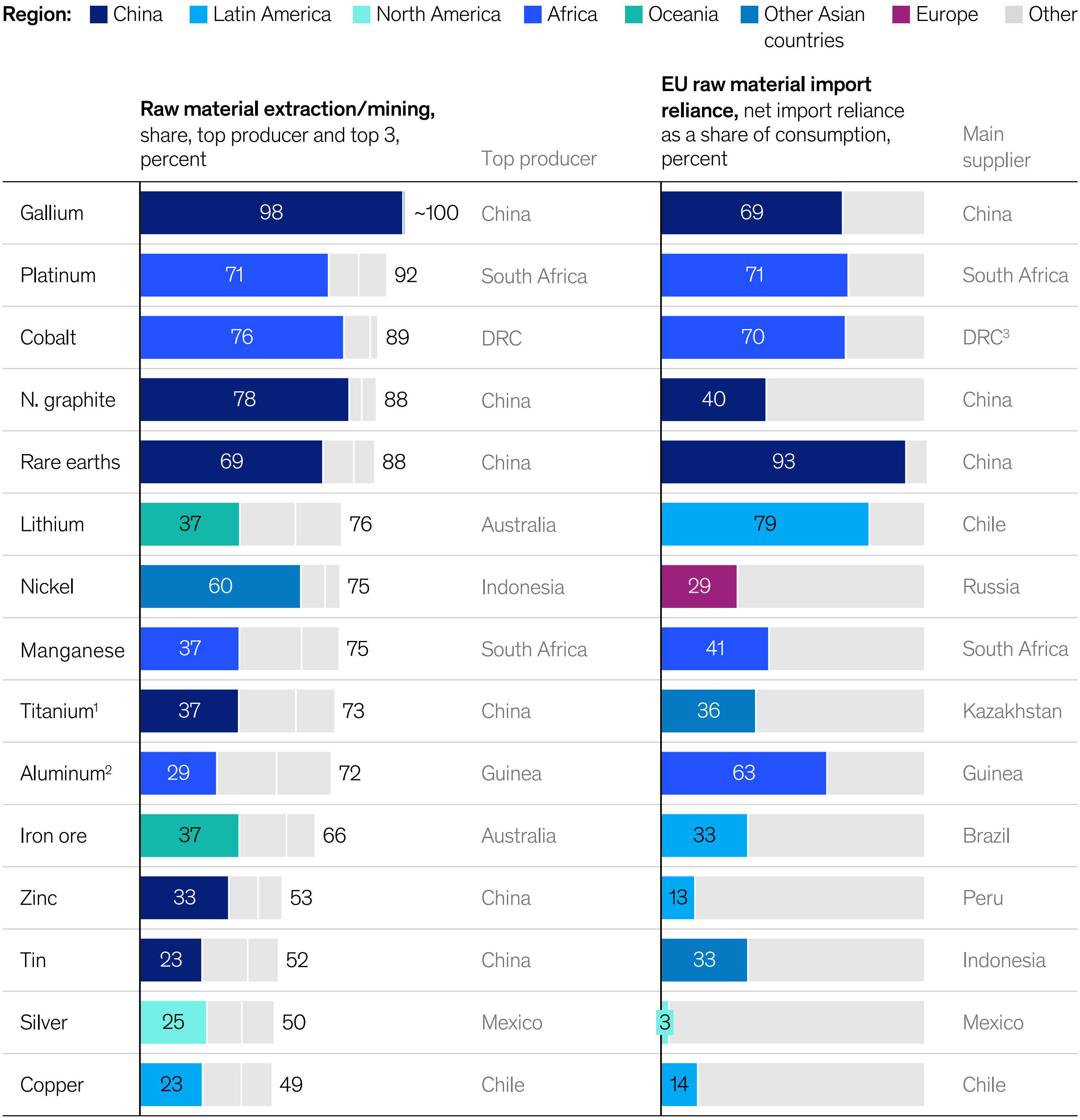
The concentration of supply sources for other critical raw materials is similar. The EU, for instance, sources 79 percent of its lithium from Chile, 71 percent of its platinum from South Africa, and 70 percent of its cobalt from the Democratic Republic of Congo (DRC).[11]

9 European Commission (2023), Study on the Critical Raw Materials for the EU 2023
10 Peter Klimek, Sophia Baum, Markus Gerschberger, Maximilian Hess (2025), Systemic Trade Risk Suppresses Comparative Advantage in Rare Earth Dependent Industries, Cornell University
11 European Commission (2023), Study on the Critical Raw Materials for the EU 2023

Exhibit 3

Supply of many critical raw materials is concentrated among a few countries

Non-exhaustive



1. Ilmenite
2. Bauxite
3. Estimate

Source: Expert estimate; U.S. Geological Survey (2025). *Mineral Commodity Summaries 2025; European Commission (2023). Study on the Critical Raw Materials for the EU, 2023;* MineSpans

Germany's supply of critical raw materials is vulnerable

High supply concentration makes Germany's industry vulnerable to disruptions in global supply chains—a repeated occurrence in recent years. The COVID-19 pandemic, for example, led to delays and supply stoppages in 2020. In 2023, low water levels in the Panama Canal resulted in supply bottlenecks. In addition, supply countries frequently impose trade restrictions or even export bans, often in response to import tariffs other countries impose (Exhibit 4).

Exhibit 4

Export restrictions may further exacerbate supply risks for critical raw materials

Aug. 2023
Export restrictions: gallium | germanium

Oct. 2023
Export restrictions: graphite

Dec. 2023
Export ban: technologies for processing rare earths

Sep. 2024
Export restrictions: antimony

Dec. 2024
Export ban to the US: antimony | gallium | germanium

Jan. 2025
Export restrictions announced:
- Technologies for extracting and processing gallium
- Technologies for battery cathode processing and manufacturing (especially LFP & LMFP)

Feb. 2025
Export restrictions: bismuth | molybdenum | indium | tellurium | tungsten

Apr 2025
Export restrictions: rare earths[1]

2027
Export restriction announced: lithium (Zimbabwe)

1. Samarium, gadolinium, terbium, dysprosium, lutetium, scandium, and yttrium

Source: Press announcements

In December 2023, export bans were introduced for rare earth technologies, in September 2024 for antimony, and in April 2025 for rare earths.[12] Further export bans on critical raw materials, such as unprocessed lithium, have already been announced.[13]

Supply bottlenecks resulting from force majeure or trade conflicts can have severe consequences for the German industry—one being significant price volatility. The trade restriction on antimony used in the production of batteries and ammunition, for example, led to the global market price doubling within a few months in 2024, from around $10,000 per ton to over $20,000 per ton.[14] For the German industry—which consumes 4,800 tons of antimony annually[15]—such a price increase translates to additional costs of nearly €50 million per year.

Even more severe than price fluctuations are supply disruptions. Given the export ban on rare earths, the production of critical components for the automotive industry recently stalled.[16] Some automotive manufacturers explicitly cite such supply chain disruptions or interruptions as risks in their annual reports.[17]

Indirectly, potential shortages of critical raw materials even threaten national security, since the defense industry depends on these resources as well. A single F-35 fighter jet, for instance, contains over 400 kilograms of rare earths.[18] Constructing an F125-class frigate—such as the "Baden-Württemberg" built near Bremen—requires approximately two tons of rare earths.[19]

Diversifying supply sources goes beyond the capabilities of individual organizations

Experts in critical raw materials and their supply chains are calling on decision-makers to reduce the German economy's dependence on individual countries and thus increase the resilience of domestic industries. Austria's Supply Chain Intelligence Institute (ASCII), for example, recommends targeted investments in domestic processing capacities, strategic partnerships, and diversification of supply sources. Without such actions, technological sovereignty and access to future markets are at risk.[20]

The industry is showing concern as well. "The problem is enormous," says the head of procurement at a German automotive supplier. While it may only involve a few hundred grams,

12 Samarium, Gadolinium, Terbium, Dysprosium, Lutetium, Scandium und Yttrium
13 William Faulkner (2025), Zimbabwe to Ban Lithium Concentrate Exports Starting 2027, ChemAnalyst; The Voice of Africa (2025), Zimbabwe Says No More Lithium Concentrate Exports Starting January 2027
14 Deutsche Rohstoffagentur (2024), Preismonitor – November 2024
15 BGR (2024), Rohstoff Länderkompakt China August 2024
16 "Giann Liguid (2025), Auto Industry Takes Hit as China's Rare Earths Export Controls Impact Supply Chains; "The European Association of Automotive Suppliers (CLEPA) confirmed this week that several supplier plants in the region have already ceased production due to depleted inventories of rare earths and related magnets." The European Association of Automotive Suppliers (CLEPA) confirmed this week that several supplier plants in the region have already ceased production due to depleted inventories of rare earths and related magnets."
17 Volkswagen Group (2024), Operational risks and opportunities
18 Jakob Kullik (2019), Below the Radar: The strategic significance of rare earths for the economic and military security of the West, Federal Academy for Security Policy; Benedetta Girardi, Irina Patrahau, Giovanni Cisco, Michel Rademaker (2023), Strategic Raw Materials for Defence: Mapping European Industry Needs
19 IMI (2022), Rüstung und begrenzte Ressourcen
20 Markus Becker (2025), Rohstoffabhängigkeit von China bedroht EU-Wirtschaft, DER SPIEGEL

there are no alternatives to rare earths like neodymium that are as powerful and space-saving, particularly in auxiliary motors used in car doors or steering systems.[21]

The aspired supply source diversification, however, is often beyond the capabilities of individual organizations in Germany. This is in part because even larger organizations purchase only small quantities, as the above example from the automotive industry illustrates. Even for battery raw materials like lithium, the purchasing volume of individual companies, relative to the global market, is in the per mille range. The entire German industry currently buys only about 5 percent of the lithium volume traded annually.[22]

Complicating matters further is the fact that the current supplier countries frequently offer the lowest prices by far. Thus, switching to other supplier countries would significantly increase costs in most cases, worsening the already challenging profitability situation for many German industry players.

It would prove even more expensive and time-consuming for individual players to develop alternative supply sources on their own. Particularly during the exploration phase, traditional loan-based financing is frequently not an option, since banks shy away from the high risks. The number of relevant critical raw materials is so large that hardly any company has the capacity to establish its own supply chains for all elements, especially since raw materials procurement is not a core competency for most of Germany's industrial companies.

By joining forces, the German economy can boost supply security

Pooling resources could help improve the security of the German economy's critical raw materials supply at cost-effective prices. A wide range of stakeholders could contribute to such an effort. Industrial companies that rely on critical raw materials could collaborate across industries to strengthen their negotiating position, to the extent that such cooperation complies with antitrust regulations and aligns with the efforts of individual companies to maintain competitive advantages.

Mining companies could explore the feasibility of domestic extraction of certain raw materials. Magnesium and lithium, for instance, are also found in Germany, primarily in continental deep water.[23] The scientific community could contribute by researching new methods for extracting raw materials dissolved in water to make use of such resources.[24]

Machinery manufacturers could drive innovation—in the field of automation, for example—to improve the economic viability of extraction and processing. Banks and private equity firms could contribute by developing targeted financing instruments tailored to the unique risk-return profile of raw materials projects.

21 DER SPIEGEL (2025), Autohersteller suchen verzweifelt nach seltenen Erden
22 MineSpans
23 DERA (2022), DERA Rohstoffinformationen
24 Omoniyi Pereao, Chris Bode-Aluko, Olanrewaju Fatoba, Katri Laatikainen, Leslie Petrik (2018), Rare earth elements removal techniques from water/wastewater: a review, ScienceDirekt

At the same time, investments in the expansion of ports and hinterland logistics in alternative supplier countries could help diversify critical raw materials supply. Efficient infrastructure is needed for critical raw materials, but also for other traded goods. Thus, infrastructure investments entail less risk than projects specific to raw materials.

Regarding specific actions, many countries and industries already offer promising approaches that Germany could follow. The five building blocks below offer a starting point to improve cost-effective supply security. Intended to serve as an overview, these should not be considered exhaustive. In some areas, delineations between these building blocks are fluid. This applies, for instance, to establishing strategic reserves and to collaborations between buyers and suppliers.

This overview is primarily intended to stimulate a constructive discussion among relevant stakeholders—to benefit the German economy. At the EU level, some of these building blocks are already being implemented or are at least in preparation stages. One example is that the EU has already established several partnerships with resource-rich countries, including Canada, Ukraine, Kazakhstan, Namibia, Argentina, Chile, Zambia, the Democratic Republic of Congo, Rwanda, Uzbekistan, and Greenland.[25] Still, European initiatives do not absolve Germany of the need to take action on its own. Quite the contrary, Germany could decisively act to secure a key role in EU efforts to ensure the reliable and economically viable supply of critical raw materials.

Building Block 1: Joint procurement

Procurement consortia or trading houses[26] specializing in critical raw materials could help build relevant expertise in Germany and increase the market power of German buyers, provided such collaboration complies with Germany's and the EU's antitrust regulations. In some cases, EU countries already jointly procure natural gas and hydrogen.[27]

In Japan, several trading houses are already established. These include Sumitomo, Mitsui, Iwatani, Sojitz, and Mitsubishi, which handle the procurement of many raw materials for domestic industries. Other sectors show similar approaches. Agricultural businesses, for instance, frequently join forces to collectively source seed, fertilizer, and agricultural machinery.[28]

Food manufacturers who are not in direct competition also pool procurement for certain raw materials. Hazelnuts are one example, with over 60 percent stemming from a single country—a concentration similar to that of many critical raw materials.[29]

[25] BMZ (2025), Verantwortungsvolle Rohstofflieferketten
[26] McKinsey (2023), The trading opportunity that could create resilience in materials
[27] European Commission (2025), Joint gas purchasing: Very good results for 2nd mid-term demand aggregation round for natural gas; European Commission (2025), EU Energy and Raw Materials Platform
[28] DLG (2023), Bezugs- und Absatzkooperationen
[29] ZHAW (2016), Global site assessment for hazelnut production

Building Block 2: Stockpiling

To protect Germany's industry from price fluctuations and supply shortages, it could prove beneficial to establish strategic reserves of particularly critical raw materials at the national or European level. Such reserves could be replenished when global market prices are low and reduced when prices are high. Profits generated could help finance storage, but the uncertainty resulting from volatile global market prices is considerable.

The EU is also planning to stockpile critical raw materials as part of its Stockpiling Strategy.[30] In the United States, the Pentagon is working in a public-private partnership with MP Materials to build strategic reserves and reduce the country's reliance on other nations to supply rare earths.[31] MP Materials is the only company currently mining rare earths in the US. The Pentagon guarantees MP Materials minimum purchase prices among other assurances to increase planning certainty for new projects. The Pentagon pays MP Materials $110 per kilogram of neodymium—significantly higher than the average market price of around $60 per kilogram (2008 to 2024).[32] This illustrates that ensuring a resilient supply of critical raw materials often comes with higher costs than when purchasing from the world's lowest price suppliers.

Building Block 3: Joint ventures with suppliers

Collaboration between buyers or intermediaries and suppliers formalized by partnership agreements can help both parties reduce uncertainties and hedge risks. Such partnerships can secure a reliable supply for buyers and traders, while providing suppliers with greater financial predictability. With guaranteed purchase volumes and minimum prices—as in the case of the Pentagon's collaboration with MP Materials—suppliers face lower risks when developing new raw materials sources or building expensive processing facilities.

Another example is General Motors. This US automaker entered into a joint venture with Lithium Americas at the end of 2024 to develop and operate the Thacker Pass mine in Nevada. Investment volume is $650 million. Jonathan Evans, CEO of Lithium Americas, noted: "Together, Lithium Americas and GM are focused on [...] improving the supply of lithium based on domestic production and reducing dependence on foreign suppliers."[33]

In Japan, the raw materials trader Sojitz already entered into a joint venture with Australian supplier Lynas Rare Earths in 2011, becoming the sole distribution partner for Lynas Rare Earths in Japan. In return, Lynas Rare Earths committed to supplying up to 65 percent of its production of the heavy rare earths dysprosium and terbium to Sojitz.[34]

30 European Commission (2025), Stockpiling
31 MP Materials (2025), MP Materials Announces Transformational Public-Private Partnership with the Department of Defense to Accelerate U.S. Rare Earth Magnet Independence
32 Katha Kalia, Eric Onstad, Ernest Scheyder (2025), MP Materials seals mega rare-earths deal with US to break China's grip, Reuters
33 Lithium Americas (2024), Lithium Americas Announces Closing of Thacker Pass Joint Venture with General Motors
34 Sojitz (2023), Securing Supply of Heavy Rare Earths to Japan with Additional Investment to Lynas

Building Block 4: Recycling

Expanding recycling can help to reduce reliance on primary raw materials, to lower greenhouse gas emissions, to make the entire value chain more sustainable, and to advance progress toward a circular economy.[35] The EU aims to achieve a recycling rate of 25 percent for critical raw materials by 2030.[36] Currently, however, only around 1 percent of rare earths are recycled in the EU.[37]

Key prerequisites for higher recycling rates include standardized regulations and further developing recycling processes, such as dismantling and reutilization of batteries and electric motors on an industrial scale.[38] In France, Caremag (a subsidiary of the Lyon-based company Carester) is building a facility to recycle rare earths found in electric vehicle batteries.[39] One of Caremag's partners is the French automaker Stellantis. Recognized as an EU CRM (critical raw materials) project, the Caremag facility is supported by subsidies and tax benefits from the French government worth more than €100 million.[40] According to Caremag CEO Frédéric Carencotte, the objective is to achieve a 15 percent global market share in heavy rare earths.[41]

Germany already has a facility for recycling rare earths in Bitterfeld, although its capacity is significantly lower than that of the planned facility in France.[42] In any case, recycling alone will not suffice in meeting the needs of Germany's industry in the foreseeable future. Many secondary raw materials are also currently more expensive than primary raw materials due to high recycling costs.

MineSpans – Data and analyses for 15 raw materials

Much of the data and many analyses in this article—including the incentive price curve shown in Exhibit 5— are based on MineSpans. This McKinsey data platform provides corporate decision-makers with a comprehensive overview of the metals and mining sectors. MineSpans is maintained by McKinsey's raw materials experts. MineSpans data and analyses cover more than 10,000 production sites worldwide along the supply chains for 15 raw materials, including those the EU classifies as critical, such as nickel, lithium, and cobalt. In addition to forecasts on supply and demand trends, MineSpans also includes data and analyses on costs and sustainability.

https://www.mckinsey.com/industries/metals-and-mining/how-we-help-clients/minespans/overview

35 McKinsey (2023), Looking upstream: A path to unlocking low-carbon, circular materials
36 European Commission (2025), Critical Raw Materials Act
37 European Commission (2025), LIFE INSPIREE: mining for valuable metals in our waste at large scale
38 McKinsey (2025), Powering the energy transition's motor: Circular rare earth elements
39 Caremag (2025), Projects
40 Carester (2025), Caremag, a subsidiary of Carester, has secured €216 million in financing to build its rare earth recycling and refining facility in France
41 Claire Guédon, Sophie Peyridieu (2025), Béarn: la ministre de la Transition écologique inaugure l'usine de recyclage et de raffinage de terres rares Caremag, France Bleu
42 Heraeus (2024), Heraeus Remloy startet größte Recycling-Anlage für Seltene-Erden-Magnete in Europa

Building Block 5: Own exploitation and processing

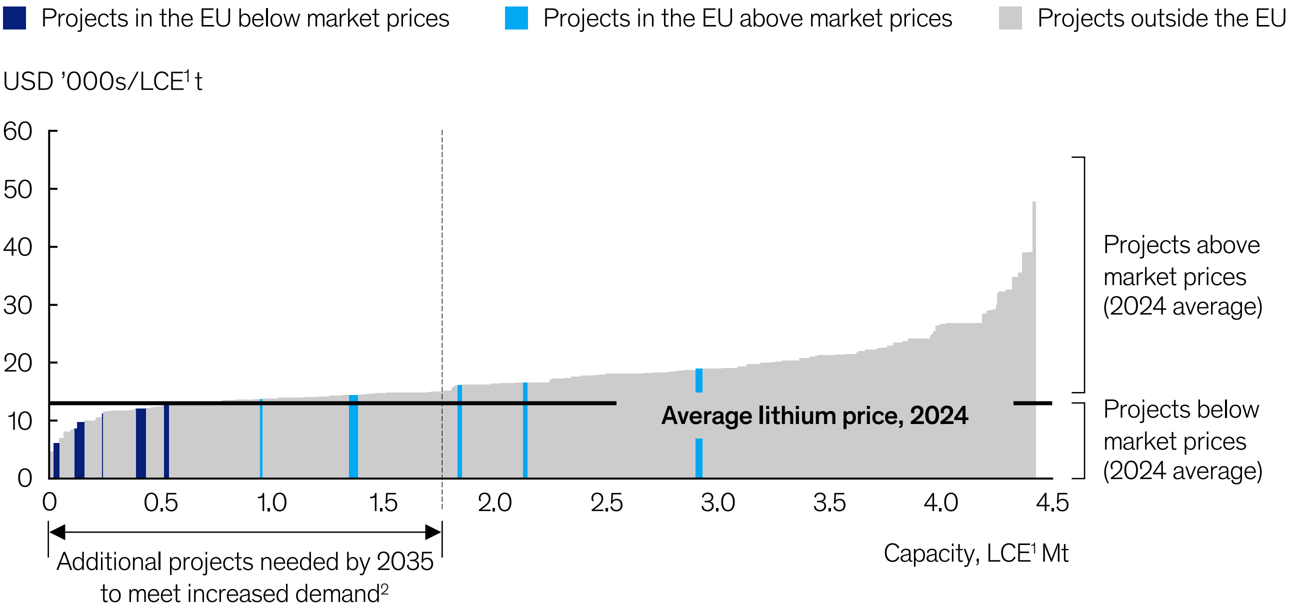
The most resource-intensive option to secure critical raw materials supply is the direct involvement of buyers in exploration, mining, and processing. Tesla, for instance, is building its own lithium refinery in Texas to become more independent in producing electric vehicle batteries. Investment volume exceeds $1 billion. The intent is to improve not only supply security but environmental sustainability as well, since Tesla claims the new refinery will use acid-free processing on an industrial scale for the first time.[43]

Given the high capital requirements, such an approach is feasible only for very large companies, entire countries, or the EU. By 2030, the EU aims to meet at least 10 percent of its annual demand for critical raw materials with domestic extraction and an additional 40 percent with domestic processing.[44] Also, projects do exist within the EU that could already be cost-effective based on 2024 market prices, such as lithium mining (Exhibit 5).

Exhibit 5

Some lithium projects in the EU could be financially viable

Scenario for all possible projects



1. Lithium carbonate equivalent
2. Required net increase in demand from decommissioning existing projects and increased demand

Source: MineSpans

Other projects, in contrast, would only be cost-effective assuming market prices will rise. Currently, no significant mining activities for critical raw materials take place in Europe. Only two facilities process rare earths—one in Estonia and one in France. The facility in France is the only one outside of China capable of processing all 17 rare earth elements. According to Philippe

[43] Tesla (2023), Tesla Lithium Refinery Groundbreaking
[44] European Commission (2024), Europäisches Gesetz zu kritischen Rohstoffen

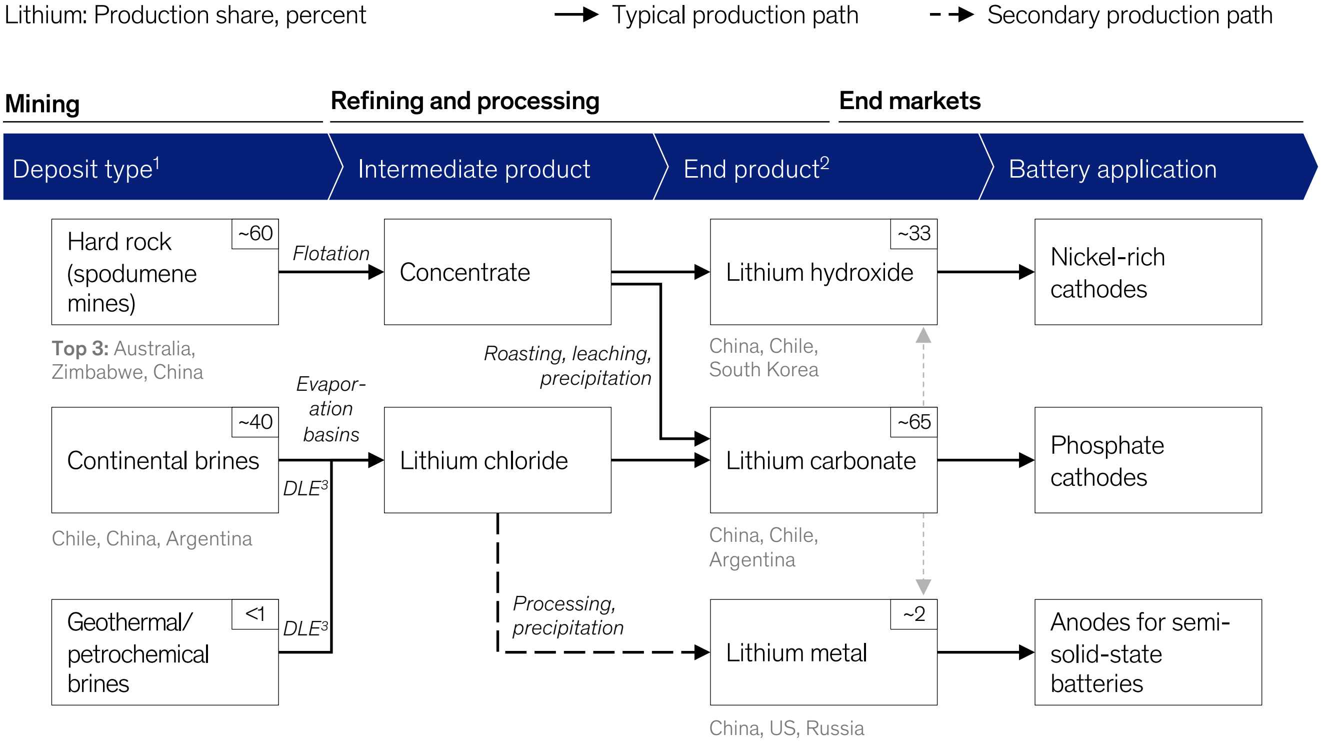
Kehren, CEO of the operator Solvay: "This is a rapidly growing market with increasing demand for shorter supply chains."[45] As a result, Solvay has recently expanded its processing capacities.[46]

In principle, rare earth mining would also be possible in Europe. Substantial deposits exist in countries such as Norway and Sweden.[47, 48] Lithium—crucial for many battery applications (Exhibit 6)—is even found in Germany, in the Upper Rhine Plain and Saxony for example.[49] Together with the federal states of Rhineland-Palatinate and Hesse, the Federal Ministry for Economic Affairs is already supporting two projects for lithium extraction in Germany.[50]

Exhibit 6

Raw materials resilience requires a view of the entire value chain

Lithium: Production share, percent



1. Includes lepidolite in hard rock deposits
2. Excludes lithium fluoride for electrolyte salts due to small market size
3. Direct lithium extraction

Source: MineSpans

45 Jonathan Josephs (2025), How Europe is vying for rare earth independence from China, BBC
46 Solvay (2025), Solvay advances European rare earths production through capacity expansion
47 LKAB (2023), Europe's largest deposit of rare earth metals located in Kiruna area
48 IRIS (2024), Rare Earth Deposit Discovered in Norway: A Good News for European Mineral Sovereignty?
49 Fraunhofer ISE (2025), Lithium aus geothermalen Solen im Oberrheingraben: Fraunhofer ISE entwickelt mit Partnern neues Verfahren zur direkten Lithiumgewinnung; Klaus-Thilo Boss (2025), Wettlauf um Seltene Erden: Wie Sachsen den Bergbau wiederbeleben will, Table.Briefings
50 BMWE (2025), Der Bund unterstützt gemeinsam mit Rheinland-Pfalz und Hessen zwei strategisch wichtige Investitionsvorhaben zur Lithiumgewinnung in Deutschland

Alternatively, German buyers could invest in exploration and mining for critical raw materials in countries outside the EU. In August 2025, Germany and Canada issued a joint declaration on cooperation in the field of critical raw materials.[51]

Were Germany or Europe to commit to substantial investments abroad, considering the entire supply chain would prove essential. A mine developed under national or European management would do little to improve supply security if established supplier countries were to continue to handle refining and processing. The more smelting and processing capacities Europe develops domestically, the more resilient the European industry becomes. Currently, however, such capacities are being reduced in some cases due to insufficient profitability.[52]

A German organization for raw materials security?

Germany already has two institutions focused on critical raw materials: the Raw Materials Fund of the Kreditanstalt für Wiederaufbau (KfW)[53] and the German Raw Materials Agency (DERA). However, many raw materials projects exceed the KfW's financing scope, and the KfW does not cover exploration risks. DERA, on the other hand, primarily focuses on providing information to the industry rather than on mining, processing, procurement, storage, or recycling of raw materials, or financing any related projects.[54] With only around 20 employees, DERA is not equipped to handle such tasks. Also, as a division of the Federal Institute for Geosciences and Natural Resources (BGR), DERA does not have its own budget.

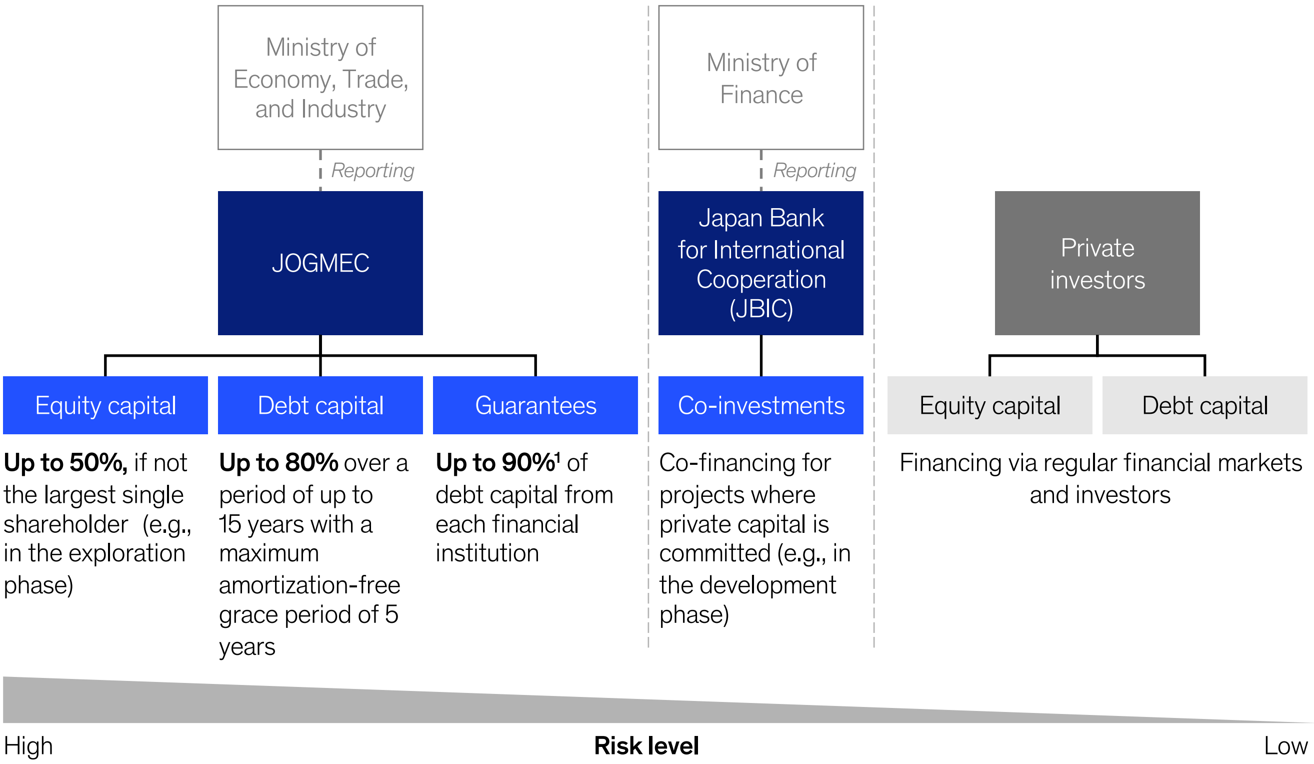
At the EU level, establishing such an institution is already in planning. The EU Critical Materials Centre is intended to handle joint procurement for critical raw materials, coordinate strategic reserves, monitor supply chains, promote investment, and build competence.[55] According to current plans, however, a proposal for the concrete design of this center will not be available until 2026. Implementation could take several more years. In the meantime, the European Investment Bank (EIB) supports German companies in developing critical raw materials deposits.[56]

In Japan, a national institution to secure critical raw materials supply for the Japanese economy has existed for over two decades: the Japan Oil, Gas, and Metals National Corporation (JOGMEC). JOGMEC is affiliated with the Japanese Ministry of Economy, Trade, and Industry and has over 1,000 employees and a budget equivalent to €14 billion.[57] JOGMEC's primary task is financing raw materials projects, for example, by securing loans or directly participating in companies involved in mining or processing raw materials (Exhibit 7).

[51] BMWE (2025), Gemeinsame Absichtserklärung zwischen der Regierung der Bundesrepublik Deutschland und der Regierung Kanadas zur Zusammenarbeit zu kritischen Rohstoffen
[52] energynews (2024), Europe: Reducing Refining Capacity in the Face of Energy Transition
[53] KFW (2025), Der Rohstofffonds als Baustein einer resilienten und innovativen Volkswirtschaft
[54] DERA (2025), Chart des Monats
[55] European Commission (2025), EU stockpiling strategy: Boosting the EU's material preparedness for crises
[56] EIB (2025), Aurubis secures € 200 million from EIB to drive recycling and copper production
[57] JOGMEC (2025), Corporate Profile

Exhibit 7

Various financing instruments are available in Japan depending on project risk in the specific phase



Source: JOGMEC, IEA, expert interviews

JOGMEC is a financing partner in the joint venture mentioned above between the Japanese trading house Sojitz and the Australian company Lynas Rare Earths. Thanks to JOGMEC's efforts, Japan has reduced its dependence on a single supplier country for refined rare earths from around 90 percent to approximately 60 percent.[58]

The EU aims at a similar reduction in dependency on individual supplier countries. By 2030, no EU member state should source more than 65 percent of the strategic raw materials needed from a single country.[59]

Regardless of the institutional framework, Germany's industry and policymakers have the opportunity to stabilize and secure the long-term supply of critical raw materials for the domestic economy based on concerted efforts. In light of growing geopolitical volatility and increasing trade restrictions, pooling all available resources now seems more urgent than ever.

58 JOGMEC, IEA, Handelsblatt, Bundeszentrale für politische Bildung
59 European Commission (2024), Europäisches Gesetz zu kritischen Rohstoffen

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