

Deloitte.



Sustainability & Climate
**When Green Energy
Meets Geopolitics**
How to Achieve Energy
Security in a Polarized World



**Published on the occasion of the
Munich Security Conference 2024**

Disclaimer: This report is not an official publication of the Munich Security Conference (MSC). The contents of this paper do no purport to reflect the opinions or views of the MSC and is meant to provide input to and stimulate the debate at the MSC.

Executive summary

To ensure climate security, the world must transition from the current energy base to a fully renewable system. This transition is a global imperative. It will be mainly up to businesses, investors, and public actors in the industrialized world – where the demand for green energy is highest – to make the transition happen.

Large-scale production of green energy will require huge up-front investments. Today's public and private sectors are investing less than 2 trillion US dollars in the transition annually, though it would take annual investments in the range of 5 to 7 trillion US dollars through 2050 to meet our climate targets.

An estimated 70 percent of these global investments would need to be directed towards clean energy generation in the Global South, where the climate and geography is conducive to efficient large-scale production, but capital is scarce.

Green energy from the Global South will meet the demand from other regions of the world. Europe, for example, will have to import about 43% of green hydrogen by 2050, even after exhausting its own domestic production capacity.

In order to attract sufficient investment for the task, it is vital to carefully assess and manage the risks associated with each energy transition project. There are two external risk clusters in addition to the project-specific environmental, technical, or operational risks. The first is the stability and reliability of local conditions and actors as well as their immediate neighbors. The second relates to the international divisions, power-political rivalries, and conflicts, which could spill over into other parts of the world or affect the security of flows. Managing

such risks clearly exceeds the means of the private sector and requires the active, continuous, and strategic engagement of state actors.

Given recent wars and structural changes to the global order, the geopolitical context of green energy must be an integral part of any transition strategy. A deeper understanding of the tectonic shifts and changing power ratios on the global stage will be essential, bringing together climate policy and its tools with those of foreign and security policy.

The aim of this paper is to explore this type of approach and to identify strategic options for consideration by today's policymakers. The "Introduction"-section begins with a brief description of the problem from a European perspective, followed in the section "Financing the Green Energy Transition" by an overview of the global financing task and the challenges of the green energy transition as presented in a recent Deloitte study.

The section "Setting the Scene: Power Politics and Political Divisions in World Affairs" sets the scene for a geopolitical view of green energy. It provides an overview of the key players and the emerging polarization in the current world order. In our assessment, the United States and China are clearly dominant, but other global or regional actors also have key roles and ambitions. We will outline the ways various power struggles are affecting these actors as well as the global economic and political order – notably the risks of economic fragmentation and a delegitimization of political order. In conclusion, this section explores the extent to which power politics is currently impacting different regions of the Global South and will continue to do so in the future.

In the section "Energy Security in the Global Power Struggle", we apply this same reasoning to the issue of energy security – one of the classic prerequisites of power – and briefly discuss how the great powers, Europe among them, will fare as they move towards a carbon-neutral energy system. We highlight both continuity and change in global dependency structures and look at the power potential of energy surpluses. With a special focus on Europe, the section summarizes the risk exposure associated with and the broader outlook for energy security in the EU and its member states.

Achieving a secure supply of green energy to Europe is about much more than an extremely capital-intensive business case. It is also a huge strategic challenge, and the Europeans do not seem adequately prepared for it. In the section "Conclusions: A Comprehensive Concept for Europe's Green Energy Security", we discuss the building blocks and potential pathways for a comprehensive green energy security strategy, one that accurately reflects the nature and extent of the risks. The ideal strategy would address domestic stability issues, the regional political and security concerns of partner countries, and an adequate response to the power-political challenges facing Europe itself. Our study proposes a strategy for Europe with three main pillars: First, redesigning public-private partnerships for energy production; second, establishing specific stability and security agreements between Europe and producing countries; and third, creating a blueprint and a toolbox for geopolitical hedging. There are specific options for political actors in each of the three pillars.

Introduction

The transition to fully renewable energy is the principal precondition for a prosperous and secure future across the globe. The security of our economy, our climate and our social fabric depends on the success of this radical transformation.

The green energy transition will require huge upfront investments of up to 200 trillion dollars between now and 2050. Only a small share of this capital will come from public funds – it will be up to private investors to supply the majority of the capital.

Up to 70% of these investments will be directed towards the Global South, where there is massive potential for green energy production but also a lack of financial resources and a precarious investment climate.¹

This demands strategic allocation of limited public resources and a concerted strategy to launch and seed fund projects with the potential to generate returns and appeal to private investors.

However, the challenge lies not only in the risk calculation of individual investment projects. It will be equally essential to build and sustain the necessary political, social, and economic infrastructure for green energy projects to attract funding, actualize and flourish on a broad scale. Without these conditions, the high risk premium could put an end to almost any project before it even starts.



The following are among the main domestic risk factors jeopardizing energy transition projects across much of the Global South:

- fiscal constraints and the debt situation,
- economic and social tensions driven by demographic change,
- crises in democratic legitimacy and governance, which can lead to domestic power struggles, ethnic conflicts, and civil war.



Beyond domestic risks, there are a number of external factors that threaten the financial viability of green transformation projects, particularly in the Global South:

- Internal conflicts often create externalities that destabilize neighboring countries.
- Many local incidents spill over into regional wars or major regional and international military conflicts.
- Where there is a power struggle among several major powers, external pressure has the potential to sway the preferences and choices of political actors. Outside intervention in local or regional disputes, by contrast, could end up fueling or prolonging the conflicts instead.

These are the domestic and external risk factors that impact whether a green transformation project is feasible. Apart from funding challenges, building and sustaining internal stability and responsiveness as well as external peace and predictability must be on the agenda. Private actors and financial institutions would scarcely be able to achieve these goals – that requires the deliberate action of governments. When political actors become involved, however, they always consider their actions in the context of international relations, particularly with regard to potential conflicts and scenarios, power constellations and the interests and ambitions of major powers.

For European decision-makers, a sober assessment of the geopolitical tectonics in world politics is vital. Firstly, Europe is deeply interconnected economically to its two main rivals on the world stage, the US and China, and would be severely harmed if the conflict between them were to escalate. Secondly, Russia's revisionist ambitions and China's interference in the broader European neighborhood could adversely impact stability within Europe. The negative externalities of a conflict in the Caucasus, the Middle East and North Africa are the greatest for Europe among the world's economic powers. Though second-tier powers, such as Iran, Türkiye, and Saudi Arabia, are involved in the conflicts of their own region, they are less responsive to the incentive structure of economic engagement with Europe.

Thirdly, the major migration flows from Eastern Europe, the Caucasus region, the Middle East, North Africa, and Sub-Saharan Africa target Europe, while barely touching the world's other power centers.² Any conflict there will have an immediate impact in Europe.

Europeans therefore have a strong interest in promoting cooperation and constructive conflict management as well as in diffusing the rivalries between the major powers. They have every reason to align their strategic thinking on climate policy with their assessment of power players and conflicts.

For European decision-makers, a sober assessment of the geopolitical tectonics in world politics is vital.

² International Centre for Migration Policy Development, "[Migration Outlook 2023](#)", 2023.

Financing the Green Energy Transition

To reduce greenhouse gas emissions to net zero by 2050, the world must make a radical shift away from today's fossil fuel-centric economic model to a highly renewable and electrified energy system. This would require between 5.5 and 7 trillion dollars in annual investments through 2050, and yet our current investments in the energy transition total less than 2 trillion dollars. Unless these investments rapidly increase, the world will fail to meet its climate targets.³

The poor investment opportunities and risk-return profiles of green projects prevent private investors from financing the transformation we so urgently need. Most of the emerging technologies designed to achieve a climate-neutral energy system (electrification, green hydrogen, etc.) are expensive, often new and immature solutions that come with significant development uncertainties. A capital-intensive energy transition means that the cost of capital is a key cost driver, and in fact, financing costs can make up as much as half of the total investment.

Green technologies currently suffer from underinvestment and high required return rates because private investors see them as a riskier proposition than other investments. One key reason for this risk perception is the political and regulatory risks that stem from governments' failure to establish the right conditions and tools to guarantee an attractive return.

Developing economies, where we should be targeting an estimated 70% of green investments, often face higher risks and more severe state budget constraints for energy transition projects. This often results in green projects that are not financially viable, i.e., with such high risk-return profiles, it is difficult to find investors willing to supply the amount of capital needed.



The key actions to overcome risk-related underinvestment in the green energy transition can be grouped into three main categories:

- **Risk reduction:** Clear and predictable climate policies, guarantee mechanisms, reliable offtake and efforts to develop domestic capital markets can significantly reduce the risks associated with these projects. Blended finance mechanisms can both reduce project risks and ease commercial capital flows to green projects through the mobilization power of concessional capital. Just one dollar of concessional public finance can raise more than four dollars in commercial capital, more than half of which can come directly from private investors.
- **Cost gap closure:** Support initiatives for R&D expenses and upfront investment, operating premiums for green assets, and penalties for GHG-intensive assets are some of the key tools designed to bridge the cost gap between eco-friendly assets and their conventional counterparts. We often see these tools used in combination to help green products enter the market (e.g., carbon tax and feed-in premiums).
- **Fossil fuel phase-out subsidies:** Ending fossil fuel subsidies, compensating for the accelerated phase-out of some fossil fuel assets and easing the transition of workers from greenhouse gas-intensive industries to clean industries will help facilitate the transition in both social and economic terms and lay the groundwork for the phase-out of fossil fuel assets.

Developing countries often face higher risks in terms of political and regulatory uncertainty, offtake, market liquidity, currency, and inflation. These factors impact financing costs, making capital-intensive energy transition initiatives disproportionately expensive in these regions. While the renewable endowments are generally better in developing regions, higher capital costs mean higher product costs in these regions. Financing costs account for about one quarter of the electricity generation costs of solar power plants in advanced economies, but around half in developing countries. The governments of developing countries also tend to run on tighter budgets. That is why it is so important for emerging economies in particular to de-risk projects in order to lower the cost of capital and to remove barriers that hinder the flow of private capital into green projects.

In the absence of concessional finance (i.e., below-market-rate financing) in developing economies, a net-zero scenario would cost more than 7 trillion dollars per year on average through 2050 (about 200 trillion dollars in total), Roughly 70% of those investments would be made in low to middle-income economies. Reducing capital costs can both encourage private capital flows for the transition and reduce their cost. Making these projects more profitable will unlock private funding and reduce investment spending by almost 2 trillion dollars every year by 2050 (50 trillion dollars in total, about half of today's annual global GDP).

It is also important to assess political risk factors when de-risking. Socio-economic tensions could lead to political instability, radical changes in the political agenda, the disruption or even failure of states, violent conflicts within or between countries, regional power struggles, or interventions by major powers. We addressed the domestic risk profile of regions relevant to Europe's green energy needs in a previous study.⁴ The focus of this paper is the geopolitical context, and the next section will focus on the international political environment as a risk factor for the green energy transition.



⁴ Deloitte, "A Security Policy for the Global Hydrogen Economy", February 2023.



Setting the Scene: Power Politics and Political Divisions in World Affairs

Over the past decade, we have seen new power structures emerge with the potential to shape world affairs. This change goes hand in hand with the evolution of the language of international affairs: The key term of interdependence has been sidelined by the buzzword “geopolitics”, which has evolved in meaning from political power linked mainly to territory to a wider notion of power politics.⁵

At first glance, the major tectonic shift appears to lead to a bipolar confrontation much like the one between the two Cold War superpowers. That kind of confrontation involved only “very low levels of interdependence” in the past, as current US National Security Advisor Jake Sullivan concluded in a recent article in *Foreign Affairs*. “Today’s competition,” he continued, “is fundamentally different. The United States and China are economically interdependent. The contest is truly global, but not zero-sum. The shared challenges the two sides face are unprecedented.”⁶ Like many observers, Sullivan does not believe that either side will win this contest, and that it is likely to continue for a long time.⁷ China appears to have more leeway to advance its own vision of the world order than the US, with its foreign policy focused on Russia’s war against Ukraine as well as the war in the Middle East with its risks for escalation. In contrast to the US, the Chinese view of the international order is based

on the idea of an ideological conflict with the West. China hopes to assert itself through a strategy of “bifurcation” by developing an alternative network of relationships and interactions, organizations and forums, which they believe will make them an indispensable actor in the flow of goods and resources between regions and countries in this bifurcated world. Using its economic and financial power, China continues to draw others into its web, whether through the strategically planned expansion of the BRICS group or the gradual transformation of the Silk Road Initiative into an OECD-like standard-setting body.⁸

⁵ From a scientific perspective, debates about geopolitics should not be confused with the theory of realism in international affairs. In the words of Hans Morgenthau, one of the pioneers of realist thought, “Geopolitics is the attempt to understand the problem of national power exclusively in terms of geography, and degenerates in the process into a political metaphysics couched in a pseudo-scientific jargon.” Hans J. Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, 1978, p. 166.

⁶ Jake Sullivan, *“The Sources of American Power - A Foreign Policy for a Changed World”*, *Foreign Affairs*, November/December 2023

⁷ For a profound and short analysis from a German/European perspective, see: Barbara Lippert and Volker Perthes, “Strategic Rivalry between the United States and China: Causes, Trajectories, and Implications for Europe”, SWP Research Paper 4, April 2020.

⁸ Mikko Huotari, *“Machtspiele in Zeitlupe”*, *Internationale Politik*, 2 January 2024.

While the US-China rivalry is the pivotal relationship in contemporary international politics, there are other forms of polarity that also involve actors with significant conflict potential:

- Russia is pursuing a neo-imperial course aimed at restoring the historical dimensions of Tsarist Russia, if not the Soviet Union, by way of new Moscow-led integration programs, interventions in Georgia and Moldova, the annexation of Crimea, support of separatism in Eastern Ukraine, and, most recently, a large-scale military aggression against Ukraine. Russia is now effectively claiming a space in the region where it could dominate foreign and economic policy decisions as well as alliance membership. This paves the way for a new conflict between Europeans, the US, and Russia, as it disrupts the political order on the continent, violates fundamental principles of international law, and could directly threaten the national security of NATO and EU member states. Any such conflict would impact the actions of many other geopolitical players seeking to exploit this situation for their own interests.
- In its regional role, China is trying to secure its influence in Asia focusing primarily but not exclusively on Taiwan, the South China Sea, and the Korean peninsula. One of Beijing's top priorities is to limit or even roll back US influence in the region by claiming regional resources or protecting rogue states such as North Korea. The strategic goal is to undermine Washington's alliances in the region and the credibility of an American security guarantee. Only then could China become a hegemon in East and Southeast Asia, creating a space where other actors would anticipate China's preferences and act accordingly. China also supports Russia by purchasing its resources and possibly by supplying it with technology, not least because the conflict ties up US resources outside Chinese-American competition.

- India, the other Asian demographic giant, sees China as a challenge to its own rise in the region and on the global markets. India is trying to balance China by engaging with both the US and Europe as well as Russia, which also serves as a counterweight to the US.⁹ On the margins of their vast territories, India as well as China are involved in a border conflict, but more importantly, India is embroiled in a military conflict with Pakistan over the control of Kashmir. This conflict is part of a wider conflict on the Indian sub-continent that dates back to the emancipation from colonial rule, secession from British India, and ethnic violence and cleansing. With Hindu nationalism on the rise, India as a great power could possibly turn revisionist and seek to expand its powers resources to support its geopolitical ambitions.
- Finally, South Africa and Brazil are both emerging powers in their own regions and critical of the supremacy of the US. Together with China, Russia, and India they form the BRICS group, a power club designed to counteract the influence of the G7 and balance the Western momentum in the G20, where they are also members. The foreign policy stance of both suggests that circumstantial alignment is viewed as the current version of non-alignment. Both countries need strategic relationships to secure their resource base, with Brazil far ahead in the renewable energy sector. However, South Africa, with its strong dependence on local coal could not maintain its geopolitical role without renewing its energy base with the help of others.

The effects of such power configurations are manifold. Most visibly, it has led to a "taming of American power" and the end of the primacy of the United States in the world order.¹⁰ The power struggle has also triggered a trend towards the weaponization of trade, technology, and non-commercial interaction, undermining the win-win hypothesis of globalization, the

expansion of free trade, and the proliferation of global supply chains. Interdependence could ultimately become a liability rather than an asset. This is what experts refer to as the "geoeconomic fragmentation" trend.¹¹ These emerging regional trading blocs could have a negative impact on developing economies in the Global South that fall outside these megaregions.

Another effect of the return of the power paradigm can be found in the diminishing respect for the international order – what Jared Cohen and Ian Bremmer have called the credibility gap: "As it becomes apparent that no one power is seen as both willing and able to single-handedly uphold the international order, and great powers refuse to cooperate to do the same, the international system itself is rapidly losing credibility. This global credibility gap, in turn, is compounding geopolitical instability and uncertainty as actors ranging from competitive and opportunistic states to terrorists and criminal elements take advantage of the political vacuum. Though hardly irreversible, it's a trend that is likely to get worse before it gets better."¹²

Based on the conflicts on today's world stage, the delegitimization of the world order appears to be spreading from major powers to all the rest, as demonstrated by various regional conflicts in East and Central Asia, the Middle East, Africa, and Latin America. Fareed Zakaria, in a recent article in *Foreign Affairs*, sees an even greater risk for the global order: "The most worrying challenge to the rules-based international order does not come from China, Russia, or Iran. It comes from the United States. If America, consumed by exaggerated fears of its own decline, retreats from its leading role in world affairs, it will open up power vacuums across the globe and encourage a variety of powers and players to try to step into the disarray."¹³

In conclusion, we see a volatile system of rivaling powers and fluid alliances emerging, in which the US-led alliance ultimately

⁹ See C. Raja Mohan, "Modi's World: Expanding India's Sphere of Influence", Harper Collins India, 2015.

¹⁰ Stephen M. Walt, "[Taming American Power: The Global Response to U.S. Primacy](#)", New York 2006.

¹¹ Shekhar Aiyar et al., "[Geoeconomic Fragmentation and the Future of Multilateralism](#)", International Monetary Fund, January 2023.

appears to be the most stable configuration – at least as long as the United States can maintain its leadership role and commitments. Rival superpowers like China and Russia have invested in winning new partners around the globe, wooing countries of the Global South with loans, weapons, and the revival of non-alignment as a foreign policy.¹⁴ Other increasingly power conscious actors will follow suit, such as India, Indonesia, or Malaysia, and possibly Nigeria or Egypt, to name but a few. With the expansion of the BRICS group by five new members in 2024, the rebalancing towards the West has taken another interesting step. Iran, a close partner of Russia and China, has joined, but also countries that are otherwise closer to the West, such as Saudi Arabia and the United Arab Emirates. Some see Argentina’s invitation to join BRICS as an example of an emerging South Atlantic partnership that brings Latin American and African countries into a balancing act with the North Atlantic.¹⁵

Power-related political risks are more likely to grow at the margins rather than at the center of the dominant rivalries. Conflicts could break out more easily if the ability to respond is limited by persistent major disruptions. Mid-tier powers could become more dangerous for their neighbors if major powers rely on them as suppliers or allies. With these actors less bound by the dominant world order and the practice of international affairs, shifting roles and dynamic alliances will become more frequent. In geographical terms, this means that risks in Southeast Asia could increase around the South China Sea and possibly spill over into neighboring countries.

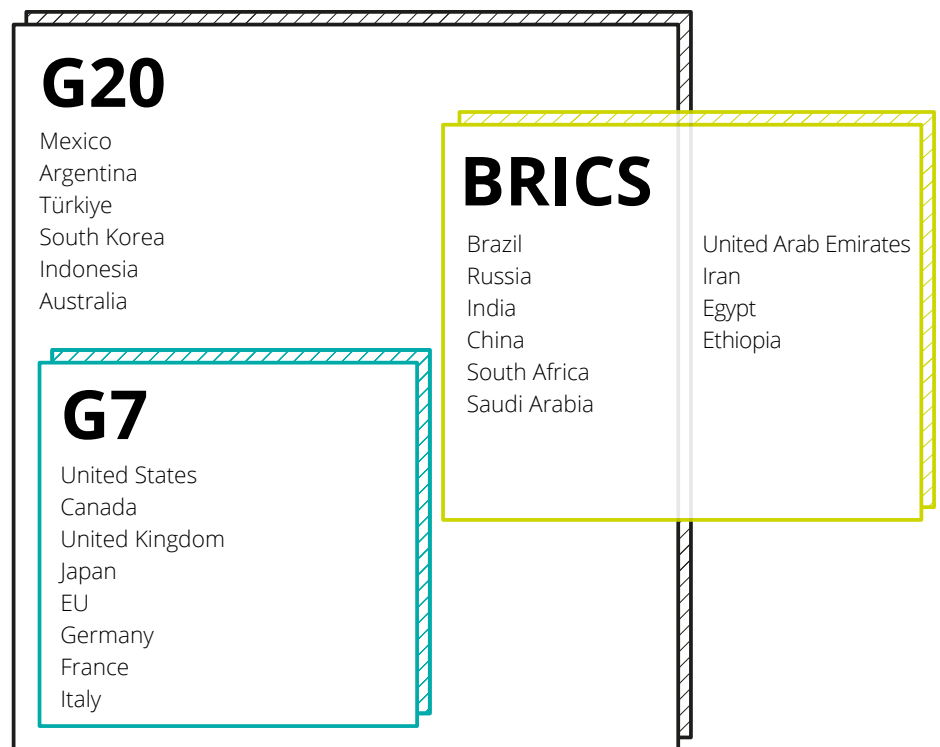
India’s efforts to create a credible regional nuclear deterrent have stabilized the region somewhat, though that could change if the ethno-religious tensions within India continue to escalate. It is also possible that the instability in the Middle East will persist, given the many open conflicts and complex relations between regional power players such as Iran,

Türkiye, Israel, and Saudi Arabia. This instability also has the potential to impact the risk level for North Africa, from the Suez Canal to the Atlantic. Spill-over effects of fundamentalist movements in Middle Eastern countries on Sub-Saharan Africa are clearly visible in West Africa, down to Nigeria and East Africa, starting from Sudan/South Sudan. Southern Africa is an exception, where the level of risk is likely to be lower, not least because of South Africa’s rather restrained international role.

In the Western Hemisphere, by comparison, the risks associated with political power are generally lower, although the situation in Central America, from Cuba to Venezuela, is socio-economically and politically volatile and might attract foreign engagement, if only to stir things up in the United States’ backyard.

This is the arena in which we must address the issues of building a secure green energy supply.

Fig. 1 – Global Power Blocks



¹² Jared Cohen and Ian Bremmer, “The Global Credibility Gap”, Foreign Policy, 6 December 2023.

¹³ Fareed Zakaria, The Self-Doubting Superpower. America Shouldn’t Give Up on the World It Made, Foreign Affairs, January/February 2024.

¹⁴ For Russia, see Kadri Liik, “From Russia with love: How Moscow courts the Global South”, ECFR Policy Brief, 21 December 2023. For China see Mikko Huotari, “Machtsspiele in Zeitlupe”, Internationale Politik, 2 January 2024.

¹⁵ Paul Isbell, “The Rising Strategic Significance of the Atlantic Basin”, December 2023.



Energy Security in the Global Power Struggle

When considering energy in a geopolitical context, it is useful to revisit the classic taxonomy of power. Power in international relations is still largely a function of access to or control over resources and assets. Land mass, population, military and economic strength, and other traditional factors continue to define global power in the 21st century. At the same time, soft power resources such as knowledge, information, communication, and popular culture have become more important, as have technology and the ability to innovate and transform.¹⁶ Securing stable and reliable energy supply is therefore the key to political power. In future, a clean energy base will be an indispensable component of political power.

The global distribution of power is not likely to radically change as the world transitions to a hydrogen-based economy. Geopolitical controversies will, however, dominate the restructuring and redistribution of energy production into a green energy system.

The United States, as the world's largest producer of oil and gas today, could become the only major power of the hydrogen age that is not dependent on green energy imports. Perhaps even more importantly for power projection, the US will also be in a position to supply green energy to its allies. East Asia could offset its dependence on Middle East imports with supplies from the US. Imports from the US could also play a crucial role for Europe in diversifying its energy mix.¹⁷

From a political standpoint, the US would likely attempt to limit rival countries' access to green energy resources in the Western Hemisphere, particularly in Chile and Brazil.

Russia, with its huge potential for grey (and blue) hydrogen, could remain autonomous in a hydrogen-based energy future, but it might become less relevant as a supplier and lose some of its clout in international affairs. In the transition phase, however, Russia will be a sought-after partner for anyone who wants to challenge the power of the United States or China.

Like the US, China has strong incentives to expand its domestic hydrogen production potential. The country will not be fully self-sufficient until well after 2050,¹⁸ but the power-sensitive leadership in Beijing will prioritize reducing import dependence as it seeks power parity with the US. The projected Australian and American hydrogen surplus will likely increase the West's influence on the region — not exactly a welcome development for the Chinese Communist Party's leadership. China may, for example, be able to leverage Russia's dependence on partnerships to secure fossil energy sources during the transition phase, even as Beijing's geopolitical focus shifts more toward the Middle East and North Africa. At the same time, the US would be securing its global position by supplying energy to allies, while China might also support building the hydrogen economy of Southern Africa as a basis for strategic relationships.

¹⁶ Joseph S. Nye Jr., *"The Paradox of American Power"*, Oxford University Press, 2002.

¹⁷ Deloitte, *"Green hydrogen: Energizing the path to net zero"*, June 2023.

¹⁸ International Renewable Energy Agency, *"Capacity and Generation - Country Rankings"*, accessed January 2024.

Both China and India could then consider Russia on the one hand and the Middle East and East Africa on the other hand as energy suppliers. Even though both powers are expected to invest heavily in the domestic production of green energy, both will rely on imports to sustain and expand their power potential in the medium term. China could finance domestic investments with export revenues, while India will have to rely on partnerships to raise sufficient capital.

India could become a serious competitor for Europe, both as a major importer of clean energy commodities such as green hydrogen and as a potential location for its production, with the potential to become an attractive destination for investment capital. If India's closer ties with the West were to become a key priority on the global political agenda, India could divert investments away from southern Africa.

Other BRICS countries might also offer interesting investment opportunities for Europe in the green energy transition. Brazil is not only the largest electricity market in Latin America, but has also developed a strong renewable energy sector that offers a favorable environment for new projects.¹⁸ A partnership with Brazil in the development of renewable energies could also help Europe to address the conflict between expanding the country's hydropower capacities and protecting as well as regenerating the tropical rainforest.

Unlike in Brazil,¹⁹ South Africa generates over 80% of its electricity from coal,²⁰ with frequent power cuts caused by the weak grid. The current plans to expand renewables nationally would require more projects and more capital. Because the state plays such a dominant role in the country, political partnerships with Europe could make a difference in the green energy transformation by easing institutional and political constraints. Partnerships with Brazil and South Africa – as in the case of India – could also help to diffuse the latent tensions between the West and the BRICS group.

For Europe to ensure energy security as part of the ongoing green transition, it will have to maximize its own potential for renewable energy. It will not, however, be able to become fully self-sufficient. Even if all European countries were to exploit the full potential of their green energy resources, a large part of its demand for clean energy and energy-related raw materials would still require imports from abroad. The Europeans are therefore dependent on a green energy supply that is protected from political interests and conflicts of the dominant global power players – and they will have to develop the right geopolitical strategy to secure a reliable energy supply that identifies the territories and political actors essential to their import needs.²¹

Building partnerships with countries in the Global South, many of which face difficult domestic issues, socioeconomic cri-

ses as well as governance and legitimacy challenges, will play a role in Europe's energy security. However, these weaknesses could make them more vulnerable to being drawn into the power struggles on the world stage. European policymakers will also have to consider how they can provide stability and security to partner countries as part of their energy security efforts. Climate policy and geopolitics must work together, argue Jason Bordoff and Meghan L. O'Sullivan, underlining the importance of a cooperative political environment: "Leaders interested in accelerating the energy transition must work to mitigate traditional sources of tension and address national security threats. A fracturing geopolitical landscape – as much as the growth in climate finance or even advancements in climate technology – will determine just how quickly (or how slowly) the transition to net-zero emissions proceeds."²²

¹⁸ International Renewable Energy Agency, "[Capacity and Generation – Country Rankings](#)", accessed January 2024.

¹⁹ Our World in Data, "[Brazil: Energy Country Profile](#)", accessed January 2024.

²⁰ Our World in Data, "[South Africa: Energy Country Profile](#)", accessed January 2024.

²¹ Fatih Birol and Pascal Canfin, "[Why the European Union needs bold and broad strategies for critical minerals](#)", EURACTIV, 6 March 2023.

²² Jason Bordoff and Meghan L. O'Sullivan, "[Geopolitics—Not Just Summits—Will Shape the Transition to Clean Energy](#)", Foreign Affairs, January, 2024.

Conclusions: A Comprehensive Concept for Europe's Green Energy Security

The global power struggle poses complex challenges for Europe.²³ Other major and minor actors on the global stage seek to accumulate power in the pursuit of their own interests, which include trying to influence or impede the decisions and actions of other power players. Europe is undoubtedly an economic heavyweight, but without full political integration, other actors have ample opportunities to exploit its internal divisions to their advantage. And given the many conflicts in the vicinity, their externalities and the power struggles within its own borders, Europe is also highly exposed geographically and vulnerable to disruptions of its vital flows.

Energy security is one of the issues that exposes the weaknesses of the European Union. In the context of the energy transition, the member states will continue to rely heavily on imports of clean energy and energy-related commodities to sustain the European economic and social model. These imports are likely to come from regions where the legitimacy and stability of the political leadership is potentially at risk, from regions with open or latent conflicts as well as regions subject to the ambitions and claims of other major powers. Securing and maintaining green energy supply under these conditions will be challenging for Europe. This requires a broader approach, involving a wide range of policy instruments that go beyond the usual repertoire of foreign direct investment subsidies, seed funding, and economic development programs.

A comprehensive future strategy for Europe's clean energy security should reflect the nature and scope of the risks discussed in this study. These range from domestic stability issues and the regional political and security concerns of partner countries to the power political challenges within Europe. We are proposing a strategy that builds on three main pillars: First, redesigning public-private partnerships for energy production; second, establishing specific stability and security agreements between Europe and producing countries; and third, creating a blueprint and a toolbox for geopolitical hedging.

1. A new Class of Public-Private Partnerships

An energy transition driven by large-scale production of renewables is well beyond the means of most developing countries, even when private lenders and investors get involved. And the risks associated with the business, technical and commercial operations at the project level seem perfectly manageable for experienced market players. When it comes to dealing with the external risks of big projects with high upfront investment needs, however, it requires the active engagement of political players in both producing and consuming countries.

European officials should and absolutely must get involved in projects like these right from the start, even more so than is currently the case. Public funding is clearly an essential element, but it is not necessarily the state's most important contribution.

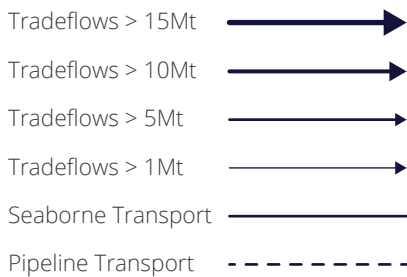
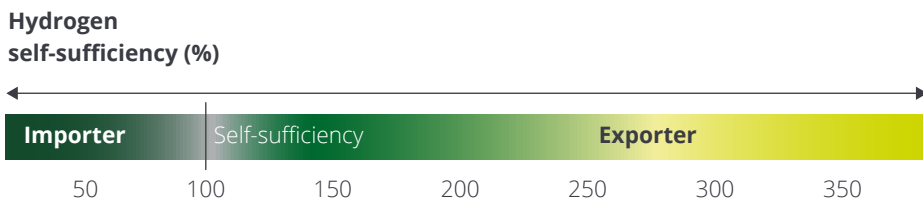
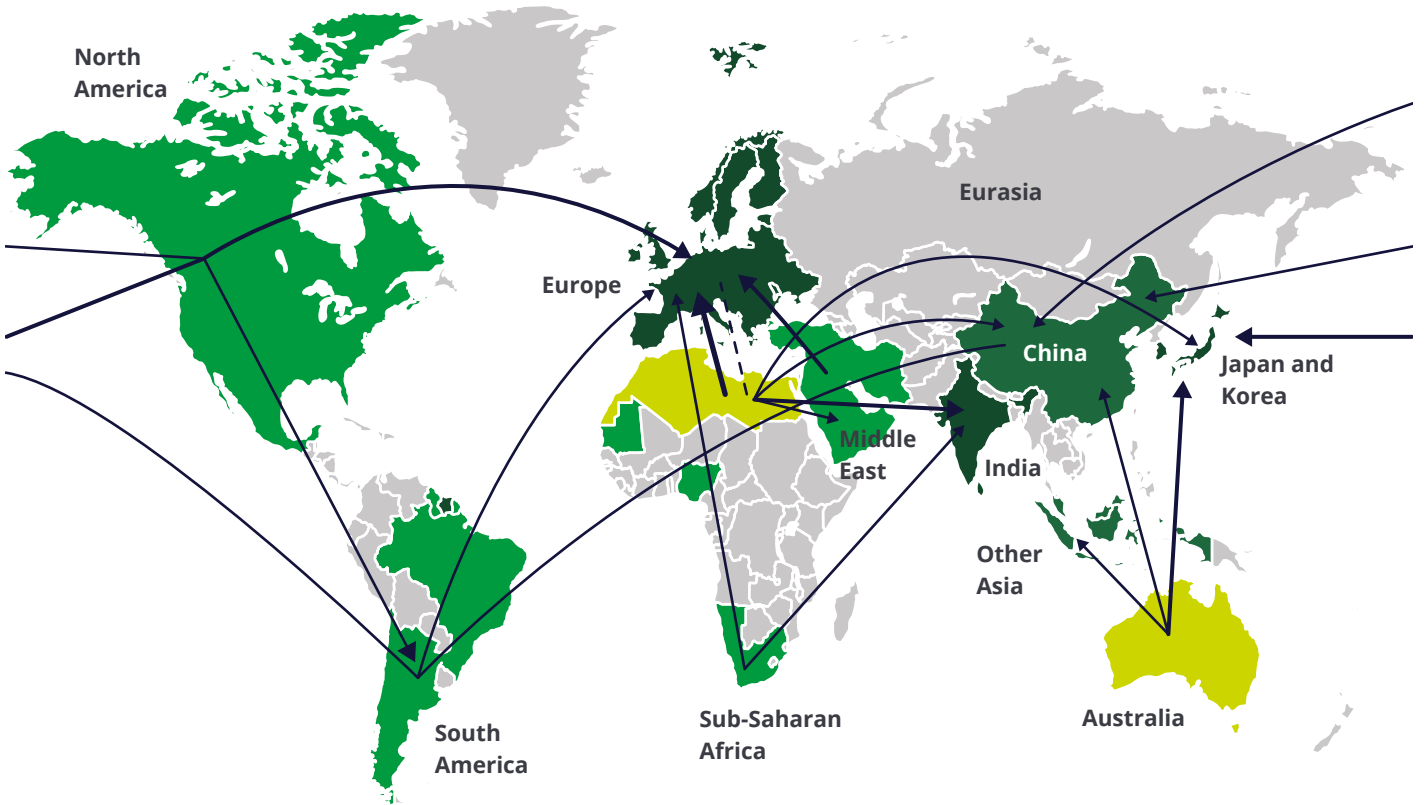
The EU Commission and member states should consider aligning their climate and development budgets as well as their loan and guarantee schemes to ensure continuous political support until green energy products (such as renewable hydrogen) reach the break-even point. Beyond existing budget lines, the EU should consider setting up a European fund for energy security as a leverage tool, managed by a financial institution such as the European Investment Bank (EIB).

If EU political actors have a noticeable impact on green energy projects, this will also help develop reliable and lasting partnerships in the countries where they are investing. It is vital for green energy investments to contribute to the host countries' economic and social development in consistent and recognizable ways, providing direct benefits to the local population. In line with equitable development principles, developing and emerging economies must have the opportunity to benefit as part of the global value chain. Europeans should include in their plans financial support measures that enable local ownership or co-ownership of the means of production and transportation.

²³The term "Europe" in this section is used to denote "the European Union and/or member states". In general, a common approach by all EU members would be advisable, however, the level of consensus among today's members would more likely prevent rather than enable decisive action.

Fig. 2 – Future hydrogen trade map

The future of hydrogen trade will be shaped by connecting closest supply hubs to the main demand hubs



Development projects focused on green hydrogen, should endeavor to add value for the local and regional community from day one. After all, the population will experience significant changes in terms of land use, modifications to existing infrastructure and the nature of hydrogen production. In our view, these projects should always:

- partner with local construction and maintenance contractors wherever possible,
- prioritize local employment and establish training programs,
- provide services (e.g., steady power supply and access to infrastructure) targeted specifically to local and regional businesses (e.g., industrial areas near the hydrogen plant), and
- design infrastructure – from desalination plants to roads, rail, and harbors – in a way that also supports local communities.

Another of Europe's strategic concerns should be to safeguard investments and production against price fluctuations and political disruption. This will require both preventative measures (e.g., monitoring, building strategic reserves) and corrective measures (e.g., national emergency plans, domestic supply buffers).

2. Cooperation and Security Agreements

The second pillar of a comprehensive strategy should focus on closer, better structured relationships between Europe and the countries producing green energy. On the basis of bilateral agreements, the partners should engage in regular exchanges on various policy issues, not just on energy or economic development. Political actors in Europe need to take the policy agendas, goals, and concerns of their partners seriously, regardless if their underlying interests or

values are the same or their respective political systems are aligned. They also need to acknowledge their counterparts' perceived threats and security concerns, and explore how they might contribute to their national security efforts.

These bilateral agreements should also establish a regular political dialogue involving not only central governments but also parliaments, regional and local officials, the private sector, and civil society. There should be a dedicated budget to incentivize broader cooperation, such as local and regional policy meetings, exchange programs, scholarships, and vocational training initiatives, as well as community outreach activities on social or cultural issues.

The upgrading and expansion of the EU's "Neighbourhood, Development and International Cooperation Instrument (NDICI-Global Europe)" could be a possible starting point for such cooperation, as it already specifies a broad catalogue of goals and activities for Europe's neighbors to the South and the wider Global South.²⁴ Another option would be to launch a special fund that receives an earmarked share of the revenue generated by the partners in domestic and export markets. European consumers would pay into the fund, enabling the partners to use this capital to supplement domestic spending and development grants for community projects in the areas of education, vocational training, social inclusion, or cultural heritage. A national development bank designed specifically for small to medium-sized enterprises could be another initiative in such partnerships, though it would be vital to have public oversight and independent management of these funds.

Improving the national security situation in partner countries will be a difficult task, particularly when the character and norms of their political systems are very different to those in Europe. In any

case, supporting and promoting regional cooperation is a constructive approach, as well as trying to help resolve regional conflicts. This could include monitoring and peacekeeping missions as well as military cooperation, but Europe should not rule out granting security assurances. Another area of security-related cooperation should address internal security, including the development and proper operation of the justice system, political training and equipment, counter-terrorism cooperation, and initiatives combating various forms of organized crime.

3. Hedging Geopolitical Risks

The third pillar in our strategy proposal for European energy security mainly concerns Europe's (and the EU's) own ability to take decisive action. Hedging geopolitical risks requires power assets and a consensus on how to use them. However, the European policy and political system still lack some of the essential elements of power. Despite the progress made in the EU's Common Foreign and Security Policy over the past twenty years, European foreign policy remains weak in terms of strategic awareness and a shared strategic outlook. There have been several core strategy documents since 2003, but they are rather general in nature and rather vague when it comes to committing to tools and actions. A shared strategic culture, the cornerstone of any power player, has yet to be established.

Another key aspect of political power is a unitary or unified decision-making process. In the EU, decision-making is slow and often produces lofty words and precious little action – in large part because member states all too often use consensus requirements for their own short-term gain. The EU established the High Representative for Foreign Affairs and Security Policy, essentially the EU foreign minister, in 1999, complete with a centralized staff and budget. Though the role was significantly upgraded as part of the 2009 Lisbon Treaty, the EU remains

a fragmented foreign policy actor. Defense-related decisions are even more complex as the intergovernmental culture of military cooperation within NATO also shapes the policies and processes of the EU.²⁵

The third key element of power is instruments of engagement. Although the EU is a global economic power by virtue of the size of its single market, the status of the euro as the currency of most member states, and its ability to aggregate most of its trade negotiating power, some of its instruments of economic power are insufficient. Industrial policy in the EU fails to prioritize the technology sectors and industrial hubs that are so essential to Europe's prosperity, and there is no a strategic consensus between the EU and member states about the nature and degree of autonomy.²⁶ Collectively, the Europeans have a strong diplomatic force with a presence in every corner of the globe (as well as quite extensive consultations between the overseas missions of the member states), but the added value for Europe as a strategic actor is disproportionate to its size. The Europeans have an impressive army in terms of aggregate numbers, and their combined defense spending is exceeded only by that of the United States and China. However, the value of Europe's military power is vastly inferior to its size and budget, because it is divided into too many national forces, many of which are quite small.

Europe urgently needs to invest in all three of these pillars of power – strategic culture, decision-making, and instruments of engagement – if it is to have any influence on the perceptions and decisions of other major powers on the world stage. Upgrading Europe's

power resources appears to be the most important affirmation of the transatlantic partnership with the United States. Building a credible military deterrent and air defense shield will be essential to prevent Russia from trying to roll back the eastward expansion of the EU and NATO. And with stronger, more capable air and naval forces, Europe would be able to deter further outside aggression against the region and its citizens, and to ensure the flow of goods remains secure.²⁷

None of this progress will be achievable in the short term, and it is unlikely that EU member states would even be able to agree on the necessary steps, funding, and execution. Therefore, much would depend on whether a core group of member states would be ready and willing to take the process forward, even if the EU as a whole were paralyzed by dissent – which in turn would be a strategic decision that would have to be made in Paris and Berlin. Without them, it would be impossible to develop sufficient clout.

Until that point, Europe must continue to act on the global stage even with these deficiencies. First on the agenda is to develop a shared view of the global order and remain consistent in their actions, avoiding double standards and hypocrisy. Second is increased interaction with and a stronger presence in North Africa, particularly in the Maghreb. Third, Europe should engage more on the political, economic, and cultural level in southern Africa.

Fourth, the Europeans should build on existing bilateral agreements and inter-regional cooperation and seek a strategic dialogue with India, South Africa, Brazil, and Argentina. This would not only miti-

gate the latent polarity between the West and the BRICS group, it would also help the EU to identify areas where they can help solve problems or advance the interests of their partners. And finally, a fifth global action item for Europe would be to engage with China in Africa. There, as in other parts of the world, China is actively pursuing its own interests in terms of markets, access to resources, and attempts to build political loyalties. The Europeans will not succeed in squeezing China out, so they should instead make it clear that they intend to continue engaging with strategic partners from this region and interact with China regarding their respective agendas.

Overall, our analysis suggests that green energy security is about more than just an extremely capital-intensive business case. It is also a huge strategic challenge, and the Europeans seem woefully ill-prepared for it. Rising to this challenge will require substantial political and fiscal commitments, which many European leaders would perhaps prefer to avoid. Mobilizing joint action could also mean deeper integration than many Europeans are prepared to accept. And yet, as today's global players continue to transform international affairs with new power strategies, Europe may have little choice in the matter: either move forward or be relegated to the sidelines.

²⁵ See the illustrative set of case studies on ESDP-missions by Muriel Asseburg & Ronja Kempin (eds.), *The EU as a Strategic Actor in the Realm of Security and Defence? A Systematic Assessment of ESDP Missions and Operations*, SWP Research Paper 2009/RP 14.

²⁶ An extensive analysis of the EU's industrial policy and actionable insights and guiding principles to move forward were developed in two recent studies: Deloitte and Stiftung Klimawirtschaft, *Transformation and resilience – A strategy for the EU's green industrial policy*, September 2023 and Deloitte and Stiftung Klimawirtschaft, *IRA and the net-zero race – How EU industrial policy should respond*, March 2023.

²⁷ There is abundant literature on the need for better defense integration, for example: Sven Biscop, *Battalions to Brigades: The Future of European Defence*. In: *Survival* 5/2020, pp. 105-118; Max Bergmann & Otto Svendsen, *Transforming European Defense. A New Focus on Integration*, Washington: CSIS, June 2023; Nick Witney, *Spirit of ambition: The Ukraine war and European defence integration*, ECFR Commentary, 26 July 2023.

Authors



Prof. Dr. Bernhard Lorentz

Managing Partner
Deloitte Global Consulting
Sustainability & Climate Strategy Leader
Tel: +49 151 14881437
blorentz@deloitte.de



Josef Janning

Senior Associate Fellow
Deutsche Gesellschaft für
Auswärtige Politik
Tel: +49 151 15772906
josef.janning@me.com



Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (DTTL), its global network of member firms, and their related entities (collectively, the "Deloitte organization"). DTTL (also referred to as "Deloitte Global") and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/de/UeberUns to learn more.

Deloitte provides industry-leading audit and assurance, tax and legal, consulting, financial advisory, and risk advisory services to nearly 90% of the Fortune Global 500® and thousands of private companies. Legal advisory services in Germany are provided by Deloitte Legal. Our people deliver measurable and lasting results that help reinforce public trust in capital markets, enable clients to transform and thrive, and lead the way toward a stronger economy, a more equitable society and a sustainable world. Building on its 175-plus year history, Deloitte spans more than 150 countries and territories. Learn how Deloitte's approximately 457,000 people worldwide make an impact that matters at www.deloitte.com/de.

This communication contains general information only, and none of Deloitte GmbH Wirtschaftsprüfungsgesellschaft or Deloitte Touche Tohmatsu Limited (DTTL), its global network of member firms or their related entities (collectively, the "Deloitte organization") is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.