

DGAP POLICY BRIEF

Global Energy in Transition

How the EU Should Navigate New Realities and Risks



Prof. Dr. Andreas Goldthau
is an associate fellow;
and Franz Haniel Professor for
Public Policy, Willy Brandt School
of Public Policy, University of
Erfurt

Global energy demand is shifting to Southeast Asia. This new trade flow is altering market power because it not only follows natural economic development, but also results from strategic trade and investment policies that promote national interests. In this context, the EU needs to account for the geo-economic side effects of the new European Green Deal.

-
- The shale revolution that has resulted from fracking has unlocked significant reserves in fossil fuel supplies and given the US a foreign “energy edge.”

 - The transition from fossil fuels to low carbon energy sources has created a strategic industry around renewables with both opportunities and risks.

 - The EU and Germany need to proactively address their diminishing role in oil and gas markets while simultaneously ensuring leadership in the geo-economic battleground of the future: low carbon technology.
-

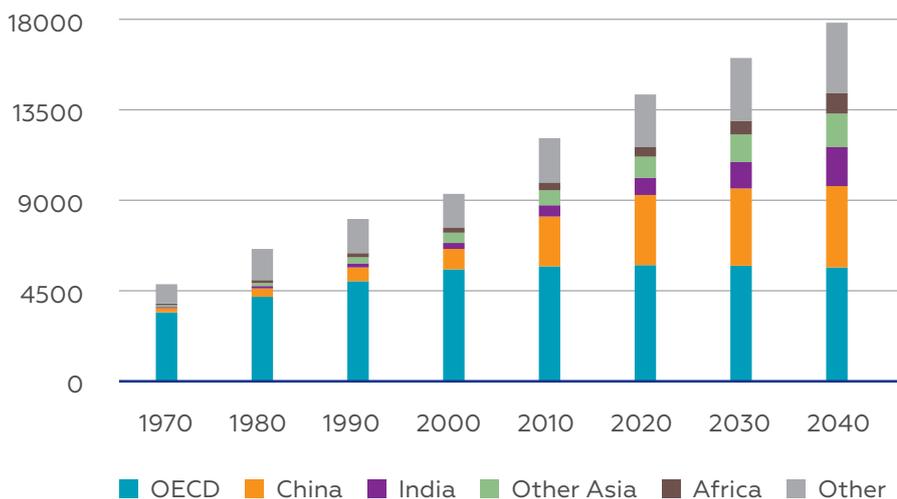
The rapidly changing global order in energy is underpinned by three concurrent trends: the eastward shift in energy demand, the impact of fracking on fossil fuel supply, and the transition to low carbon, renewable energy sources. The EU and Germany need to future-proof themselves in this key geo-economic sector.

THE SHIFT TO ASIA

Global energy's center of gravity is shifting east. In the early 1970s, right before the oil crisis, the OECD accounted for 70 percent of global energy demand. In 2018, it was a mere 41 percent.¹ Going forward, it is essentially expected that the entire demand increment in global energy will happen outside of high-income countries.

While this trend can be observed across all energy carriers, its effects are most visible in the trade flows of fossil fuel. Four out of five barrels of oil shipped out of the Gulf region are now destined for Asia. On the one hand, this shift in trade flows naturally follows the rapid economic development in emerging Asian economies. On the other hand, however, it also results from strategic trade and investment policies, which reflect national economic interests. A case in point is China's much-debated "going out" strategy, which targets strategic industries such as the resource sector and acquires energy stakes across the globe. As part of its Belt and Road Initiative (BRI), China has also sunk significant capital in upstream, mid-stream, and downstream segments in countries across Central and South-east Asia, among other regions. Overall, Chinese global energy investment since 2005 amounted to more than \$700 billion. While private international corporations rely on capital markets to fund their activities, Beijing tends to flank outward foreign direct investment (FDI). Over the past 20 years, \$240 billion of Chinese outward investment was underpinned by state-owned banks, according to Boston University's Global Development Policy Center.

Figure 1: Primary energy demand by region, million tons of oil equivalent

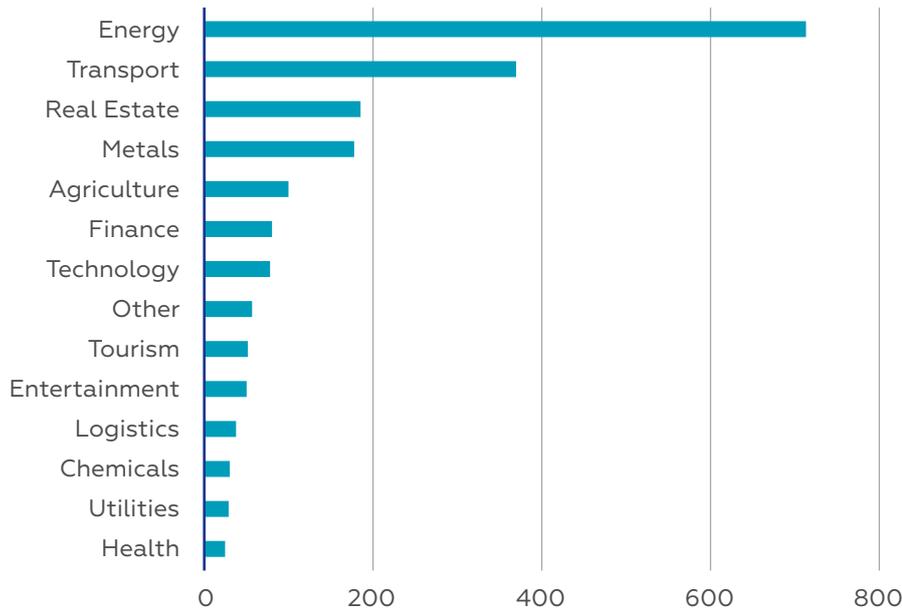


Source: BP Statistical Review of World Energy 2019

Energy infrastructure has become a centerpiece of BRI. China not only uses grid infrastructure investment to promote high-tech domestic products, such as its extra-high voltage (EHV) power transmission lines, and to set the technology standards of the future. But it also intends them to reduce its vulnerability in energy supplies, to foster political influence, and to physically tie BRI partner countries back to energy's new center of gravity.

¹ BP, "Statistical Review of World Energy 2019 | 68th edition", June 2019, <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf> (accessed 18.11.2019).

Figure 2: China outward investment by sector, 2005–2019, in billion USD



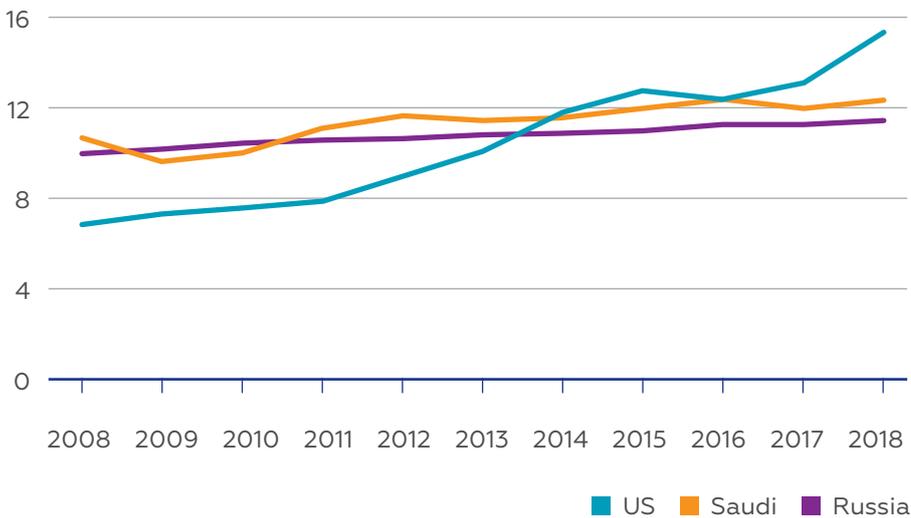
Source: American Enterprise Institute, China Global Investment Tracker 2019

The “Asia shift,” therefore, not only implies recalibrating market power in oil and gas away from OECD consumer nations. It also comes with a different paradigm of energy sector governance, in which the market is one of many tools states rely on to secure energy supplies at affordable prices, and where energy becomes a means – not only an end – of statecraft.

A REVOLUTION IN FOSSIL FUEL SUPPLY

On the supply side, fracking technology has unlocked massive fossil fuel reserves, extending prospects for “peak oil” into the very long future.

The shale revolution benefited oil (and gas) markets because it made them well supplied and – thanks to tight oil (and gas) production being very price sensitive – lowered the probability of price hikes. This gave US producers a key role in the new realities of energy. Fracking has not only added more than 6 million barrels of supply to US output since 2009, doubling the country’s output and making it the world’s largest oil producer. But it has also effectively made the US the pivotal producer, a role traditionally held by Saudi Arabia. OPEC has been pushed into the backseat. OPEC+, the oil cartel and Russia, will represent less than half of the market by 2030, according to projections by the International Energy

Figure 3: US supply in comparison, barrels per day, 2008–2018

Source: BP Statistical Review of World Energy 2019

Agency (IEA). Going forward, the US is expected to add some 85 percent of incremental oil supply to the balance and account for 30 percent of the additional supply in natural gas.

The ripple effects of fracking extend to the international gas market. Thanks to liquefaction technology, liquified natural gas (LNG) has become a globally traded commodity, breaking up the regional gas markets of old. The clear benefactors of well-supplied and globalizing LNG markets – not least thanks to large volumes of associated US gas seeking overseas destinations – are net importers such as the European Union. That said, their new riches have clearly also given the US a significant “energy edge.”²

At home in the US, businesses, as well as the economy as a whole, profit from low energy prices. Abroad, the US is actively seeking to turn the key role that it holds in the global energy balance into a foreign policy asset.

Washington’s long-standing preoccupation with the geopolitics of oil supplies has now turned into the question of how to exert “energy dominance,” a concept advanced by the sitting administration of US President Donald Trump. Europe has experienced what this might mean in practice: Trump has openly promoted LNG exports from the US as a means to “wean off” the EU from Russian gas supplies, despite such “freedom gas” being commercially less attractive. At the same time, the US Congress – with bipartisan support – is considering secondary sanctions against EU companies participating in the contested Nord Stream 2 pipeline project. Iran is another example. The ease with which the US managed to implement renewed sanctions on the Iranian oil industry owes much to the flexibility of American shale oil production. With domestic crude filling the void in the global market, it has strengthened Washington’s hand in targeting adversaries through energy sanctions.

THE TRANSITION TO LOW CARBON

In conjunction with the international policy push enshrined in the 2015 Paris Accord, renewables have started to claim a rising share in the global energy mix, challenging fossil fuels. Thanks to advances in technology,

² Blackwill, Robert D., and Meghan O’Sullivan. 2014. America’s Energy Edge. The Geopolitical Consequences of the Shale Revolution. *Foreign Affairs* (March/April).

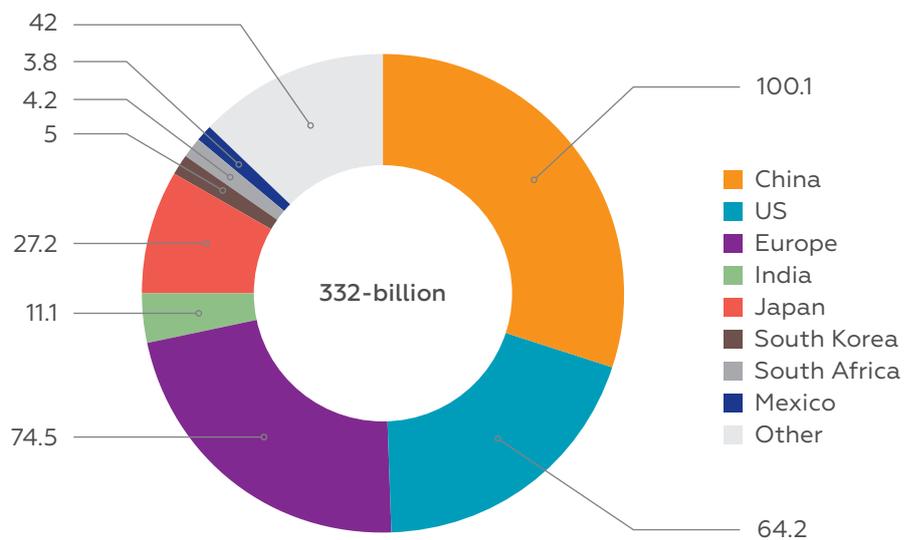
prices for photovoltaics (PVs) have dropped by more than 80 percent since 2009, and similar learning curves are expected to follow in other renewable technologies. The low carbon energy transition is essential for succeeding in combating dangerous climate change. But it also creates new challenges. Renewable technologies constitute a key industry for securing future welfare and for ensuring that countries thrive in a greening economy – a reason why clean tech has seen a significant increase in investment. This makes low carbon energy tech a target of classic industrial strategy. Indeed, states have started to exert active control over technology value chains in order to keep economic value at home, thus securing jobs and generating revenue for state coffers. Beijing’s “Made in China” strategy entails strong elements of such an approach, but it is also a response to the EU’s actions against Chinese solar panel imports. In Washington, Congress first moved to protect domestic photovoltaic manufacturers through trade law and the Trump administration followed up by imposing tariffs on imported solar PVs. The race for low carbon tech leadership is in full swing with batteries, smart grids, and hydrogen emerging as focal points in the future geo-economics of energy.

The ripple effects of this race may be severe and go far beyond ensuring technological supremacy. For instance, tech leaders may be tempted to ring-fence intellectual property for their competitive advantage, depriving laggards of the opportunity to catch up. In addition to hampering the deployment of low carbon technologies and hindering climate change mitigation, this may also cement economic imbalances between tech “haves” and “have-

nots” – that is, essentially, between industrial and developing nations. As a recent HSBC report shows, it is generally developed countries that will fare best in responding to climate risks.³ Scenario work underpins such analysis, demonstrating that a plausible pathway to an uneven energy transition indeed exists, despite rapid technological progress.⁴

tion, notably through electricity transmission infrastructure. While this may bring about demand for cooperative policy solutions, for example to ensure grid stability, it may also raise questions pertaining to potentially asymmetric connectivity between participating parties and to newly emerging dependencies on renewable energy producer hubs.

Figure 4: Clean technology investment 2018, in billion USD



Source: BNEF: State of Clean Energy Investment. New York 2018.

Finally, the global energy transition strengthens local production of renewables at the expense of imported fuels. This is likely to decrease international trade in oil and other fuels and enhance regional exchange.⁵ As a corollary, cross-border energy networks will see higher regional integra-

3 Paun, Ashim, Lucy Acton, Amit Shrivastava, James Pomeroy and Tarek Soliman: *Fragile Planet. The Politics and Economics of the Low-Carbon Transition*. London: HSBC, 2019.
 4 Goldthau, Andreas, Kirsten Westphal, Morgan Bazilian, and Michael Bradshaw: “How the Energy Transition will Reshape Geopolitics,” *Nature* 569 (May 2019), pp. 19–21.
 5 International Renewable Energy Agency (IRENA): *A New World. The Geopolitics of the Energy Transformation*. Masdar City, 2019.

FUTURE-PROOFING THE EU IN ENERGY

How should the EU and Germany embrace the new realities of oil and gas markets and buffer the risks associated with the transition to low carbon, renewable energy sources? Three recommendations follow.

Optimize the EU's Toolbox

The EU should seek to preserve the clear energy security benefits of globalizing gas markets and well-functioning oil markets, also in the face of fading market power. To this end, the EU needs to become active on three fronts.

First, it needs to enhance the resilience of the European energy system. The key to success here is internal market integration, notably in natural gas but also in electricity. The EU has set the right agenda in the past, especially in light of lopsided gas import patterns in Eastern Europe. It has pushed for the Energy Union, enhanced LNG import terminal capacity, and made the EU gas market more liquid. But additional efforts are needed across Europe in regard to strategic infrastructure investment in energy interconnectors and regulatory alignment. Moreover, as Power-to-X technologies start to blend the incumbent fossil energy system with green fuels, focus needs to be placed on the interface between liquid fuels and power systems. This is imperative to make the most of emerging energy technologies and their contribution to EU energy security, and it can be done with the existing powers that are at the disposal of the Brussels bureaucracy.

Second, the EU must proactively commit new consumer heavyweights, including India but also other emerging Asian economies, to the liberal order underpinning international energy markets. The leverage point here might be Free Trade Agreements in which the EU throws in their weight as one of the world's prime economic blocs – an instrument that is being experimented with in other contexts as well.

Finally, and complementing its trade and regulatory toolboxes, the EU clearly also needs to beef up energy diplomacy – a measure it has shied away from for too long. A step in that direction would be to establish a special envoy to represent energy, who could be based out of the European External Action Service (EEAS) or named by the European Council. The incoming administration headed by designated European Commission President Ursula von der Leyen, a deliberately “geopolitical” Commission, may offer a unique opportunity to foster the diplomatic and strategic elements of this three-fold strategy.

Approach Energy Transition as Part of a Competitive Landscape

Both the US and China – Europe's key rivals in the low carbon race – profit from the vast size of their domestic markets to scale up new businesses so that they can compete on a global scale. The EU should, therefore, make the most of a \$18 trillion economic bloc in terms of market pull in order to move key technologies from R&D to market, and to ensure fast cost digression. The von der Leyen Commission's planned “decarbonization package” offers precisely that opportunity in the area of hydrogen and other “blue” or

“green” gases, as it promises to leverage the world’s largest import market for natural gas for a novel set of technologies. Rather than going down the China route – that is, nurturing national champions by coercive measures and industrial policy – the EU’s efforts should rest on creating a favorable framework, targeted steering, and joint policy making. This also includes EU agencies taking a proactive approach to driving technology innovation and using public funds to underpin R&D in strategic sectors. Inspiration could come from the Defense Advanced Research Projects Agency (DARPA) in the United States, which has given the US an edge in industrial competitiveness. In short, to ensure it can stand the fierce competition for tech supremacy on a global scale, the EU needs to turn from a regulatory state into an entrepreneurial state⁶ at home.

Mind the External Dimension of the European Green Deal

The EU needs to properly account for the geo-economic side effects of going low carbon. The energy transition is likely to turn fossil assets into an economic liability for incumbent producer states – with dramatic consequences for the domestic social contract. Policy initiatives such as carbon border adjustments, a levy intended to level the playing field between (cleaner) domestic products and imported ones coming with a higher CO₂ footprint,⁷ may be detrimental for low carbon tech “have-nots” in regard to their position in the global division of labor. The EU needs to prepare for unintended side effects of a decarbonizing global energy system: failing (petro)states, which could become the source of region-

al instability or conflict; and migratory pressure emerging from people seeking economic opportunity, security – or both – elsewhere. Therefore, the proposed European Green Deal needs to include a strong external di-

The EU needs to beef up its energy diplomacy

mension. Close to home, the EU needs to support fossil producers, such as Algeria, to help them transition to alternative business models to remain stable. Russia’s oil and gas industry needs to be offered opportunities for a “soft landing,” possibly in the context of an emerging European hydrogen economy. Globally, the EU needs to take the lead in further advancing instruments such as targeted technology partnerships and also foster robust financial commitments by advanced economies to buffer the transition risks facing many countries, particularly those outside the OECD. Germany has already highlighted the importance of a “just transition” as part of its foreign *Energiewende* (energy transition) policy. Leveraging this expertise as part of Germany’s EU presidency in 2020 would help shape the external dimension of the European Green Deal.

6 Mazzucato, Mariana: *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*. Anthem, 2015.

7 Mehling, Michael A., Harro van Asselt, Kasturi Das, and Susanne Droege: “Beat Protectionism and Emissions at a Stroke,” *Nature* 559 (July 2018), pp. 321–324.

DGAP

Advancing foreign policy. Since 1955.

Rauchstraße 17/18
10787 Berlin
Tel. +49 30 25 42 31 - 0
info@dgap.org
www.dgap.org
@dgapev

The German Council on Foreign Relations (DGAP) is committed to fostering impactful foreign and security policy on a German and European level that promotes democracy, peace, and the rule of law. It is nonpartisan and nonprofit. The opinions expressed in this publication are those of the author and do not necessarily reflect the views of the German Council on Foreign Relations (DGAP).

Publisher

German Council on Foreign Relations

ISSN 2198-5936

Editing Helga Beck

Layout www.boldfish.de

Design Concept: WeDo

Author picture(s) © Daniel Vogel



This work is licensed under a Creative Commons Attribution – NonCommercial – NoDerivatives 4.0 International License.