2025 Review of maritime transport

Chapter I

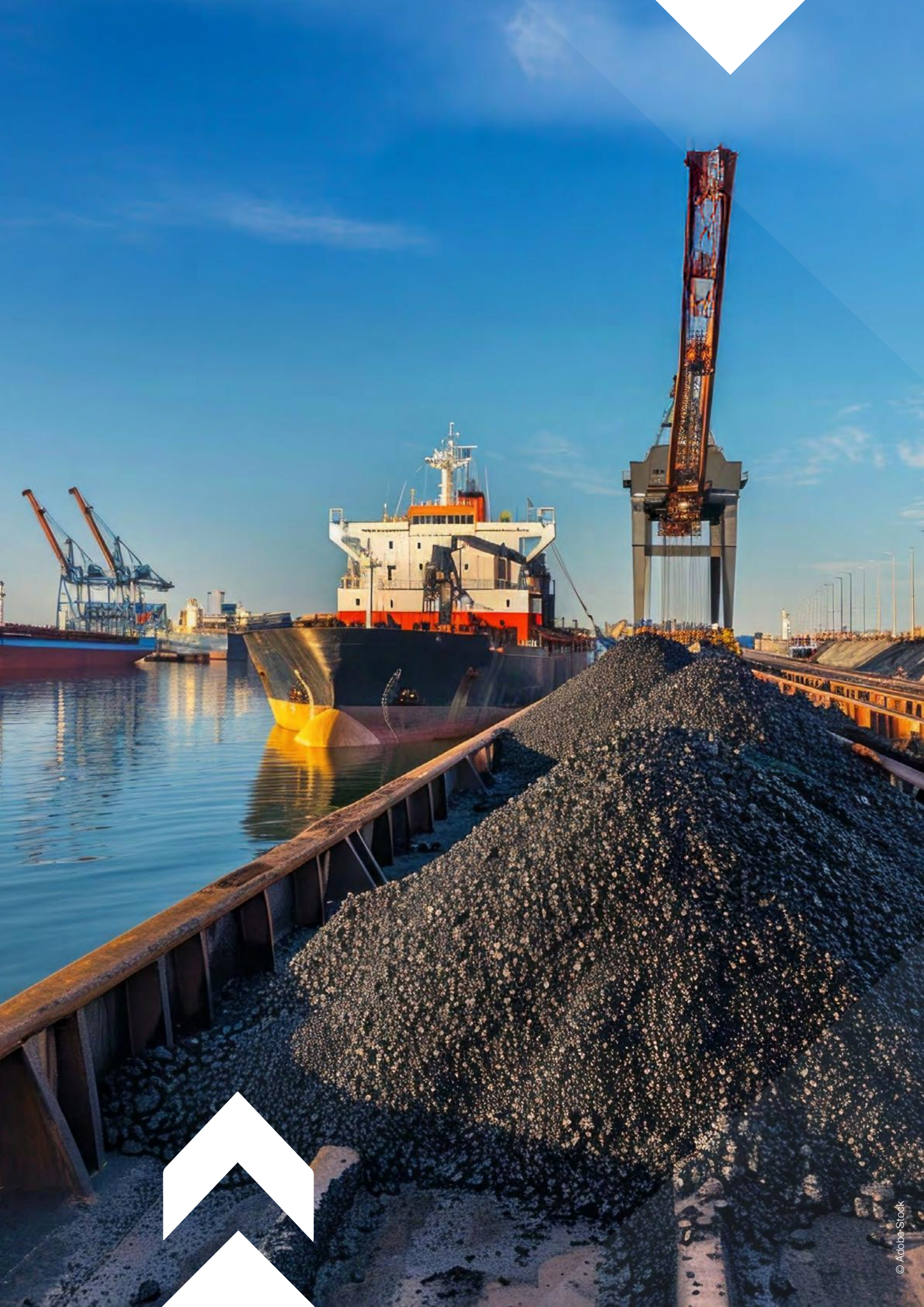
International maritime trade

In 2025, global maritime trade continues to navigate an environment marked by volatility, rerouted flows and uncertainty. Persistent geopolitical tensions and trade policy changes have altered shipping patterns, with many routes redirected away from traditional chokepoints.

While containerized trade is expanding, especially along extraregional corridors, East–West routes remain dominant, anchored by Asia's central role in global logistics. Supply chains are increasingly diversified, with more complex origin and destination networks emerging to manage rising uncertainty.

At the same time, energy-related trade is undergoing a structural transformation. Longer hauls and redirected flows are affecting tanker demand. Trade in critical minerals, vital to clean energy transitions, remains concentrated in a handful of exporters, heightening exposure to strategic and logistical chokepoints.

United Nations



Key policy takeaways

- Persistent rerouting of maritime flows has heightened exposure to delays and rising costs, especially for structurally vulnerable economies such as the least developed countries and small island developing States. Strategic investments in corridor connectivity and transport infrastructure are key to mitigating these effects.
- Ongoing trade fragmentation and evolving industrial policies are reshaping global value chains and maritime trade patterns. These shifts risk marginalizing smaller economies from emerging trade corridors. Maritime transport policies should prioritize regional integration, strengthen port–hinterland connectivity, and support logistics capacity to enable diversified sourcing and reduce exposure to geographically concentrated trade flows.
- The changing geography of containerized trade calls for enhanced port competitiveness and coordination. Countries with the logistics capacity to manage diversified sourcing – efficiently handling goods from multiple origins – will be better positioned to attract trade and investment within reconfigured supply chains.
- In the energy sector, ports must prepare for longer hauls and a growing share of low-carbon industrial and energy-related cargoes. This requires future-ready infrastructure, including deeper berths, expanded storage, improved intermodal links and faster cargo handling.
- Expanding trade in critical minerals offers opportunities but also heightens supply chain risks. Policy responses should promote domestic processing, multimodal logistics and alignment with renewed industrial policies.

- In 2024 and 2025, seaborne trade has continued to adjust in response to geopolitical tensions, evolving maritime routes, and accelerating shifts in the global energy and industrial landscapes. Supply chain restructuring, technological adaptation and resilience-building are reshaping maritime trade patterns, with growing policy attention to energy security, sustainability and trade fragmentation.

- While global seaborne trade in 2024 experienced firm growth, supported by an easing of supply chain disruptions and improved performance in some developing regions, the outlook for 2025 suggests more modest growth or even stagnation in both overall volumes and ton-miles. According to UNCTAD projections, maritime trade volume is expected to expand by 0.5 per cent in 2025, with containerized trade increasing by 1.4 per cent. Over the medium term (2026–2030), total seaborne trade is projected to grow at an average annual rate of 2 per cent, while containerized trade is forecast to rise by 2.3 per cent.

- A combination of factors influences this trajectory. These include persistent macroeconomic uncertainty, sluggish global demand and continued disruptions along key shipping lanes. At the same time, deeper structural shifts – such as industrial policy changes, strategic subsidies and trade measures, supply chain diversification, increased demand for clean energy inputs, and the intensification of environmental and traceability standards – are redefining global trade dynamics and reshaping the maritime transport landscape.

- To further understand these evolutions, section A outlines trends in the demand for maritime transport services and analyses seaborne trade developments within the context of the global economy and international trade. It includes a forecast and outlook on future trends. Section B examines specific developments affecting trade in energy products and containerized goods. Section C explores seaborne trade in critical minerals.

A. Maritime trade flows: The big picture

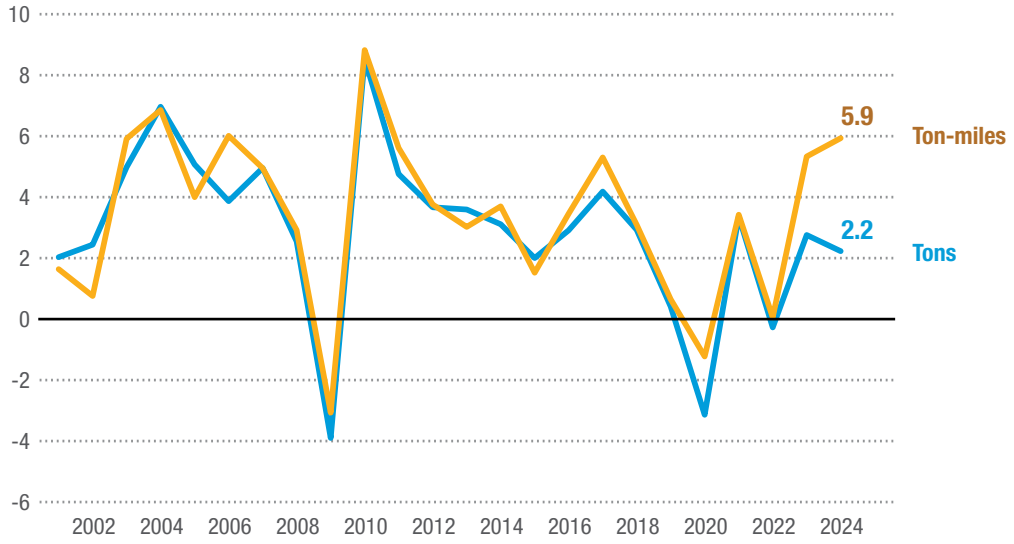
1. Seaborne trade volume growth remained steady while ton-mile growth reached a record in 2024

Maritime trade volumes reached 12,720 million tons in 2024, growing by 2.2 per cent (Clarksons Research, 2025a, July), exceeding the 2013–2023 average (1.8 per cent). This suggests positive momentum, yet the growth rate lagged the 2003–2023 average (2.9 per cent), indicating a longer-term deceleration in the expansion of global volume. Structural, cyclical and policy factors underpin this deceleration, encompassing the structural weakening of trade-to-GDP links, a slowdown in global value chain expansion, repeated economic shocks, rising trade barriers and policy instability, and geopolitical fragmentation (UNCTAD, 2024a; WTO, 2024).

Moderate growth in the global economy and resilient Chinese commodity demand supported seaborne trade volumes in 2024 (Clarksons Research, 2024 and 2025b), driven by robust growth in container and dry bulk shipping (see section B). Solid industrial demand, domestic mine output limitations and stockpiling activities amid softer commodity prices propelled Chinese dry bulk imports (particularly for iron ore, coal and bauxite) and steel exports (Clarksons Research, 2025b). Resilient consumer demand in the United States of America and strong trade flows from Asia to emerging economies also supported seaborne trade volume growth in 2024.

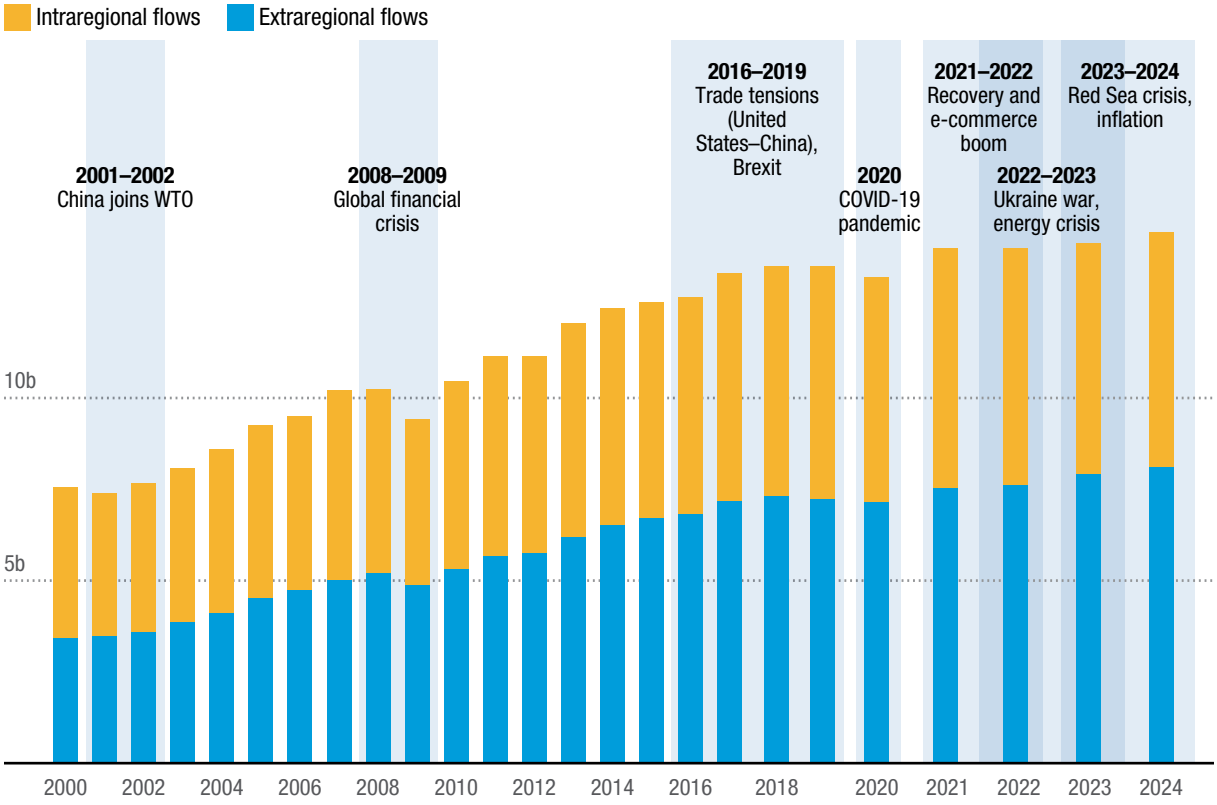
As global supply chains diversify and new consumption hubs emerge, maritime routes are becoming more regionally interconnected and globally distributed, which renders them more complex. Figure I.2 confirms that intraregional and extraregional trade have continued growing over the years.

Figure I.1
Seaborne trade growth
(Annual percentage change)



Source: UNCTAD calculations, based on Clarksons Research, 2025a, July.

Figure I.2
Intraregional and extraregional seaborne trade flows
(Billions of tons)



Source: MDS Transmodal, World Cargo Database, 12 June 2025.

Measured in distance-adjusted volumes, global seaborne trade reached 66,781 billion ton-miles in 2024, an increase of 5.9 per cent, marking the fastest pace of expansion since 2011 (figure I.1). The substantial growth in ton-miles was primarily due to extended voyage distances caused by logistical disruptions, particularly the Red Sea rerouting and, to a lesser extent, Panama Canal transit restrictions (until mid-2024). This effect was compounded by firm demand from major importing regions, such as Asia, which resulted in significant growth in the long-haul Atlantic trade and shifts in trade from the Russian Federation (Clarksons Research, 2024). These longer shipping routes resulted in greater distances travelled per unit of cargo, inflating ton-mile figures while contributing to higher transport costs, delays and greenhouse gas emissions. As such, the rise in ton-miles indicates the growing fragility and inefficiency of global supply chains, rather than a sign of robust trade expansion (UNCTAD, 2024a).

Crude oil exports came primarily from Brazil, Guyana and the United States to Asia (IEA, 2025d). United States exports of liquified natural gas (LNG), liquified petroleum gas (LPG) and ethane were also increasingly redirected towards Asia, with China and India accounting for most ethane demand (IEA, 2025b). Africa, particularly Guinea, made significant bauxite shipments to China, while coal exports from Colombia and the Russian Federation shifted towards longer-haul Asian buyers (IEA, 2024c and IEA, 2025e). At the same time, European importers increased their purchases of crude oil and refined products from the United States and the Middle East as they reduced reliance on Russian supplies (Eurostat, 2025).

This broad reorientation of trade flows, driven by both market dynamics and geopolitical shifts, led to longer voyage distances and rising ton-miles (Clarksons Research, 2025b and 2025c, July). See more on this issue in section B.

2. Policy uncertainty and continued disruption weigh on the global trade outlook in 2025 and beyond

The outlook for global seaborne trade in 2025 is increasingly complex and marked by downside risks. Continued policy volatility, geopolitical tensions (including Red Sea insecurity, the war in Ukraine, and tensions in the Middle East), and softer macroeconomic conditions are weighing on confidence and demand. As a result, both merchandise trade and maritime transport activity are projected to slow, with the outlook shifting markedly since early 2025.

The outlook remains subject to persistent uncertainty and downside risks due to subdued private consumption in some economies, a volatile global trade landscape and deteriorating investor sentiment (UNCTAD, 2025f). As of July 2025, global GDP was projected to grow by 3 per cent in 2025 (IMF, 2025b), an upward revision of 0.2 percentage points from the April 2025 forecast (IMF, 2025a).

As of 3 July 2025, global merchandise trade was projected to grow by 0.1 per cent in 2025 (WTO, 2025b). This reflects an improvement vis-à-vis an April projection of a 0.2 per cent contraction of merchandise trade in 2025 (WTO, 2025a), based on an adjusted scenario assuming that temporary measures, such as pauses on higher tariffs, remain in place past their expiration dates and that higher rates do not take effect. The introduction and subsequent suspension or modification of reciprocal tariff measures, as well as parallel trade negotiations, were central to the shifting trade outlook in 2025. A temporary surge in trade volumes in early 2025, driven by the frontloading of shipments in anticipation of tariff increases, is expected to fade in the second half of 2025 (United Nations, Department of Economic and Social Affairs, 2025a; UNCTAD, 2025e).

In a downside scenario that includes both the implementation of reciprocal tariffs and global spread of trade policy uncertainty, the contraction would deepen to 1.5 per cent, reflecting the impacts of these two factors (WTO, 2025a). The introduction of tariff measures (see chapter III and UNCTAD, 2025d) has been a pivotal factor influencing the 2025 trade outlook. These contributed significantly to the downward revision, with model-based estimates suggesting that without them, global trade could have expanded by 2.7 per cent (WTO, 2025a).

The escalation in tariff measures in early 2025 introduced renewed headwinds to global trade flows, particularly affecting small and vulnerable economies (UNCTAD, 2025d; United Nations, Department of Economic and Social Affairs, 2025a; WTO, 2025b). It could further threaten marginal gains made by least developed countries, small island developing States and landlocked developing countries. Some least developed countries, such as Cambodia, Lesotho, and Madagascar, could face some of the highest new United States tariffs, resulting in a loss of competitiveness, especially in textiles and agriculture, which could lead to a decline in vital exports and pose substantial risks to their development (UNCTAD, 2025b-g).

The global trade policy environment remains volatile and highly uncertain in the near term. The potential reintroduction of higher tariffs or the imposition of new sector-specific measures, particularly in high-tech, energy and transport-related sectors, continues to weigh on trade and investment planning (UNCTAD, 2025e and 2025f). While the temporary tariff pause has provided short-term stability, bilateral negotiations remain fragile, and the risk of renewed escalation is significant (IMF, 2025b; WTO, 2025b). Without a durable resolution, ongoing policy changes are likely to continue suppressing trade flows and delaying investment decisions well into the second half of the year.

The surge in ton-miles signals the growing fragility and inefficiency of global supply chains, rather than robust trade expansion

In this environment, maritime trade projections for 2025 have also been revised downward. In early 2025 (specifically, in February and March), global seaborne trade volumes were projected to grow by 1.4 per cent. By May 2025, they were projected to contract marginally by 0.1 per cent (Clarksons Research, 2025a, February, March and May). This notable reduction points to the increasingly complex and uncertain global trade environment.

UNCTAD forecasts that maritime trade volume will expand at an annual growth rate of 0.5 per cent in 2025, with containerized trade volume growing by 1.4 per cent. From 2026–2030, UNCTAD expects total seaborne trade to increase at an annual average of 2 per cent and containerized trade by 2.3 per cent (table I.1).

Distance-adjusted volumes (ton-miles) are projected to rise slightly in 2025, by 0.3 per cent (Clarksons Research, 2025a, July), following an exceptional surge in 2024 when Red Sea rerouting sharply increased voyage distances. That one-time spike has set a high base for comparison. Even if rerouting continues, the additional impact is expected to be minimal, as longer routes are already factored into operations. Meanwhile, a market recalibration is underway. Fleet capacity is outpacing demand in key segments, such as containers and product tankers, while macroeconomic conditions remain subdued, and trade patterns are shifting (including shorter LNG hauls and reduced demand from China). As a result, ton-mile growth is expected to slow across most shipping segments. A return to shorter trade routes later in the year – should rerouting unwind – would further reduce distance-adjusted demand while easing transport costs and emissions (Clarksons Research, 2025b and 2025c, July).

Several downside factors continue to weigh on maritime trade performance in 2025. Persistent trade policy uncertainty remains a key risk, alongside subdued industrial activity in major economies and weak Chinese demand for bulk commodities (UNCTAD, 2025e). Tighter global financial conditions and limited investment in trade-intensive sectors further constrain growth.

At the same time, some developments could support a marginal recovery. Trade diversion effects and new preferential trade agreements may offer opportunities for select developing countries (WTO 2025a and 2025b; UNCTAD, 2025b). These dynamics underscore the complexity of the current environment, where cyclical and structural forces are pulling in different directions, making the path to recovery uneven and fragile.

Table I.1
UNCTAD forecasts for international maritime trade
(Annual percentage change)

	Total seaborne trade in tons	Containerized trade in TEU
2025	0.5	1.4
2026	1.0	1.0
2027	2.2	2.5
2028	2.3	2.7
2029	2.2	2.7
2030	2.3	2.7

Sources: UNCTAD calculations based on Clarksons Research, 2025a, July; IMF, 2025b and UNCTAD World Seaborne Trade data.

Notes: Projections are derived from estimated seaborne trade elasticities relative to world gross domestic product (GDP), export volumes and investment-to-GDP ratio, and are informed by monthly seaborne trade data and annual global output forecasts. The forecast incorporates projected world gross domestic product and trade growth, as published in the July 2025 World Economic Outlook of the International Monetary Fund (IMF).

B. Maritime trade flows: Sector-specific developments

While reflecting the overall trends identified in section A, maritime trade flows in 2024 were also shaped by sector-specific dynamics. These developments have had uneven impacts on demand for maritime transport services, with some sectors experiencing sharp rebounds and others facing persistent headwinds (table I.2). The following analysis delves into the performance of containerized trade and the seaborne trade of energy commodities.

Table I.2
Mixed performance in international seaborne trade, 2024

Ranking	Growth in tons (percentage)	Growth in ton-miles (percentage)	Driving factors for selected commodities/sectors (iron ore, steel, forest products, chemicals and grain only)
Best-performing commodities/ sectors (top five)	1. LPG (+7.6) 2. Containers (+6.2) 3. Steel products (+5.2) 4. Iron ore (+3.5) 5. Coal (+3.3)	1. Containers (+17.6) 2. LPG (+11.2) 3. LNG (+12.2) 4. Oil products (+6.5) 5. Iron ore (+6.4)	☑ **Tons**: Surging Chinese steel products exports (steel). Solid Chinese steel production and healthy industrial activity (iron ore). ☑ **Ton-miles**: Increased supply and exports from Australia and particularly Brazil, supporting long-haul imports from China (iron ore).
Least-performing or declining commodities/ sectors (bottom five)	1. Crude oil (-1.5) 2. Oil products (-0.7) 3. LNG (+1.1) 4. Chemicals (+1.1) 5. Grain (+1.8)	1. Forest products (-1.6) 2. Grains (-0.7) 3. Crude oil (+1.6) 4. Chemicals (+3.6) 5. Steel products (+5)	**Tons and ton-miles** ☒ Lower Chinese imports due to the expansion of domestic petrochemical production capacity and limited European industrial activity (chemicals). ☒ Sharp decline in Brazilian exports, softer Chinese demand due to stockpiling and impacts of reciprocal tariffs by China on United States (grain).

Sources: UNCTAD calculations, based on Clarksons Research 2025a, July (first and second column), with container figure representing trade growth measured in TEUs, and Clarksons Research 2024, 2025a, 2025b and 2025d, March, May and June (last column).

1. Strong 2024 rebound in containerized trade

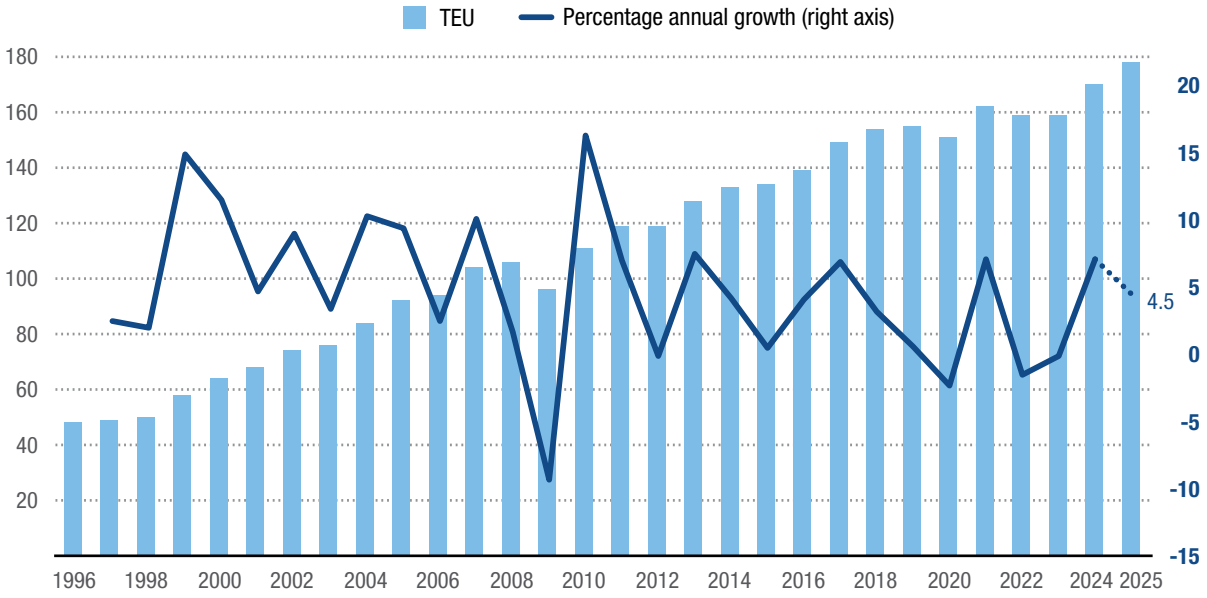
Robust volume growth and a surge in 20-foot equivalent unit (TEU)-miles in 2024; a cautious outlook for 2025

Global containerized trade volumes experienced firm growth in 2024, with volumes increasing more than 6 per cent (figure I.3), the second highest rate among all cargo types (see table I.2). Growth was driven by sustained consumer demand, particularly in the United States, and expanded flows to developing regions, especially those linking East Asia with Latin America and the Caribbean, the Indian subcontinent and Africa.

In 2024, all major East–West trade routes recorded solid growth. Trans-Pacific eastbound flows (linking East Asia and North America), East Asia–Europe westbound trade (connecting East Asia with Northern Europe and the Mediterranean) and transatlantic volumes (between Europe and North America) each registered notable year-on-year increases – up 14.7 per cent, 10.2 per cent and 5.2 per cent, respectively (table I.3).

Containerized distance-adjusted volumes also increased sharply in 2024, outpacing volume growth (figure I.4). A sharp rise in TEU-miles primarily stemmed from the continued rerouting of vessels away from the Red Sea, particularly on the East Asia–Europe trade route. The detour around the Cape of Good Hope added approximately 30 per cent to voyage lengths, contributing to an estimated 11 per cent increase in overall container TEU-mile demand (Clarksons Research, 2025b).

Figure I.3
The growth of global containerized trade volumes
(Millions of TEU and percentage annual change)



Source: MDS Transmodal, World Cargo Database, 12 June 2025.

Note: Figures for 2025 are trend-based projections, including trade data for Q1 2025.

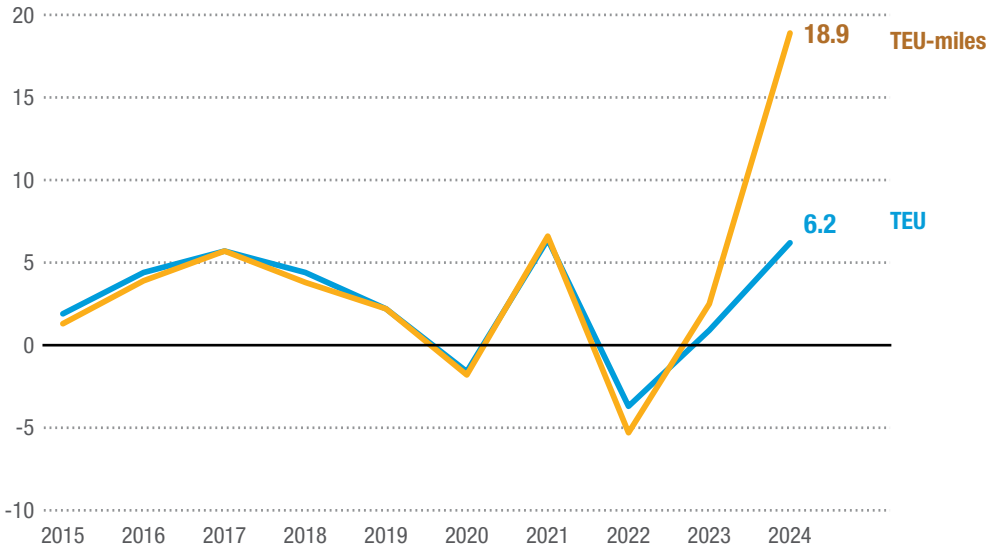
Table I.3
Containerized trade on major East–West trade routes

	Trans–Pacific			Asia–Europe			Transatlantic		
	Eastbound East Asia–North America	**Westbound** North America–East Asia	**Total**	**Eastbound** Northern Europe and Mediterranean to East Asia	**Westbound** East Asia to Northern Europe and Mediterranean	**Total**	**Eastbound** North America to Northern Europe and Mediterranean	**Westbound** Northern Europe and Mediterranean to North America	**Total**
	TEU (millions)								
2018	20.1	8.1	**28.2**	8.2	15.6	**23.8**	3.3	5.0	**8.3**
2019	19.5	7.6	**27.1**	8.4	16.1	**24.5**	3.2	5.2	**8.3**
2020	20.0	7.4	**27.4**	8.2	15.9	**24.1**	2.7	5.0	**7.7**
2021	23.8	6.4	**30.2**	7.8	17.0	**24.8**	2.7	5.6	**8.4**
2022	22.6	6.0	**28.6**	6.7	16.4	**23.1**	2.6	5.5	**8.1**
2023	20.8	6.2	**27.0**	6.6	16.6	**23.2**	2.5	4.9	**7.5**
2024	23.8	6.4	**30.2**	6.3	18.3	**24.7**	2.6	5.2	**7.8**
2025	24.2	6.2	**30.4**	6.4	19.8	**26.2**	2.8	5.4	**8.2**
	Annual change (percentage)								
2018–2019	-3.1%	-6.8%	**-4.2%**	2.9%	2.9%	**2.9%**	-4.3%	3.2%	**0.2%**
2019–2020	2.7%	-2.5%	**1.3%**	-2.4%	-1.1%	**-1.6%**	-14.8%	-2.4%	**-7.1%**
2020–2021	19.0%	-13.1%	**10.4%**	-5.5%	7.2%	**2.8%**	1.1%	12.3%	**8.4%**
2021–2022	-5.2%	-6.5%	**-5.5%**	-13.3%	-3.7%	**-6.7%**	-4.3%	-1.9%	**-2.7%**
2022–2023	-8.1%	3.6%	**-5.6%**	-2.4%	1.4%	**0.3%**	-2.4%	-11.0%	**-8.3%**
2023–2024	14.7%	2.5%	**11.9%**	-3.7%	10.2%	**6.3%**	3.6%	6.0%	**5.2%**
2024–2025	1.7%	-2.6%	**0.8%**	0.9%	7.9%	**6.1%**	8.5%	3.1%	**4.9%**

Source: UNCTAD calculations, based on MDS Transmodal, World Cargo Database, 12 June 2025.

As of 8 July 2025, UNCTAD projected global TEU volume growth for 2025 to be around 1.4 per cent (table I.1). Global TEU-mile growth is forecast to range between -0.4 and 2.4 per cent (Clarksons Research, 2025g and 2025h, May and June). TEU-mile growth, however, remains highly contingent on geopolitical developments. The base case assumes continued Red Sea rerouting of container vessels throughout 2025, sustaining the 11 per cent increase in average voyage distances. If rerouting begins to unwind later in the year, TEU-mile growth could slow further. While a return to shorter trade routes would ease transport costs and emissions, it would also reduce distance-adjusted demand. Added uncertainty around trade policy and a potential normalization of Suez Canal transits could further dampen growth prospects.

Figure I.4
Containerized trade growth by volume and distance-adjusted metrics
(Annual percentage change)



Source: UNCTAD calculations, based on Clarksons Research, 2025g.

Early 2025 momentum in trans-Pacific trade: Seasonal and policy-driven spikes

Containerized shipping on the trans-Pacific trade lane underwent three distinct phases of volatility in early 2025, shaped by seasonal and policy-driven dynamics:

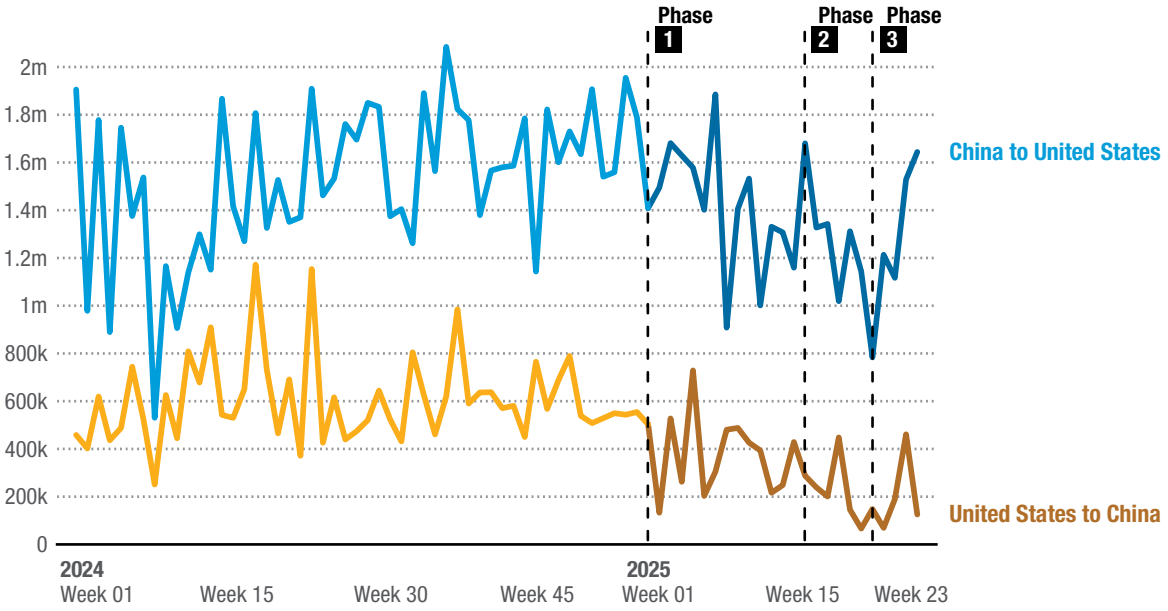
1. During the first quarter, shippers frontloaded cargo to avoid disruptions from the Chinese Lunar New Year and anticipated tariff increases. This drove a 10 per cent year-on-year increase in China–United States trade (Clarksons Research, 2025i).
2. In April and early May, as United States tariffs for Chinese imports rose to 145 per cent, volumes plummeted, prompting carriers to reduce capacity, which slashed weekly bookings by 60 per cent (Clarksons Research, 2025h, June).
3. A third phase began in mid-May with a 90-day China–United States tariff pause (lowering rates to 30 per cent), triggering a surge in bookings (more than doubling previous levels), although momentum has since begun to ease (Clarksons Research, 2025h, June).

Estimated cargo volumes loaded on vessels departing China closely mirror the three-phase pattern described above. In the first phase (Q1), weekly eastbound volumes rose steadily, peaking just before the Lunar New Year. In the second phase (April to mid-May), shipments dropped sharply, with eastbound volumes falling over 30 per cent below 2024 levels. In phase three (from mid-May), the temporary tariff pause spurred a marked rebound in eastbound flows. As shown in figure I.4, despite this late surge, cumulative volumes from January to 1 June 2025 (weeks 1–22) remained below 2024 levels, confirming a trade contraction.

Westbound flows (United States–China) showed no comparable recovery. Between 13 May and 1 June, volumes totalled just 916,000 tons, down from 1.93 million tons in 2024, highlighting a more than 50 per cent year-on-year decline.[1] Figure I.5 underscores the asymmetric effects of the tariff and the heightened sensitivity of trans-Pacific trade to policy shifts.

[1] Data provided by Marine Benchmark.

Figure I.5
Estimated Direct container vessel cargo volumes in China–United States trade
(Tons)



Source: Marine Benchmark (data for the period from 9 December 2024 to 1 June 2025).

Note: Marine Benchmark's methodology uses the draft for each vessel's voyage as a proxy to calculate the amount of cargo onboard.

Evolving trade geography

Growth in containerized trade in 2024 was observed across all major trade lanes, with the main East–West corridors – East Asia to North America, East Asia to Europe, and Europe to North America – recording the strongest expansion, at 8.8 per cent (table I.4). These routes remain the backbone of global container flows (figure I.5), confirming that the bulk of volume continues to move along the primary East–West trade corridors.

The geography of trade flows is evolving, however, with the share of non-mainlane flows rising. Among non-mainlane routes, South–South trade was the most dynamic in 2024, expanding by 8.7 per cent on the back of deepening links between East Asia and Latin America and between Africa and East Asia (Clarksons Research, 2025b and 2025h, June). Non-mainlane East–West flows increased by 5.7 per cent, supported by expanding trade between East Asia and the Indian subcontinent (table I.4).

The configuration of global supply chains is shifting as companies diversify sourcing and manufacturing locations in response to factors such as geopolitical tensions and supply chain disruptions. The growing emphasis on resilience in trade and supply chain strategies reflects not only the need to manage operational disruptions but also to navigate increasing trade policy uncertainty, which has become a key dimension of global risk exposure. As a result, there is a gradual move away from highly centralized, single-source models towards more distributed, multi-origin networks (OECD, 2025).

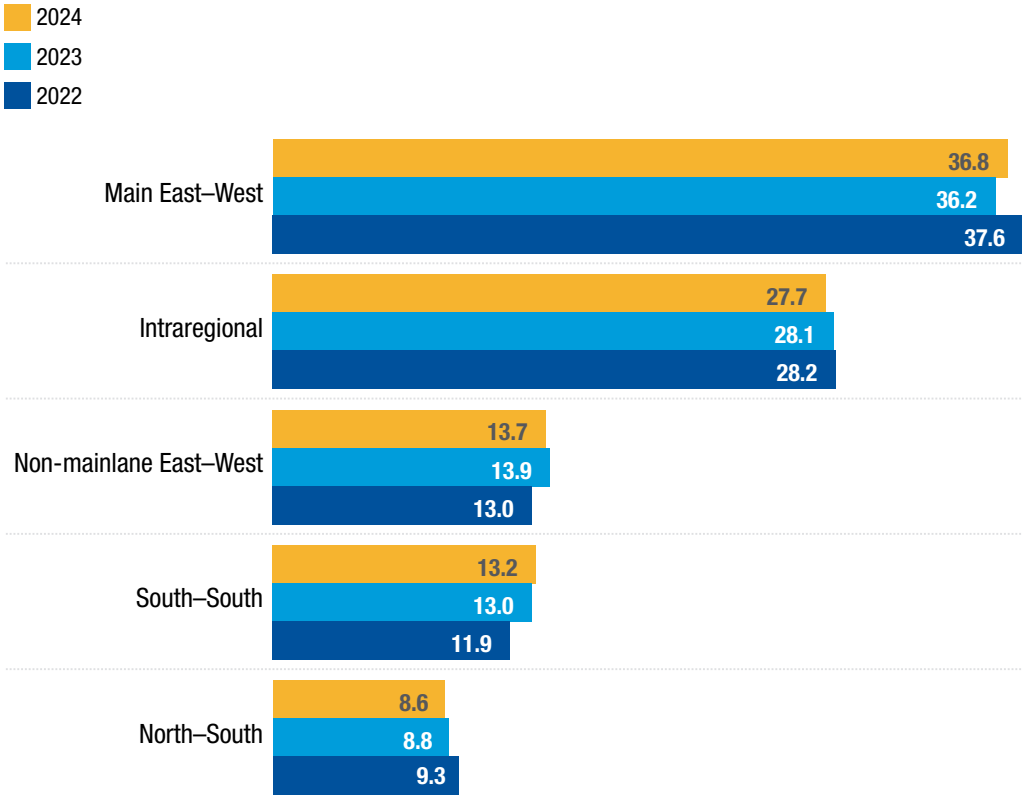
Table I.4
Containerized trade along mainlane and non-mainlane routes

	2018	2019	2020	2021	2022	2023	2024	2025 *(Forecast)*
TEU								
Main East–West routes	**60 323 986**	**59 850 921**	**59 214 191**	**63 388 805**	**59 837 420**	**57 640 638**	**62 687 591**	**64 831 893**
Other (non-mainlane) routes	**93 445 719**	**94 776 380**	**91 805 618**	**98 284 114**	**99 471 661**	**101 574 018**	**107 779 585**	**113 276 982**
Non-mainlane East–West	19 633 455	20 240 830	18 863 558	20 299 135	20 774 193	22 127 990	23 387 285	24 852 157
North–South	14 220 855	14 213 710	14 024 162	15 122 756	14 839 424	13 975 619	14 603 393	15 299 800
South–South	17 209 806	18 070 246	17 753 143	19 136 053	18 935 081	20 751 655	22 564 187	24 088 812
Intraregional	42 381 604	42 251 594	41 164 755	43 726 170	44 922 963	44 718 755	47 224 719	49 036 213
World total	**153 769 705**	**154 627 301**	**151 019 809**	**161 672 919**	**159 309 081**	**159 214 656**	**170 467 176**	**178 108 875**
Percentage change								
Main East–West routes	**4.9**	**-0.8**	**-1.1**	**7.1**	**-5.6**	**-3.7**	**8.8**	**3.4**
Other (non-mainlane) routes	**2.1**	**1.4**	**-3.1**	**7.1**	**1.2**	**2.1**	**6.1**	**5.1**
Non-mainlane East–West	-0.5	3.1	-6.8	7.6	2.3	6.5	5.7	6.3
North–South	3.1	-0.1	-1.3	7.8	-1.9	-5.8	4.5	4.8
South–South	2.4	5.0	-1.8	7.8	-1.1	9.6	8.7	6.8
Intraregional	2.9	-0.3	-2.6	6.2	2.7	-0.5	5.6	3.8

Source: MDS Transmodal, World Cargo Database, 12 June 2025.

Notes: Non-mainlane East–West trade involves East Asia, Europe, North America and Western Asia and the Indian subcontinent. North–South trade involves Europe, Latin America, North America, Oceania and sub-Saharan Africa. South–South trade involves East Asia, Latin America, Oceania, sub-Saharan Africa and Western Asia.

Figure I.6
Market shares of global containerized trade by route, 2024
(Percentage)



Source: MDS Transmodal, World Cargo Database, 12 June 2025.

Notes: Non-mainlane East–West trade involves East Asia, Europe, North America and Western Asia and the Indian subcontinent. North–South: trade involves Europe, Latin America, North America, Oceania and sub-Saharan Africa. South–South trade involves East Asia, Latin America, Oceania, sub-Saharan Africa and Western Asia.

East Asia, particularly China, remains a pivotal anchor in the global trade network, despite notable growth in exports from South-East Asia (Indonesia, Thailand, Viet Nam), South Asia (Bangladesh, India) and Mexico (ARC Group, 2024a and 2024b; Karaman and NNT, 2025; The Economic Times, 2024; Mexico News Daily, 2025).

2. Diverging energy trade dynamics: Short-term volatility, long-term transformation[2]

This section examines the short-term developments that impacted the seaborne trade of energy products in 2024, distinguishing between structural and temporary trends. It then presents an outlook for 2025.

[2] All figures cited in this section are based on Clarksons Research, 2025a, July.

Energy trade in 2024: Diverging trends across commodities

Following subdued growth in 2023, energy-related seaborne trade posted a mixed performance in 2024 (figure I.7). Crude oil shipments declined by 1.5 per cent in volume terms, reflecting the ongoing reorientation of global demand, attributed to production cuts by the Organization of the Petroleum Exporting Countries and its allies (OPEC+) and softer Chinese oil demand (Clarksons Research, 2025b). Ton-miles grew by 1.6 per cent, however, supported by longer trade distances linked to structural and geopolitical shifts, including persistent disruptions in the Red Sea and increased flows from Russian Federation to Asia. Refined petroleum products recorded a marginal drop in volume (-0.7 per cent), yet ton-miles expanded by a firm 6.5 per cent, underpinned by a significant rerouting of cargo away from the Red Sea (Clarksons Research, 2024).

Coal volumes increased by 3.3 per cent (figure I.8), reaching the highest number of tons since 1980. This was due to industrial stockpiling and strong demand from Asia, particularly China and India. An accompanying 5.9 per cent rise in ton-miles indicated longer routes, notably from Colombia and the United States to Asia (Clarksons Research, 2024).

The gas trade continued to grow, with LNG volumes rising by 1.1 per cent (figure I.8), albeit with less dynamic performance than in previous years.

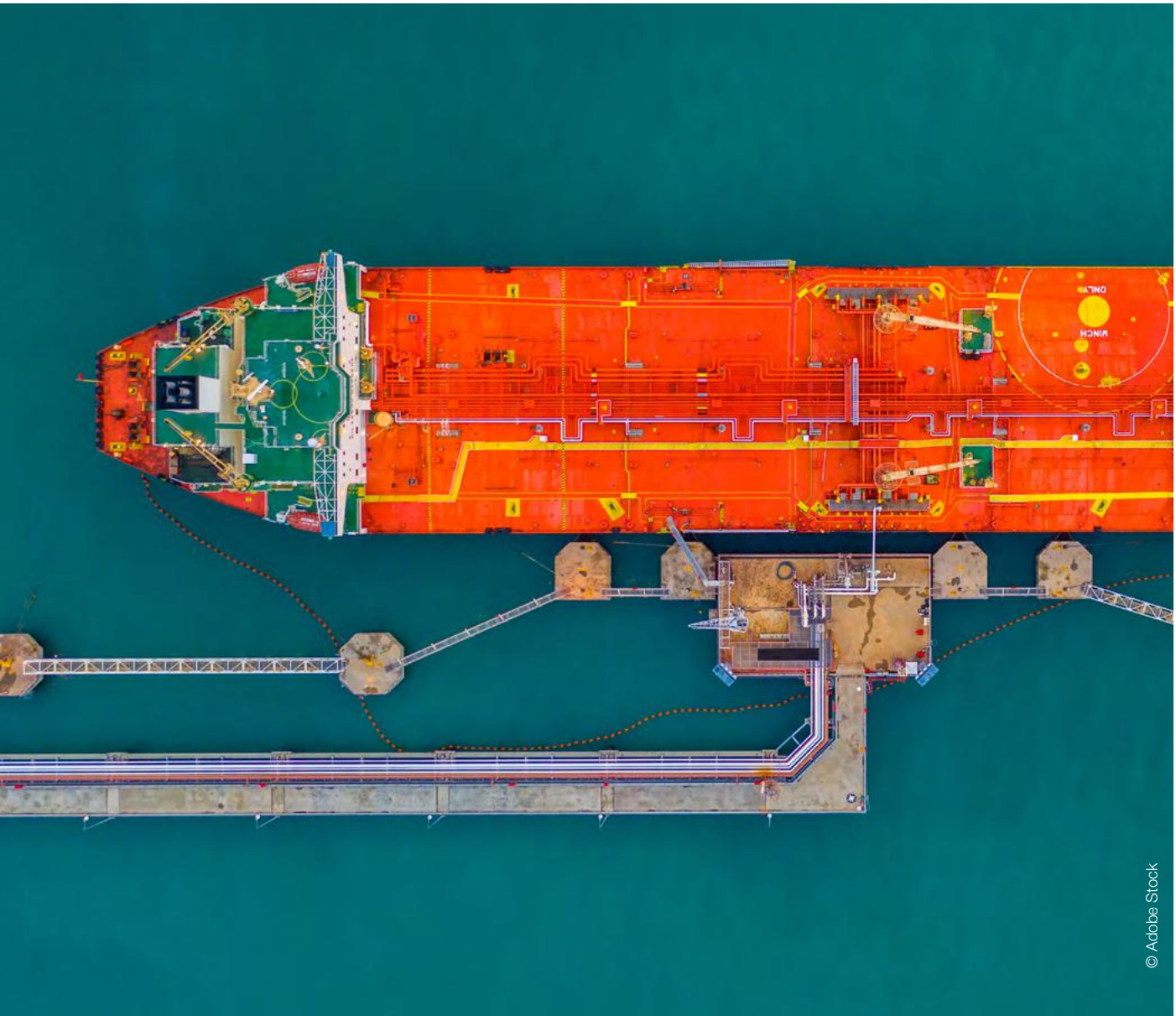
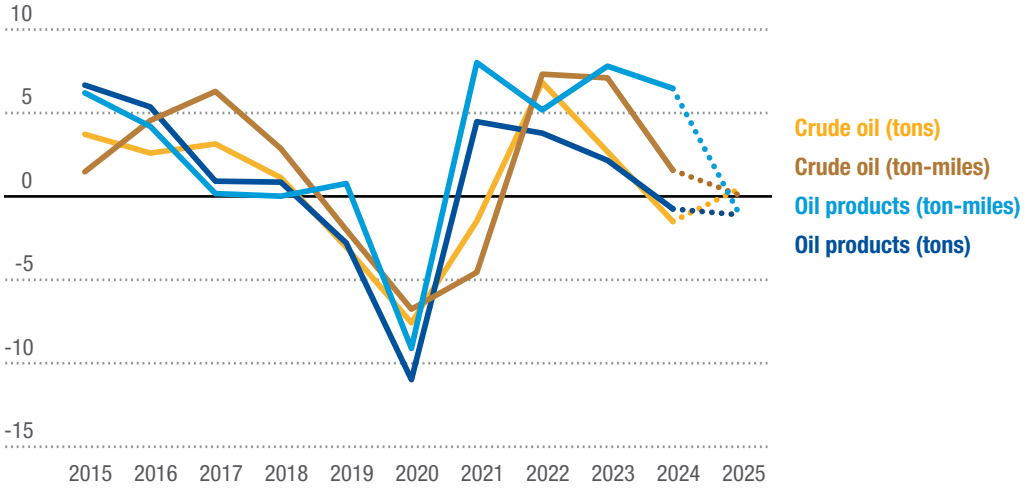


Figure I.7
Seaborne trade of oil and oil products
(Annual percentage change)

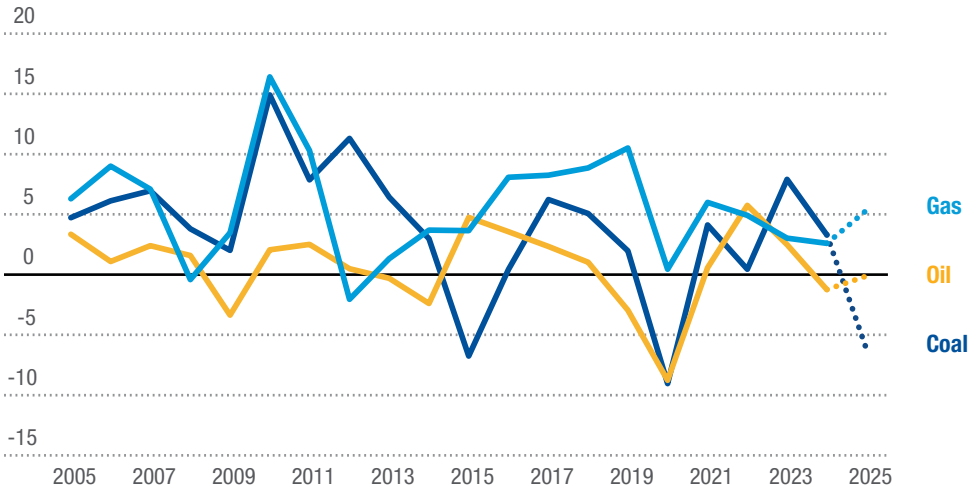


Source: UNCTAD calculations, based on Clarksons Research, 2025a, July.

Note: Figures for 2025 are forecasts.

This was due to a pause in new liquefaction capacity, infrastructure delays and a mild winter in Europe at the start of 2024 (Clarksons Research, 2024 and 2025b). In contrast, trade growth in ton-miles reached 12.2 per cent, reflecting expanded flows from Africa and the United States to Asia and Europe. LPG also saw strong gains, with volumes up 7.6 per cent and ton-miles rising 11.2 per cent, driven by robust United States and Middle East export growth, as well as strong demand, particularly in China and India (Clarksons Research, 2024 and 2025b).

Figure I.8
Seaborne trade of coal, LPG and LNG
(Annual percentage change in tons)



Source: UNCTAD calculations, based on Clarksons Research, 2025a, July.

Note: Figures for 2025 are forecasts.

Shifting energy trade
Volatility today, transformation ahead

Short-term rerouting drives 2024 surge

Extended voyage distances inflated ton-mile demand, especially for oil, gas, and refined products.

Structural shifts reshape energy flows

LNG expanded with new export capacity and Asia's growing demand, while sanctions redirected Russian oil and gas.

Fragile outlook for 2025

Seaborne trade expected to soften, with weak industrial activity and subdued volumes across key commodities.

Persistent disruption ahead

Red Sea insecurity and geopolitical factors likely to extend into 2026, reinforcing fragility in trade patterns.

Explaining 2024 trends: Short-term disruptions and structural shifts

Trends in 2024 reflected the interplay of temporary disruptions and longer-term structural realignments. On the short-term side, insecurity in the Red Sea and congestion at the Panama Canal led to widespread vessel rerouting, thereby inflating ton-mile demand, particularly for oil and gas products. Sanctions associated with the war in Ukraine contributed to the redistribution of Russian flows of crude oil, oil products and gas. This led to the replacement of flows to Europe with longer-haul sources, such as the United States and the Middle East, while Asia absorbed a growing share of Russian exports (IEA, 2024a; Clarksons Research, 2025e, April).

In parallel, structural changes continued to shape the underlying energy trade. LNG flows benefited from new export capacity in Africa and North America as well as growing demand in Asia. Recovering petrochemical demand, spearheaded by China, bolstered LPG growth (Clarksons Research, 2024).

Coal's temporary rebound in 2024 contrasted with its longer-term decline (box I.1), although rising flows from distant producers to Asia temporarily increased both volumes and distances. These developments occurred against a backdrop of persistent macroeconomic uncertainty, fluctuating energy prices and ongoing efforts to diversify energy supply sources.

Outlook for 2025: Softening volumes, fragile growth in ton-miles

Looking to 2025, energy seaborne trade is expected to grow at a slower pace, with volumes constrained by weak industrial activity and fragile demand conditions. Crude oil volumes are projected to increase by just 0.4 per cent, while oil products are set to decline by 1.1 per cent. LNG volumes are expected to rise by 5.8 per cent, supported by the gradual ramp-up of new liquefaction capacity.

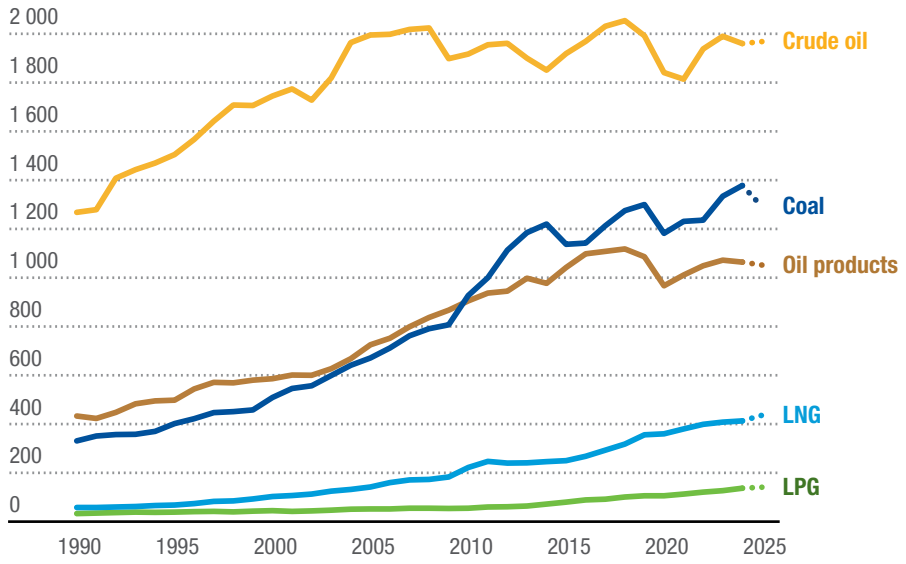
Growth in distance-adjusted trade is projected to moderate. Crude oil ton-miles are expected to rise slightly (0.1 per cent), while product ton-miles are projected to decline slightly (-0.9 per cent). LNG ton-mile growth is estimated at 1.2 per cent. These projections reflect a continuation of Red Sea disruptions through 2026 and the expected impact of trade policy changes, alongside continued geopolitical factors. Compared to 2024, when rerouting led to a marked increase in voyage distances, ton-mile estimates for 2025 reflect a more stable distance pattern across key shipping segments.

While short-term volatility is expected to persist, structural forces such as evolving trade networks, diversified energy partners and infrastructure expansions will continue to influence trade patterns. These shorter-term dynamics are unfolding within the context of longer-term shifts in energy trade flows, as explored in box I.1.

Box I.1
Long-term trends in the seaborne trade of energy commodities

Since 1990, crude oil has remained the dominant energy commodity in seaborne trade, although its growth in volume terms has plateaued since 2010. Coal volumes have increased steadily, overtaking oil products in the early 2010s. Oil products have expanded moderately with periodic fluctuations. The LNG trade has grown significantly, more than tripling since 1990, while LPG volumes have also risen. As of 2024, all five energy commodities cited in box figure I.1.1 recorded higher volumes than in 1990: Coal and oil products more than doubled, crude oil rose by approximately 40 per cent, LNG quadrupled and LPG nearly tripled.

Box figure I.1.1
Seaborne trade by energy commodity
(Volume in millions of tons)

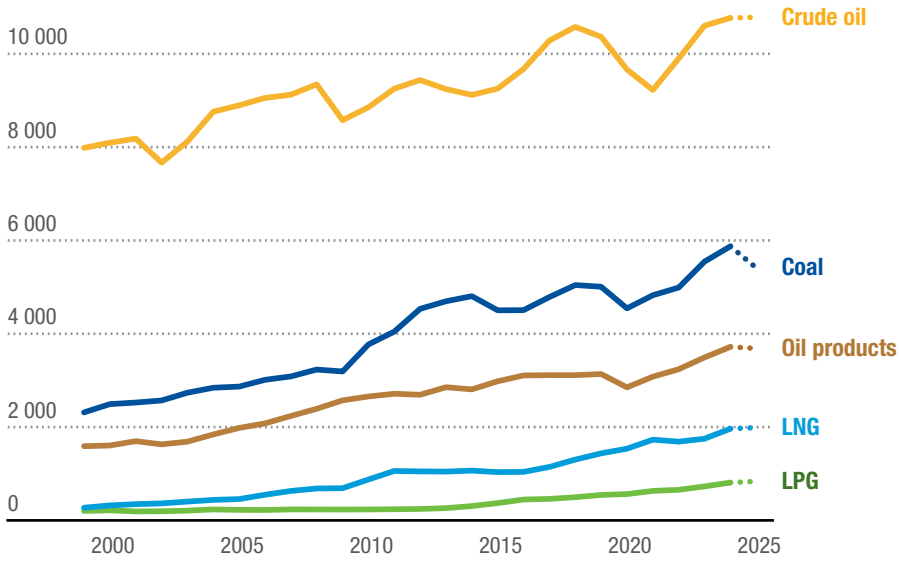


Source: UNCTAD calculations, based on Clarksons Research, 2025a, July.

Note: Figures for 2025 are forecasts.

When measured in ton-miles, crude oil has retained its lead, increasing from around 8 trillion in 1999 to over 10 trillion by 2024. Coal and oil products more than doubled over the same period. LNG experienced the sharpest growth, rising nearly tenfold, while LPG ton-miles increased more than fivefold (box figure I.1.2). These trends suggest not only rising volumes but also longer average transport distances for many energy commodities.

Box figure I.1.2
Seaborne trade by energy commodity
(Billions of ton-miles)



Source: UNCTAD calculations, based on Clarksons Research, 2025a, July.

Note: Figures for 2025 are forecasts.

Between 1990 and 2025, the seaborne energy trade underwent notable shifts in both physical volume and distance-adjusted terms. Crude oil volumes stabilized after 2010, but ton-mile growth was driven by longer trade routes linked to evolving refining hubs and demand in Asia, particularly in China and India. Coal and oil products grew steadily in volume and ton-miles, supported by persistent demand and broader trade linkages, especially across Asia. The most dynamic changes were observed in gas: The nearly tenfold surge in LNG ton-miles and fivefold rise in LPG reflected mounting demand in China, Japan and the Republic of Korea, and the rise of new suppliers in Africa (e.g., Mozambique, Nigeria) and North America (United States). These trends point to a more diverse and geographically dispersed energy trade, with gas gaining prominence and trade networks expanding in scope and complexity.

Such developments highlight a tension between short-term energy demand, especially for fossil fuels and long-term climate goals, as current seaborne trade appears at odds with global commitments to reduce greenhouse gas emissions.

Sources: Clarksons Research, 2025a, July; IEA, 2024a, 2025b and 2025c.

Note: Oil products refer to products derived from the processing of crude oil in oil refineries, which are typically transported on product tankers. These encompass naphtha, gasoline, jet fuel, middle distillates (diesel), fuel oil and vacuum gas oils. They do not include gases, lube oils and heavier products such as asphalt and paraffin wax.

C. Critical minerals reshaping maritime trade patterns

Critical energy transition minerals are essential for developing and deploying clean energy technologies and enabling the global shift to renewable energy. They are key to realizing Sustainable Development Goal 7 (affordable and clean energy) and vital to technologies such as batteries, wind turbines and solar panels. Commonly identified critical minerals include copper, lithium, cobalt, nickel, graphite, manganese and rare earth elements (UNCTAD, 2023b; IEA, 2024b; United Nations, Department of Economic and Social Affairs, 2025a and 2025b). UNCTAD published a comprehensive list of critical minerals in June 2025 (UNCTAD, 2025c).[3]

Most of these minerals, whether in raw or processed form, are shipped across the oceans from geographically concentrated producers to a broader base of industrial consumers. Seaborne trade thus serves as the backbone of mineral value chains, connecting resource-rich economies with global refining hubs and end users. The UNCTAD list of critical minerals (UNCTAD, 2025c) accounted for 31 per cent of global shipping volumes in 2023 (UNCTADStat, 2025).

Critical minerals such as iron ore, copper and zinc are transported primarily via bulk carriers in large, unpackaged volumes, a cost-effective, high-capacity model for long-distance shipments (UNCTAD, 2022). Processed minerals, high-value cargo and materials requiring enhanced security or traceability – such as lithium compounds – are increasingly shipped in containers (CSA Group, 2018). For hazardous or regulated materials, including rare earths, containerization allows specialized packaging and secure handling, in line with tighter supply chain requirements (International Safe Containerised Cargo Organisation, 2025).

This section explores how evolving trade patterns reflect the growing strategic importance of critical minerals, with a particular focus on copper and cobalt. It begins by examining how rising global demand is affecting maritime trade volumes and altering the composition of mineral flows. It then highlights how a small number of trade routes and processing hubs have become central to the movement of critical minerals. This is making the sector a focal point of geopolitical dynamics (IEA, 2025a) and propelling divergent policy responses on the import and export sides. The final part of the section considers the role of maritime logistics in enabling developing countries to seize opportunities in this rapidly evolving landscape, identifying key infrastructure, regulatory and coordination challenges that must be addressed.

A small number of trade routes and processing hubs now dominate critical mineral flows, **intensifying geopolitical and logistics challenges**

1. Drivers of trade expansion and growing strategic importance

The global energy transition and widespread adoption of clean energy technologies will primarily push the expansion of trade in critical minerals in the coming years. As countries accelerate the shift to low-carbon energy systems, trade in minerals such as lithium, copper, cobalt and graphite is growing rapidly.

[3] UNCTAD's list contains 60 critical raw and semi-processed minerals, mapped to 499 six-digit HS codes to support trade analysis. These minerals are categorized based on their relevance to the energy transition: (1) required (27 minerals) or essential for energy transition technologies — e.g., cobalt, copper, lithium, rare earth elements; (2) relevant (10 minerals) or indirectly important — e.g., iron ore and steel, palladium, zirconium and (3) other critical minerals (23 minerals) or broader strategic minerals — e.g., gold, gypsum, lead, silver. A full list is available at https://sdgpulse.unctad.org/critical-minerals/#annex2.

Mounting demand for clean energy technologies is driving unprecedented growth in maritime trade of critical minerals

The importance of critical minerals extends significantly beyond their vital role in climate action and the global energy transition, encompassing other strategic sectors such as semiconductors, digital technologies, aerospace and defence. Minerals are increasingly recognized as strategic inputs across both energy and broader industrial value chains (UN Secretary-General's Panel on Critical Energy Transition Minerals, 2024; United Nations, Department of Economic and Social Affairs, 2025b).

Mounting demand linked to clean energy technologies, industrial development and evolving supply chains is visible in long-term seaborne trade data. Figure I.9 visualizes critical minerals shipments experiencing strong long-term growth between 1994 and 2025[4] (nickel ore, 1,222.5 per cent; manganese ore, 711.2 per cent; copper concentrates, 634.2 per cent; and bauxite, 589.6 per cent). Seaborne trade in nickel ore experienced the most pronounced expansion, particularly after 2010.

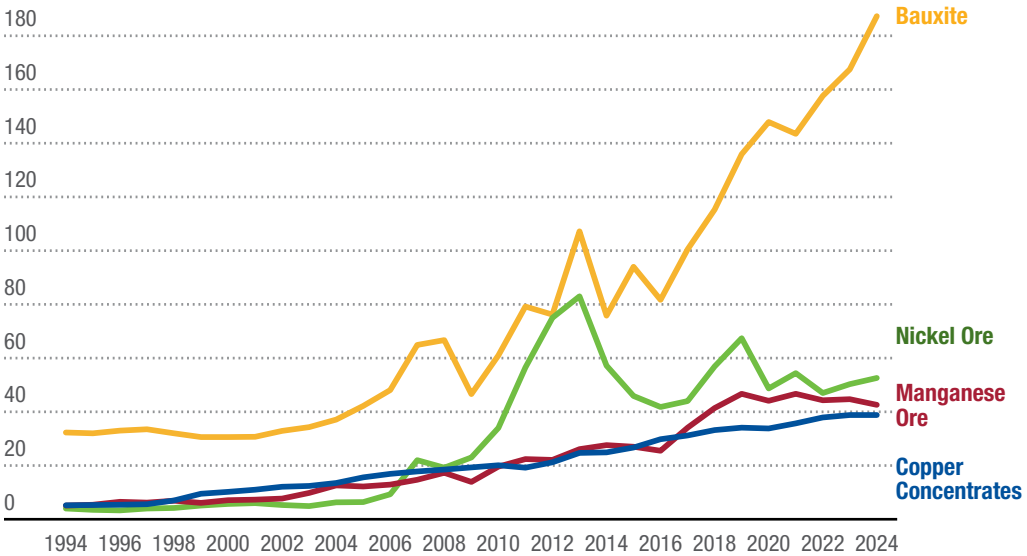
Manganese ore saw multiple surges, notably in 1996, 2003–2004, 2007–2008 and 2017–2019. Copper concentrates grew steadily, with notable accelerations in 1998–1999, 2005 and 2012–2013. Bauxite trade began rising more sharply from 2015 onward.

Demand for energy transition minerals is expected to nearly triple by 2030 and more than quadruple by 2040, with particularly steep growth anticipated in 2025–2035 (IEA, 2024b; UNCTAD, 2024b). For developing nations rich in critical mineral resources, skyrocketing demand creates a significant opportunity for increased export earnings, economic growth, poverty reduction and sustainable development.

2. Global seaborne trade trends: Insights from cobalt and copper

To better understand maritime trade trends in critical minerals, the following case study focuses on a selected set of Harmonized

Figure I.9
World seaborne trade of selected critical minerals
(Millions of tons)



Source: Clarksons Research, 2025j.

Note: Figures for 2025 are forecasts.

[4] Chosen based on the fastest growth rates throughout the period for which the Clarksons Research time series provides critical mineral seaborne trade data.

System (HS) codes representing two essential inputs for the energy transition: cobalt and copper.[5] The codes were selected based on three distinct stages of the mineral value chain (raw materials, semi-processed products and manufactured goods) using the Standard International Trade Classification (SITC). By applying this classification to disaggregated seaborne trade data, the case study tracks how maritime export flows of cobalt and copper have evolved over time and across processing stages, offering insights into emerging trade patterns, dependencies and value chain positioning. In this analysis, commodity data have been aggregated by stage, as detailed in table I.5.

Different patterns across critical minerals and stages of the value chain

Although seaborne trade volumes of both copper and cobalt have increased over the past two decades, reflecting sustained global demand, patterns vary at different stages of the mineral value chain. Raw copper (primarily in the form of concentrates) has long dominated global seaborne trade and continues to account for the largest share of maritime shipments (figure I.10). This trend reflects the structure of the global copper industry, where many producing countries focus on extraction while downstream processing takes place elsewhere. There has been sustained growth in semi-processed copper (e.g., cathodes, anodes and rods), showing gradual advances in midstream refining and smelting capacity in producing countries. Manufactured copper represents the smallest share of maritime volumes. Its trade has remained stable over time.

Over time, the copper trade has become more stratified. While raw copper still flows primarily from major producers such as Chile, Indonesia and Peru (UNCTAD, 2025h), semi-processed exports are led by countries including Chile, China, the Democratic Republic of the Congo, Japan and the Russian Federation (International Copper Study Group, 2020). This points to an evolving midstream capacity among industrialized and mineral-rich economies. Manufactured copper flows are more dispersed, with trade occurring among a broader set of economies, including Australia, Chile, China, Taiwan Province of China, Germany, India, Norway, Peru, the United States and Viet Nam.

Copper and cobalt seaborne trade:

Raw minerals still dominate seaborne trade, but semi-processed and manufactured flows reveal evolving trade patterns

Table I.5
Harmonized System codes for cobalt and copper, classified by mineral value chain stage

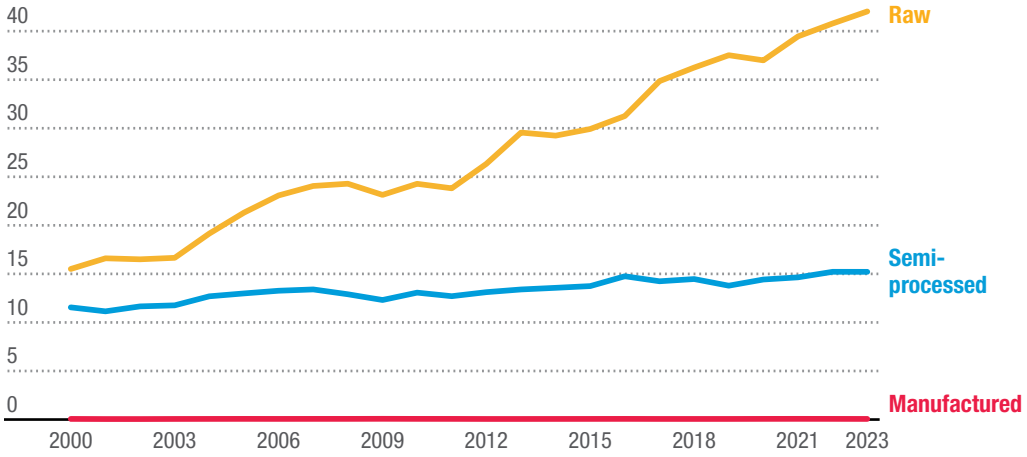
Stage of mineral value chain	Cobalt	Copper
Raw	260500	260300, 262030, 740100, 740100, 740400
Semi-processed	810520, 810530	740200, 740311, 740312, 740313, 740319, 740321, 740322, 740329, 740610, 740620, 740710, 740721, 740729, 740811, 740819, 740821, 740822, 740829, 740911, 740919, 740921, 740929, 740931, 740939, 740940, 740990, 741011, 741012, 741021, 741022, 741110, 741121, 741122, 741129, 741210, 741220, 740500
Manufactures	282200, 810590	282550, 282741

Source: UNCTAD.

Note: Codes correspond to the 2022 edition of the Harmonized System (HS2022).

[5] This case study uses data from the new UNCTAD Seaborne Trade data set (UNCTADstat, 2025; UNCTAD, 2025a) and the 2025 UNCTAD list identifying and categorizing critical minerals (UNCTAD, 2025c).

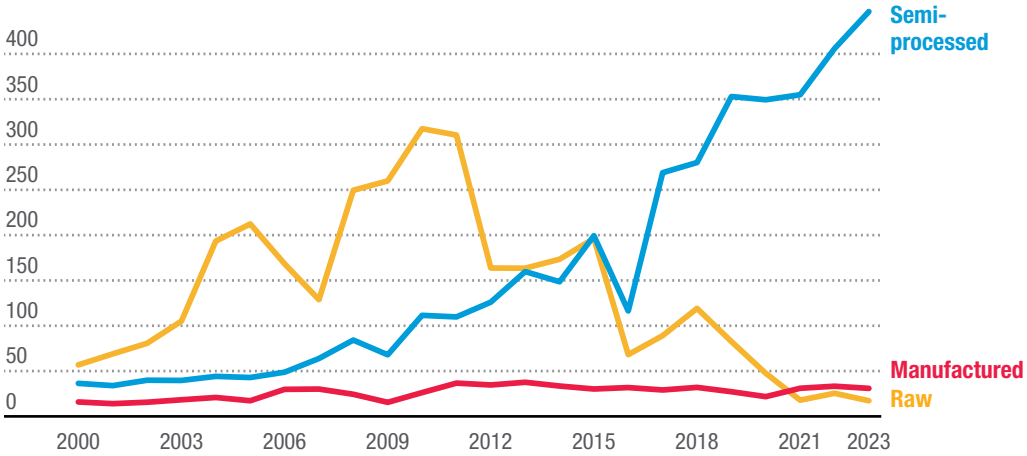
Figure I.10
Seaborne trade volumes of copper by stage of processing
(Millions of tons)



Source: UNCTAD, based on data extracted from the UNCTAD Seaborne Trade data set.

In contrast to copper, the seaborne trade of cobalt witnessed a shift in composition around 2015 (figure I.11). From 2000 to 2023, raw cobalt dominated maritime exports. Around 2015, however, the trade of semi-processed cobalt increased steadily, driven by several reinforcing factors. These included growing policy support for in-country benefits in major producing nations such as the Democratic Republic of the Congo (African Export–Import Bank, 2023; UNCTAD, 2023c); increased Chinese and international investment in local refining infrastructure, and a push for supply chain integration and cost efficiency by downstream industries (IEA, 2023 and 2024b; OECD-IEA, 2025). Meanwhile, manufactured cobalt products remained a small but stable share of seaborne flows throughout 2000–2023. Overall, the data suggest that most cobalt enters global supply chains after some value has already been added.

Figure I.11
Seaborne trade volumes of cobalt by stage of processing
(Thousands of tons)



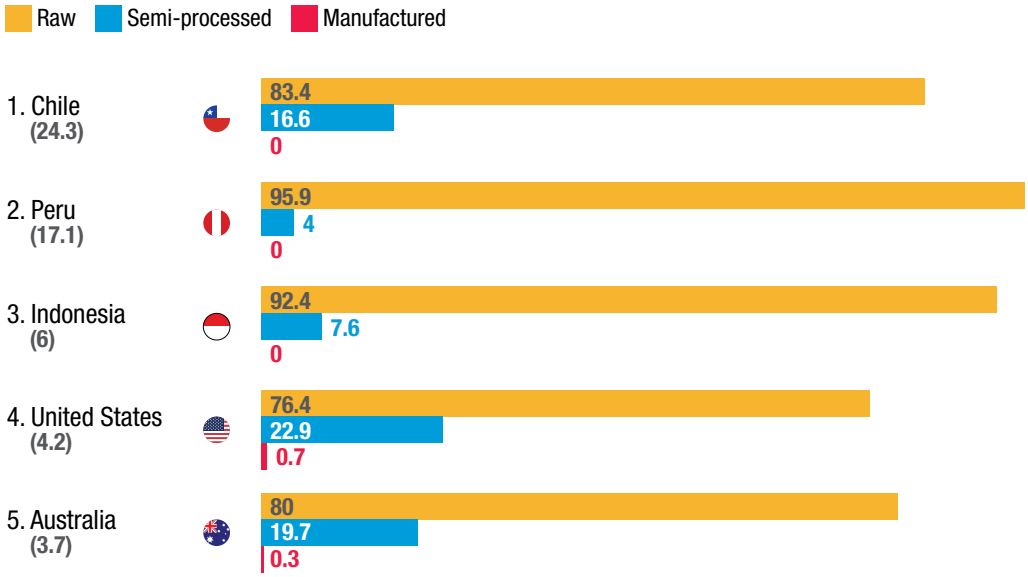
Source: UNCTAD, based on data extracted from the UNCTAD Seaborne Trade data set.

Trade concentration and strategic routes

Copper and cobalt show increasing concentrations in terms of trade routes and actors. For copper, the top five exporters accounted for 55.2 per cent of the global seaborne copper trade across all stages of processing in 2023. Raw material flows, i.e. unprocessed copper, are heavily concentrated from Chile and Peru to China (figure I.12). In contrast, Indonesia's exports are more diversified, encompassing, China as well as India, Japan and the Republic of Korea as top destinations (World Bank, 2024a).

China dominates import demand across all processing stages (figure I.13). Routes connecting Chile and Peru with China have expanded steadily over the past 20 years, demonstrating China's enduring centrality in the global copper value chain. These routes reflect increasing demand for raw and semi-processed copper in Asia, especially for industrial and energy transition use (Observatory of Economic Complexity, 2024; UNCTAD, 2025h). This centrality, however, also underscores the risk of dependency and supply chain vulnerability for downstream economies.

Figure I.12
Top five copper exporters by processing stage, 2023
(Percentage)

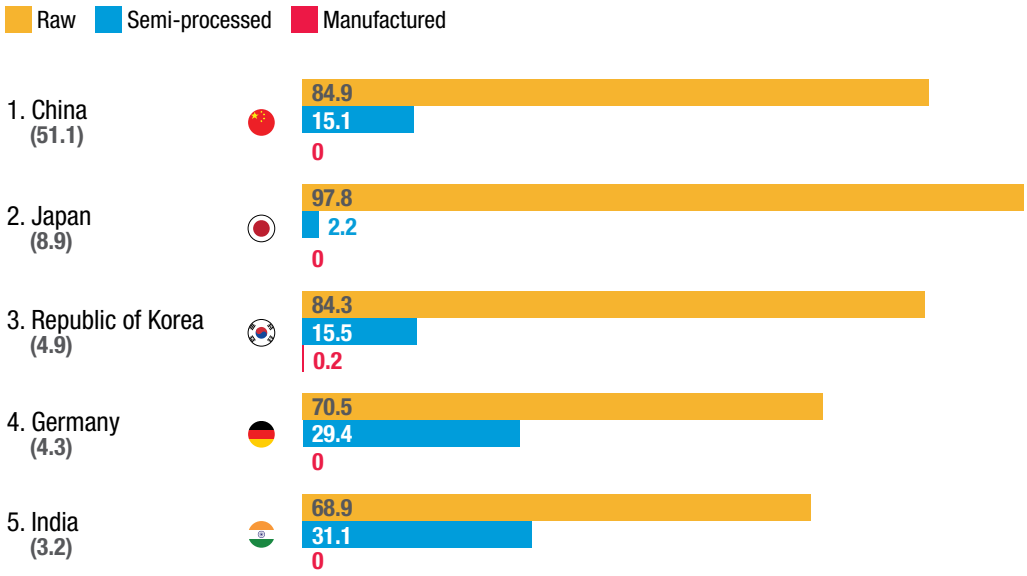


Source: UNCTAD, based on data extracted from the UNCTAD Seaborne Trade data set.

Notes: Percentages in parentheses after the country names indicate each country's share of global copper exports (all processing stages combined) in 2023.

Comparable figures for earlier years (2000–2022) show similar levels of concentration, confirming that the 2023 snapshot is representative of persistent structural patterns in copper trade flows.

Figure I.13
Top five copper importers by processing stage, 2023
(Percentage)



Source: UNCTAD, based on data extracted from the UNCTAD Seaborne Trade data set.

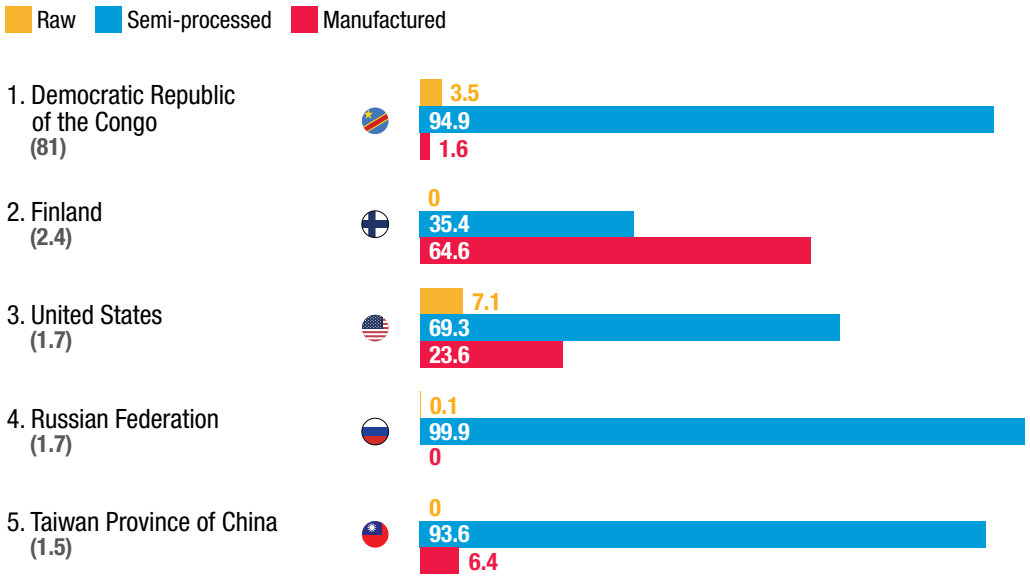
Note: Percentages in parentheses after the country names indicate each country's share of global copper imports (all processing stages combined) in 2023.

The Democratic Republic of the Congo accounts for **over 80% of global cobalt seaborne trade**

Cobalt seaborne trade remains highly concentrated and strategically oriented. In 2023, the top five exporters accounted for 88 per cent of global volumes, with the Democratic Republic of the Congo representing over 80 per cent (figure I.14) According to the UNCTAD Seaborne Trade dataset, the Democratic Republic of the Congo has been the dominant exporter since 2000, with its share rising from around 40 per cent in the early 2000s to more than 80 per cent in recent years, underscoring persistent and intensifying concentration. Strategic corridors have also intensified. The China–Democratic Republic of the Congo route has seen the sharpest growth, driven by China's investment in Congolese mining and its rise as a battery powerhouse (UNCTAD, 2025c; AidData, 2025). Other refining-linked flows (e.g., Belgium–China and Finland–Republic of Korea) highlight the emergence of midstream trade hubs serving industrial consumers (figure I.15).

These trends underscore how a limited number of maritime corridors and processing hubs underpin the global movement of copper and cobalt. For copper, flows from Chile and Peru to China dominate seaborne trade, while for cobalt, the Democratic Republic of the Congo supplies over four fifths of global exports, largely directed to China. Midstream hubs such as Belgium and Finland also play a role, refining and re-exporting cobalt to major industrial consumers. Together, these concentrated maritime corridors and processing hubs define the geography of copper and cobalt trade. Their dominance shapes market dynamics and underpins the structure of critical mineral supply chains (IEA, 2025a).

Figure I.14
Top five cobalt exporters by processing stage, 2023
(Percentage)

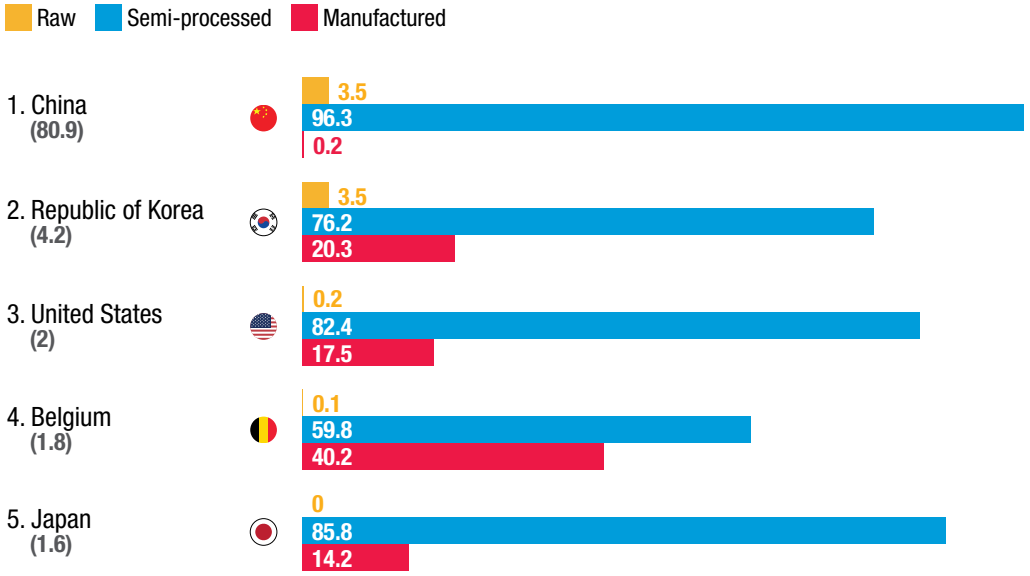


Source: UNCTAD, based on data extracted from the UNCTAD Seaborne Trade data set.

Notes: Percentages in parentheses after the country names indicate each country's share of global cobalt exports (all processing stages combined) in 2023.

Comparable figures for earlier years (2000–2022) show similar levels of concentration, confirming that the 2023 snapshot is representative of persistent structural patterns in cobalt trade flows.

Figure I.15
Top 5 cobalt importers by processing stage, 2023
(Percentage)



Source: UNCTAD, based on data extracted from the UNCTAD Seaborne Trade data set.

Note: Percentages in parentheses after the country names indicate each country's share of global cobalt imports (all processing stages combined) in 2023.

Policy shifts and maritime logistics: Implications for developing countries

Efficient maritime logistics are pivotal for developing countries **to harness the potential of critical minerals**

The concentration of trade in critical minerals along a limited number of supply corridors and a handful of countries dominating production and processing has heightened strategic dependencies. This has left global supply chains increasingly vulnerable, particularly amid recurring disruptions and shifting geopolitical dynamics (Atlantic Council, 2025; National Bureau of Asian Research, 2022). As a result, the trade in critical minerals has emerged as a focal point of strategic geopolitics, prompting wide-ranging policy shifts in importing countries aimed at securing long-term access to strategic mineral inputs.

In response, importing countries have undertaken a variety of policy changes aimed at securing long-term access to strategic mineral inputs. New legislative and industrial policy instruments include the United States' Inflation Reduction Act of 2022[6] and the European Union's Critical Raw Materials Act.[7] Both seek to diversify supply sources, promote domestic processing, and strengthen traceability and due diligence mechanisms. Strategic partnerships and bilateral cooperation frameworks designed to reduce overreliance on highly concentrated suppliers often accompany legislative efforts (IEA, 2025a).

On the export side, resource-rich developing countries are increasingly adopting measures to retain a greater share of the value generated from their critical mineral resources. Countries such as the Democratic Republic of the Congo, Indonesia and Zimbabwe have introduced export restrictions on unprocessed minerals, local content policies and targeted fiscal incentives. These measures aim to support domestic processing, encourage downstream investments and promote industrial upgrading (United Nations, Department of Economic and Social Affairs, 2025b).

In this evolving landscape, maritime logistics, encompassing port infrastructure, shipping services and trade facilitation systems, are pivotal for developing countries to harness the trade and development potential of critical minerals. Efficient logistics improve access to global markets and support efforts to diversify production and integrate into the higher-value segments of mineral supply chains (UNCTAD, 2023a). Yet many developing economies face persistent constraints, including high transport costs, limited port capacity and underdeveloped intermodal connectivity. These hamper their ability to move beyond raw material exports (UNCTAD, 2024b).

Addressing these challenges requires more than infrastructure upgrades. It demands strategic alignment between logistics development and industrial policy. Experiences from regions such as Suape in Brazil and the Lobito Corridor in Africa suggest that when port infrastructure is linked to targeted sectoral strategies (such as processing zones for chemicals, machinery or battery components in port-proximate zones), countries can attract investment, promote value addition and generate employment (UNCTAD, 2024c and World Bank, 2024b). Coordinating maritime logistics with broader industrial objectives creates conditions for structural transformation, allowing mineral-rich economies to leverage their resources for sustained, inclusive growth.

[6] Public Law 117-169. Available at https://www.congress.gov/bill/117th-congress/house-bill/5376/text. The Act remains in effect but has been subject to modification by the One Big Beautiful Bill Act, which became Public Law 119-21 on 4 July 2025. Available at https://www.congress.gov/bill/119th-congress/house-bill/1/text/enr.

[7] Regulation (EU) 2024/1252, which entered into force on 23 May 2024. For further details and the text of the regulation, see https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/european-critical-raw-materials-act_en.

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