



Energy for Germany

Facts, Perspectives and Positions
in a Global Context | 2026



FOCUS TOPIC
**GEOPOLITICAL FRAGMENTATION – THREE SCENARIOS
FOR THE ENERGY ECONOMY AND CLIMATE PROTECTION**

Imprint

Energy for Germany 2026
Editorial deadline: July 2026

Publisher:

World Energy Council – Germany
Breite Straße 29 | 10178 Berlin
Germany
T (+49) 30 2061 6750
E info@weltenergierat.de
www.weltenergierat.de

Responsible under German press law:

Dr Carsten Rolle, Executive Director

Editorial team:

Editorial team: *Energy for Germany* Editorial Board, Chair: Prof Dr Hans-Wilhelm Schiffer
Maira Kusch, Anna Molchanova, Anne Petzold, Snjezana Tomic, Josefine Zurheide

Printing:

DCM Druck Center Meckenheim GmbH
www.druckcenter.de

Image credits:

Cover: © DrPhatPhaw – stock.adobe.com
pp. 128-129: © World Energy Council

Geopolitical Fragmentation – Three Scenarios for the Energy Economy and Climate Protection



The World Energy Council – Germany e. V. warmly thanks the author of this chapter, Dr Jacopo Maria Pepe (German Institute for International and Security Affairs, SWP), for this analysis and assessment, as well Beatrice Di Giulio (Young Energy Professionals, YEPs) for the translation.

Executive Summary

The international energy and economic order is undergoing a phase of profound geopolitical fragmentation that extends beyond cyclical disruptions. It signals a structural transformation of the global order. This transformation is reflected in the politicization of economic interdependencies and the return of military logic to international economic and energy relations. The market- and efficiency-driven model of globalization is increasingly being replaced by a geopolitically shaped process of *re-globalization*. Energy is consequently no longer merely an economic commodity but also an instrument of geo-economic power, industrial competitiveness, and security-related stability. Conversely, geopolitics has become a central driver of developments in energy and technology policy.

➤ **Energy is no longer an economic commodity only but an instrument of geoeconomic power, industrial competitiveness, and security-related stability.**

This transformation is unfolding within a multipolar and asymmetric world order characterized by strategic competition between the United States of America (USA) and China, the rise of *swing powers* such as India and Russia, and the growing importance of regional middle powers and key regions including Türkiye, Indonesia, Brazil, the Persian Gulf states (the Gulf states), North Africa, and Central Asia. The European Union (EU) remains economically significant but displays only limited capacity for unified geopolitical action. At the same time, increasingly dense regional economic and energy spaces are emerging, most notably a *strategic ellipse* stretching from North and East Africa through West Asia and continental Eurasia to South and East Asia. Across this zone, energy flows, resource value chains, and industrial production intersect with security fault lines. As a result, vulnerabilities along critical corridors increase, as does the volatility of prices, investments, and supply chains. Although the EU is geographically and economically part of this ellipse, it is becoming increasingly marginalized in geoeconomic and geopolitical terms.

Against this backdrop, three scenarios can be distinguished. Rather than representing alternative futures, they constitute different levels of intensity within the same underlying geopolitical dynamic. They describe pathways of fragmentation and their implications for energy and climate policy, security of supply, and economic development.

In the **scenario of polycentric competition** with limited escalation, the global economy remains largely integrated. However, it is increasingly shaped by selective decoupling, industrial policy, and security-related risk premiums. The result is a form of unstable integration in which energy flows remain global but become increasingly subject to political influence, while climate transitions develop at differing speeds across regions.

By contrast, the **scenario of escalated large-scale conflicts** leads to the consolidation of competing power blocs in which key energy and trade routes are permanently politicized or disrupted. Supply chains become partially decoupled, energy prices rise structurally, investment cycles shorten, and both energy and climate policy are increasingly nationalized, thereby weakening international coordination.

A third possibility is the **scenario of functionally institutionalized coexistence**, in which selective areas of cooperation persist despite ongoing geopolitical rivalry. Fragmentation is contained through sector-specific regulatory frameworks, such as WTO trade rules or the Paris Climate Agreement, regional energy and resource arrangements, and pragmatic forms of security cooperation. Swing powers and middle powers assume brokerage functions between the major power centers. The result is a fragmented, yet functional form of multilateralism characterized by limited investment security and continued common technological standards in selected sectors.

The comparison of scenarios demonstrates that the central issue in the future will no longer be globalization versus deglobalization, but rather the degree to which economic integration is shaped and constrained by political and security considerations. Across all scenarios, structural changes are emerging that will fundamentally redefine energy and industrial policy. First, distinct fossil-based and renewable systems are unlikely to emerge. Instead, hybrid energy and industrial structures will prevail. Strategically, the decisive factor will be less access to individual resources than control of entire value chains, encompassing raw materials, production, infrastructure, financing, and standard-setting. Yet such control generates geopolitical leverage only within a given political order. In cooperative settings, it enhances economic influence; in confrontational scenarios, it accelerates decoupling and bloc formation.

The energy transition will therefore not proceed as a globally coordinated process but rather as a more conflict-prone, cost-intensive, and innovation-driven transformation.

Table 1: Comparison of geopolitical order scenarios and their energy policy implications

Dimension	Scenario 1: Polycentric Competition (Baseline)	Scenario 2: Escalated Large-Scale Conflicts (WC – worst case)	Scenario 3: Functionally Institutionalized Coexistence (BC – best case)
Intensity of Rivalry	moderate, episodic	high, persistent, escalating	moderate, but managed through institutional channels
Distribution of Power	multipolar, flexible middle powers	a few consolidated power blocs	multipolar with institutional bridge actors
Interdependence	high, but politicized/ redundant	low, characterized by bloc formation	high, institutionally safeguarded
Energy Markets	global, diversified, more expensive	bloc-based, price zones	global, long-term contracts, coordinated
Climate Cooperation	ad hoc, functional	competing, incompatible regimes	sectorally institutionalized

Source: Authors' own compilation

Energy, resource, and economic diplomacy will become increasingly intertwined with foreign and security policy. At the same time, the hierarchy of energy policy objectives is shifting: energy security and competitiveness are now being prioritized more highly than decarbonization. Consequently, redundant import and transport infrastructures, technological diversification, strategic reserves, and effective protection of critical infrastructure are becoming essential. Industrial policy is likewise gaining importance. In addition to building domestic production capacities, joint ventures, investments in third countries, and long-term offtake agreements can secure access to external value-creation capacities while reducing geopolitical risks.

Climate policy is evolving from a cooperative global regime into a field of competing industrial strategies. While this trend is likely to increase costs and fragmentation in the short term, it may also accelerate innovation. The preservation of minimum coordination mechanisms therefore remains crucial in order to prevent the complete fragmentation of markets and standards. At the same time, climate adaptation is becoming increasingly important as both a security and economic policy challenge, while resilience is emerging as the central organizing principle for responding to climatic and geopolitical shocks.

Within this context, the *strategic ellipse* is developing into the central geoeconomic macro-region of the global energy economy. In this ellipse shifts in power, the growing interlinkage of energy and security policy, industrial com-

petition, and resilience requirements become increasingly concentrated. At the same time, the region functions both as a global energy corridor and as a space of geopolitical conflict and cooperation. Consequently, multipolar energy-governance mechanisms are gaining importance. Regional and sectoral agreements help ensure interoperability within a fragmented international order and are particularly significant in the hydrogen sector, where standards, certification systems, and market structures are yet to emerge. Such arrangements reduce investment risks and stabilize international value chains.

For Germany and the EU, these developments entail a more demanding strategic profile. First, resilient, diversified, and redundant energy and resource systems must be established. Second, selective areas of cooperation, particularly in hydrogen, grid infrastructure, and critical raw materials, must be actively shaped and expanded. Third, the new environment requires closer integration of industrial, energy, security, financial, trade, and innovation policies at both the national and European levels. Long-term strategic capacity will depend on whether these policy domains can be combined into a coherent overall framework which can safeguard security of supply, industrial competitiveness, and climate transformation simultaneously.

1. Introduction

The international order is in a phase of far-reaching geopolitical fragmentation. This is tied to a deep crisis of the liberal world order and of market-based globalization. Russia's war against Ukraine, the U.S. military intervention in Venezuela, and the recent war of Israel and the United States of America (USA) against Iran are merely the most recent and most extreme manifestations of geopolitical upheaval. The long-term trends point to a systematic and conflict-stricken differentiation of global power structures, including the strategic rivalry between the USA and China, the confrontation between the European Union (EU) and Russia, the growing estrangement in the transatlantic relationship, and the rise of India as well as of increasingly self-confident middle powers such as Brazil, Indonesia, Türkiye and the countries of Central Asia and the Persian Gulf region. This fragmentation is evident both in the politicization of economic interdependencies and in the return of military logics to international economic and energy relations. Geopolitics is thus increasingly becoming a central driver of developments in energy policy and technology.

➤ **Geopolitics is increasingly becoming a central driver of developments in energy policy and technology.**

Geopolitical fragmentation does not, however, mean deglobalization. Rather, what is emerging is an infinite trend toward a post-Western, post-liberal re-globalization in which existing interdependencies are partly dissolved and partly reordered, regionalized, and politicized, as well as getting structured along geopolitical lines and new strategic axes and spaces. For energy policy this entails a profound transformation: resilience is prioritized over efficiency, and security over competition.

Energy supply, infrastructure, access to raw materials, industrial value creation, and the energy transition itself are increasingly understood as categories of security policy. Energy is increasingly deployed as a geoeconomic instrument of geopolitical power¹, as illustrated by the strategically oriented and geopolitically motivated raw-materials and foreign policy of individual states (such as Russia, the Gulf countries, and the USA), as well as the strategic steering of *green* policies in the industrial

and technological fields (as in the case of China²). Attacks on critical infrastructure, blockades of important trade routes and choke points³, such as the Strait of Hormuz, or even attempts at quasi-colonial takeover of foreign energy resources, as in the case of Greenland and Venezuela, highlight the growing military and security-policy dimension of energy supply.

This article formulates a few core theses on geopolitical fragmentation, which are then operationalized in three scenarios to analyze their possible consequences for energy supply, climate policy, and the economy.

1 Examples include the attacks on the Nord Stream pipelines and undersea cables in the North and Baltic Seas, as well as attacks on production facilities as well as Liquefied Natural Gas (LNG) facilities in the Persian Gulf.

2 *Green* industrial and technology policies refer to policy approaches that deliberately orient industrial development towards decarbonization, energy efficiency, and environmentally friendly technologies.

3 Choke points are bottlenecks in global transport and supply routes, whose control is decisive for the smooth flow of trade, energy, or raw materials.

2. Geopolitical Fragmentation as a Structural Framework

2.1 The Return of Geopolitical Logic and the Role of Geoeconomics

The international economic order is currently undergoing a profound structural transformation that cannot be interpreted merely as a cyclical adjustment, but rather as a long-term, systemic transition. The phase of a primarily market-based globalization, oriented toward efficiency and cost minimization, is increasingly being superseded by a global economy shaped by geopolitical forces. A growing number of economic and power centers is gaining influence, while conflicts of interest are resolved through economic as well as military means (*multipolarity*). This trend is not new: it has already been clearly discernible since the global economic and financial crisis of 2008, triggered by the bursting of the U.S. housing bubble and the resulting instability of the international banking system. The trend becomes especially visible in the rise of new economic and growth centers in Asia, such as China and India – and other regions of the world. The shift in economic growth, production, energy demand centers, and trade flows toward Asia, Africa, Eurasia, and Latin America has contributed to a gradual erosion of Western-dominated international energy and economics institutions since the early 2010s.⁴ At the same time, the liberal international order and its security architecture came under increasing pressure. In their place, a growing pluralization of economic and political ideas of order has emerged. Global economic institutions such as the World Trade Organization (WTO), the International Monetary Fund (IMF), or the *G-formats*, like G20, have long been marginalized and are losing relevance and recognition. The same applies to central organs of the security architecture of the liberal world order, such as the United Nations (UN) or the Organization for Security and Co-operation in Europe (OSCE). They are increasingly being challenged by alternative, mostly regional institutions and forums, such as the Asian Infrastructure Investment Bank (AIIB), the association of BRICS states, regional trade agreements, and regional integration formats such as the *Silk Road Initiative*⁵ or the Eurasian Economic Union.

This overall trend has additionally gained momentum and entered a disruptive phase with Russia's war against Ukraine, the intensification of the systemic rivalry be-

tween the China and the USA, and the re-election of Donald Trump as U.S. President. In this new constellation, economic interdependencies are no longer understood exclusively as a source of welfare gains but are at the same time interpreted as a potential power resource and as a strategic vulnerability. This reassessment marks a paradigm shift in the understanding of global interconnections: interdependence is no longer neutral, but inherently political.⁶

➤ A paradigm shift has occurred in the understanding of global interconnections: interdependence is no longer neutral, but inherently political.

Two closely intertwined developments drive this transformation. First, an increasing politicization of economic interconnections. States and groups of states are increasingly assessing trade, energy, technology, and finance relations from the perspective of security and power politics. Strategic dependencies – for instance, on fossil energy carriers, digital infrastructure, or critical raw materials such as rare earths and semiconductors – are systematically identified, politically problematized, and actively managed. Political instruments such as export controls, investment screening, subsidies, or the targeted diversification of supply chains are expressions of this development. In scientific literature this is frequently described as a transition from an efficiency-driven to a security-driven policy, in which resilience and strategic autonomy gain importance relative to efficiency gains.⁷

This politicization manifests itself particularly clearly in the use of supply chains as a geopolitical instrument. Global value chains are no longer regarded primarily as economically optimal but rather increasingly deployed as a lever to assert political interests. Sanctions, trade restrictions, export controls, or the targeted promotion of *friendly* production locations (so-called *friend-shoring*) are examples of this development. Empirical analyses

4 Cf. Lesage, Dries/van de Graaf, Thijs/Westphal, Kirsten (eds.), *Global energy governance in a multipolar world*. Farnham, Ashgate 2010.

5 The Silk Road Initiative (Belt and Road Initiative, BRI) is a global infrastructure and investment program launched by China in 2013 that aims to strengthen economic interconnection between China, Asia, Africa, and Europe through the expansion of transport, energy, and digital networks.

6 Cf. Hilpert, Hanns Günther/Lohmann, Sascha (eds.), *Mehr Macht, weniger Markt. Denken und Handeln in der geökonomischen Zeitenwende*, SWP-Studie 16/2025, Berlin 2025.

7 Cf. Farrell, Henry/Newman, Abraham L., *Weaponized Interdependence, How Global Economic Networks Shape State Coercion*, in: *International Security*, Bd. 44, Nr. 1, 2019, pp. 42-79, available at https://doi.org/10.1162/isec_a_00351 (last accessed 01.07.2026); Gereffi, Gary/Pananond, Pavida/Tell, Fredrik/Fang, Tony, *Industrial Policy and Global Value Chains in an Era of Disruptions*, in: *Journal of International Business Policy*, Bd. 8, Nr. 3, 2025, available at <https://link.springer.com/journal/42214> (last accessed 01.07.2026).

show that large economies in particular systematically seek to use their structural position in global networks to create or reduce dependencies – examples include the USA, China, the EU, as well as India and Japan.⁸

Second, a return of military power to the international economic order can be observed. This development contradicts the long-held assumption that economic interconnection is per se conflict-reducing.

➤ Current development contradict the long-held assumption that economic interconnection is per se conflict-reducing.

Instead, it is becoming apparent that military conflicts, territorial control, and the securing of strategic spaces and infrastructures once again constitute central factors influencing economic processes. Wars and military tensions have a direct impact on trade flows, energy prices, investment decisions, and on the stability of global markets. The physical destruction of energy infrastructure, the militarization of sea lanes, or the blockade of strategic bottlenecks (choke points) illustrate how closely military and economic dynamics are interwoven.⁹

In the energy sector this entanglement of security, military, energy, and industrial policy becomes particularly visible. Control over production areas, transport routes, and critical infrastructures – from pipelines and LNG terminals to offshore wind farms, electricity grids, and undersea cables – is gaining increasing strategic importance in the context of geopolitical rivalries. The same applies to key *green* (renewable) industrial technologies (for instance battery production, electrolyzers, or semiconductors), and to access to critical raw materials that are indispensable for the energy and technology transi-

tion. At the same time, military conflicts and the logic of geopolitical confrontation increase the volatility of energy prices and complicate long-term investment decisions, which in turn have repercussions for the global energy transition and climate policy. The international economic order is thus shaped not only by economic competition, but also increasingly by conflicts related to security policy.¹⁰

This twofold development – the politicization of economic interdependencies and the return of military power – is fundamentally changing the framework conditions for energy supply, industrial transformation, and macroeconomic stability. It is leading to a potential fragmentation of the global order into partly competing economic and political blocs, within which different norms, standards, and security logics apply. This represents one of the central challenges for open economies such as Germany and the EU, which have traditionally benefited strongly from global integration.

In light of this, the concept of geoeconomics is once again gaining considerable analytical and political relevance. Geoeconomics denotes the strategic deployment of economic instruments in pursuit of objectives related to politics and political power. These instruments include industrial policy, export controls, investment regimes such as government regulations and oversight mechanisms for foreign direct investment, subsidy programs, tariffs, and selective access to markets and technologies, but also the application of sanctions and restrictions to market-entry. Geoeconomic strategies aim to strengthen one's own economic performance to secure technological sovereignty, and at the same time to influence or constrain the area of influence of other actors.¹¹

However, geoeconomics is – contrary to what is often suggested – neither a new phenomenon nor to be understood as a substitute for classical geopolitics, but rather as its complement. Edward Luttwak – the progenitor of the term geoeconomics – argued already in the late 1990s that economic competition in a globalized world was increasingly taking over the role of military conflicts between great powers, because high economic interde-

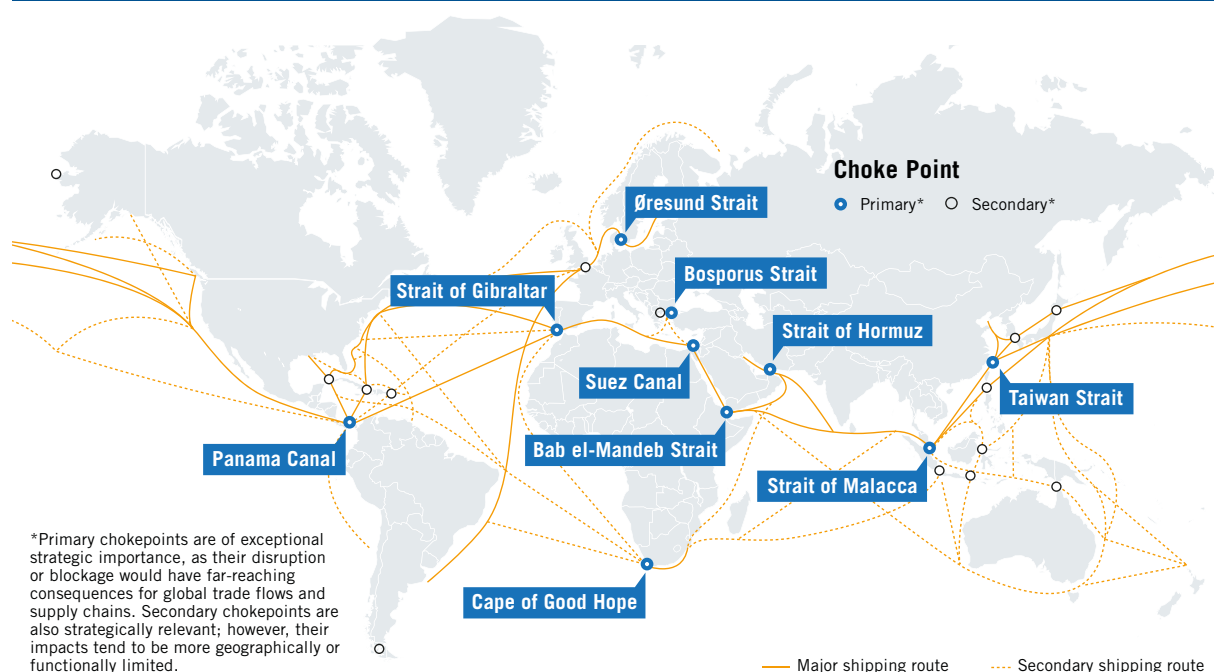
8 Cf. Aiyar, Shekhar/Chen, Jiaqian/Ebeke, Christian H./Garcia-Saltos, Roberto/Gudmundsson, Tryggvi/Ilyina, Anna/Kangur, Alvar/Kunaratskul, Tansaya/Rodriguez, Sergio L./Ruta, Michele/Schulze, Tatjana/Soderberg, Gabriel/Trevino, Juan P., Geoeconomic Fragmentation and the Future of Multilateralism. International Monetary Fund Staff Discussion Notes, Nr. 2023/001, 2023, available at <https://doi.org/10.5089/9798400229046.006> (last accessed 01.07.2026).

9 Cf. International Institute for Strategic Studies (IISS), The Maritime Economy and 21st Century Confrontation. Research Paper, May 2025, available at <https://www.iiiss.org/research-paper/2025/05/the-maritime-economy-and--21st-century-confrontation/> (last accessed 01.07.2026); FERI Institut, Global Choke Points: Maritime Engpässe als unterschätzter Risikofaktor für Weltwirtschaft und Geopolitik. Cognitive Briefing, no date, available at <https://www.feri-institut.de/media/cvqcg4y3/cognitive-briefing-global-choke-points.pdf> (last accessed 01.07.2026).

10 Cf. Shell International, The 2026 Energy Security Scenarios: Challenges to the Transition. Scenarios Paper, London 2026, available at https://www.shell.com/news-and-insights/scenarios/the-2026-energy-security-scenarios/_jcr_content/root/main/section_664131450/promo_copy/links/item0.stream/1768810403872/8b4495f80c08a92df53b780af870073b0e5a6742/the-2026-energy-security-scenarios.pdf (last accessed 01.07.2026).

11 Cf. Blackwill, Robert D./Harris, Jennifer M., War by Other Means: Geoeconomics and Statecraft. Harvard University Press, Cambridge 2016.

Figure 1: Maritime Trade Routes and Strategic Chokepoints



Source: Own illustration based on FERl Cognitive Finance Institute, 2025

pendence raised the costs of military confrontation so sharply that states would resort increasingly to economic rather than military means to assert their interests.¹² Under the conditions of a liberal, market-based globalization, states would thus continue to exert influence on economic relations, but wars would take place only in “the backyards of world politics”¹³.

➤ Hard geopolitical factors have once again become central determinants of international politics.

The current development, however, points to a different dynamic. *Hard* geopolitical factors – in particular territorial control, access to resources, the securing of strategic spaces, the reordering and shifting of borders by military means, and potential wars among global powers – have once again become central determinants of international

politics. Military power projection, deterrence, and security partnerships without fixed alliances are gaining importance in parallel with the geoeconomic instrumentalization of economic relations. Military capabilities alone are insufficient to exert lasting influence in a highly interconnected world economy. Conversely, pure geoeconomic strategies reach their limits without credible security policy backing. The effectiveness of economic sanctions or industrial policy strategies also depends increasingly on how they are embedded in a broader political context that includes military and security policy components.

The return of this integrated form of geopolitics and geoeconomics thus marks a new phase of the international order, in which economic efficiency, political power, and military security can no longer be conceived separately from one another but must be understood as interwoven dimensions of an increasingly conflict-prone global system.

2.2 Multipolar Actor Structure

The current transformation of the international order is manifested not only in a change in interdependencies, but also in a fundamental restructuring of the global land-

¹² Cf. Luttwak, Edward N., From Geopolitics to Geo-Economics: Logic of Conflict, Grammar of Commerce. In: The National Interest, no. 20, 1990.

¹³ Luttwak, Edward, Turbocapitalism, Harper Collins, New York 1999, p. 128.

scape of actors and spaces. This reordering proceeds neither linearly nor coherently. It is characterized by overlaps, power asymmetries, and regional differentiations. It can most aptly be described as a phase of re-globalization under altered auspices, in which new power centers, spaces of interaction, and patterns of interconnection are taking shape.¹⁴

➤ **In 2025, global trade of goods rose by nearly 6% from the previous year to USD 26.5 trillion.**

Contrary to frequently formulated diagnoses of a comprehensive deglobalization, the empirical evidence points to a persistently high intensity of global interconnection, albeit accompanied by a simultaneous regional shift. World goods trade reached a then-record level of around USD 24 trillion in 2022 and stabilized at a high level in 2023/24 despite geopolitical tensions. In 2025, world goods trade rose further by almost 6% compared with the previous year, to USD 26.5 trillion.¹⁵ At the same time, however, trade flows continue to change: South-South trade (that is, the exchange of goods and services between developing and emerging economies) has increased continuously for two decades and now accounts for more than a quarter of global goods trade – reaching a volume of around USD 6.8 trillion in 2025 and growing faster than world trade as a whole.¹⁶

In parallel, trade flows are becoming denser within regional clusters: alongside transatlantic, European-Chinese and U.S.-Chinese trade, this is particularly evident within Asia as well as along the energy and trade corri-

dors connecting the Middle East¹⁷, Africa, continental Eurasia, and East Asia including China. Today, these clusters form a central part of the global supply and demand structure.¹⁸

Foreign direct investment likewise shows no linear deglobalization, but rather a restructuring of global capital flows. Global inflows of foreign direct investment (FDI) stood at around USD 1.3 trillion in 2023 and, according to preliminary estimates, rose again to about USD 1.6 trillion in 2025.¹⁹

A considerable share of global direct investment continues to go to developing and emerging economies. In 2025 these attracted around USD 877 billion in FDI inflows, thus accounting for approximately 55% of worldwide direct investment. Asia remained the most important regional destination for international capital flows. Despite a slowdown in global investment momentum, developing regions in Asia remained the world's most important destination region for direct investment in 2025 as well, accounting for around 70% of all FDI inflows into developing economies.²⁰

14 Cf. World Economic Forum (WEF), *Reglobalization: Rewiring the world economy for a new era of growth*. Davos Agenda/WEF Stories, 2026, available at <https://www.weforum.org/stories/2026/01/reglobalization-world-economy-growth/> (last accessed 01.07.2026).

15 Cf. World Trade Organization (WTO), *World Trade Statistical Review 2025: World Trade Statistics*, Geneva 2025, Chart 1: Growth in merchandise trade value and volumes (exports), available at https://www.wto.org/english/res_e/statistics_e/world_trade_statistics_e.htm (last accessed 01.07.2026).

16 Cf. United Nations Conference on Trade and Development (UNCTAD), *Global Trade Update (March 2026): Reforming Trade Rules to Drive Development*. UN Trade and Development, March 2026, figure: South-South Trade Outpaces World Trade and Developing Countries' Exports to the North, available at <https://unctad.org/publication/global-trade-update-march-2026-reforming-trade-rules-drive-development> (last accessed 01.07.2026).

17 The Middle East is commonly understood as a political region usually taken to comprise Egypt, Bahrain, Iraq, Israel, Yemen, Jordan, Qatar, Kuwait, Lebanon, Oman, Saudi Arabia, Syria, Türkiye, the United Arab Emirates (UAE), and Cyprus. Cf. Bundeszentrale für politische Bildung, *Nahost/Naher Osten*, available at <https://www.bpb.de/kurz-knapp/lexika/politiklexikon/17880/nahost-naher-osten/> (last accessed 14.07.2026).

18 Cf. KPMG/Energy Institute/Kearney, *Statistical Review of World Energy 2025*, 74th Edition, 2025, available at <https://assets.kpmg.com/content/dam/kpmg/sk/pdf/2025/Statistical-Review-of-World-Energy-2025.pdf> (last accessed 01.07.2026), pp. 35 and 44; Asia House, *The Middle East Pivot to Asia*. Research & Analysis/Publication, London, updated edition 2025, available at <https://www.asiahouse.org/publications/the-middle-east-pivot-to-asia/> (last accessed 01.07.2026).

19 Cf. United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2024: Investment Facilitation and Digital Government*, Geneva 2024, available at <https://unctad.org/publication/world-investment-report-2024> (last accessed 01.07.2026); United Nations Conference on Trade and Development (UNCTAD), *Global Investment Trends Monitor No. 50/2026*, available at <https://unctad.org/publication/world-investment-report-2024> (last accessed 01.07.2026).

20 Cf. United Nations Conference on Trade and Development (UNCTAD), *Global Investment Trends Monitor No. 50/2026*, available at <https://unctad.org/news/global-foreign-investment-14-2025-growth-concentrated-developed-economies> (last accessed 01.07.2026); United Nations Conference on Trade and Development (UNCTAD), *Developing Asia: Mixed picture for foreign investment in 2024*, 06/2025, available at <https://unctad.org/news/developing-asia-mixed-picture-foreign-investment-2024> (last accessed 01.07.2026).

➤ These developments can be interpreted as an expression of a post-Western re-globalization that is less universalistic and rule-based, and more strongly structured, politically shaped, and driven by a growing role of non-Western actors.

These developments can be interpreted as an expression of a post-Western re-globalization that is less universalistic and rule-based, and more spatially structured, politically shaped, and driven by a growing role of non-Western actors. This re-configuration goes hand in hand with the emergence of a new political order that reflects neither the bipolar structure of the Cold War nor the relative unipolarity of the post-1990s. Instead, a multipolar, asymmetrical, and dynamic order is emerging, in which material power resources gain importance relative to ideological dividing lines.²¹ The resulting order is inherently more unstable and more conflict-driven. International cooperation does persist, but it becomes more selective and more issue-specific, while conflicts become more global and more systemic. This means that they are not limited to individual countries or specific territorial or economic questions but frequently concern the global order as a whole.

The current actor landscape of the international order can accordingly be described as a multilayered, functionally differentiated, and at the same time highly dynamic configuration, in which classical great powers, strategically autonomous swing powers²² and regional middle powers overlap. In this system, formal alliance memberships are less decisive than flexible partnerships, selective cooperation, and the ability of individual actors to exploit their position in economic networks, security arrangements, and infrastructural corridors.

At the center of this structure stand two dominant poles of power, each centered around the USA and China respectively, but organized differently. The USA continues to form the core of a globally projected power architecture. Particularly since Donald Trump's re-election, it increasingly views the hemisphere along the north-south

axis (from the Arctic through North and South America) as its own privileged sphere of influence, while selectively and transactionally engaging with individual, handpicked partners in Europe, East Asia, and the Indo-Pacific.

This U.S.-centered order has increasingly abandoned the universalist and idealistic aspirations of the collective West of the past decades – in favor of nationalist, mercantilist, and, in some cases, isolationist and large-scale power ambitions. It nevertheless continues to rest on several structural pillars of global relevance. These include:

- Military superiority of the USA, underpinned by defense expenditure of most recently around USD 955 billion annually.²³
- Structural influence on the international financial system, in particular through the role of the U.S. dollar as the leading reserve currency, with a share of around 57% of global currency reserves.²⁴
- Technological leadership in key future-oriented sectors such as digital platforms, semiconductors, and artificial intelligence (AI).²⁵
- Increased energy political relevance as a result of the *shale gas revolution*, which led the country to become the world's largest oil and gas producer as well as a major net exporter of fossil energy carriers.²⁶

Geographically, this order is increasingly concentrated on the American continent as well as on selected maritime and security spheres of influence in the Atlantic/Arctic region, in the Pacific, and in maritime Eurasia. It thus exhibits elements of a reinterpretation of the Monroe Doctrine²⁷, which under President Donald Trump was extended to include elements of geoeconomics, industrial poli-

23 Cf. Stockholm International Peace Research Institute (SIPRI), SIPRI Military Expenditure Database, 2025, available at <https://www.sipri.org/databases/milex> (last accessed 01.07.2026).

24 Cf. International Monetary Fund (IMF), Currency Composition of Official Foreign Exchange Reserves (COFER), 2025, available at <https://data.imf.org/en/news/imf%20data%20brief%20march%2027> (last accessed 01.07.2026).

25 Cf. World Intellectual Property Organization (WIPO), Global Innovation Index 2025, Geneva 2025, available at <https://www.wipo.int/web-publications/global-innovation-index-2025/en/global-innovation-tracker.html> (last accessed 01.07.2026).

26 Cf. U.S. Energy Information Administration (EIA), The United States set record energy production in 2025, again, 11.05.2026, available at <https://www.eia.gov/todayinenergy/detail.php?id=67684&> (last accessed 01.07.2026); U.S. Energy Information Administration (EIA), U.S. energy facts – imports and exports, available at <https://www.eia.gov/energyexplained/us-energy-facts/imports-and-exports.php> (last accessed 01.07.2026).

27 The Monroe Doctrine of 1823 is a U.S. foreign-policy principle that rejects European interventions in the Western Hemisphere and, in return, provides for American non-interference in European affairs.

21 Cf. Perthes, Prof. Dr Volker, Die Multipolarisierung der Welt. Ein geopolitischer Wegweiser. Die entstehende Weltordnung verstehen, Berlin 2026.

22 These states are distinguished by their ability to shape their foreign-policy orientation flexibly and to balance deliberately between competing centers of power.

cy, security strategy, and energy policy²⁸. Europe remains closely integrated into this structure but is increasingly acting as *peripheral partner*: economically relevant, yet still dependent in terms of security policy and with limited strategic autonomy. At the same time, the geostrategic focus of the USA – beyond its own hemisphere – is increasingly shifting toward the region between the Arabian Sea and the South China Sea in the south (the Indo-Pacific) and between Greenland and Alaska in the north, which further diminishes the relative importance of Europe.

➤ Around 70% of all states today maintain more intensive trade relations with China than with the USA.

On the other side is a power pole centered around China, which is to be understood less as a coherent bloc and more as a space of interaction along a loose east-west axis. China functions here as the economic gravitational core: with a share of around 19% of global gross domestic product (GDP) on a purchasing-power-parity basis – and thus more than the individual shares of the USA or the EU respectively – China now dominates world trade. Around 70% of all states today maintain more intensive

trade relations with China than with the USA. China is the more important trading partner for 145 economies worldwide. The country structures and dominates large parts of global trade and production networks – from raw-material extraction and processing all the way to green industrial and energy technologies.²⁹ This economic dominance is supported by an infrastructure and investment policy (particularly in developing and emerging economies) which aims to shape the global economy and world order according to the Chinese model, while maximizing its own economic, political, and military independence.

Since the launch of the so-called *Silk Road Initiative* (*Belt and Road Initiative*) in 2013, infrastructure projects as well as investments in fossil, green, and raw-materials projects amounting to almost USD 1.4 trillion have been announced or financed, along transregional land-sea corridors in Asia, Africa, and Europe.³⁰

Russia occupies an ambivalent role in this configuration, especially since the beginning of the Russia–Ukraine war: on the one hand as a privileged military partner of

28 Cf. Kaplan, Robert D., *The Return of Marco Polo's World: War, Strategy, and American Interests in the Twenty-First Century*, Random House, New York, 2018; McCarthy, Daniel, *The Return of the Monroe Doctrine*, in: *Modern Age*, vol. 65, no. 2, 2023, pp. 15–27.

29 Cf. International Monetary Fund (IMF), *World Economic Outlook Database – GDP based on PPP share of world total, 2025*, available at <https://www.imf.org/external/datamapper/PPPSH@WEO/EU/CHN/USA> (last accessed 01.07.2026); Rajah, Roland/Albayrak, Ahmed, *China versus America on Global Trade*. Lowy Institute Data Snapshot, Sydney, 1/2025, available at <https://lowy-institute.github.io/publications/2025/RAJAH-ALBAYRAK-china-versus-america-on-global-trade.pdf> (last accessed 01.07.2026).

30 Cf. Green Finance & Development Center, *China Belt and Road Initiative Investment Report 2025*, Shanghai 2025, available at <https://greenfdc.org/china-belt-and-road-initiative-bri-investment-report-2025/> (last accessed 01.07.2026).

Table 2: Comparison of Key Geopolitical Power Resources of the USA and China

Dimension	USA	China
Military Power	USD 954,3 billion (2025)	USD 359 billion (2025)
Financial power: share of global foreign exchange reserves	US dollar: 56,8%	Renminbi: 1,95%
Technological leadership	Digital platforms, semiconductors, AI	Solar modules (~ 80%), Battery cells (~70%) of global production
Energy production	World's largest oil and gas producer, net exporter	World's largest producer and consumer of fossil energy; leader in renewable energy and clean energy technologies
Economic weight (GDP, purchasing power parity)	~14,8% of global GDP	~ 19% of global GDP

Source: Authors' own compilation

China in Eurasia and in the Arctic region, on the other as an increasingly asymmetrically dependent actor with limited technological and financial capacities.³¹ Therefore, Russia is less of a counter-bloc to the U.S. pole and more of a functionally integrated but politically heterogeneous space.

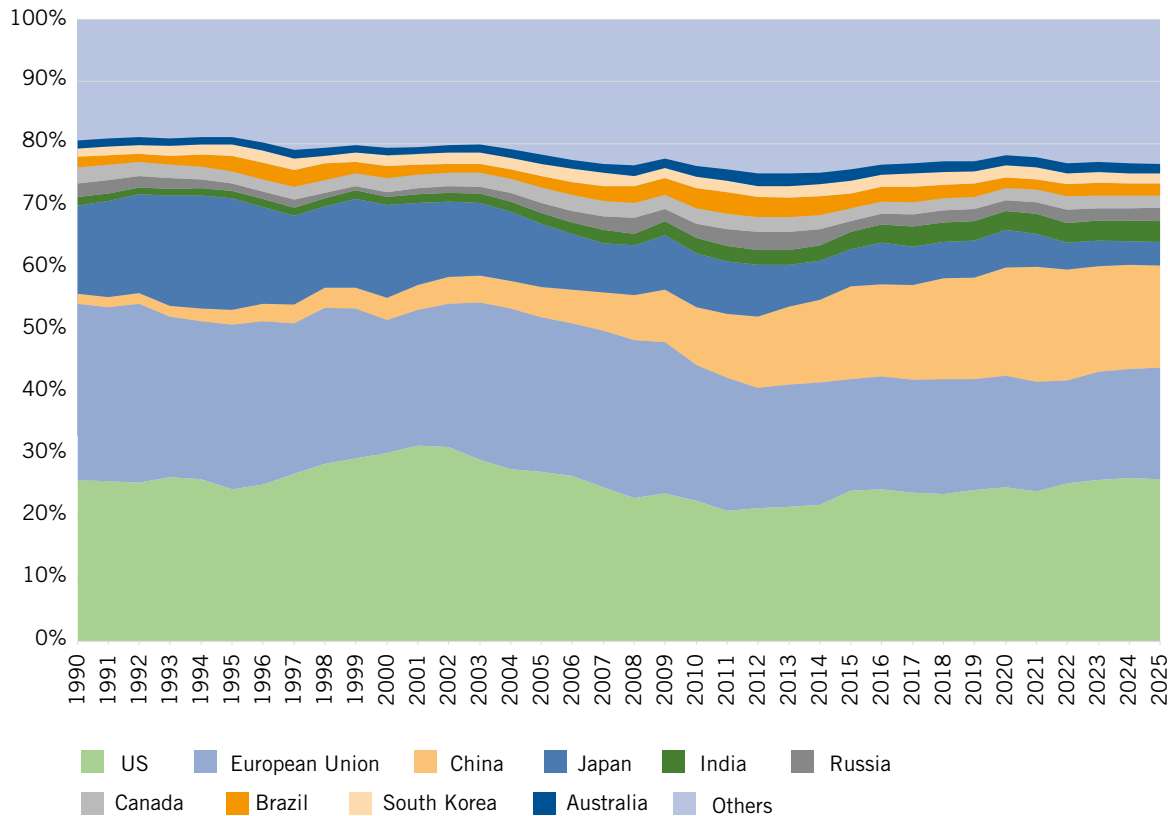
Positioned between and partly across the two poles (the U.S. and China) are the so-called “swing powers” or “semi-poles,” whose significance in the current international order is growing significantly. These include in par-

ticular Russia and India, albeit with significant differences. At first glance, Russia is not a classic swing power: its room for maneuver is limited by its ideological rejection of the Western order, economic restrictions, and growing dependence on China.³² However, despite its structural weaknesses and its close partnership with China, the country remains a key security actor in this context, primarily due to its nuclear deterrent capabilities and its role as a supplier of energy and raw materials on the energy markets, which enhances its potential to shape the international order. Although its relationship with China is solid, it is based on mutual interests and by no means institutionalized in a formal alliance.

31 Russia's total trade volume with Asian partners reached around USD 520 billion in 2024, thereby exceeding 70% of the country's entire foreign trade. This underlines Moscow's strategic turn toward Asia, while exchange with Europe declined markedly as a consequence of sanctions. Cf. TAdviser, Russia's Foreign Trade (2024 Data), available at https://www.tadviser.ru/index.php/%D0%A1%D1%82%D0%B0%D1%82%D1%8C%D1%8F:%D0%92%D0%BD%D0%B5%D1%88%D0%BD%D1%8F%D1%8F_%D1%82%D0%BE%D1%80%D0%B3%D0%BE%D0%B2%D0%BB%D1%8F_%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B8 (in Russian), (last accessed 01.07.2026).

32 Cf. S&P Global, China Data: Russian crude imports up 24% to 2.15 mil b/d in 2023, 22.01.2024, available at <https://www.spglobal.com/energy/en/news-research/latest-news/crude-oil/012224-china-data-russian-crude-imports-up-24-to-215-mil-bd-in-2023> (last accessed 01.07.2026); Reuters, Russia's Pipeline Gas Exports to China Seen Up 25% This Year, Source Says, 22.12.2025, available at <https://www.reuters.com/business/energy/russias-pipeline-gas-exports-china-seen-up-25-this-year-source-says-2025-12-22/> (last accessed 01.07.2026).

Figure 2: GDP growth of the ten largest economies (1990-2025) and their respective shares of global GDP



Source: Visualization based on World Bank data

➤ India is gaining economic and geopolitical weight.

India, by contrast, is developing into a prototypical swing power of the multipolar order. With annual GDP growth rates of over 6%, a rapidly growing population, and an increasing integration into global value chains, the country is gaining weight both economically and geopolitically.³³ Its trade volume has developed vigorously in recent years, and it is positioning itself increasingly as an alternative production location in global supply chains.³⁴ At the same time, India pursues a strategy of multi-alignment, which allows it to cooperate with both Western states and non-Western actors without committing itself permanently. This strategic flexibility makes India a pivotal actor in the emerging order.³⁵

This structure is supplemented by a multitude of smaller but significant middle powers which, although they do not possess global power projection, are increasingly assuming independent strategic roles in their respective regions. States such as Brazil, Indonesia, South Africa, and Türkiye use their geographical location, demographic dynamism, and economic resources to act as regional hubs. Indonesia controls central maritime bottlenecks in the Indo-Pacific. Brazil functions as Latin America's leading economic power and a significant raw-materials exporter, while Türkiye actively exploits its geopolitical position as a bridge between Europe, the Middle East, and Central Asia.³⁶

In parallel, regional groupings are gaining importance. Southeast Asia has developed into one of the world's most dynamic production and trading spaces, with strong growing intra-regional trade flows. The Gulf region established itself – at least until the outbreak of the Iran war – not only as a global energy hub but increasingly also as a financial and investment center with a growing role in in-

frastructure projects and new energy technologies. Central Asia, in turn, is gaining strategic importance through its function as a transit region for energy and transport corridors, particularly in the context of growing land-sea connections between Europe and Asia.

Japan occupies a special position. As a highly developed industrial nation closely tied to the USA, it remains an integral part of the Western system, yet is increasingly developing its own area of influence in terms of security policy. The gradual increase in defense expenditure as well as adjustments in its security doctrine indicate a cautious but clear movement toward greater strategic autonomy. At the same time, Japan remains a central actor in key technological industries and an important counterweight to China in Asia.

Finally, the EU appears in this constellation as a contested space in-between. With a share of around 14% of global GDP and considerable importance in world trade, it remains a central economic actor. At the same time, it lacks coherent geopolitical and military capacity to act. In the emerging order it is therefore both a partner and a potential object of geopolitical influence. In addition, it is increasingly exposed to political centrifugal forces and risks of disintegration. Its future role depends decisively on whether it succeeds in developing strategic autonomy in key areas – such as energy, technology, and security – and in overcoming internal fragmentation.

Overall, what emerges is not a stable multipolar equilibrium, but a dynamic, overlapping system of power centers, flexible partnerships, and functional networks.

2.3 New Strategic Spaces

In parallel with the shift in the actor structure, the spatial dimension of the international order is also gaining importance. The emerging geopolitical order can be described not only along the lines of state power centers, but also along strategic spaces in which interests of economic, energy, and security nature are particularly strongly interwoven. Geopolitical influence currently materializes less in clearly demarcated blocs but more in the control of (still) networked spaces and corridors.

One such key space is currently taking shape in the form of an expanded new edition of the “strategic ellipse”³⁷.

33 Cf. International Monetary Fund (IMF), World Economic Outlook DataMapper – India, 2025, available at <https://www.imf.org/external/datamapper/profile/IND> (last accessed 01.07.2026).

34 Cf. Germany Trade & Invest (GTAI), Wirtschaftsausblick Indien, 23.04.2026, available at <https://www.gtai.de/de/trade/indien-wirtschaft/wirtschaftsausblick> (last accessed 01.07.2026).

35 Cf. Miller, Manjari Chatterjee, India's Multialignment and the Democratization of the International Order. Council on Foreign Relations (CFR), 16.10.2024, available at <https://www.cfr.org/articles/indias-multialignment-and-the-democratization-of-the-international-order> (last accessed 01.07.2026).

36 Cf. Spektor, Matias, Rise of the Nonaligned, Who Wins in a Multipolar World?, in: Foreign Affairs, vol. 104, no. 1, January/February 2025; cf. Lippert, Barbara/Mair, Stefan (eds.), Mittlere Mächte – einflussreiche Akteure in der internationalen Politik. SWP-Studie 2024/S 01, Berlin 2024.

37 Deutsche Gesellschaft für Osteuropakunde e.V., Strategische Ellipse und globale Gasvorkommen, in: Osteuropa, 54 (2004), no. 9–10: Europa unter Spannung. Energiepolitik zwischen Ost und West, Berlin 2004.

Unlike the historical strategic ellipse, this one is defined less exclusively by the location of traditional gas (and oil) deposits between the post-Soviet region and the Middle East. Rather, it denotes a geopolitically and geoeconomically fluid space of interaction extending from North and East Africa, across West Asia and continental Eurasia, all the way to South and East Asia. This region is not only relevant in terms of energy resources. It is also a space where energy flows, raw material supply chains, industrial production, economic interdependencies, infrastructural interconnections, and security rivalries converge and overlap. At the same time, this area is home to most of the politically rising actors (with the notable exception of the USA).³⁸

➤ **The emerging geopolitical order can be described not only along the lines of state power centers, but also along strategic spaces. One such key space is currently taking shape in the form of a new edition of the strategic ellipse.**

While other regions – like South America, the African continent, and in particular the Arctic region – are gaining strategic importance, they currently remain a functional complement to the strategic ellipse. Access to energy and raw material sources does remain central in this regard: states within or on the margins of the ellipse hold roughly 70% of conventional oil and gas reserves. The strategic ellipse bundles not only resources and production capacities, but also the dynamics of global trade, industrial, and investment flows. These are increasingly differentiated and less Europe-centered. Thus, while the EU is geographically and economically part of the ellipse, it is increasingly marginal in geo-economic and geopolitical terms.

Around one-fifth of global LNG trade and of global oil trade passes through the Strait of Hormuz. The Strait of Malacca ranks among the most important Asian transit corridors for LNG and crude oil. Through the Strait of Malacca alone, around 23.2 bio. barrels of oil per day were transported in the first half of 2025 – corresponding to roughly 29% of global maritime oil trade. Both sea routes are thus among the central maritime choke points

of global energy supply. The ellipse includes seven of the most important and geopolitically most vulnerable choke-points of world (energy) trade – the Suez Canal, Bab-el-Mandeb, Hormuz, Malacca, the Bosphorus, Gibraltar, and the Öresund. Five of these are located between the Middle East and Asia. At the same time, approximately 75% of global semiconductor manufacturing capacity is concentrated in East Asia, which underlines the technological dimension of this new geography of power.³⁹ Beyond this, it is apparent that a growing share of world trade takes place within this region itself. In East and Southeast Asia, more than half of foreign trade is now accounted for by intra-regional trade relations, which underlines Asia's increasing economic integration. Trade links between the Middle East and Asia today absorb the greater part of the Gulf states' energy exports.⁴⁰

Beyond fossil energy relations, non-fossil energy trade within the ellipse is also gaining importance. Trade between Asia and Europe and between Asia and North America retains a central and shaping impact on world trade. Industrial goods, machinery, vehicles, electronics, and increasingly also energy technologies (e.g. solar modules, batteries, or grid infrastructure) circulate to a growing extent between the Asian production centers and the demand and investment markets in the Middle East and Africa, however. China has developed into the central industrial node, organizing large parts of the trade in intermediate and final goods within the ellipse.⁴¹ At the same time, India, the ASEAN states⁴², and the Gulf economies are also expanding their role as industrial and logistical hubs.

Recent developments in the context of the Iran war and the crisis in the Strait of Hormuz have, however, exposed the vulnerability of these densified trading spaces. The

38 Cf. Brands, Hal, *The Eurasian Century: Hot Wars, Cold Wars, and the Making of the Modern World*, W. W. Norton, New York: 2025; Calder, Kent E., *Super Continent: The Logic of Eurasian Integration*, Stanford University Press, Stanford 2019.

39 Cf. U.S. Energy Information Administration (EIA), About one-fifth of global liquefied natural gas trade flows through the Strait of Hormuz, 24.06.2025, available at <https://www.eia.gov/todayinenergy/detail.php?id=65584> (last accessed 01.07.2026); U.S. Energy Information Administration (EIA), World Oil Transit Chokepoints, 2026, available at https://www.eia.gov/international/content/analysis/special_topics/World_Oil_Transit_Chokepoints/ (last accessed 01.07.2026); Semiconductor Equipment and Materials International (SEMI), Asia Dominates 75% of Global Semiconductor Manufacturing Capacity, 25.09.2025, available at https://www.icgoodfind.com/cms/Article/get/article_id/15938/ (last accessed 01.07.2026).

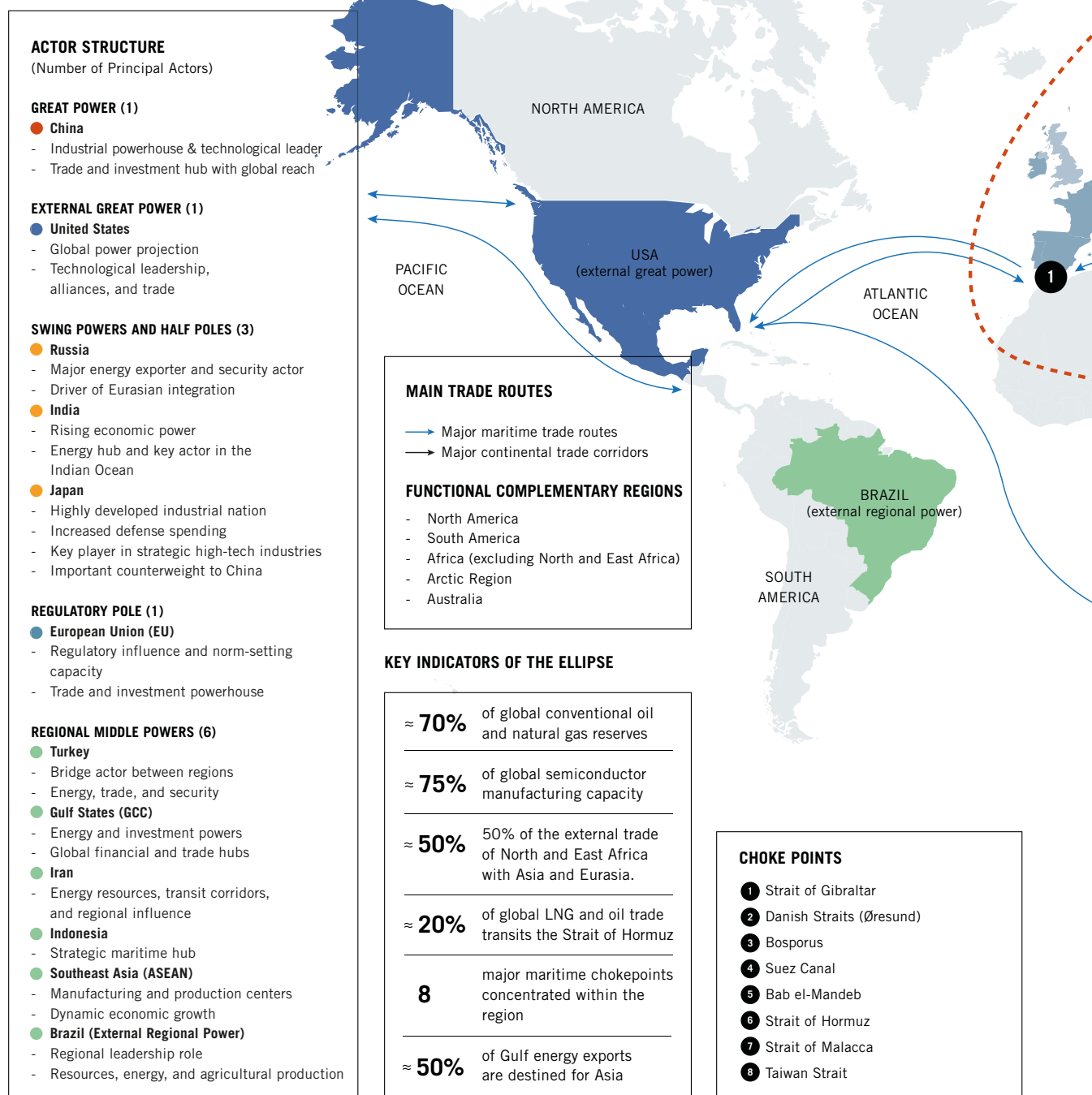
40 Cf. Asian Development Bank (ADB), *Asian Economic Integration Report 2025: Harnessing the Benefits of Regional Cooperation and Integration*, Manila 2025, available at https://www.icgoodfind.com/cms/Article/get/article_id/15938/ (last accessed 01.07.2026).

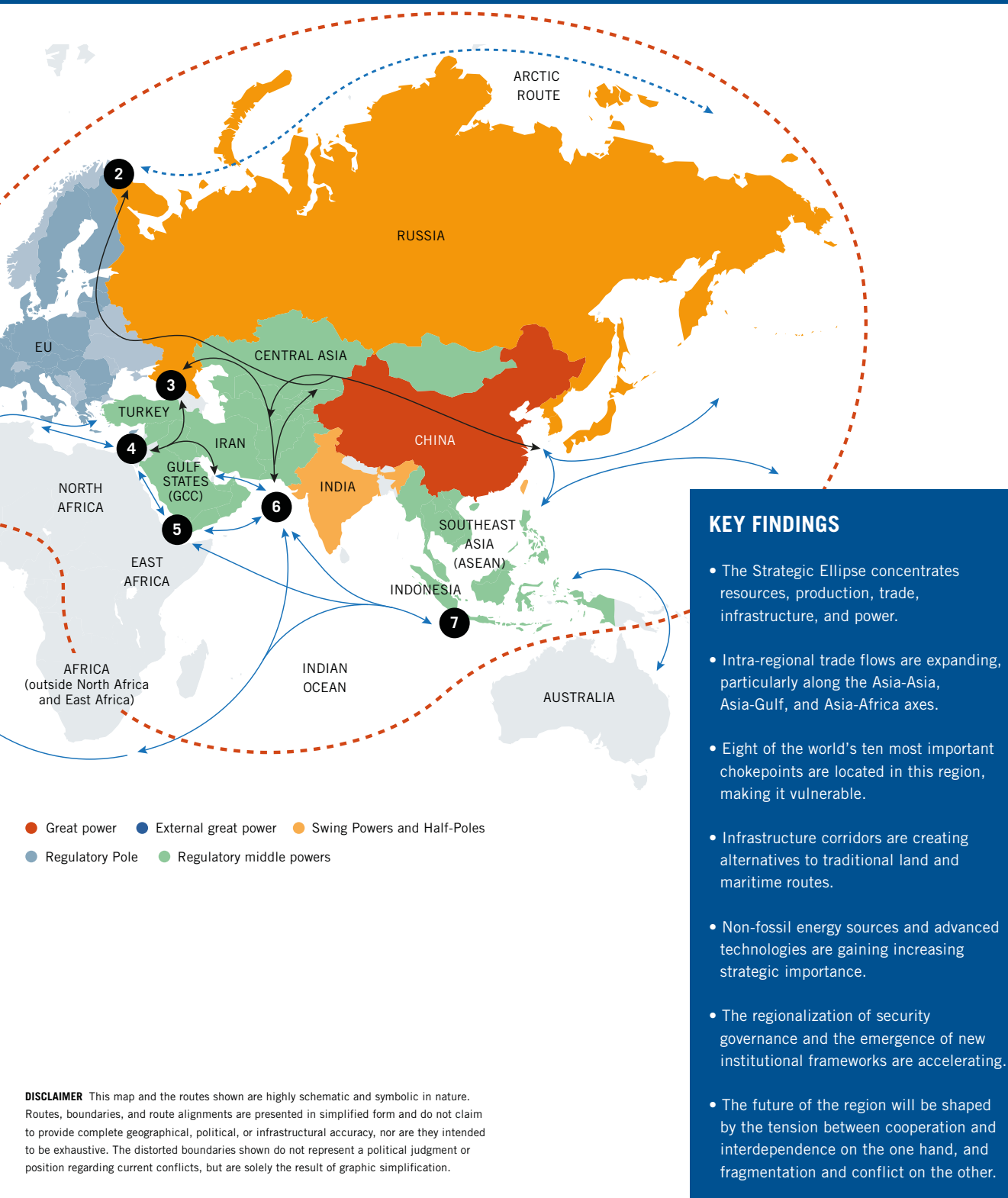
41 Cf. Asia House, *The Middle East Pivot to Asia*, Research & Analysis/Publication, London 2025.

42 ASEAN stands for Association of Southeast Asian Nations – an association of Southeast Asian states with political, cultural, and economic objectives.

Figure 3: The Strategic Ellipse 2.0 – A Center of Interconnected Power, Resources, and Corridors

A fluid space of interaction stretching from North and East Africa through West Asia and Continental Eurasia to South and East Asia, where energy resources, trade flows, infrastructure networks, and geopolitical interests are concentrated and deeply interconnected.





Source: Authors' own compilation based on data from the U.S. Energy Information Administration (EIA), IEA, UN Comtrade, Clarksons, and S&P Global

trigger was an escalation of the military conflict between Iran on one side and the USA and Israel on the other, which led to mutual attacks on energy infrastructure and tankers. Consequently, Iran threatened a blockade or the mining of the Strait of Hormuz. The resulting de facto restriction of one of the central maritime corridors significantly impaired not only energy flows but also container and freight traffic. The Strait of Hormuz is not only a key corridor for energy, energy products, and chemicals, but also a central passage for trade between Asia, the Middle East, and Europe. Its restriction led to rising transport costs, delays, and diversions of trade flows, as well as to a general unsettling of global supply chains.

The effects extend well beyond the energy sector. In parts of Central Asia and the Middle East, for instance, the conflict led to interruptions of trade relations, for example through rising insurance and logistics costs or temporary export restrictions. At the same time, such crises reinforce the tendency toward regional densification and diversification of trade routes within the ellipse. States and companies have intensified their efforts to expand alternative corridors – for instance via land routes through Eurasia or via maritime bypass routes – as well as to make greater use of regional supply chains. In Asia this dynamic is particularly evident since a large proportion of the energy and trade flows transported through the Strait of Hormuz is destined for Asian markets. The consequence is an accelerated strategic reorientation, including in countries of the ellipse, and particularly in energy-intensive Asian countries, where demand for alternative technologies and industrial products is likely to rise (above all in the areas of renewable energies, electrification, and clean energy technologies).

The consequences could include greater investment in non-fossil energy carriers and technologies such as nuclear energy and renewables, as well infrastructure and storage capacities. A further consequence could be the expansion of alternative transport routes and suppliers for fossil energies – from continental Eurasia to the Arctic routes and around the Cape of Good Hope – and, looking ahead, a stronger role for non-Western actors in securing and organizing these trading spaces. This latter development also points to an increasing regionalization of maritime security, in which coastal trade routes could increasingly be secured by regional powers – often in informal or ad hoc cooperation formats. This could enhance the resilience of global supply chains, but it also carries the risk of competing security orders and fragmented governance structures.

Overall, it becomes apparent that the strategic ellipse is a space of concentrated interdependence as well as a space of heightened systemic vulnerability. It is the combination of growing intra-regional trade – in the fossil and non-fossil energy sectors – and a high dependence on a few critical corridors and logistical bottlenecks that makes this space the central arena of the reordering of global trade and energy flows. The dynamics of the Iran war illustrate how quickly economic interconnections in this space can shift, reconfigure, or temporarily fragment.

The future development of the ellipse is likely to move along a spectrum that both foreshadows and helps shape global developments: from a geopolitically competitive, polycentric but still economically interdependent order to more strongly fragmented, conflict-prone, and economically more decoupled blocs. Likewise, the possible spectrum ranges from intense competition and weak governance to ad hoc cooperation, pragmatic-functional arrangements, and new institutional formats.

3. Expected Impacts on the Energy Sector and Climate Action

The relationship between geopolitics and energy markets is complex and by no means runs in one direction only. Rather, it is a reciprocal dynamic: on the one hand, sectoral developments such as new extraction technologies, new substitute materials, cost shifts, or new trade routes change geopolitical balances of power. Examples of this are the U.S. shale gas revolution or China's dominant role in scaling green technologies. On the other hand, geopolitical upheavals, power shifts, and changes in the international order increasingly shape the structure of energy systems, investment flows, and global markets.

The increasing geopolitical fragmentation and the spatial reordering of the international economic system are thus changing the global energy order in its depth and breadth. They reshape not only market structure, but also the logic of investment decisions, industrial organization, and climate policy governance. For the time being, what emerges is not a clear transition from a fossil to a renewable world order, but rather a complex system of competing power and production regimes, in which different resources – from fossil and mineral raw materials through technologies and industries to financial and regulatory instruments – are deployed strategically.

States and regions define themselves less according to whether they use fossil or renewable energies, and more according to whether they possess industrial capacities, access to critical raw materials, technological innovation systems, or financial steering power.

Central at the outset is the observation that the new energy order is not forming solely along a binary dividing line between “petro-” and “green” states.⁴³ Rather, competition runs along the control of central value chains and systemic power resources. States and regions differ less according to whether they use fossil or renewable energies than according to whether they possess industrial capacities, access to critical raw materials, technological innovation systems, or financial steering power. China, for

instance, dominates large parts of the industrial value chains for energy transition technologies and controls considerable shares of global production of solar modules and batteries, but is at the same time a large producer and consumer of fossil fuels, with growing market power as a trading hub. At the same time, classical energy producers such as the Gulf states or the USA remain central actors in the global oil and gas supply. The Gulf states are simultaneously investing more heavily in green industries and technologies and have risen to become major international investors in this field.

Added to this is the structural financial power of the USA, in particular through the role of the USD in the global energy market, as well as the regulatory power of the EU, which indirectly influences global markets through norms and standards – for example in the area of CO₂ pricing or sustainability criteria. What is decisive is that some actors occupy several of these dimensions simultaneously and deliberately link them with one another: China combines industrial scaling with infrastructure policy, while remaining both a major producer and a major consumer of fossil fuels. The USA combines fossil energy production with new technologies, financial power, and innovative capacity, and the Gulf states are seeking to redirect their fossil revenues into new energy-industrial value creation.

Within this framework, the question of security of supply acquires a new strategic and more complex significance. The politicization of economic interdependencies and the growing uncertainty of global markets lead to a return of classical logics of energy policy security. Events such as the Russia-Ukraine war or the Iran war and the recurring tensions along maritime and continental trade routes have illustrated the vulnerability of global energy systems but have also fueled competition over new energy systems. Even limited military escalations or disruptions can lead to noticeable price swings, rising insurance premiums for tankers, and diversions of trade flows. In phases of heightened tension, not only do physical risks increase, but so do perceived geopolitical uncertainties which are reflected directly in price premiums.

The response of states to these risks is multifaceted. It ranges from the diversification of suppliers and transport routes through the expansion of redundant infrastructures to the increased use of strategic reserves. The EU, for instance, fundamentally restructured its gas procurement within a few years of the start of the Russia-Ukraine war and is now considerably more reliant on LNG imports from the USA, Qatar, and other suppliers. In parallel, numerous countries such as Japan, South Korea, and the states of Southeast Asia invest in national production ca-

⁴³ Mitrova, Tatiana/Corbeau, Anne-Sophie, Petrostates and Electrostates in a World Divided by Fossil Fuels and Clean Energy. Center on Global Energy Policy (Columbia University), 2025, available at <https://www.energypolicy.columbia.edu/publications/petrostates-and-electrostates-in-a-world-divided-by-fossil-fuels-and-clean-energy/> (last accessed 01.07.2026).

capacities, both in the area of renewables and in nuclear power. This is also understood as an instrument of strategic autonomy. Security of supply thus (once again) becomes an objective of equal rank alongside efficiency and climate action, and increasingly shapes the logic of energy policy decision-making.

This development has considerable effects on cost structures and system efficiency. As energy and raw material markets become more politicized, regional and national priorities displace global optimization. Supply chains are diversified or duplicated for reasons of resilience, which reduces economies of scale and raises costs. At the same time, energy prices increasingly contain a security premium that reflects risks along transport routes, political uncertainties, and military hedging. The experience of recent years, in which gas prices in the EU reached extreme highs, shows how strongly geopolitical factors can influence price formation. The Iran war and the *Hormuz crisis*, in turn, have the potential to trigger one of the largest price and supply crises. Even if markets were to stabilize, a structurally elevated price level remains, which influences investment decisions and competitiveness.

At the same time, new industrial dynamics emerge. Global investment in the energy transition has reached a historically high level. Already in 2024, twice as much was invested in emission-free or low-emission energies as in fossil energies.⁴⁴ These investments are, however, not evenly distribute. Rather, they lead to the formation of new industrial clusters and value-creation spaces. In China, large parts of the production of batteries and solar technologies continue to dominate, while the EU is attempting to build its own capacities through targeted industrial-policy programs, and the USA is still building on its lead in some technologies such as nuclear power. Countries of the Global South, for instance in Southeast Asia or the Middle East, are increasingly positioning themselves as production locations or as nodes for energy and raw material flows. The energy transition itself becomes a field of intense geoeconomic competition.

In this context, energy remains a central instrument of geopolitical power projection but extends beyond fossil resources to technologies, industrial capacities, and regulatory systems. States increasingly use export controls and investment regimes strategically to secure competitive advantages or create dependencies. Particularly relevant is control over technological standards and industrial ecosystems, since in the long term this determines which

technologies prevail globally and who participates in the corresponding value chains. The ability to structure markets via certification systems – for instance for renewable hydrogen (H₂) or sustainable supply chains – is becoming an important instrument of power.

The shift in these power structures is reflected directly in global trade flows – and in the growing importance of spatially concentrated, strategically densified corridors within the strategic ellipse. Until the outbreak of the Russia-Ukraine war in 2022, for example, the Russia-Europe connection formed an important transcontinental supply axis. Until the beginning of the Iran war in 2026, the Middle East-Asia axis represented the most dynamic energy space of the world economy. A considerable part of global energy and petrochemical trade flows is concentrated on the axis between the Persian Gulf and the Asian demand centers China, India, Japan, and South Korea – which represent the most important import regions for crude oil and LNG respectively and, in individual segments (above all LNG and naphtha), account for over 50-70% of global demand or trade volumes.⁴⁵

➤ In 2025, more than 80% of Russian crude oil exports went to Asian markets, especially China and India.

Within this context, fossil energy carriers are not changing their structural significance in the short term for geopolitical reasons, but they are changing their geographical patterns within this ellipse. Russia has massively redirected its energy exports eastward since 2022, with China and India becoming the most important buyers. In 2025, more than 80% of Russian crude oil exports already went to Asian markets, especially to China and India.⁴⁶

44 Cf. International Energy Agency (IEA), World Energy Investment 2024, 6/2024, available at <https://www.iea.org/reports/world-energy-investment-2024> (last accessed 01.07.2026).

45 Cf. Zero Carbon Analytics, Asian countries most at risk from oil and gas supply disruptions in Strait of Hormuz, available at <https://zerocarbon-analytics.org/insights/briefings/asian-countries-most-at-risk-from-oil-and-gas-supply-disruptions-in-strait-of-hormuz/> (last accessed 01.07.2026).

46 Cf. U.S. Energy Information Administration (EIA), Russia's oil exports have decreased modestly since 2022, shifting toward Asia, 07.08.2025, available at <https://www.eia.gov/todayinenergy/detail.php?id=65885> (last accessed 01.07.2026).

India at times obtained more than a third of its crude oil imports from Russia, while China continuously expanded its pipeline and seaborne deliveries from Russia.⁴⁷ In parallel, the EU profoundly restructured its gas supply and increased the share of LNG imports – in particular from the USA and Qatar. The USA became the world's largest LNG exporter in 2024. Europe at times absorbed more than 50% of American LNG exports.⁴⁸

At the same time, energy relations between Asia and the Gulf region intensified considerably. China imported more than 50% of its oil from the Middle East in 2025. Saudi Arabia (and unofficially Iran) remained China's largest

crude oil suppliers, with exports averaging about 1-1.5 million barrels per day each.⁴⁹ For India, too, the Gulf region continued to gain importance: around 45% of Indian crude oil imports still came from the Middle East up until the outbreak of the Iran war in February 2026.⁵⁰ Japan and South Korea remained considerably more dependent. The Gulf-Asia axis developed, up until the Iran war, into one of the strategically most sensitive energy trading spaces of the world economy. Despite the war, it remains a vital corridor for energy trade.

In parallel, new trading patterns for green technologies and critical raw materials emerged within the same axis. China systematically expanded its relations with the Gulf region and with Central Asia beyond fossil energies. Sau-

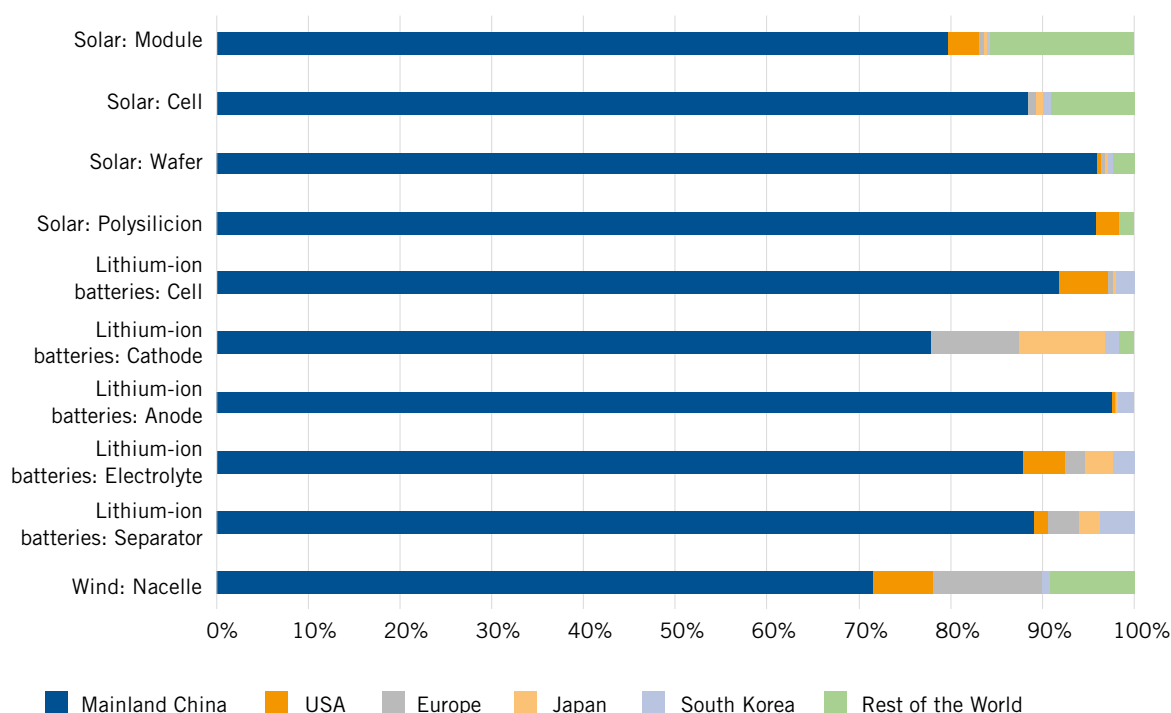
47 Cf. Verma, Nidhi, India's Russian oil imports rise 11.7% in Sept from Aug, data shows, Reuters, 16.10.2024, available at <https://www.reuters.com/business/energy/indias-russian-oil-imports-rise-117-sept-aug-data-shows-2024-10-16/> (last accessed 01.07.2026); Aizhu, Chen, China's crude oil imports from top supplier Russia reach new high in 2024, Reuters, 20.01.2025, available at <https://www.reuters.com/markets/commodities/chinas-crude-oil-imports-top-supplier-russia-reach-new-high-2024-2025-01-20/> (last accessed 01.07.2026).

48 Cf. Jacobs, Trent, US Ranked as World's Top LNG Exporter in 2024, EIA Reports, in: Journal of Petroleum Technology (SPE), 02.04.2025, available at <https://jpt.spe.org/us-ranked-as-worlds-top-lng-exporter-in-2024-eia-reports> (last accessed 01.07.2026).

49 Cf. Corbeau, Anne-Sophie/Sandalow, David, Implications of the Conflict in the Middle East for China's Energy Security. Center on Global Energy Policy (Columbia University), 24.06.2025, available at <https://www.energypolicy.columbia.edu/implications-of-the-conflict-in-the-middle-east-for-chinas-energy-security/> (last accessed 01.07.2026).

50 Cf. Palit, Amitendu, India's Energy Security Challenge: Diversifying Crude Oil Imports. Institute of South Asian Studies (ISAS), National University of Singapore, 19.01.2026, available at <https://www.isas.nus.edu.sg/papers/indias-energy-security-challenge-diversifying-crude-oil-imports/> (last accessed 01.07.2026).

Figure 4: Global Manufacturing Capacity for Clean Energy Technologies by Location (2024)



Source: Visualization based on BloombergNEF data

di Arabia, the United Arab Emirates (UAE), and Qatar increasingly positioned themselves as investors and potential export centers for hydrogen (H₂), ammonia, and green industrial products toward Asia and Europe. At the same time, China intensified its industrial cooperation with the Gulf states in the areas of solar technology, electric vehicles (EVs), grid technologies, and battery production. Chinese companies now participate in large solar and H₂ projects in Saudi Arabia and the Emirates, while the Gulf states invest increasing capital in Chinese clean-tech and petrochemical projects.⁵¹

This green cooperation is also expanding into third regions, such as North Africa and Central Asia. A strategic triangle of China-Gulf-Central Asia has developed, in which energy, infrastructure, and technology corridors merge with one another. Central Asia functions in this context not only as a transit and raw materials space, but increasingly also as a diversification axis for Gulf-Chinese financial, supply, and value chains in the form of joint green technologies and industrial projects.⁵²

Up until the Iran war, global trade flows around green technologies and clean tech products – incl. solar modules, batteries, electric vehicles, electrolyzers, and heat pumps – developed particularly dynamically. China, however, dominates these trade flows in almost all central segments. The country controls over 80% of global production capacity for solar modules, about 70% of battery cell production, as well as large parts of the refining capacity for lithium, cobalt, and graphite.⁵³ In 2024 alone, China exported solar modules with a total capacity of just under 240 gigawatts (GW). The most important sales markets were in Europe, Southeast Asia, and the Middle East, but growth came mostly from non-European markets.⁵⁴ In parallel, Chinese exports of EVs reached 40%

(1.25 million) of global exports of electric vehicles in 2024.⁵⁵

Noteworthy is the increasing geographical diversification of Chinese clean tech trade flows. While Europe initially remained the most important sales market, a growing share of Chinese exports is shifting to emerging and developing countries. Recent International Energy Agency (IEA) analyses show that the export destinations of Chinese EVs are shifting slowly but increasingly from Europe toward the emerging markets in Asia, Latin America, and the Middle East, above all Southeast Asia, Eurasia, and the Gulf region.⁵⁶ This gives rise not only to new trade dependencies, but also to long-term technological and infrastructural ties along the strategic ellipse.

The EU is attempting in parallel to build up its own counter-capacities for industrial and trade policies – for instance via the Net-Zero Industry Act, the Critical Raw Materials Act, or new energy partnerships with North Africa and the Gulf region. The outcome of this strategy, however, remains open. Despite industrial policy initiatives, Europe continues to be highly dependent on Chinese intermediate products, batteries, solar modules, and refining capacities. At the same time, rising costs, fragmented funding structures, and regulatory uncertainties are intensifying the competition to build domestic industrial capacities. Europe's strategy thus appears far less as a completed geoeconomic *reordering* than as an open attempt to establish technological sovereignty and more resilient supply chains within the densifying strategic ellipse.

Institutionally, this development in the energy field is also accompanied by a shift from multilateral to more strongly bilateral – at best mini-/plurilateral⁵⁷ – governance. While existing institutions formally remain in place, they continue to lose enforcement capacity, or fragment along geopolitical lines. Their place is taken by flexible, bilateralized partnerships and sectoral cooperation, for instance around hydrogen, critical raw materials, or infrastructure development, but also in the traditionally more liquid and

51 Cf. Middle East Council on Global Affairs, The China-Gulf Green Rush: Fueling Renewable Energy Cooperation, available at <https://mecouncil.org/publication/the-china-gulf-green-rush-fueling-renewable-energy-cooperation/> (last accessed 01.07.2026).

52 Cf. Ansari, Dawud/Gehring, Rosa Melissa/Pepe, Jacopo Maria, Die Golfstaaten, China und Zentralasiens grüner Energiesektor. SWP-Aktuell 2024/A 63, Berlin, 2024, available at <https://www.swp-berlin.org/publikation/die-golfstaaten-china-und-zentralasiens-gruener-energiesektor> (last accessed 01.07.2026).

53 Cf. International Energy Agency (IEA), Energy Technology Perspectives 2024, available at <https://www.iea.org/reports/energy-technology-perspectives-2024> (last accessed 01.07.2026).

54 Cf. InfoLink Consulting, China PV module exports: growth across all regions except Europe in 2024, available at <https://www.infolink-group.com/energy-article/solar-topic-china-pv-module-exports-yoy-growth-all-regions-except-europe> (last accessed 01.07.2026).

55 Cf. International Energy Agency (IEA), Global EV Outlook 2025, 2025, available at <https://iea.blob.core.windows.net/assets/7ea38b60-3033-42a6-9589-71134f4229f4/GlobalEVOutlook2025.pdf> (last accessed 01.07.2026), p. 33.

56 Cf. International Energy Agency (IEA), Global EV Outlook 2025, 2025, available at <https://iea.blob.core.windows.net/assets/7ea38b60-3033-42a6-9589-71134f4229f4/GlobalEVOutlook2025.pdf> (last accessed 01.07.2026), p. 12.

57 Minilateral or plurilateral governance denotes forms of international cooperation in which not all states of a system (as in multilateral organizations) jointly establish rules, but only a limited group of countries – mostly among themselves and for themselves.

globally integrated fossil markets. The withdrawal of the UAE from the Organization of the Petroleum Exporting Countries (OPEC) marks a historic turning point for the architecture of the global oil market, which is now becoming less coordinated, more competitive, but also more volatile. This fragmented governance structure is less coherent, but it enables pragmatic cooperation along concrete interests.

For climate policy, this development has ambivalent consequences. On the one hand, it is increasingly shaped by national and regional industrial policy strategies. States deliberately promote domestic industries, rely on subsidies, and seek to attain technological leadership positions. Security considerations dominate and now drive decarbonization pathways and the expansion of renewables worldwide – albeit with differing nuances. Competition over markets, standards, and supply chains of the energy transition thus moves more strongly into the foreground. On the other hand, precisely this competition can also have an innovation-promoting effect and contribute to the faster diffusion of certain technologies. At the same time, fragmentation makes global coordination more difficult and raises the costs of transformation, since the efficiency gains of globally integrated markets can be realized only to a limited extent. In addition, the importance of climate adaptation is increasing markedly. In view of growing climatic risks and limited progress in emissions reduction, many states are investing more heavily in resilience measures, infrastructure expansion, and risk management. This applies particularly to regions along the strategic ellipse, which are exposed to both climatic and geopolitical risks.

The energy transition proceeds not as a linear, globally coordinated process, but as a conflict-laden, more cost-intensive, and innovation-driven transformation in a multipolar world.

Overall, it becomes apparent that the energy sector is entering a phase of structural reordering, in which geopolitical fragmentation and still-persisting interdependence operate simultaneously. Events such as the Iran war and the crisis in the Strait of Hormuz underline that physical bottlenecks and military risks remain central influencing factors. At the same time, competition is shifting even more strongly to the control of technologies, infrastructure, and industrial ecosystems. Under these conditions, the energy transition proceeds not as a linear, globally coordinated process, but as a conflict-laden, more cost-intensive, and innovation-driven transformation in a multipolar world.

4. Geopolitics and Energy: Three Scenarios of Geopolitical Fragmentation

4.1 Methodological Classification and Scenario Logic

The following scenarios outline possible development paths of geopolitical fragmentation as well as their effects on energy and climate policy, supply, and economic dynamics. They are not quantitatively modeled energy scenarios *stricto sensu*. They account only to a limited extent for market-internal and energy-system transformations. Instead they bring geopolitical patterns of order and power relations into focus as central framework conditions in which energy markets and energy systems are embedded and which substantially co-determine energy-policy decisions.

The scenarios are not to be understood as forecasts, but as an analytical sketch of plausible lines of development, serving to structure uncertainties systematically and to make strategic implications visible. They deliberately remain schematic and work with comparatively simplified dynamics and without a time horizon. The starting point is the assumption that the trends of geopolitical fragmentation, multipolar actor structures, the politicization of interdependencies, and the militarization of the economic order remain operative in all scenarios, but manifest themselves differently in terms of intensity, combination, and political effect.

The scenarios differ along five structural dimensions: (1) structure of the international order (polar structure), (2) intensity of geopolitical rivalry, (3) role of economic interdependencies, (4) organization of energy and raw material markets, and (5) degree of international cooperation in climate policy. The first two dimensions in particular function as key factors, since they are both structurally uncertain and system-defining and place the focus on the systemic level of geopolitics.

The polar structure of the international order captures the systemic architecture: number, coherence, and autonomy of the power centers as well as the role of middle powers. It ranges from bloc-shaped structures through to a plural, multipolar order with independent bridging actors (mediators). The intensity of geopolitical competition, in turn, describes the quality of interaction between central power actors. It ranges from functionally contained rivalry through to systemic escalation. Empirically, this dimension manifests itself, among other things, in the increase in sanctions, in export controls and investment restrictions in the technology sector, or in the growing militarization of maritime bottlenecks and transport corridors, the strategic upgrading of critical raw materials and

energy carriers, as well as the politicization of infrastructure and supply chains.

Both dimensions can be combined analytically independently of one another: a multipolar order can be highly conflictual or functionally stabilized. Likewise, a more bloc-like structure may be escalatory or settle into relatively stable coexistence. It is precisely this combination that enables differentiated scenarios beyond simplified bloc logics.

Scenario 1: Polycentric Competition with Limited Escalation – Baseline

This scenario develops under the condition that the central geopolitical conflicts of the present do persist, but do not turn into a permanent security-policy bloc confrontation. Recurring tensions in trade, technology, and energy markets do lead to diversification strategies, regional adjustment processes, and selective industrial-policy measures, but they do not produce a complete decoupling of global economic and infrastructure spaces. States and companies react primarily through risk spreading, market adaptation, and flexible supply-chain restructuring. Global interdependencies are in principle maintained despite increasing geopolitical competition. The dynamic of this scenario thus arises from the structural tension between geopolitical rivalry and continuing economic interdependence: the costs of complete fragmentation remain too high for all major power centers, while security-policy competition at the same time prevents a return to liberal globalization. The result is a politicized, regionalized, and increasingly redundant world economy whose stability rests essentially on pragmatic crisis management and functional dependencies. The continuing importance of global financial markets, maritime trading spaces, and technological interdependencies also has a system-stabilizing effect. Regional conflicts and temporary supply shocks remain frequent, but do not lead to a permanent formation of blocs. This scenario assumes a fundamental continuation of central trends, with some adjustments, and is regarded as the baseline scenario.

The central power poles – in particular the USA and China, supplemented by actors such as India, the EU, Japan, and (to a more limited extent) Russia – stand in structural competition, but remain embedded in a dense web of economic, technological, and financial interdependencies. These interdependencies are not dissolved, but increasingly politically framed, selectively steered, and secured through additional redundancies. In parallel, flexible coordination formats between middle powers

gain importance, as they seek – within and outside existing institutions such as the UN, the G-formats, or BRICS – to pool their bargaining power vis-à-vis the great powers.

This scenario is additionally stabilized by the absence of direct great-power conflicts. The war between Russia and Ukraine transitions into a frozen, low-intensity conflict with controlled escalation potential, while a fragile, indirectly secured ceasefire becomes established between the USA and Iran. This comprises of de facto keeping open the Strait of Hormuz in exchange for limited security-policy guarantees and nuclear restraint, without, however, sustainably resolving the underlying causes of the conflict. The U.S.-Chinese conflict is held at the level of geoeconomic competition, without turning into open war.

In this constellation, the global trade and investment order remains formally intact, but changes the way it functions. Markets remain open enough to continue to enable global allocation and growth, but become increasingly dysfunctional, fragile, geopolitically vulnerable, and management-intensive, and are overlaid by geopolitical risk calculations.

The global energy sector remains fundamentally integrated, but differentiates itself increasingly along energy carriers, technologies, and infrastructures.

World trade remains at a high level (≈ USD 25–27 trillion) but grows in a more strongly regionalized manner: South–South trade continues to rise and reaches > 40% of global trade volume, while the WTO continues to erode. Friend-shoring, strategic diversification, and parallel supply chains gain importance. This is particularly evident in the emergence of partly redundant trade flows that aim to reduce vulnerabilities without completely severing existing interconnections. China remains the central trading hub for Asia, while the USA and the EU remain important end markets and technology centers. Particularly within the strategic ellipse, investments shift increasingly to geopolitically relevant nodal spaces such as the Gulf states, India, or ASEAN. The global energy sector remains – despite signs of dissolution – fundamentally integrated, but differentiates itself increasingly along energy carriers, technologies, and infrastructures.

In this scenario, fossil energy flows continue to form a closely interwoven system, which is more strongly diversified and geopolitically hedged. In the oil market, global

integration remains particularly pronounced. Global oil demand declines slowly, albeit with differing intensity depending on the pace of national decarbonization pathways. Flows of crude oil and oil products continue to run between the large production centers in the Middle East, Russia, and the USA and the main demand regions in Asia, Europe, and North America. The patterns are shifting, however: Russia orients itself further toward Asia and establishes itself there as a structural supplier, albeit with price discounts and logistical dependence on new transport corridors. As a consequence of the European lifting of oil sanctions under strict political conditionalities, Europe is once again an attractive but quantitatively and temporally limited residual alternative for Russia for oil and oil products.

Europe, in turn, reduces its direct dependence on Russia and is supplied more strongly via global markets as well as alternative suppliers. The Gulf states diversify their sales markets but remain closely interwoven with Asian buyers. Asian demand – in particular from China and India – stagnates but remains stable in the medium term in this scenario and forms the focal point of the demand shift. Maritime bottlenecks such as the Strait of Hormuz or the Strait of Malacca retain central importance in this context but are partly cushioned by alternative routes and strategic reserves. Their free use rests on a fragile balance of the interests of regional and global poles. While Russia sustainably directs its export flows towards Asia, Europe remains indirectly connected to these flows via global markets, since price formation and supply continue to be determined globally.

In the area of natural gas, a system continues to develop that is networked through growing price correlation of regional markets but at the same time politically framed. Natural gas can generally continue to defend its function despite shocks and price swings. LNG now functions as a global balancing mechanism that compensates for regional bottlenecks via flexible trade flows. The USA, Qatar, and Australia function as flexible anchor points of a global LNG network that enables importers to react to disruptions at short notice. The USA establishes itself permanently as one of the largest LNG exporters, but in the short to medium term can only partially compensate for the supply gap following the Iran war. It thus profitably supplies both Europe and increasingly East Asia via spot markets, with the flows shifting depending on price levels and the geopolitical situation.

Qatar remains – despite the Hormuz crisis – a central supplier for South Asia and increasingly also for Europe. It has forfeited market power and credibility as a stable

Dimension/Factors	Scenario 1 – Polycentric Competition with Limited Escalation (Baseline)
International order (key factor)	Competitive multipolar order with limited cooperation
Geopolitical dynamics (key factor)	Rivalry between the USA and China persists but does not escalate
Economic order	Partial regionalization with continuing globalization
Energy order	Diversified fossil and green transitional order
Climate policy	Decarbonization shaped by industrial policy
Fossil energies	Continued high importance for security of supply
Renewable energies / clean tech	Accelerated expansion under geoeconomic competition
Critical raw materials	Diversification and strategic hedging
Supply chains	Resilience-oriented diversification
Infrastructure and corridors	Expansion of redundant energy and transport corridors
Role of the USA	Dominant security and financial pole
Role of China	Industrial and geoeconomic gravitational core
Role of swing powers	Balancing policy between the poles
Role of Europe	Economically strong, geopolitically only limitedly autonomous
Governance structures	Weaker multilateral institutions
Price and supply situation	Structurally higher volatility
Innovation dynamics	Competition stimulates technological development
Central risks	Persistent uncertainty and strategic vulnerability
Strategic guiding logic	Resilience before efficiency

supplier because of the war, though. While Australia primarily supplies East Asia, Europe secures its supply – alongside a still significant spot-market share, which enables short-term adjustments – through long-term contracts with Qatar, Canada, and additionally smaller African producers. Thanks to elevated prices and sustained demand, these are able to increase their production from the early 2030s onward. In parallel, pipeline flows retain their strategic importance, in particular within regional spaces and along the strategic ellipse.

Norway remains a stable gas supplier for Europe, while pipeline deliveries between Russia and China – for in-

stance via the existing Power of Siberia pipeline⁵⁸ – are further increased, without realizing additional connections such as the Power of Siberia 2 pipeline. Gas imports from Central Asia as well as from Australia to China remain stable, which increases China's supply flexibility. As long as the Russia-Ukraine conflict does not flare up again, pipeline gas and LNG imports from a financially weakened Russia continue to be permitted in Europe on a selective basis and under strict conditionalities – following either a partial suspension of the import ban or a

⁵⁸ The Power of Siberia is a natural gas pipeline that transports Russian gas from Eastern Siberia to China.

Scenario 2 – Escalated Large-Scale Conflicts with Few Poles (WC – worst case)	Scenario 3 – Functionally Institutionalized Coexistence (BC – best case)
Increasing bloc formation and geopolitical escalation	Multipolar order of functional coexistence
Systemic confrontation and regionalization dominate	Selective cooperation despite strategic competition
Fragmented economic blocs and partial decoupling	Re-globalized, functional interdependence
Security and supply dominate energy policy	Relatively stable and more strongly coordinated transformation paths
Climate targets lose priority relative to security logics	Competition-driven but cooperative decarbonization
Renaissance of fossil security policy	Slow relative loss of importance
Expansion proceeds along bloc- and security-oriented lines	Stronger international diffusion and scaling
Resource rivalry and export controls	Partially institutionalized raw-materials governance
Deep fragmentation and parallel structures	Selective re-integration of global value chains
Militarization and vulnerability of critical corridors	New plurilateral infrastructure and security arrangements
Leading power of a Western bloc	Leading power with selective willingness to cooperate
Counter-pole to the West with alternative structures	Central actor of functional interdependence
Opportunistic bloc balancing	Mediating and pivotal function
Strategically under pressure and dependent, risk of fragmentation	Potential regulatory and technological mediator
Competing regimes of blocks and sanctions	Flexible plurilateral and functional cooperation
Recurring energy and supply crises	Relatively higher stability and predictability
Fragmentation reduces economies of scale	Competition and cooperation accelerate innovation
Escalation of military and economic conflicts	Fragile cooperation mechanisms and governance deficits
Security before globalization	Functional interdependence despite rivalry

Source: Authors' own compilation

tacit extension of the exemption deadline for individual countries. LNG from the Russian Yamal project continues to flow eastward and to India – partly via the Arctic route, partly via European ports, which do again permit transshipment, but on expensive terms and under strict political conditionalities.

Fossil energy carriers remain expensive transitional technologies whose stability must be geopolitically managed.

Within the Middle East and between North Africa, Central Asia, and Europe, pipeline projects remain relevant, even though they are constrained by geopolitical risks and investment uncertainties. At the same time, East Asia remains a central demand pole, so that LNG flows between the Atlantic and the Pacific can increasingly be flexibly redirected. This flexibility does reduce the risk of acute supply bottlenecks, but it goes hand in hand with structurally higher prices, since transport costs, infrastructure investments, and geopolitical risk premiums are permanently priced in. Overall, a dual system emerges in which LNG offers global flexibility while pipelines ensure regional anchoring and long-term stability. Fossil energy carriers

thus remain expensive transitional technologies whose stability must be geopolitically managed. In the transitional phase they can even constitute (for some countries) a balancing and redundancy function (reinsurance) against the dominance of green superpowers such as China.

In the area of electricity and renewables, a different logic becomes apparent: regional and subregional interconnections increasingly dominate. Electricity can be traded globally only to a limited extent. However, regional or even transregional electricity networks and (also hybrid) maritime interconnectors are emerging. In Europe, in parallel with the accelerated expansion of renewables, the physical integration of electricity markets is deepening, with growing importance of cross-border grids between the North Sea, the Mediterranean region, Eastern Europe, and even Central Asia. At the same time, new connections are emerging between Europe and North Africa, for instance in the form of electricity cables or for renewable hydrogen and hydrogen products. In the Middle East and in parts of Asia, regional electricity grids are likewise developing, for instance between the Gulf states or in Southeast Asia and within the framework of ASEAN. Transcontinental electricity connections between large geopolitical blocs do remain limited and are more the exception than the rule, since they entail high investment costs, political risks, and technical challenges. They are being actively examined and developed above all between China and Europe via Central Asia.

The situation is similar for solar and wind energy, whose value chains are organized globally while their use remains strongly regionally anchored. China continues to dominate the production of solar modules and essential components of the wind industry and exports these on a large scale to Europe, Asia, Africa, and Latin America. At the same time, the USA, Europe, and India are building up their own production capacities in order to reduce dependencies. Trade in these technologies remains global but is increasingly influenced by industrial-policy measures such as subsidies, local production requirements, or trade-policy protective instruments.

In parallel, the global value chains of the energy transition are reorganizing themselves. In the area of critical raw materials, global interconnection remains particularly pronounced but is increasingly strategically framed. Lithium from Australia and Latin America, nickel from Indonesia, cobalt from Africa, and rare earths from various regions continue to be traded globally, but frequently pass through processing steps in China, which occupies a dominant role in refining and further processing. At the same time, other actors – such as the USA, the EU, or

Japan – are attempting to build alternative supply chains, for example through partnerships with Canada, Australia, or African states. A typical battery supply chain in this scenario could continue to combine Australian lithium, African cobalt, Chinese refining, and European or American cell production. This development does not lead to a complete decoupling, but to multiple networking with increasing redundancy, in which several parallel supply chains emerge. This partial redundancy increases resilience but also leads to higher costs and lower efficiency gains.

The initially weak market ramp-up of hydrogen and its derivatives experiences new, albeit cautious and geopolitically framed, momentum. The market initially remains fragmented since standards, certification systems, and infrastructure are not yet fully harmonized and governance institutions continue to be lacking.

A defining feature of this scenario is the increasing importance of land–sea corridors and connections as an instrument of redundancy.

A defining feature of this scenario is the increasing importance of land–sea corridors and connections as an instrument of redundancy, above all within the strategic ellipse. As a consequence of the Hormuz shock, energy, industry, and trade flows no longer run exclusively along classical maritime routes but are significantly supplemented – though not replaced – by continental connections. Examples of this are pipeline and railway corridors between Russia, Central Asia, and China, intermodal energy and transport connections through the Gulf, between Central Asia/Russia and India and South Asia, as well as new infrastructure axes between North Africa and Europe and land–sea interconnectors between South Asia and West Asia. These corridors create additional flexibility and enable states to partly circumvent geopolitical risks – for instance in connection with maritime bottlenecks such as the Strait of Hormuz. At the same time, they increase the complexity of interdependencies and create new geopolitical dependencies along these routes. In this constellation the Arctic route – despite an initially limited volume and difficult technical conditions – gains importance as an alternative route for LNG as well as raw materials and goods traffic between Europe, China, Russia, and Japan.

The role of middle powers is particularly pronounced in this context. States such as Türkiye, Saudi Arabia, Indo-

nesia, Brazil, or Canada act as nodal actors that use their geographical location, resource base, or industrial capacities to mediate between the large power centers and to expand their own strategic autonomy. Türkiye, for instance, develops into a central energy hub between Europe, Russia, and the Middle East, while the Gulf states combine their role as energy exporters with investments in new energy carriers such as hydrogen and in global infrastructure projects. Indonesia uses its position as the leading nickel producer to integrate itself into the global battery value chain and electrolyzer production with a growing local-content share. Brazil combines its role as a raw-materials supplier with growing importance in the renewables field. The continued use (and export) of fossil energy carriers also serves these countries as a hedge against excessive dependence on (and competition with) China's dominance in green industries and technologies.

Against this background, energy partnerships increasingly emerge along pragmatic, functional interests. Europe expands its energy relations with North Africa, in particular in the renewables and H₂ field, while at the same time LNG contracts with Qatar or the USA secure supply over the long term. Asian importing countries deepen their relations with producers in the Middle East and Australia, while new critical raw materials cooperation emerges, for instance between industrialized countries and resource-rich states such as Canada or Chile. These partnerships are shaped less ideologically than motivated by concrete economic and security-policy interests.

➤ For climate policy, this scenario means an increasing shift toward transformation paths shaped by technology and industrial policy.

For climate policy, this scenario means an increasing shift toward transformation paths shaped by technology and industrial policy. The actors pursue their own decarbonization strategies, which are based on promoting domestic industries and securing technological leadership positions, while fossil energy carriers, in particular gas, are not abruptly replaced. China continues to rely on the large-scale industrial production of energy-transition technologies. The USA continues to rely on fossil dominance but combines this once again with industrial-policy incentives and innovation promotion for more climate-friendly technologies, while Europe attempts to link regulatory standards with industrial transformation. These parallel approaches lead to intense competition over markets and technologies but can at the same time acceler-

ate innovation and promote the global dissemination of climate-friendly technologies. Global climate cooperation is admittedly ad hoc, functional, and less institutionalized, but it remains possible thanks to the continuing interconnections of green value and supply chains as well as the markets for green industrial products.

➤ This scenario is characterized by a robust but politicized interdependence.

In this scenario, the EU remains an economically significant but geopolitically only limitedly autonomous actor, although the continent does not have to integrate itself fully into a geopolitical bloc. In security-policy terms, the EU remains dependent on the USA within the North Atlantic Treaty Organization (NATO) despite a stronger independent military dimension. The USA does not leave the alliance but no longer automatically grants assistance guarantees. The EU attempts to assert its role as a balancing actor between the USA and China and to reduce its strategic vulnerability through diversification, industrial policy, and infrastructure partnerships. It remains reliant on external partners in central areas – in particular security, raw materials, and clean tech supply chains – and integrated into global markets, though. Subregional, minilateral cooperation formats of individual member states do lead to limited heterogeneity, but a fundamental degree of EU-wide coordination is maintained. In energy-policy terms, a partial stabilization succeeds, albeit at structurally higher costs. The transformation of energy systems and the climate targets are advanced, but their implementation follows in part differing national and sectoral technology paths and preferences, which are overlaid with continuing EU-level objective- and framework-setting and selectively deepened energy-market integration, for example in the electricity sector.

Overall, this scenario is characterized by a robust but politicized interdependence. The global energy order remains functionally integrated, but is overlaid by geopolitical risks, strategic diversification, and new actor constellations. Energy flows continue to run globally as well as transregionally but are increasingly organized along the strategic ellipse and its hybrid corridors. The consequence is a system that is more resilient to shocks than a fully fragmented order but that at the same time exhibits permanently higher costs and stronger political steering of markets. It continues to regard fossil energy carriers as necessary transitional technologies.

Scenario 2: Escalated Large-Scale Conflicts with Few Poles

Scenario 2 describes a phase of accelerated and far-reaching systemic transformation, in which the international order no longer develops gradually but is transferred into a new configuration under the cumulative pressure of geopolitical rivalry, technological disruption, and infrastructural reorganization. The trigger of this scenario is a qualitative escalation of geopolitical rivalries, which increasingly transforms economic interdependencies into security-policy risks. Repeated crises along strategic choke points, intensified technology and sanctions conflicts as well as military incidents in the Indo-Pacific or the Middle East lead gradually to bloc formation and growing systemic decoupling. The scenario is based on the assumption that neither the war between Russia and Ukraine nor the confrontation between the USA, Israel and Iran can be stably contained, and that the phase of an apparent stalemate in both conflicts transitions in the medium term into a renewed phase of persistently high intensity with recurring military escalations. The temporary disruption of central energy trade routes – in particular in the Persian Gulf – as well as the increasing strategic entanglement of both conflict spaces lead to permanently elevated volatility on energy and financial markets and accelerate geopolitical bloc formation. In this context, conflicts are no longer primarily managed in a limited manner but develop a systemic dynamic.

Possible tipping points include:

- a military escalation over Taiwan with direct U.S.-Chinese confrontation,
- a permanent destabilization of the Strait of Hormuz and the extension of the Iran war to the Gulf countries and Türkiye,
- an escalation of the NATO/EU-Russia confrontation in the North Sea/Baltic Sea region,
- an escalation of the conflicts over Greenland or in the Arctic,
- massive cyberattacks on critical energy infrastructures, or
- a comprehensive financial fragmentation as a result of secondary sanctions and competing payment systems.

Against this background, the international order condenses over the longer term into a few geopolitically clearly contoured blocs whose rivalry is no longer conducted only economically or technologically, but is increasingly underpinned in security-policy and military terms. In this environment, energy, technology, and raw

material markets are more and more organized along geopolitical blocs. In contrast to the scenario of polycentric competition, in which interdependencies persist despite political tensions and have a limited stabilizing effect, the intensity of competition not only increases but takes on a systemic character – manifesting itself in recurring escalations, intensified armament dynamics, and growing economic decoupling.

The structure of the system shifts from a diffuse multipolar order with a multitude of autonomous or semi-autonomous actors toward a more strongly condensed multipolar configuration with fewer dominant powers, each controlling their own political-military and economic spheres of influence. Around the USA, China, India, and Russia, economically, technologically, and security-policy-integrated zones of influence emerge. These are not completely closed but exhibit a clear inward orientation and increasingly limit external interconnections politically. Middle powers lose their role as flexible balancers in this environment and come under considerable strategic pressure to adapt. States such as Türkiye, Saudi Arabia, Kazakhstan, Indonesia, or Brazil see themselves compelled to align their external economic and security-policy relations more closely with one of the dominant blocs. Their room for maneuvering does remain, but it becomes narrower and more strongly determined by external security and market constraints. The role of multilateral economic and political organizations, such as the UN and the WTO, sinks almost to insignificance. Only the UN Security Council still serves as a forum for exchange between the great powers.

In parallel, the spatial logic of conflicts shifts. Whereas in the first scenario rivalries remain largely regionally limited, in scenario 2 structurally charged escalation spaces emerge along central geopolitical fault lines. Particularly in the strategic ellipse – from Eastern Europe across the Middle East to Central and East Asia – the security-policy, energy-economic, and infrastructural interests of the great powers overlap, and the conflict logics combine into a coherent crisis space. Regions such as the South China Sea and the Taiwan Strait, the North Sea–Baltic Sea region, the Black Sea, the Persian Gulf, and Central Asia develop into permanent zones of tension with an increased probability of military incidents or open military confrontations. In the medium term, this leads to multiple disruptions of other important energy trade and raw material routes. Control over maritime bottlenecks such as the Strait of Hormuz or the Strait of Malacca as well as over central land corridors gains strategic importance and is increasingly secured by the military presence of often regional actors.

Fees, tariffs, and duties for the use of important maritime straits are introduced and selectively levied. International maritime law and the principle of freedom of navigation are permanently undermined. Energy infrastructure – from pipelines through LNG terminals to electricity grids – thus itself becomes part of geopolitical power projection and a potential target of hybrid or direct attacks.

This development goes hand in hand with a far-reaching fragmentation of interdependencies. Economic interconnections are no longer merely politicized but actively restructured. Trade and investment flows concentrate on intra-bloc relations, while connections between the spheres are restricted by sanctions, export controls, and regulatory divergences. The trend toward the formation of semi-autark trading spaces with their own standards, financial systems, and technological ecosystems accelerates and leads to a structured U.S.-led space comprising the Americas and Europe, a China-centered space comprising Asia and parts of Africa and the Middle East, and semi-autonomous spaces such as India and possibly Russia. This fragmentation particularly affects strategic sectors such as energy, critical raw materials, and key technologies, and leads to a lasting erosion of global market integration. Global trade declines in relative terms (e.g. -10-20%) and over the long term as a result of advancing fragmentation, while the WTO becomes insignificant and is ultimately dissolved.

Energy markets stand at the center of this transformation. They develop from globally networked systems into geopolitically segmented supply spaces. Security of supply is given even clearer priority over efficiency, which is reflected in structurally higher and considerably more volatile prices. This bloc-shaped organization of energy systems becomes visible above all in concrete bilateral and regional energy relations, which differ markedly from the more flexible and overlapping trade patterns of the first scenario. Whereas in the first 6 scenario energy flows continue to serve several markets simultaneously and can be redirected between different buyers, in scenario 2 politically secured supply axes become entrenched.

➤ Security of supply is given even clearer priority over efficiency, which is reflected in structurally higher and considerably more volatile prices.

In the oil sector, markets fragment into price zones, thanks also to an accelerated *de-dollarization* of the oil

business, and in the gas sector LNG markets partly lose their global integration function. Long-term bilateral contracts replace spot markets, while pipeline integration within blocs increases.

In the Eurasian-Asian space, this development manifests itself, for instance, in the strategic tightening of energy relations between Russia and China. Pipeline projects in the gas sector such as the *Power of Siberia* pipeline system are not only expanded but supplemented by further long-term supply contracts and infrastructural extensions that secure a permanent redirection of Russian gas flows to the east. In parallel, LNG exports from projects such as *Yamal LNG*⁵⁹ are deliberately directed toward Asian markets, while deliveries to and via Europe are discontinued and not resumed. In contrast to the first scenario, in which Russia can continue to act opportunistically between different sales markets, a quasi-exclusive eastward orientation emerges in the second scenario, in which the Arctic route takes on a key role.

A similar bloc formation is evident in relations between the Gulf states and Asian importers. Actors such as QatarEnergy or Saudi Arabia conclude long-term supply agreements with China and India that not only secure price and volume stability but increasingly also include investments in local refining and petrochemical capacities. This vertical integration differs from scenario 1, in which Gulf exporters flexibly diversify their sales markets and balance between Europe and Asia.

In the transatlantic space, more strongly closed energy architecture emerges between the USA and Europe. LNG deliveries, potentially blue hydrogen using CCS technologies, and chemicals are structurally anchored through long-term offtake contracts and infrastructural coupling – for instance through new import terminals and storage facilities. At the same time, the North Sea develops via initiatives such as the *North Sea Wind Power Hub*⁶⁰ into an integrated energy cluster in which offshore wind, electricity grids, and hydrogen production are closely interlinked. Projects such as the *European Hydrogen Backbone*⁶¹ aim to consolidate this integration infrastructurally. Unlike the first scenario, in which the EU continues to maintain diverse external energy relations, in scenario 2 a

59 Yamal LNG is a large Russian LNG project on the Yamal Peninsula in the Arctic.

60 The North Sea Wind Power Hub is a planned international project for the large-scale expansion of offshore wind energy in the North Sea.

61 The European Hydrogen Backbone is an initiative of European gas grid operators for the construction of a cross-border hydrogen pipeline network.

stronger inward orientation emerges in the transatlantic/Northern European energy system.

In the hydrogen and renewables fields as well, more strongly bloc-bound patterns emerge. Thus, only a few selective partnerships develop between the EU and North Africa, in which countries such as Morocco or Algeria produce renewable energy primarily for European markets, while North Africa remains a contested peripheral space in energy and migration questions. Connected to Europe only selectively via infrastructure, the region orients itself more strongly toward China in both industrial and energy-policy terms.

Competition over critical raw materials follows a similar logic. Whereas in the first scenario global supply chains persist despite political tensions, in the second scenario bloc-bound raw materials partnerships develop. The EU attempts with little success – for instance within the framework of the Critical Raw Materials Act – to develop supply chains with politically reliable partners (particularly in Africa) in a targeted manner. China deepens its existing networks in Africa, the Middle East, and Central Asia and orients them more strongly toward itself. Latin America's raw materials, by contrast, fall under the direct and exclusive influence of the USA. This leads to a partial decoupling of global raw-materials markets and increases competition over access and control. In contrast to scenario 1, in which energy, raw materials and infrastructure projects remain part of formally still globally networked markets, in scenario 2 they are more strongly embedded in regional supply spaces and politically secured – possibly with export and trade bans vis-à-vis third countries outside the space.

In this context, the high and volatile prices of fossil energy carriers as well as the repeated disruptions of energy trade routes do set incentives for an even more accelerated expansion of renewables and alternative technologies. This effect, however, remains largely limited to individual blocs and is overlaid by countervailing dynamics. Fossil energy carriers are secured through long-term contracts and state support, while geopolitical fragmentation restricts economies of scale, technology diffusion, and efficient capital allocation. Developing countries, for instance, now prioritize the energy transition for security reasons, but they lack capital, know-how, and industrial capacity. These they must import, which generates new industrial and raw materials dependencies and enforces new geopolitical loyalties. Considerations of security of supply thus subsequently lead to a strategy in which fossil and green energy carriers remain in the energy mix as an instrument for spreading dependencies. As a result,

decarbonization does not proceed in a linearly accelerated manner, but is regionally differentiated, more cost-intensive, and overall less efficient than in a more strongly integrated global system.

International climate policy is no longer understood primarily as a global field of cooperation but is increasingly integrated into geopolitical competition.

Under these conditions, international climate policy not only loses coherence but fundamentally changes its function. It is no longer understood primarily as a global field of cooperation but is increasingly integrated into geopolitical competition and thereby loses its function as a connecting element of global governance. Fragmented but still partially compatible transformation paths are increasingly replaced by competing, bloc-bound climate regimes that are only to a limited extent mutually compatible. Multilateral formats such as the *UN Climate Change Conference (Conference of the Parties, COP)* thus formally persist, but their capacity for coordination is structurally undermined by geopolitical rivalry and security-policy priorities. Different blocs establish their own regulatory and technological systems – for instance in CO₂ pricing, H₂ certification, sustainable finance, or industrial support – which not only diverge but are in part deliberately deployed as economic- and trade-policy instruments. Mechanisms such as Carbon border adjustment systems, local content requirements, or subsidy programs no longer operate merely in climate-policy terms, but also as a means of shielding domestic industries and of strategic positioning vis-à-vis competing blocs.

The diffusion of climate-relevant technologies accordingly no longer proceeds globally, but primarily within the respective spheres of influence and unevenly. While individual blocs such as China can accelerate their transformation processes through state-steered industrial policy, economies of scale and efficiency gains remain limited at the global level. Technological standards – for instance in the area of hydrogen, batteries, or CO₂ measurement methods – develop in parallel and are frequently incompatible, which causes additional costs and complicates cross-border investment.

Investment conditions deteriorate accordingly. Geopolitical risks, sanctions regimes, and regulatory fragmentation increase uncertainty and make cross-border investment more expensive. Companies react with a stronger

regionalization of their value chains and a systematic consideration of geopolitical risks in their strategies.

In this scenario, Europe comes increasingly under strategic pressure to adapt and finds itself in a structurally difficult intermediate position within an intensifying competition between spheres of influence. The USA no longer automatically guarantees Europe's security and withdraws from NATO. At the same time, it undermines any attempts at an autonomous European defense capability through the expansion of growing energy-policy, technological, digital, and financial dependencies. Under the conditions of escalating geopolitical bloc formation, Europe must purchase U.S. protection, while simultaneously economic costs rise cumulatively through high energy prices, increasing geoeconomic competition, deindustrialization risks, and internal fragmentation.

Resilience, supply chain diversification, regional infrastructure projects, and industrial-policy protective measures do move rhetorically more strongly to the center of European policy. These, however, remain increasingly reactive vis-à-vis external bloc strategies that structure technological standards, trade regimes, and energy flows along competing lines. In this context, Europe must, under pressure from the USA, force the decoupling from China's green industrial products without having sufficient time and resources to build up its own capacities adequately. Without rapid, far-reaching institutional reforms and a stronger pooling of energy, industrial, and security policy capacities, the EU's room for maneuvering remains limited when it comes to connecting spaces on its southern and eastern periphery coherently in energy-policy and infrastructural terms and to hedging against external influence.

The EU can neither achieve the strategic autarky of closed spheres of influence nor offset the power projection of other poles, and is increasingly bound into competing regulatory, technological, and security policy bloc spaces that structurally narrow its external economic options and strengthen the centrifugal forces within the Union. The European energy transition is thereby partly slowed because of rising system costs, geopolitical uncertainties, and growing competition over capital, technologies, and raw materials. In contrast to the first scenario, the EU even faces a creeping peripheralization through externally induced pressure to adapt or, in the event of further escalation and a direct war, an internal fragmentation extending to disintegration dynamics.

Overall, this scenario is characterized by a structurally fragmented and security policy-overlaid world economy, in which energy, raw materials, and technology systems are shared no longer primarily by efficiency and global integration, but by geopolitical affiliation, strategic hedging, and the logic of competing spheres of influence.

Scenario 3: Functionally Institutionalized Coexistence of Competing Poles

The third scenario describes the emergence of a multipolar order of functional coexistence. It develops under the condition that the central geopolitical conflicts of the present – in particular the war in Ukraine as well as the conflict dynamics in the Middle East and in the Iran context – do not turn into an escalated systemic confrontation, but at the same time also do not disintegrate into a permanently disordered logic of competition. Instead, processes of their containment gradually prevail, culminating in a hybrid global and regional security and governance architecture. This emerges through the step-by-step linking of classical multilateral institutions with regional security formats, sectoral cooperation regimes, and infrastructure-based interdependencies. Existing fragmentation is thereby not abolished but transferred into an institutionally framed and functionally stabilized state of order.

In contrast to scenario 2, the world economy does not disintegrate into rival and largely separate blocs. However, unlike in Scenario 1, global interdependence is also not stabilized primarily through market integration and diversification. Rather, increasingly institutionally secured security policy-embedded, and regulatorily coordinated interdependencies emerge. The world remains multipolar, competitive, and shaped by power politics, but develops a structure of overlapping and partly interactive spaces.

At the center stands a functional transformation of global governance. Multilateral institutions lose their universalist claim of liberal globalization but remain central as platforms for organizing limited interoperability. What is new, however, is the hybrid security dimension of this order. Regional security arrangements – for instance in the Middle East, in Eastern Europe, or in the Indo-Pacific region – are no longer organized as competing power blocs, but increasingly embedded in global institutional framework systems. This gives rise to a security architecture that not only contains escalations but structurally channels them and feeds them back into economic, energy policy, and technological sub-regimes. It is this embed-

ding that enables the long-term containment of the conflicts in Ukraine and in the Middle East, since it does not eliminate spheres of influence but makes them compatible on a rules-based footing.

The trigger of this institutional densification is a phase of repeated geoeconomic and infrastructural shocks in which escalating trade, energy, and security conflicts – both between the great powers (China and the USA, EU and USA, EU and China, India and China) and between regional actors – generate considerable costs for all central power centers. Recurring interruptions of maritime trade routes, cyberattacks on critical infrastructure, volatility on energy and raw-material markets, and rising hedging and financing costs for global infrastructure projects increasingly illustrate the limits of disordered fragmentation. It is the growing vulnerability of highly networked energy, technology, and supply chain systems that leads step by step to the emergence of sectoral stabilization mechanisms and hybrid governance formats that are intended not to overcome geopolitical competition but to limit it functionally.

The WTO thus develops increasingly into a mechanism for securing basic market compatibility between different regulatory, technology, and industrial systems. It secures minimum standards for market access and dispute settlement even between different regulatory spaces, enables plurilateral agreements in areas such as the digital economy, green technologies, or critical raw materials, and makes differentiation rule-based instead of politicizing it. UN-affiliated organizations and development banks such as the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB), the AIIB, and the World Bank Group, as well as energy and climate forums (such as the International Renewable Energy Agency, IRENA, and the IEA) and the UN climate conferences, take on coordinating functions through data and transparency systems, standardization, sectoral conflict moderation, and the coupling of different regimes. Plurilateral and sectoral formats gain importance – for instance with regard to H₂ certification, CO₂ standards, electricity market integration, critical raw materials, infrastructure financing, or maritime security. Governance serves less to overcome geopolitical competition than to limit it functionally and make it predictable.

In this scenario, institutions emerge not as an expression of normative convergence – i. e., of a far-reaching agreement on the basic principles of the international order – but as the result of permanent negotiation processes between competing great powers, regional powers, and

middle powers. The latter in particular gain in importance. States such as India, Saudi Arabia, the UAE, Japan, Indonesia, and Türkiye develop into strategic bridging actors between different economic, infrastructure, and security spaces. They benefit from their ability to cooperate with several power centers simultaneously.

World trade remains stable overall but changes its qualitative structure. Institutionally compatible sub-spaces emerge, connected with one another via WTO-affiliated rules, sectoral agreements, and hybrid security couplings. The result is an organized fragmentation of global supply chains with multiple but compatible standard systems instead of regulatory competition without interfaces. Trade flows between large economic spaces such as EU-Asia, USA-India, or Europe-MENA⁶² remain stable, while middle powers increasingly function as nodes between these sub-spaces.

➤ World trade remains stable overall but changes its qualitative structure.

The energy sector forms the central core of stability of this order. Unlike in scenario 1, global energy and raw material markets remain not only formally integrated but are increasingly institutionally secured through contracts and organizations. The steering of energy interdependencies itself becomes a geopolitical instrument of stabilization. In this context, a clear, binding phase-out date and a conversion to emission-free deliveries, in particular in the LNG field as well as for petrochemical products, are agreed and generally accepted. Gas flows stabilize above all the USA-Europe axis, while Gulf states assume a flexible system-stabilizing function between Asia and Europe, and regional rerouting structures prevent geopolitical decoupling.

In the oil market, the Gulf states remain central systemic actors. OPEC and OPEC+ do lose their price-setting function but continue to serve as a coordination mechanism vis-à-vis the IEA. Saudi Arabia, the UAE, and Qatar increasingly pursue strategies of multiple geoeconomic anchoring. They remain closely linked with the USA in security-policy terms, but at the same time deepen their infrastructure, technology, and energy relations with China, India, Japan, and Europe. This gives rise not to a bloc-shaped allocation of energy flows, but to an institutionally stabilized energy order. Long-term supply con-

62 MENA stands for Middle East and North Africa

tracts, joint refinery and petrochemical projects, as well as coordinated investments in maritime infrastructure stabilize the energy axes between the Gulf, South Asia, East Asia, and Europe, while spot markets grant residual flexibility.

China remains the most important Asian energy importer and increasingly integrates its *Belt and Road* corridors with energy, port, and industrial projects in the Gulf and in Central Asia. India develops in parallel into a central connecting node between the growth spaces of South and Southeast Asia and the energy and infrastructure axes of the Middle East. Japan, in turn, expands its role as a financing, technology, and standardization power in the Asian energy system.

The global LNG market, too, remains highly integrated. The USA, Qatar, and in part East Africa form the most important expansive supply centers, while Europe, India, Japan, and Southeast Asia remain central demand poles. Unlike in scenario 1, however, structural volatility is partly reduced through long-term supply and offtake agreements, coordinated storage and resilience mechanisms, as well as institutionally secured infrastructure cooperation. Maritime security cooperation in the Indian Ocean, in the Red Sea, and in the Indo-Pacific gains considerable importance in this context for the stabilization of global energy and trade flows.

The differences from Scenario 1 become particularly clear in the H₂ sector. Whereas in scenario 1 competing regional H₂ spaces with partly incompatible standards emerge, in scenario 3 a system of interoperable H₂ markets gradually develops. Europe, Japan, the Gulf states, Australia, and parts of Southeast Asia establish common certification, sustainability, and transport standards for hydrogen, ammonia, and synthetic energy carriers. The H₂ markets remain regionally organized but are kept institutionally compatible.

Europe develops, together with North Africa and Norway, a closely integrated H₂ and electricity space. Pipeline corridors between Algeria, Tunisia, and Southern and Central Europe are expanded, as are maritime import axes for ammonia and synthetic energy carriers from the Gulf, Australia, and parts of Africa. Unlike in scenario 1, however, this integration is not primarily market-driven, but takes place within the framework of long-term industrial, infrastructure, and investment partnerships.

In parallel, an Asian H₂ axis emerges between Japan, South Korea, Australia, the Gulf states, and parts of Southeast Asia. In this context, Japan assumes a key role

in technology development, financing, and standardization. India, in turn, attempts to take up a hybrid position between building a domestic market and export orientation, and develops into an important production location for renewable hydrogen, ammonia, and H₂-based industrial products.

In the electricity sector as well, increasingly institutionally secured integration spaces emerge. Europe develops into a highly integrated electricity and flexibility space, in which offshore wind capacities in the North and Baltic Seas are coupled with southern solar and H₂ corridors. Cross-border interconnectors, joint grid mechanisms, and coordinated storage strategies serve not only efficiency and resilience objectives but become part of geopolitical stabilization policy.

The North Sea develops into a strategic offshore energy and infrastructure space for Europe. Offshore wind farms, H₂ pipelines, electricity interconnectors, and submarine cables are increasingly jointly planned and secured in security-policy terms. Similar dynamics emerge in the Mediterranean region, where electricity and H₂ corridors between North Africa and Europe are institutionally linked with industrial, investment, and development cooperation. North Africa thereby develops not into an energy exporter and increasingly into an integrated component of European transformation and infrastructure policy.

In the Indo-Pacific, maritime infrastructure and electricity spaces gain importance. The ASEAN states intensify their regional electricity market integration, while Japan, South Korea, and Australia invest more heavily in offshore wind, storage technologies, electricity grids, and maritime hydrogen logistics. Australia establishes itself as a strategic exporter of renewable energy carriers, critical raw materials, and green industrial products to East and Southeast Asia.

Competition over critical raw materials remains central despite institutional stabilization. Unlike in scenario 2, however, no completely separate raw materials blocs emerge. China retains its dominant position in the processing of many strategic minerals as well as in parts of solar, battery, and grid technologies. Other buyers develop ad hoc structured cooperation formats together with China. At the same time, Europe, India, Japan, and the USA diversify their supply chains through institutionalized raw materials partnerships with Australia, Canada, Central Asia, Africa, and Latin America. In the process, hybrid and partly overlapping value-creation spaces emerge. Raw materials partnerships are increasingly

combined with joint investment, processing, and sustainability standards. Governance does not reduce competition but escalation risks. Central Asia gains considerably in importance in this connection. The region develops into a strategic node for rare earths, copper, uranium, hydrogen, electricity transit, and infrastructure corridors between China, Europe, South Asia, and the Middle East.

The solar, wind, and clean-tech industries also remain globally interwoven. China continues to dominate large parts of the industrial value chains for solar modules, batteries, and grid components. Europe, India, the USA, and parts of Southeast Asia, however, attempt to expand strategic production capacities selectively, without striving for a complete decoupling. In contrast to scenario 1, this diversification is more tightly coordinated through institutions – for instance through joint investment platforms, standardized sustainability rules, interoperable industrial systems, and coordinated infrastructure financing. As a result, a more strongly institutionalized global energy architecture develops in which different energy, technology, and infrastructure regimes are not unified but kept compatible. It is this capacity to organize interoperability that becomes the geopolitical core of scenario 3.

More stable geopolitical framework conditions and institutionalized security mechanisms thereby lower investment risks and capital costs for energy and transformation infrastructure. Energy prices remain more moderate and less volatile than in the other scenarios. At the same time, the greater predictability of cross-border infrastructure and industrial projects accelerates the diffusion of new energy technologies. Fossil energy carriers thus lose importance in the long term but remain relevant as a transitional and stability resource. They function as a buffer in a system that is increasingly decarbonized but has not yet fully converted to renewable and new energy systems.

Fossil energy carriers gradually lose importance but remain relevant as a transitional and stability resource.

Climate policy, too, remains fragmented but develops functional spaces of cooperation between large emitters. These manifest themselves in sectoral agreements, technological alliances, and project-related cooperation formats, for instance in industrial decarbonization, in the

transport sector, or in joint infrastructure solutions. This gives rise not to global climate governance in the narrower sense, but to a markedly increased effectiveness of concrete policy measures through institutionally embedded partial cooperation.

In this scenario, the EU could gain in strategic capacity to act. Above all if it succeeds in bundling industrial capacities, infrastructure policy, and energy partnerships more coherently – even without far-reaching institutional and political reform, but with a more coherent energy-policy and infrastructural integration and better defense policy coordination. The EU strengthens its military and defense policy capabilities within an intergovernmental framework and thereby gains greater strategic autonomy of action vis-à-vis the USA. The EU would appear less as an independent superpole than as a regulatory and technological space of mediation between different power centers. The Union could, for example, actively help shape WTO-affiliated standardization and build up spaces of interoperability in energy, trade, and climate policy. At the same time, Europe could link security, energy, and economic policy more strongly in order to actively stabilize external partnerships within the hybrid security architecture, provided that internal integration deficits are reduced and external infrastructure and partnership relations are more strongly coordinated. Europe's capacity to act depends essentially on whether it succeeds in combining internal energy and industrial policy integration with a more coherent external economic and infrastructural positioning vis-à-vis the central spaces of the strategic ellipse.

Overall, scenario 3 thus describes neither a return to a liberal world order nor an overcoming of geopolitical competition. The world remains multipolar, fragmented, and shaped by power politics. In contrast to the other scenarios, however, this fragmentation is increasingly institutionally organized, infrastructurally stabilized, and contained in security policy terms. This gives rise to a geopolitically competitive but functionally cooperation-capable world order with comparatively higher stability, lower transaction costs, and better preconditions for a coordinated global energy transition.

5. Conclusions and Policy Recommendations

The three scenarios differ less in the existence of geopolitical fragmentation than in its qualitative manifestation, institutional embedding, and infrastructural organization. All three build directly on the current transformation of the international order, characterized by strategic rivalry, the politicization and (in some cases) militarization of economic interdependencies, and the emergence of a multipolar and spatially restructured global economy. They differ, however, with regard to the stability of this order, the role of institutions, and the capacity to politically manage competition while maintaining economic interdependence.

Whereas scenario 2 (**Escalated Large-Scale Conflicts**) describes extensive bloc formation and the regionalization of global economic and energy systems, global interdependencies largely persist in scenario 1 (**Polycentric Competition**) and especially in scenario 3 (**Functionally Institutionalized Coexistence**). The decisive difference lies in their political organization. Scenario 1 depicts a world of geopolitical tensions without escalating and destabilizing rivalry. Market actors, governments, and companies respond flexibly to geopolitical risks and diversify interdependencies. Scenario 3, by contrast, describes an order of institutionally managed competition in which governance structures, security arrangements, and infrastructure regimes are deliberately employed to stabilize geopolitical rivalry and limit escalation risks.

Across all three scenarios, the EU's role varies not only in terms of its degree of autonomy but, above all, in its functional position within the global order. The key question is whether Europe acts primarily as a balancing space of interdependence (baseline), as a fragmented area under escalating pressure (macro-regional competition), or as an institutional and regulatory bridge (functional coexistence).

In the baseline scenario, the EU remains an economically integrated but geopolitically only partially autonomous actor, stabilizing its position between the USA and China through diversification, selective industrial policy, and redundant interdependence. In the scenario of escalated macro-regional competition, Europe increasingly falls under the influence of competing geoeconomic and security blocs, leading to the erosion of global interdependence and a decline in the EU's capacity for coherent external and internal governance. In the scenario of functionally institutionalized coexistence, the EU evolves into an intermediary regulatory order in which fragmentation is channeled through new governance structures, enabling the Union to perform a limited but stabilized mediating role between the major global power centers.

The differentiation between the scenarios results in significantly different risk profiles. In scenario 1, the system is characterized by a high but fragile degree of integration. Geopolitical risks remain moderate but can cascade rapidly due to deep interconnectedness. Energy and price risks are structurally elevated but can be partially mitigated through diversification. The central challenge is the volatility of an integrated yet highly politicized system in which geopolitical and security considerations increasingly shape economic decision-making.

In scenario 2, all risk dimensions increase substantially. Geopolitical tensions remain persistently high, while energy and trade flows become fragmented and volatile. Security of supply emerges as the dominant organizing principle. The system is characterized by bloc formation, decoupling, and recurring escalations, resulting in structurally higher costs and systemic instability.

In scenario 3, risks persist but are mitigated through institutional cooperation. Geopolitical uncertainties remain, yet are constrained through regulatory frameworks, standardization, and a combination of global and regional security architectures. Energy prices are more stable than in the other scenarios. Security of supply is maintained through coordinated interdependence, including institutionally aligned crisis-response mechanisms, interoperable energy infrastructures, common technical standards, coordinated storage and demand-management strategies, including among major consumer centers, and transparent rules governing cross-border energy flows.

This development underscores the growing importance of governance and institutions. Their role will increasingly consist not in restoring universal liberal order models, but in organizing interoperability among competing political, technological, and economic systems. Institutions thus become the product of continuous negotiation among great powers, regional powers, and middle powers. The decisive factor is the ability to sustain limited but functional areas of cooperation despite geopolitical rivalry.

These developments do not point toward a coherent transition to a stable new world order. Rather, they suggest the emergence of a permanently hybrid system characterized by the coexistence of integration and fragmentation. Energy and climate policy will operate within a persistent tension between global interdependence and geopolitical competition.

For energy and trade flows, the decisive question is whether markets remain globally integrated (as in scenario 1), whether such integration is institutionally supported and stabilized (as in scenario 3), or whether markets reorganize along geopolitical macro-regions and become partially decoupled (as in scenario 2). This distinction becomes increasingly important in light of shifts in energy, technology, and trade flows, the growing importance of strategic corridors, and the securitization of critical infrastructure. Ultimately, it determines whether the energy transition unfolds in a largely integrated global marketplace or under conditions of structurally fragmented and politicized energy systems, with direct implications for price stability, investment security, technology diffusion, and the pace of global decarbonization.

For global energy and climate policy, several overarching implications emerge. These remain relevant across all three scenarios, albeit to different degrees:

1. **Hybrid energy systems as a source of geoeconomic power.** The global energy transition will not result in a uniform transformation of energy systems but rather in increasingly hybrid (fossil-green) and deeply interconnected energy, resource, and industrial systems. Strategic advantages will accrue to those states and companies that control multiple stages of value chains, from fossil fuels and critical raw materials to industrial production, infrastructure, standard-setting, financing, and digital platforms. Energy and resource supply, industrial value creation, critical infrastructure, and geopolitical influence are therefore becoming increasingly intertwined.
2. **Control of strategic value chains does not automatically translate into geopolitical influence.** Whether value-chain control generates foreign policy, security, or economic leverage depends largely on the degree of international cooperation or confrontation and on the broader condition of the global order.
3. **The integration of energy, resource, and economic diplomacy with traditional diplomacy becomes increasingly important.** Amid growing geopolitical tensions, these forms of diplomacy are becoming central instruments for establishing strategic partnerships, politically supporting energy-related foreign policy decisions and infrastructure projects, and limiting risks and conflicts along global energy, resource, and supply chains.
4. **Energy security becomes a permanent objective equal to decarbonization and competitiveness, even during the transition to a post-fossil-fuel energy world.** Policymakers should increasingly treat energy systems as critical security assets, including through redundant import sources and infrastructure, diversified technological pathways, strategic reserves, and (where necessary) the protection of critical energy infrastructure and supply chains.
5. **Industrial policy gains strategic importance in the energy sector.** The development of domestic manufacturing capacities for solar technologies, batteries, electrolyzers, and grid infrastructure remains an important instrument of economic sovereignty. At the same time, complementary instruments such as joint ventures, equity investments in third countries, long-term offtake agreements, and international cooperation frameworks are becoming increasingly important for securing access to external production capacities.
6. **In a context of geopolitical fragmentation, climate policy can no longer be viewed exclusively as a multilateral coordination challenge, but increasingly as the result of competing industrial policy strategies.** It is increasingly the outcome of competing industrial policy strategies. While this trend may initially result in higher costs and lower global efficiency, it may also accelerate innovation within specific technological clusters. The preservation of minimum coordination mechanisms will be essential to avoid the complete fragmentation of standards, markets, and technologies.
7. **Climate adaptation gains importance.** As climatic and geopolitical risks increasingly overlap, many states are shifting their focus from emissions reduction alone toward broader forms of systemic adaptation.
8. **Resilience policy becomes increasingly important.** Resilience policy encompasses strategies aimed at strengthening the capacity of social, economic, and infrastructural systems to withstand, adapt to, and recover from shocks and disruptions – including extreme weather events, supply-chain crises, and geopolitical conflicts. This is particularly important for infrastructure-intensive and geopolitically exposed regions located along the strategic ellipse.
9. **The strategic ellipse emerges as the central geoeconomic and geopolitical space of interaction.** The strategic ellipse encompasses the continuous geographical space stretching from Europe through the Middle East and Central Asia to South and East Asia.

Within this area, the dynamics described above intersect geographically: shifts in power along value chains, the embedding of energy and industrial issues within security considerations, competing climate strategies, and growing resilience requirements. The ellipse therefore becomes not only a corridor for energy, raw material, and transport flows, but also the principal arena of geopolitical competition and institutional bargaining.

10. Multipolar energy governance mechanisms and agreements gain further importance. Regional and global governance mechanisms are essential for ensuring both the stability and transformation of energy systems while maintaining interoperability among different political and economic models. This is particularly true for hydrogen, where markets remain at an early stage of development and common standards, certification and guarantees-of-origin systems, and reliable rules governing transport, trade, and investment have yet to emerge. Such frameworks can also reduce investment risks and help balance supply and demand along emerging global value chains.

From these implications follows a dual strategic imperative for Germany and the EU. On the one hand, energy and industrial policy should be firmly oriented toward resilience, diversification, and technological sovereignty. On the other hand, the ability to shape global rules and standards in the energy sector remains crucial, particularly with regard to hydrogen markets, carbon pricing, sustainability criteria, and infrastructure financing. The question is whether Europe can act as an autonomous architect of order within the increasingly important geopolitical spaces of the strategic ellipse or whether it will be reduced to the role of a normatively ambitious but structurally dependent actor.

Achieving this objective requires overcoming internal fragmentation and establishing a more coherent geopolitical, infrastructural, and energy policy framework within the EU. The completion of the European Energy Union may therefore become a key prerequisite for European

sovereignty, beginning with the planned revision of the Energy Union Governance Regulation in 2026.⁶³

At the same time, Europe's energy transition should be accelerated decisively, but without assuming that a rapid and complete decoupling from fossil systems is feasible. The central challenge is not choosing between a fossil and a renewable world but managing both sets of dependencies and risks simultaneously. In a potentially fragmented world order, neither autarky nor complete decoupling is realistic. Instead, a hybrid energy system is likely to emerge, in which fossil fuels continue to fulfill a security-relevant bridging function while renewable technologies gradually form the structural foundation of future energy systems, accompanied by efforts to contain newly emerging dependencies.

Resilience should therefore not be understood solely as a defensive concept, but rather as an active capacity to shape and manage dependencies. Diversification of energy sources, import corridors, and technological partnerships should not be regarded as a transitional objective but as a permanent structural condition of a fragmented international order. This should be complemented by an energy and economic diplomacy capable of identifying geopolitical risks at an early stage and mitigating them through strategic partnerships, particularly within the strategic ellipse.

This requires complementing the Energy Union with a strategically oriented European external energy policy. Such a policy would include coordinated infrastructure planning, joint energy and resource partnerships, common resilience mechanisms, and stronger external economic safeguards for critical supply chains. It would also require greater integration between industrial policy, infrastructure financing, trade strategy, and geopolitical positioning.

⁶³ The EU Energy Union Governance Regulation (Regulation (EU) 2018/1999) constitutes the central institutional framework for coordinating European energy and climate policy. It governs, in particular, the Integrated National Energy and Climate Plans (INECPs) and the EU-wide monitoring and reporting system for achieving the objectives of the Energy Union. The Regulation is currently undergoing revision as part of the development of the EU's post-2030 energy and climate framework. The European Commission intends to present a legislative proposal in the fourth quarter of 2026 aimed at simplifying, strengthening, and modernizing the Energy Union governance, with a particular focus on the further integration of energy, climate, and industrial policy instruments and adaptation to the EU's long-term decarbonization and security-of-supply objectives.

Partly, this would entail a revision of the existing division of competences between the Member States and the EU in key areas of energy policy, particularly regarding infrastructure planning, the procurement of strategic energy resources, the establishment of strategic reserves, especially for emergency situations, modeled in part on Japan's JOGMEC⁶⁴ and crisis-response mechanisms. In a fragmented world order, the EU is likely to emerge as a coherent energy actor only through the stronger pooling of market power and investment capabilities.

At the same time, the geopolitical focus of European foreign and energy policy is shifting toward the spaces of the strategic ellipse. While the transatlantic relationship remains essential, China, Japan, India, the Gulf states, Southeast Asia, and Central Asia are becoming increasingly important as nodes of global energy, infrastructure, resource, and trade flows, supplemented in specific areas by Africa, South America, and the Arctic. Middle powers such as Brazil, Indonesia, South Africa, Türkiye, Qatar, and Kazakhstan are gaining significant strategic relevance in a multipolar order and may become important partners for Europe.

Germany and the EU will therefore need to significantly expand their diplomatic, economic, and security presence in these regions. This involves not only trade and energy partnerships, but also investments in infrastructure, technology cooperation, maritime security, and industrial value creation. Particularly important will be the long-term protection of maritime and infrastructural spaces, especially in the North and the Baltic Sea, the Mediterranean, the Black Sea, and the Indo-Pacific. Subsea cables, offshore infrastructure, electricity and hydrogen networks, and maritime trade routes are increasingly becoming critical geopolitical vulnerabilities of modern energy systems.

Closely linked to this is the preservation and further development of energy-intensive key industries within the EU, especially the chemical industry, basic materials production, and other sectors of high systemic relevance. These sectors function not only as an economic foundation but also as structural bridges between fossil and renewable energy systems. Their decline would weaken Europe's industrial transformation capacity and deepen external dependencies.

In critical situations, the possibility of enhanced security protection for energy infrastructure is also likely to remain necessary. A certain degree of *militarization* of supply systems should not be viewed as a normal condition but rather as a measure of last resort in an environment characterized by growing physical and geopolitical risks. Attacks on pipelines, subsea cables, or maritime choke points, as well as the increasing security significance of global energy flows, underscore that energy infrastructure is becoming an integral part of strategic deterrence and protection frameworks.

At the same time, it would be advisable for the EU to further develop its role as a regulatory power. Regulatory leadership in areas such as technology standards, climate standards, sustainability criteria, and carbon pricing remains an important instrument of influence. However, its effectiveness diminishes if it is not backed by economic and geopolitical capabilities. A central challenge will therefore be the combination of regulatory power with tangible economic strength and strategic presence. This includes a willingness to negotiate pragmatic, interest-based arrangements with partners from developing, emerging, and advanced economies, particularly in the fields of energy access, resource security, and infrastructure development.

Multilateral and minilateral energy cooperation frameworks should not be abandoned but rather adapted functionally and used strategically to support reforms of global energy governance and trade institutions. At the same time, bilateral energy and technology partnerships are becoming increasingly important because they are often faster, more flexible, and politically more resilient in a fragmented international environment. They are not alternatives to multilateralism but functional complements within an increasingly heterogeneous global order.

Ultimately, the energy economy and climate policy of the coming decades are unlikely to operate within a stable rules-based international order. Instead, they will unfold in a dynamic, fragmented, and increasingly securitized world in which energy simultaneously constitutes infrastructure, industrial policy, a security asset, and an instrument of geopolitical power. The ability to understand and manage these dimensions in an integrated and strategic manner will most likely become a decisive determinant of Germany's and the EU's economic and political capacity to act within a multipolar world order.

64 The Japan Organization for Metals and Energy Security (JOGMEC) is a Japanese government agency that supports the long-term supply of energy and critical minerals to the Japanese economy through global financing activities, strategic stockpiling, and technological cooperation.

WORLD ENERGY COUNCIL

<u>Algeria</u>	<u>Ethiopia</u>	<u>Netherlands</u>
<u>Argentina</u>	<u>Finland</u>	<u>New Zealand</u>
<u>Armenia</u>	<u>France</u>	<u>Nigeria</u>
<u>Australia</u>	<u>Germany</u>	<u>Norway</u>
<u>Austria</u>	<u>Greece</u>	<u>Panama</u>
<u>Bahrain</u>	<u>Hong Kong, China</u>	<u>Poland</u>
<u>Belgium</u>	<u>Iceland</u>	<u>Portugal</u>
<u>Bosnia and Herzegovina</u>	<u>India</u>	<u>Romania</u>
<u>Botswana</u>	<u>Indonesia</u>	<u>Saudi Arabia</u>
<u>Brazil</u>	<u>Italy</u>	<u>Serbia</u>
<u>Bulgaria</u>	<u>Japan</u>	<u>Singapore</u>
<u>Burkina Faso</u>	<u>Jordan</u>	<u>Slovenia</u>
<u>Chile</u>	<u>Kazakhstan</u>	<u>South Africa</u>
<u>China</u>	<u>Kenya</u>	<u>Spain</u>
<u>Colombia</u>	<u>Korea (Rep.)</u>	<u>Sri Lanka</u>
<u>Congo (Dem. Rep.)</u>	<u>Latvia</u>	<u>Switzerland</u>
<u>Croatia</u>	<u>Lebanon</u>	<u>Trinidad and Tobago</u>
<u>Cyprus</u>	<u>Lithuania</u>	<u>Tunisia</u>
<u>Dominican Republic</u>	<u>Malta</u>	<u>Turkey</u>
<u>Ecuador</u>	<u>Monaco</u>	<u>United Arab Emirates</u>
<u>Egypt (Arab Rep.)</u>	<u>Morocco</u>	<u>United States of America</u>
<u>Estonia</u>	<u>Namibia</u>	<u>Uruguay</u>
<u>Eswatini (Kingdom of)</u>	<u>Nepal</u>	