

October 2026

CRITICAL CHOICES:

How Malaysia and Germany can Navigate Shifting Energy Geostrategy

Dr Stewart Nixon | Malte Küper



Copyright © 2026 by IDEAS. All rights reserved.
First published in October 2026

Published by:
IDEAS Policy Research Berhad (IDEAS)
Suite 10-02, 10th Floor, Menara Atlan, 161B, Jalan Ampang, 50450 Kuala Lumpur

www.ideas.org.my
Reg No.: 1219187-V

The copyright of this research report belongs to the Institute for Democracy and Economic Affairs (IDEAS). All or any part of this research report may be reproduced provided acknowledgement of source is made or with IDEAS' permission. IDEAS assumes no responsibility, warranty and liability, expressed or implied by the reproduction of this publication done without IDEAS' permission.

Design and layout: Norhayati Murni Misran

Table of Contents

Copyrights	iii
Table of Contents	iv
Authors' Profiles	vi
Acknowledgements	vii
Executive Summary	viii
Introduction and Purpose	1
Shifts in Global Energy Markets	2
The Evolving Contours of Global Energy	2
Recent Disruptions to Oil Markets	7
An Increasingly Unstable World	10
Washington — From Stability Anchor to Disruptor	12
Trump's Restless Energy Adventurism	14
China's Rise as a Green Technology Supplier	17
China's Control of Critical Minerals	20
Summarising the Environment for Policymakers	23
Malaysia's Multidimensional Exposure and Resilience Imperative	24
Malaysia is Highly Dependent on Fossil Fuels	24
Significant Gas (and Oil) Exporter	26
State and Fiscal Capture on Fossil Fuel Revenues	28
Net Zero Target, Energy Transition Progress, and Policies	31
Green Ambitions and China Competition	33
Relations with the United States	38
The Impact of Energy Shocks on Malaysia	39
Policy Response to the Strait of Hormuz Shock	44
Challenges for Policymakers	48
Lessons Learned and Way Forward	49

Germany's Energy Geostrategy Pincer Grip Amid Rising Gas, Geopolitical, and Political Pressures	52
Introduction — Germany's energy policy landscape	52
The 2022 turning point	57
Between two crises	60
The growing importance of the United States as Europe's energy supplier	61
A new energy shock in 2026	63
Lessons from the crisis in an increasingly unstable world	65
Overall Learnings	67
Opportunities for collaboration and shared learning	70
Conclusion	74
References	75

Authors' Profiles



Dr. Stewart Nixon

Stewart is IDEAS' Director of Research, providing oversight of IDEAS research direction and contributing directly to its economic, sustainability and social policy research and advocacy. He has extensive experience in public policy research, analysis, and advice from a career spanning the Australian Government Treasury, OECD, East Asian Bureau of Economic Research, and World Bank. He is a passionate contributor to policies supporting Malaysia's sustainable and inclusive economic development, particularly its international integration, clean energy transition, and economic resilience dimensions. His recent focus includes scenarios analysis to understand the economic and strategic impacts of global shocks and advocating for a risk, reward, and resilience strategy to enhance Malaysia's shock preparedness and response effectiveness.

Stewart holds a Doctor of Philosophy (in Economics), a Master of Advanced Studies, and bachelor's degrees in economics and psychology from the Australian National University.



Malte Küper

Malte Küper is Senior Economist for Energy and Climate Policy at the German Economic Institute (IW), where he works at the intersection of energy technology and economics. He combines an engineering perspective on energy and industrial systems with the economic analysis of policy instruments and transformation processes. He studied Energy Engineering with a focus on renewable energy systems at the University of Applied Sciences Cologne and the University of Victoria, Canada. Malte has been working at IW since 2020 and has held his current position as Senior Economist since 2025. He is also a member of Atlantik-Brücke Canada.

He has extensive experience in leading and contributing to research and consulting projects for federal and state ministries, national and European business associations, NGOs and large multinational corporations. His work covers industrial transformation, climate policy, energy markets, and international competitiveness. He currently leads a multi-year project on financing industrial transformation. His recent work includes reform options for the EU Emissions Trading System, the design and quantification of green lead markets, and analyses of international hydrogen and derivative markets. He has also worked on international energy price comparisons and patent-based assessments of technological competitiveness.



Acknowledgements

The authors are grateful to Ahmad Abi Shifa Mohd Hassan for his advice on content and to Amir Ridzuan Jamaludin for providing project coordination support, including to facilitate the collaboration. We would like to thank Dr Dinita Setyawati, Andreas Fischer, and Aira Azhari for reviewing and providing helpful suggestions to improve the paper.

Our appreciation also goes to Nurul Aqilah Abdul Hadi and Mishael Dinesh Mathew for their careful copyediting. We further acknowledge Ryan Panicker, Zuhdi Farhan, Wan Adam Wan Amin, and Nurin Jazlina Mohd Hishamuddin for communications and event management of IDEAS Liberalism Conference 2026 (at which the paper was presented); and Norhayati Murni Misran for the publication and design of this report.

This publication and associated outreach were funded by the Friedrich Naumann Foundation for Freedom. Its contents are the sole responsibility of IDEAS and do not reflect the views of the funding organisation. IDEAS would also like to thank the German Economic Institute (IW) for allowing Malte to be part of this project while acknowledging that the contents are the views of the authors and not necessarily those of IW.

The data cut-off for this paper is 30 September 2026.

Funded by:



Supported by:



Executive Summary

Malaysia and Germany, as constructive and reliable participants in globally interdependent energy (as well as trade and financial) markets, face an increasingly hostile, volatile, and uncertain environment surrounding energy choices. Major disruptions to tanker traffic in the Strait of Hormuz make a strategic reassessment of energy futures more urgent, both in a Germany (and Europe) that is still feeling the energy consequences of Russia invading Ukraine and in a Malaysia paying a high fiscal price for its politically charged reinstatement of petrol subsidies in 2018. Malaysia and Germany are caught between the destabilising forces of the United States (US), whose military and economic coercion is reshaping commodity markets, and China's rising green manufacturing and critical minerals dominance, which risks ensnaring countries in a new form of energy technology and product dependency.

The complicating environment for energy geostrategy is the latest unexpected but highly consequential challenge confronting global policymakers, who risk being caught on a perpetual crisis footing. Policymakers are increasingly finding themselves confronted with a second or third shock before they can comprehend and effectively respond to the first. Intense political pressure to address the symptoms of the latest crisis can distract from efforts to understand the evolving risk environment, invest in measures to boost resilience, and develop the mechanisms and processes to better target responses to future shocks. As a result, each successive shock risks causing more economic, political, and social damage than necessary. In a world of recurring shocks, policymakers can no longer afford to wait for a return to normality before strengthening their capacity to respond.

To support a shift in focus, this paper contributes to understanding recent events and how policymakers should respond to them by pursuing three related aims. It takes stock of recent changes to US energy geostrategy and explores its significance in the wider context of global energy market and policy shifts, including China's emergence as a clean energy manufacturing superpower. It then uses the case studies of Malaysia and Germany to investigate the differing interpretation of and response to these shifts, highlighting where differences reflect understandable contextual and characteristic factors and where they instead reflect insufficient policy adaptation. The paper then concludes by highlighting key lessons and identifying areas where Malaysia and Germany — individually, bilaterally, and as leaders of Southeast Asia and Europe — could explore further cooperation to best navigate an increasingly complicated and hostile energy geostrategy environment.

The paper identifies several key areas in which to concentrate additional policy and relationship effort. The first is to develop clearer national strategies surrounding energy risk, resilience, and reward trade-offs, engaging both preparedness and response actions and developing deeper market intelligence and strategic foresight. The second is to broaden and deepen bilateral and plurilateral cooperation in pursuit of mutually beneficial and binding agreements that facilitate joint preparedness and collective shock response efforts. A third is to recognise that absorption-centric shock responses with untargeted subsidies are unsustainably expensive and blunt incentives that encourage more resilient

choices. A fourth is to appreciate and guard against two distinct dependencies: traditional fossil fuel dependencies involving continuous cross-border energy flows and emerging renewable energy dependencies involving the growth or replacement of technology and products that support mostly domestic energy production. And a final fifth is that accelerating renewable energy installation is the most effective way to reduce the risk of disruptions like the prevailing West Asia crisis, with diversification a distant second and sovereign production less helpful.



Introduction and Purpose

The first two months of 2026 featured several significant developments in energy geostrategy that have caught analysts and policymakers on the back foot. It began with a tactical military operation that saw the US take effective control of Venezuela, with the narrative surrounding the removal of President Nicolás Maduro explicitly tied to securing Venezuela's extensive oil reserves. That was soon followed by increasingly loud and coercive rhetoric from the White House around taking Greenland by tariffs or force, with Greenland of geostrategic interest for its critical mineral and believed oil and uranium reserves. Then on 28 February the US and Israel began air strikes on Iran, triggering war in the Middle East and prolonged disruption to tanker traffic in the Strait of Hormuz.

The immediate impacts from the Middle East conflict and both the precedent and subsequent activities of the second Trump administration have forced a reappraisal of global energy supply chain security and America's relationship to it. Governments were left scrambling to manage oil supply shortages and price spikes, including whether to increase imports from the US itself or from a Russia freshly relieved of US sanctions. The globally disruptive economic and sociopolitical consequences of the US politicising and weaponising energy through bullying, coercion, and military intervention are only beginning to be felt and go beyond the immediate impact of oil supply shortages and price increases.

Providing secure and affordable energy is essential to both a functioning economy and maintaining public confidence in governments. The energy insecurity of many countries, both rich and poor and including Malaysia and Germany, has been spotlighted by the Strait of Hormuz closure. The direct and indirect damage in terms of lives and livelihoods lost, more expensive and less diverse goods and services, and social and political instability may never be fully tabulated but nonetheless serves as a wakeup call for policymakers to more proactively consider their energy, resilience, and preparedness choices.

This paper seeks to understand recent events in wider context and through a longer-term, strategic lens from the perspectives of Malaysia and Germany. It situates recent energy geostrategy developments with preceding global shocks, medium-term shifts in US energy policies and trade patterns, and global energy market trends including the rise of China as a green energy manufacturing superpower. It explores the energy positioning and choices facing Malaysia and Germany as they consider how to improve energy security through short-term choices with long-term consequences. And it combines these perspectives to highlight where Malaysia and Germany can learn from each other and forge cooperation towards a more secure energy future.

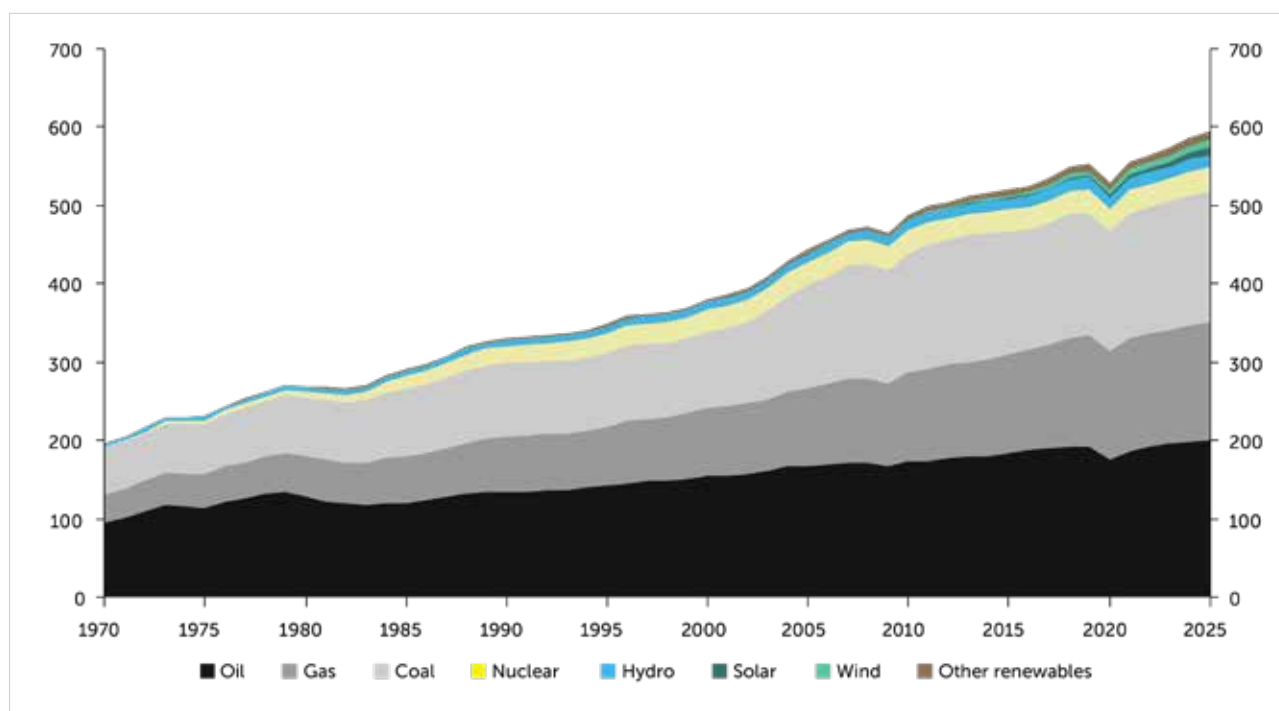
The authors hope the analysis provides support for policymakers in both countries and globally to navigate an increasingly frenetic and complex energy geostrategy environment. Viewing developments from wide and diverse perspectives can only benefit policymakers as they assess options to improve energy security.

Shifts in Global Energy Markets

To situate the analyses for Malaysia and Germany, this section presents both long- and short-term shifts in global energy markets. The long-term direction and composition of energy demand and supply, together with short-term disruption and volatility from geostrategic and geopolitical events, operate in parallel and are of equal importance to policymakers and their energy policy choices.

The Evolving Contours of Global Energy

The world's thirst for energy has never been greater, despite increasingly urgent concerns surrounding rising global temperatures. Global energy consumption has almost tripled since the oil shocks of the 1970s, approaching 600 exajoules in 2025 (Figure 1). Rapid and energy-intensive growth in China, Southeast Asia, and other parts of the developing world are fuelling continued demand.

Figure 1: World energy consumption has tripled in 55 years and continues to rise

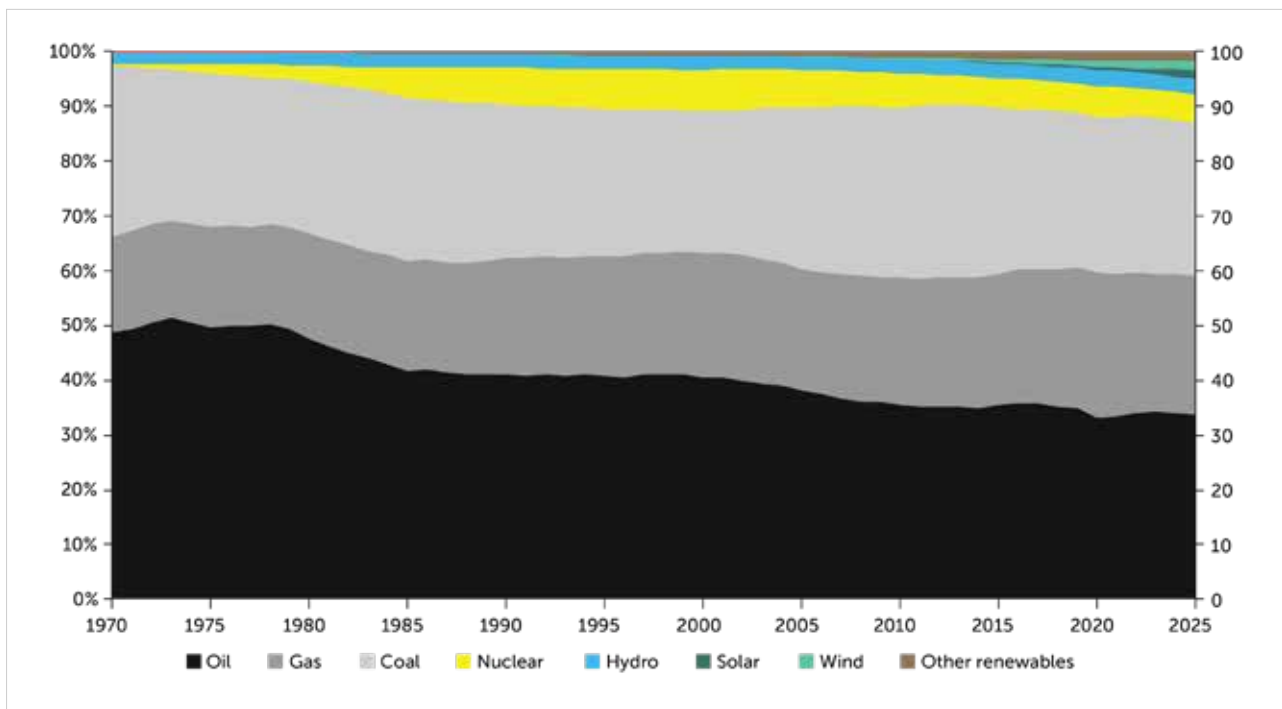
Note: Data presented in total exajoules. An exajoule is roughly 278 billion kilowatt hours.

Source: Energy Institute (2026).

Most of the historical rise in energy demand has been met by fossil fuels, however, renewable energy has dominated new electricity generation capacity in recent years. Around 87% of global energy consumption in 2025 was met by oil, gas, and coal, with renewables still representing a small fraction of the overall energy stock (Figure 2). Rising electrification and more favourable market conditions for renewable energy installations, especially solar, are seeing renewable-sourced electricity meet energy demand increases. Of the approaching 20% of global energy demand met by electricity, new capacity additions from renewables have exceeded 80% since 2020 and 50% since 2014 (Our World in Data, 2026; IRENA, 2026).

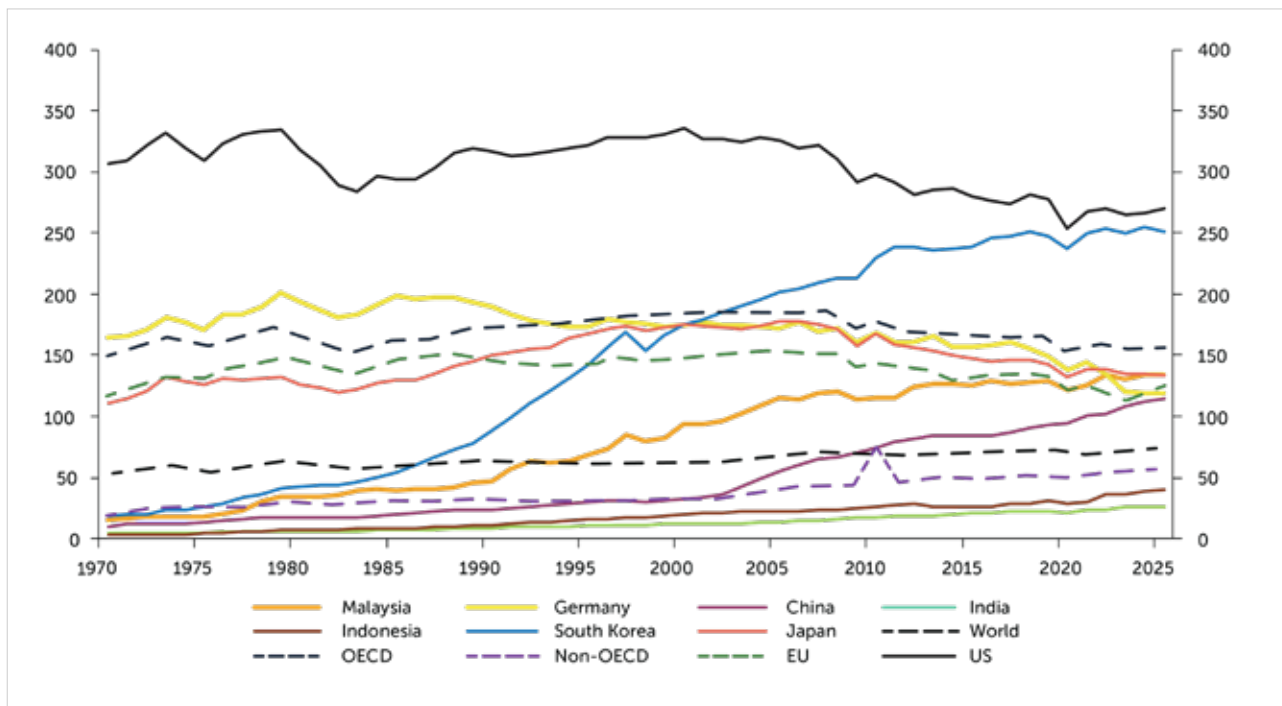
Energy trends differ significantly across countries, particularly between developing and developed economies. For most developed countries with ageing populations and the means and incentive to decarbonise energy systems, per capita energy supplies have been decreasing since around the turn of the century. OECD countries (especially the US) still have far greater energy intensities than non-OECD countries, but there has been noticeable convergence with the fastest developers (Figure 3). Notable examples of such convergence include China with the EU and Malaysia having recently overtaken Germany in energy supply per capita.

Figure 2: Renewables provide an increasing but small share of energy consumption



*Note: Data presented in percentage share of total exajoules consumed.
Source: Energy Institute (2026).*

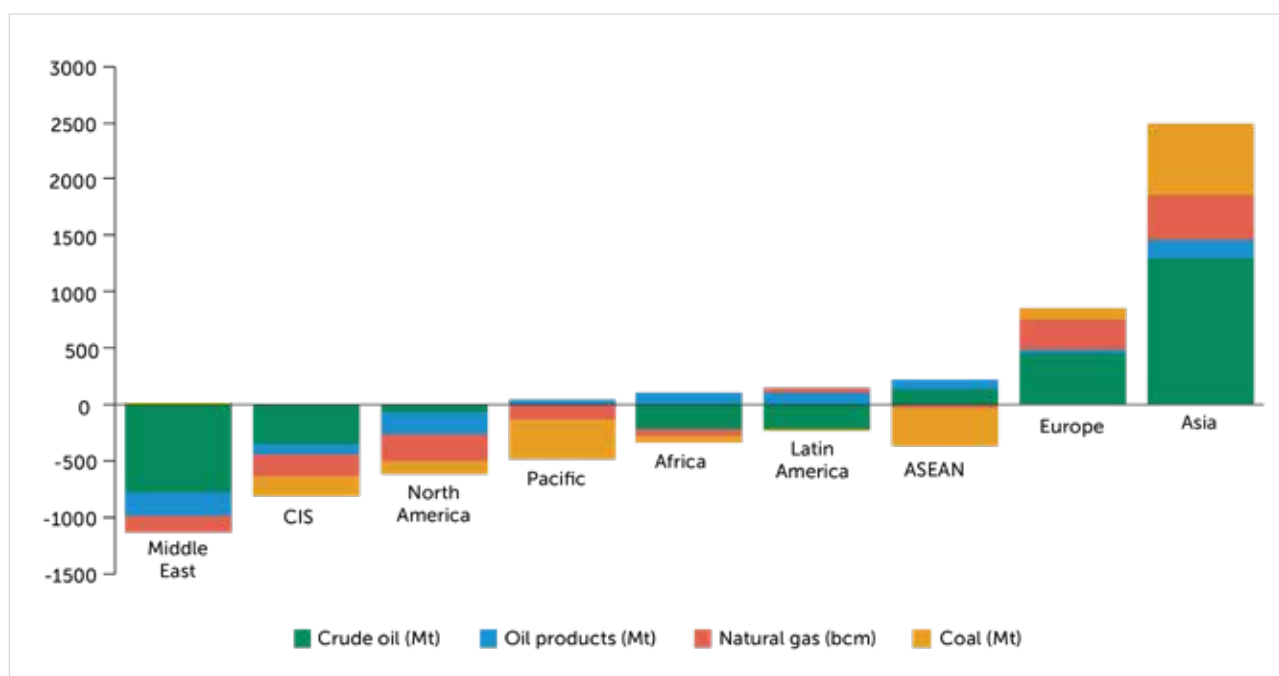
Figure 3: Energy supply per capita is rising globally but falling in developed countries



*Note: Data presented in gigajoules per capita. A gigajoule is roughly 278 kilowatt hours.
Source: Energy Institute (2026).*

International trade in fossil fuels has risen alongside energy demand, creating significant import dependencies for some regions and countries (IEA, 2025a). Asia and Europe absorb large flows of oil, gas, and coal imports from the Middle East and CIS countries in particular (including Russia), while ASEAN countries are net oil and gas importers and coal exporters (Figure 4). Among the biggest overall importing countries by volume are China, Japan, South Korea, Germany, Italy, India, and the United States (Enerdata, 2026). In the context of conflict in the Middle East, countries across Africa and Asia are the most exposed in import dependency terms (having the highest share of oil imports from the Middle East) (IEA, 2026a). Malaysia is 25th most dependent on Middle East oil (22% share in 2024) and Germany is 39th (6% share).

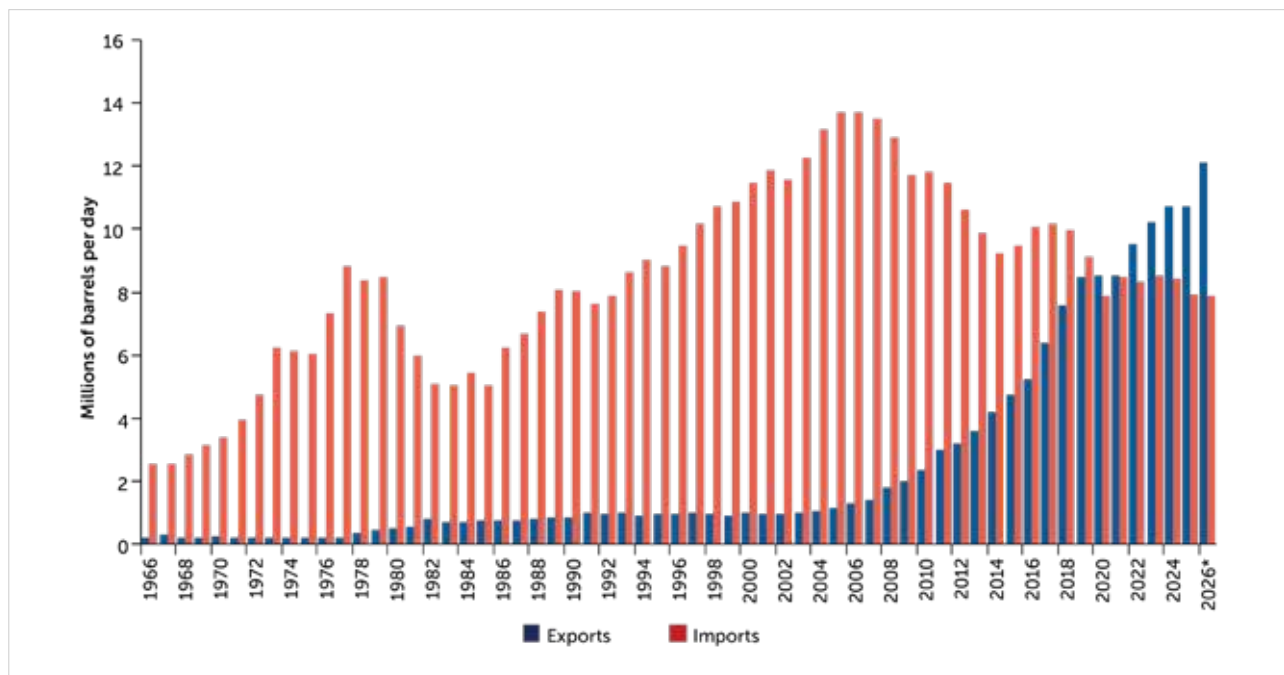
Figure 4: Asia and Europe import fossil fuels from the rest of the world (2025)



*Note: Data are presented in millions of metric tonnes (Mt) and billions of cubic meters (bcm).
CIS is the Commonwealth of Independent States, including Russia and ten other countries in Central Asia and Eastern Europe.
Source: Enerdata (2026).*

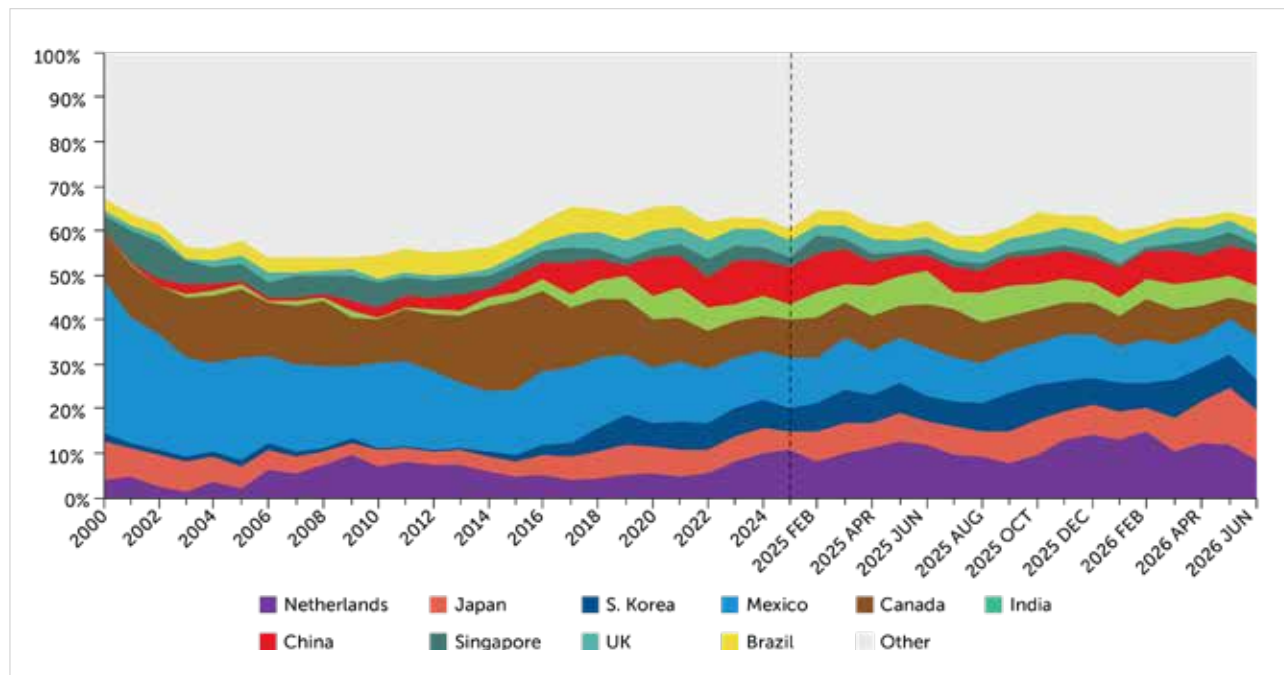
An important shift in the US petroleum trade balance appears to be contributing to geostrategic realignment. For decades the US was a substantial net importer of petroleum products, with oil insecurity being among the drivers of its military deployments in the Middle East (Figure 5). The shale revolution has dramatically changed the balance since the mid-2000s, with the US now a sizeable net exporter of petroleum products because of both rapid export expansion and steady import decline. The US is less dependent on global oil supplies (though not immune to global price movements, as discussed later) and its export markets have diversified to include European and Asian friends, and to a lesser extent China (Figure 6). The Trump administration would like to increase the world's dependency on US oil exports (Trump 2025a).

Figure 5: The US has gone from large net importer to modest net exporter of oil



Note: *represents the average from January to August inclusive.
Source: U.S. Energy Information Administration (USEIA) (2026c).

Figure 6: US exports have diversified with the shale boom



Note: Depicts the share of total petroleum exports from the US by destination. The dotted line indicates the data switching from annual to monthly data (2025 JAN).
Source: USEIA (2026c).

Recent Disruptions to Oil Markets

The US and Israel attacks on Iran from 28 February 2026 instigated a new period of oil market volatility. It hit a market already tightened by sanctions on Russian oil, which left less spare supply to absorb the shock. The Strait of Hormuz is the second most important waterway for global oil transport, representing about 20% of world oil trade and about 26% of maritime oil trade (Table 1), with hostilities significantly disrupting container and tanker traffic and oil production in the Middle East.

Table 1: The Strait of Hormuz represents about 20% of global oil trade

Average 2020-2024			First Half of 2025		
Millions bpd	% maritime	% oil trade	Millions bpd	% maritime	% oil trade
20.7	26.6	20.8	20.9	26.2	20.0

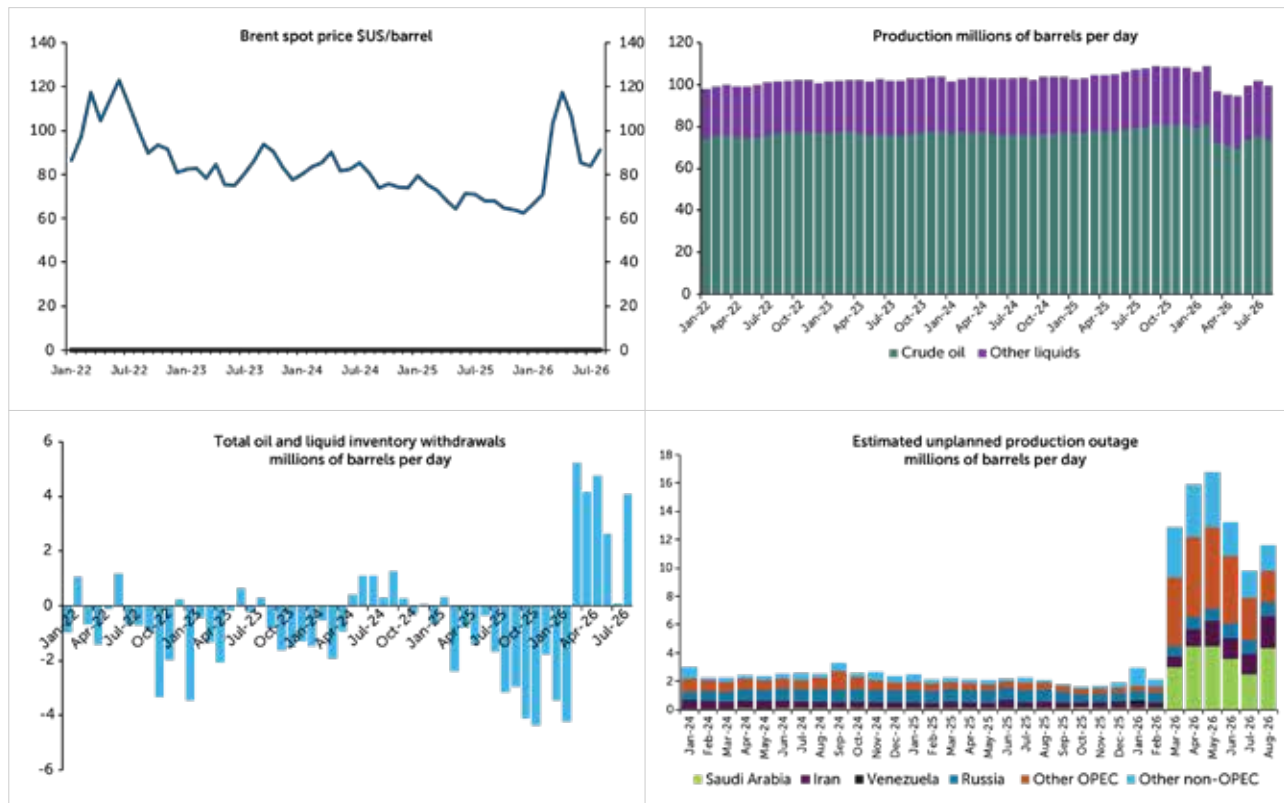
Sources: USEIA (2025) and USEIA (2026b).

Oil prices increased significantly in the weeks following the outbreak of war and have remained volatile since. From just before the war began to when prices peaked on 7 April, Brent crude prices jumped almost 94% to over US\$138 per barrel (Figure 7). While prices have fallen and risen again amid wavering beliefs surrounding a ceasefire and attempted reopening of the Strait of Hormuz, prices remain elevated and volatile. Market prices are largely driven by future expectations rather than actual supply disruptions, with the drawing down of strategic stockpiles and inventories together with supply ramping up elsewhere papering over the short-term cracks.

But it is important to recognise that the disruptions to oil production and trade are real and remain ongoing at the time of writing. Unplanned production outages that ordinarily amount to around 2 million barrels per day have reached between 13 and 17 million barrels per day since the war began, and inventory withdrawals have averaged around 5 million barrels per day having thankfully been built up over several years prior (Figure 7).

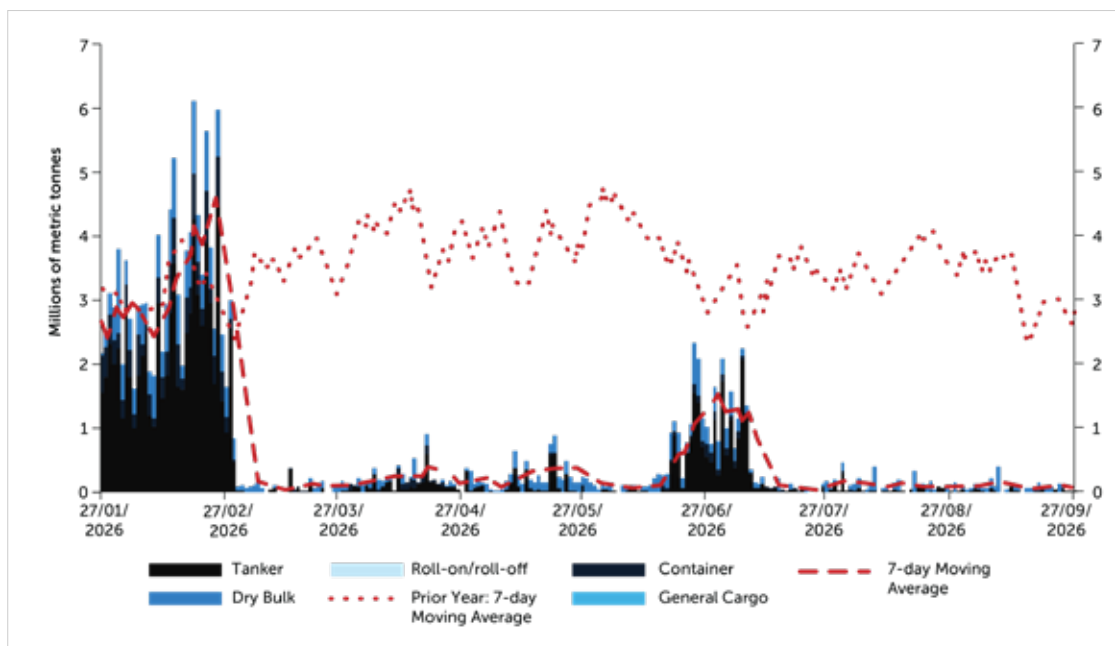
The disruption is evident in the severely reduced tanker traffic through the Strait of Hormuz. From upwards of 6 million metric tonnes of oil tanker, container, and other cargo traffic traversing the Strait pre-war, volumes have slowed to a trickle (Figure 8). Even the temporary respite in late June/early July that accompanied a purported deal to end the blockade was only around a third of average ordinary traffic. Alternative logistics channels have helped reduce the overall amount of tanker traffic lost due to hostilities, though at the time of writing overland pipelines and Red Sea passage also faced increasing threat (Turnbull, 2026). Were a genuine and lasting deal to eventuate, it would still take months or years for normality to be restored, as uncertainty casts a long shadow and physical damage to production facilities suppresses oil trade volumes.

Figure 7: The Strait of Hormuz closure sharply raised oil prices, inventory withdrawals, and production disruptions



Source: USEIA (2026a).

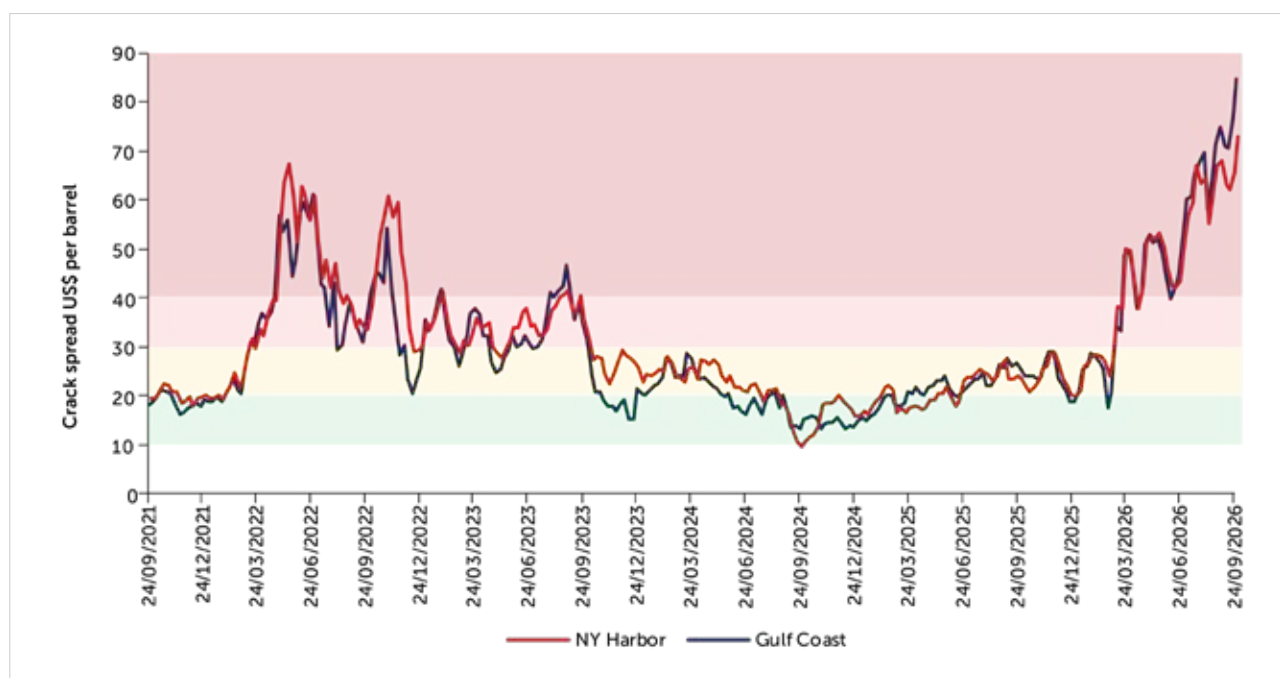
Figure 8: War has severely disrupted trade through the Strait of Hormuz



Note: Transit trade volume in millions of metric tonnes.
Source: IMF (2026b).

One area in which the shock is most felt but less acknowledged is in refining capacity and the prices of refined petroleum products. A significant contributor to why petrol prices have risen by more than would be expected from crude oil price passthrough is that the capacity to refine crude into products, including petrol for motor vehicles, is down. Refining throughput has been down 5-10% during the Hormuz disruption, resulting from a combination of damaged and disabled facilities in the Middle East, similar concerns in Russia amid heightened Ukrainian drone attacks, and China's export restrictions preventing its refineries from filling capacity gaps (USEIA, 2026d; Mitrova, Palacios and Sternoff, 2026). This is evident in the steep rise in crack spreads, which measure the gap between what a refinery pays for crude oil and the amount it receives from selling the refined products (Figure 9). Crack spreads are at acutely high levels comparable to and above those seen in 2022 after Russia invaded Ukraine.

Figure 9: Crack spreads have soared to crisis levels, much like they did in 2022



Note: Depicts the difference between the prices per barrel of crude oil and refined products. The dashed line represents the approximate average over the past 20 years. The shading represents rough descriptions from analysts, with green = normal, yellow = firm, pink = stressed, and dark pink = acute.

Source: Pachman (2026).

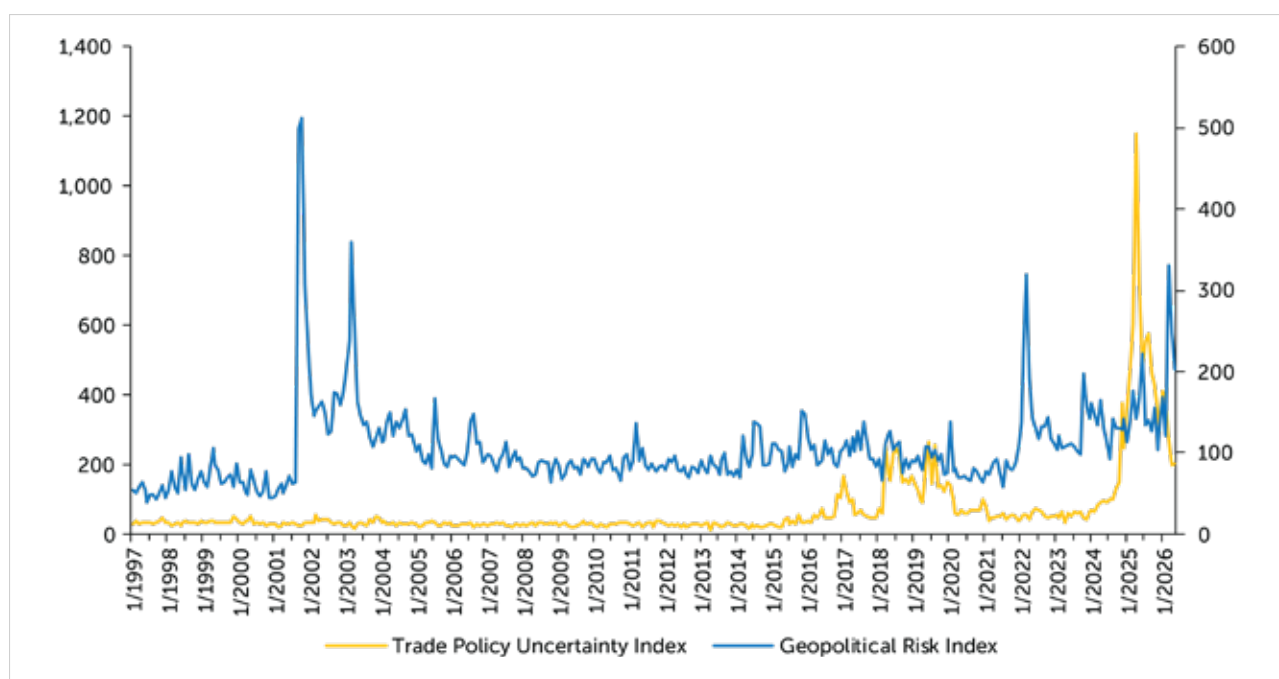
The upshot of ongoing turbulence in the Middle East is that oil supplies and prices face heightened uncertainty. As was the case during preceding shocks in recent years, supply chains have demonstrated a nimbleness and adaptability to prevent some of the worst-case scenarios and mitigate severe disruptive impacts; at least in the short-term (Brooks, 2026). Wealthier countries and firms secured alternative supplies but at higher cost, concentrating shortages on poorer countries and exposed sectors (GEF, 2026). Experience suggests the impacts also hit vulnerable groups within the wealthier economies and have a persistent stifling effect on industrial recovery. In Germany, industry was still being choked by elevated energy costs four years after the Russia-Ukraine crisis began.

The crisis is prompting a broad reassessment of energy security and of the risks attached to fossil fuels themselves. This comes at a time when demand for renewable energy installations has boomed, as the preceding section shows. But as both policymakers and financial markets tend to overestimate both the initial severity and temporariness of shocks, transformational change to reduce risk and increase resilience is less than optimal and markets do not price in more significant downside scenarios. While the timing and shape of the next disruption are unknowable, history leaves little doubt that there will be one. That alone is reason enough for policymakers and businesses to treat energy security as a strategic question rather than a series of emergencies to be managed as they arise.

An Increasingly Unstable World

Energy has long been a faultline between states and a trigger for military conflict, but amid the contemporary rise of global instability it is a late entrant to a crowded stage. Shocks of global significance in recent times have had other causes, with one having to go back to the 1970s to find an energy (oil) crisis of significant consequence (and even that event was smaller than today's). The long sociopolitical shadow of the financial crises of 1997 and 2008 continues in the form of anti-trade sentiment, trade wars (first escalated against China under the first Trump presidency in 2018), and most recently wide-ranging tariffs (Trump's tariffs and their responders/imitators since 2025). The COVID-19 pandemic (principally 2020-21) further highlighted the fragility of multilateral cooperation and of several major developed economies' commitment to supporting economic development in developing countries. Together with Russia's invasion of Ukraine in 2022, the pandemic bounceback triggered a damaging inflation spike and logistics bottlenecks. With further wars in Gaza and Iran, hard conflict is being layered on top of economic disruption and mistrust.

Political and economic relationships between nations are clouded by uncertainty and risk that is at near historic highs. Trump's initial tariff announcement in April 2025 saw trade policy uncertainty reach unprecedented levels, while the geopolitical risk surrounding the US-Israel War with Iran has reached levels on par with other sizeable conflicts in Iraq and Ukraine (Figure 10). Countries are increasingly reassessing their security — including military, energy, economic and food — amid rising supply shocks, diminishing global trust, and the sharpening contest between major powers.

Figure 10: Trade and Geopolitical Uncertainty is Elevated

Sources: Caldara et al. (2019), Caldara and Iacoviello (2022).

The world is facing major and complex collective policy problems, including surrounding the clean energy transition, at a time when disillusionment and disempowerment of institutions for cooperation is equally high. Global warming has accelerated and mitigation efforts to contain rising temperatures are still well off course. Technological development — especially the proliferation of data centres and artificial intelligence — represents a double-edged sword as both a potential solution to and a threat multiplier for existing problems. And key international institutions including the United Nations Security Council, International Monetary Fund, World Trade Organization, and United Nations Conference of Parties on Climate Change face a perfect storm of proliferating crises, declining faith and funding, and increased competition from bilateral processes.

In this context, policymakers are often still grappling with one or more shocks before the next arises. With uncertainty going nowhere fast, there is a need to tip the balance back in policymakers' favour by shifting from a reactive to proactive stance. To support this, this paper's analysis seeks to offer a more long-sighted lens through which policymakers can comprehend energy geostrategy and market developments and plot policies to navigate what lies ahead.

Washington — From Stability Anchor to Disruptor

The United States is not the only contributor to global energy geopolitical and geostrategic uncertainty, but major shifts in its posture and actions in recent years deserve specific focus. Understanding how Washington's energy policies and geopolitics have shifted, and identifying which aspects appear transient and durable, is essential for global policymakers.

Under the Obama administration (ending 2016) and the early Xi Jinping leadership (beginning in 2012), relations between the US and China were increasingly cooperative on the energy transition and trade. Decarbonisation was a shared objective and clean energy technology was not an area of contestation, though US security concerns surrounding communications companies and disquiet with the burgeoning bilateral trade deficit were rising (Li, 2016; Jin, 2016).

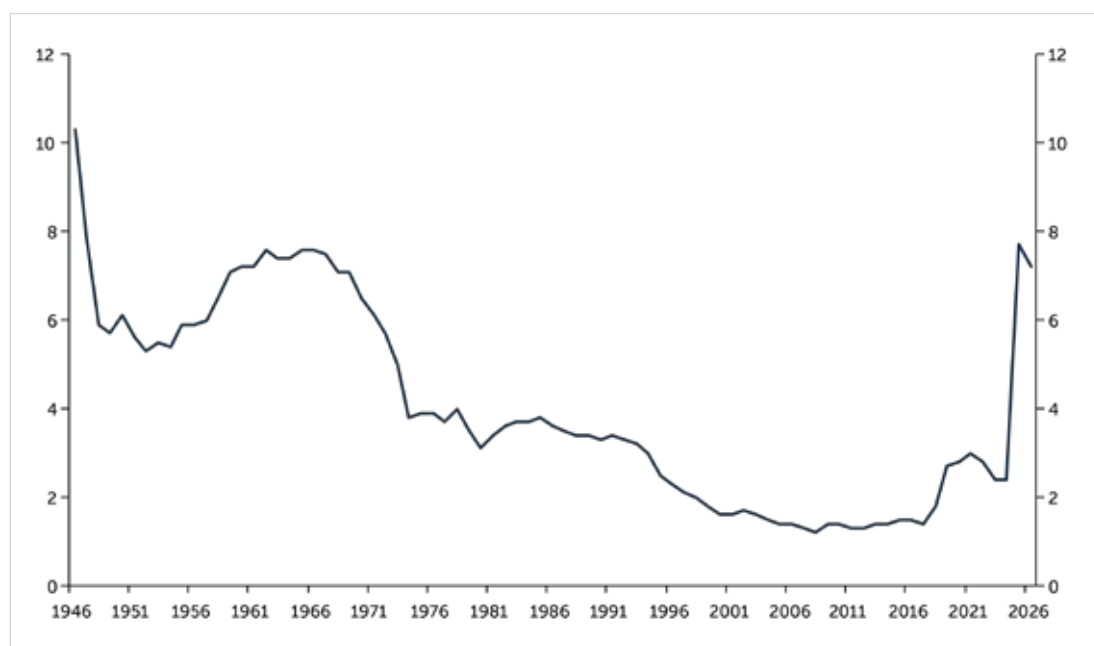
The first Trump administration provided a steep change, bringing both relations with China and energy transition policy under a more adversarial framing. Beginning in March 2018, a tit-for-tat trade war saw tariffs imposed on a wide range of goods trade between the US and China, with US tariff hikes marking a substantial departure from decades of mostly liberalising policies and the then most consequential demonstration of US willingness to weaponise trade (CFR, 2026; Teekah, 2026). Trump withdrew the US from the Paris climate accord and unwound dozens of clean energy promoting measures as he instead pursued a policy of energy independence centred on fossil fuel rejuvenation (Trump, 2017a; Trump 2017b; Popovich, Albeck-Ripka and Pierre-Louis, 2020). The US shifts on China and energy were largely separate during this period rather than explicitly linked, reflecting a great power competition framing and Trump's climate change scepticism respectively.

In the shadow of the COVID-19 pandemic and an increasingly assertive Chinese foreign policy, the Biden White House (from January 2021 to 2025) did not reverse but escalated and entrenched major power rivalry. Fears that the US was losing its technological edge over, becoming economically beholden to, and more tangibly risked conflict with China inspired an 'Invest, Align, Compete' strategy to onshore critical industries, deepen global alliances against China, and restore US global competitiveness (Chivvis and Hsia, 2026). Policies to rejuvenate investment in America under the Infrastructure Investment and Jobs Act (IIJA), CHIPS and Science Act, and the Inflation Reduction Act (IRA) created a boom for clean energy (and technology) investment as the US sought to reduce China dependency (Jones and Peck, 2026). Technology-focused export controls and later tariffs on steel, solar panels, and electric vehicles (among other additions to the retained Trump tariffs) rounded out an explicit US administration strategy to wrest control of clean energy and critical minerals production and supply chains away from China (Biden, 2024; Picciotto, 2024; Shetty, 2024).

Fast forward to the present Trump administration and US energy geostrategy is affecting energy supply chains and the green transition on several fronts. The pursuit of energy independence has morphed into 'energy dominance', with the White House

more assertively pursuing US fossil fuel primacy (Trump, 2025a; Trump, 2026a). The US has restored and escalated its combative and undermining approach to multilateral processes, especially UN climate talks (Trump, 2026b). Trump dominated 2025 with on again, off again tariffs and coercive negotiations that affected goods trade with nearly all US trading partners, advancing a president-centric foreign policy that is aggressive, unstable, and highly disruptive for its long-term allies (Falkner, 2026; Sherman, 2026). China is again subject to special tariff targeting but relations appear more friendly overall, with the outcomes of a recent state visit including some modest energy cooperation (China agreed to import 10 million tonnes of coal per year from the US, and the countries are working together to resolve critical minerals supply chain issues; The White House, 2026). Tariff rates have come off last year's highs amid legal uncertainty but remain at levels not seen since the 1970s (Figure 11). And 2026 marked the return of military force as an instrument of US energy strategy, with Venezuela and Iran the clearest cases.

Figure 11: US Average Effective Tariff Rate Reached 80-year Highs



Source: York and Durante, 2026.

Trump's Restless Energy Adventurism

While the wider and longer global and US contexts are important to understanding the full policymaking picture, this paper zeroes in on the most recent developments in energy geostrategy; their characteristics and durability. Special attention is therefore given to President Trump's energy-related actions and why they matter.

Trump campaigned on a ticket that included promises to spur domestic fossil fuel expansion, eliminate automotive emissions limits, cut energy prices in half, and withdraw from the Paris climate accords for a second time (Esomonu et al., 2025; Politifact, 2026). He also positioned himself as the "Peace President" and vowed "no new wars" but has repeatedly broken that promise through actions that compromise his energy promises and greatly alter US energy geostrategy (Walker, 2025; Latchem, 2026).

Domestically, the most consequential of Trump's energy policies since retaking office are:

- Declaring a 'national energy emergency' to prioritise the mobilisation of government resources towards expanding fossil fuel and critical minerals sources (Trump, 2025b; Trump, 2025c);
- The 'Unleashing American energy' executive order to fast track fossil fuel exploration and exploitation projects and eliminate the "electric vehicle (EV) mandate" (Trump, 2025d);
- Reversing bans on drilling in Alaskan reserves and parks and expediting leases and permits for coal mining (Earth.org, 2026);
- Supporting climate scepticism rhetoric by removing government website mentions of climate change and reducing access to essential climate data (Trellis Staff, 2026);
- Removing dozens of environmental protection laws and taking a razor to the Environmental Protection Agency (EPA) and its renewable energy programmes (Climate Action Campaign, 2026); and
- Paying billions of taxpayer dollars to cancel offshore wind projects (McDermott, 2026).

These measures have emphasised a US energy policy that seeks to restore fossil fuel primacy and temper the advance of renewables, though market forces still favouring solar and battery installations over coal in many states mean policy impacts have been marginal not seismic so far. The seeming end of Biden's IRA-driven investment boom (U.S. Bureau of Economic Analysis (BEA), 2026) and the stalling or cancellation of around US\$70 billion in clean energy projects (Cembalest, 2026; Climate Power, 2026) must be considered against record new installed battery capacity and solar power meeting 61% of energy demand growth in 2025 (Jones et al., 2026). From a third country perspective, the threatened rise of the Biden-era US as a clean energy manufacturing competitor seems

a distant prospect and there's little room to negotiate government-to-government on clean energy cooperation.

Of perhaps greater salience to international policymakers are shifts in the US administration's approach to global energy and climate geopolitics and strategy. Where Obama sought to work with China and Biden sought to outcompete and outmanoeuvre it in cooperation with allies, Trump's abandonment of clean energy shifts the competitive posture to one of diverging instead of overlapping ambitions (less direct competition within sectors and more competing energy mix visions). Trump's energy dominance includes an explicit strategy to supply the world with US fossil fuels, while China is both the world's largest fossil fuel importer and stockpiler but also by far the largest producer (and consumer) of solar panels, wind turbines, and batteries. Where Biden wanted the US to become an alternative clean energy supplier to China, Trump wants countries to import US oil and gas instead.

The most consequential international policies started geopolitical and have become increasingly militaristic under Trump's second term. These include:

- Exiting the Paris climate agreement for a second time as well as the wider UN Framework Convention on Climate Change (Noor, 2026);
- Withdrawing the US from and cancelling financial support to over 60 international organisations, particularly those with climate mandates (Al Jazeera, 2026; Trump 2026b);
- Trump's coercive 'reciprocal' tariff agenda, which included several bilateral agreements demanding energy-related promises. Examples include an EU pledge to buy US\$750 billion worth of US energy, Indonesia, India and other Asian countries committing to increase US energy imports, and Japan and Taiwan agreeing to increase energy-related investments in the US (Kimball, 2025; Manak and Smith, 2026; Rahn, 2026). At the time of the February 2026 agreement, India also agreed to halt Russian oil imports, but this and other sanctions on Russian oil were weakened amid the Strait of Hormuz closure;
- Various initiatives to reduce critical mineral dependency on China, though none that have materially altered markets to date. The US trade representative has been mobilised to negotiate supply deals with partner countries and the US is trying to convince the G7 to form an exclusive trading bloc with a US-AI-driven pricing plan (Trump, 2026c; Payne and Scheyder, 2026; Reuters, 2026);
- The 3 January 2026 incursion of Venezuela to remove President Maduro, which dramatically shifted the goalposts for US energy geostrategy. It represented the most significant foreign incursion since Afghanistan and dispelled any illusions that Trump wanted to eschew overseas military deployment. The explicit political linking of the Maduro deposition to Venezuela's rich oil reserves also marked a new development

in Trump's energy dominance ambitions, raising the threat of military coercion and deployment against oil producing countries (Anderson et al., 2026; Collins, 2026). In late August, the Trump Administration, Venezuela, and US oil majors struck a deal to develop Venezuela's oil reserves, enshrining significant revenue-sharing, ownership control, and lock-in supply rights (Goldman, 2026; Habeshian, 2026);

- Trump's rhetorical campaign to acquire Greenland, which he covets for its strategic positioning, critical minerals and fossil fuel reserves. While its practical policy effects have amounted to short-lived trade barriers, it created a faultline between the US and Europe that is contributing to decoupling efforts (FitzGerald, 2026; Davies, 2026; Krause-Jackson et al, 2026). In late September, the US, Denmark and Greenland signed an agreement to expand America's military presence and restrict sensitive foreign investment in Greenland (Ong, 2026);
- A campaign of increasing coercion against Cuba, with Trump's 'Maximum Pressure' strategy — including an oil blockade — mirroring the sovereign encroachment of Venezuela and Iran (Roy, 2026; Katrougalos, Jallad and Saul, 2026); and
- The US-Israel war with Iran, which began on 28 February and is by far the most strategically and economically important development. The prolonged closure of the Strait of Hormuz created the largest oil shock in 50 years, resulting in globally widespread fuel price inflation and supply shortages, especially in poor and import-dependent countries (Chtatou, 2026; Horsley et al., 2026; Mazumdaru, 2026). The effects are still evolving and will involve lags, including that from fertiliser shortages on food supplies (IMF, 2026a). Countries the world over are reassessing their risk and resilience to oil shocks, with many evaluating the reliability of the US as a strategic partner alongside dependence on the Middle East. The US also took a reputational hit as a military and coercive power (Fukuyama, 2026). The lifting of sanctions has given Russia a perverse boost from oil export revenues, though this may be short lived. Some countries are using the shock as impetus to accelerate green energy rollout, while others are doubling down on fossil fuels (Waldman and Schonhardt, 2026; Simon, 2026).
- As of 1 October, Trump had repeatedly stated that he is seriously considering a ban on diesel exports in response to high prices (Bogage, 2026). The move would not only further disrupt the already tight global market for diesel but would undermine trust in the US as an energy supplier in stark contradiction to Trump's energy dominance ambitions.

Combined these policies have recast the US political class as a champion for oil and an obstructor of global climate change cooperation with diminishing military restraint and respect for sovereignty. Instead of exercising its revitalised energy wealth and technological superiority to buttress the energy security of its international partners, it has created energy supply instability and real friction with its allies, while at the same time eschewing an opportunity to build clean energy competitiveness and drive the clean

energy transition. The US has vacated international cooperation and sought to coerce countries into lopsided bilateral agreements that raise barriers to trade and lock in fossil fuel dependency. Trump's actions have thereby (again) exposed the inherent risks in fossil fuel dependence — risks that have materialised repeatedly through history (most notably in the 1970s and in 2022).

China's Rise as a Green Technology Supplier

In parallel with the emergence of the US as a meaningful petroleum exporter, China has become a leading contributor to renewable energy installations globally. Note that while cross-border trade in renewable energy occurs and could be an increasingly significant contributor to future energy security, China's contribution is predominantly as a green technology and product supplier. This is an important distinction, as it supports increased domestic energy supply globally while creating potential dependency at the technology and product manufacturing level, not the flow of energy itself.

So while the discussion to this point has focused on global energy supplies directly, this section shifts the focus towards manufacturing green products. It refers not only to reliable and affordable energy supplies, but also to secure access to the technologies, critical minerals, and processing capacities required for the energy transition. As the energy system changes, the range of dependencies that can affect energy security is expanding. This broader perspective allows for the examination of not only disruptions to the supply of oil, gas and coal, but also vulnerabilities arising from dependence on clean technologies and the inputs needed to produce them.

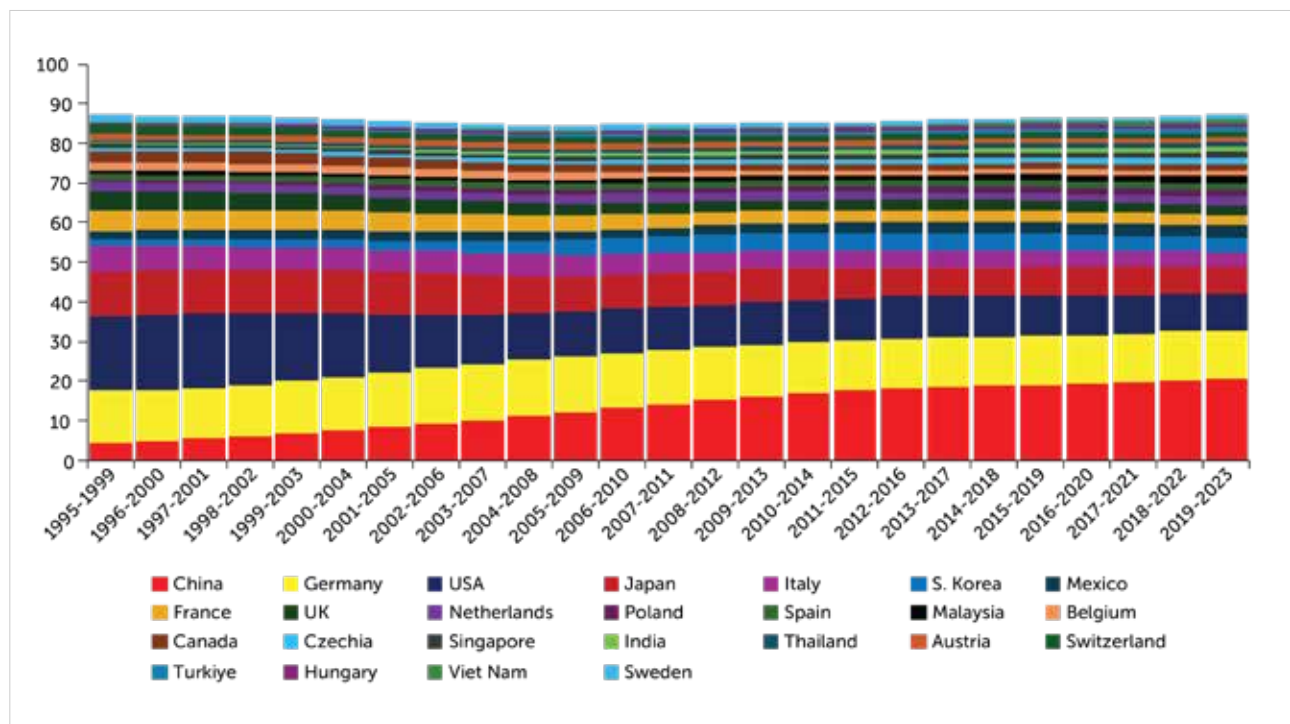
China has experienced a dramatic rise to overtake the US and become the world's largest exporter of environmentally and climate-friendly products (Figure 12). These products — referred to hereafter as "green" — are classified following Andres and Mealy (2023) and include renewable energy, environmental remediation, emissions reduction technologies, natural resource protection, pollution and waste management, and water supply. The classification offers a useful depiction of China's market position, but because it rests on a product-by-product logic it captures only part of the picture. China commands over 20% of the global market share, almost as much as the second and third largest green exporters combined (Germany and the US). Combined, however, the 27 EU countries account for around 35.5% of global green exports, making them a significant collective market contributor that has held up relatively well to competition (down only about 4% from a peak share around 2008).

China is both the world's largest importer of fossil fuels and installer and exporter of green manufactures. From a geopolitical and geostrategic standpoint, China and the US are clearly trending in opposite directions; with China advancing its green credentials as the US promotes its fossil fuel wealth. From a business standpoint, the picture is more complicated as US firms retain significant green positions and remain the world leader in produced green technology patents (GreyB, 2026).

China's green export growth has been most rapid in electric vehicles (EVs) and batteries, which now amount to an annualised US\$90 billion-plus each (Figure 13). The first jump for EVs and batteries came as part of the COVID-19 rebound, with a second wind in progress since early 2025. Solar photovoltaic (PV) exports peaked at around US\$55 billion in mid-2023, and while growing again recently are about 40% below peak levels.

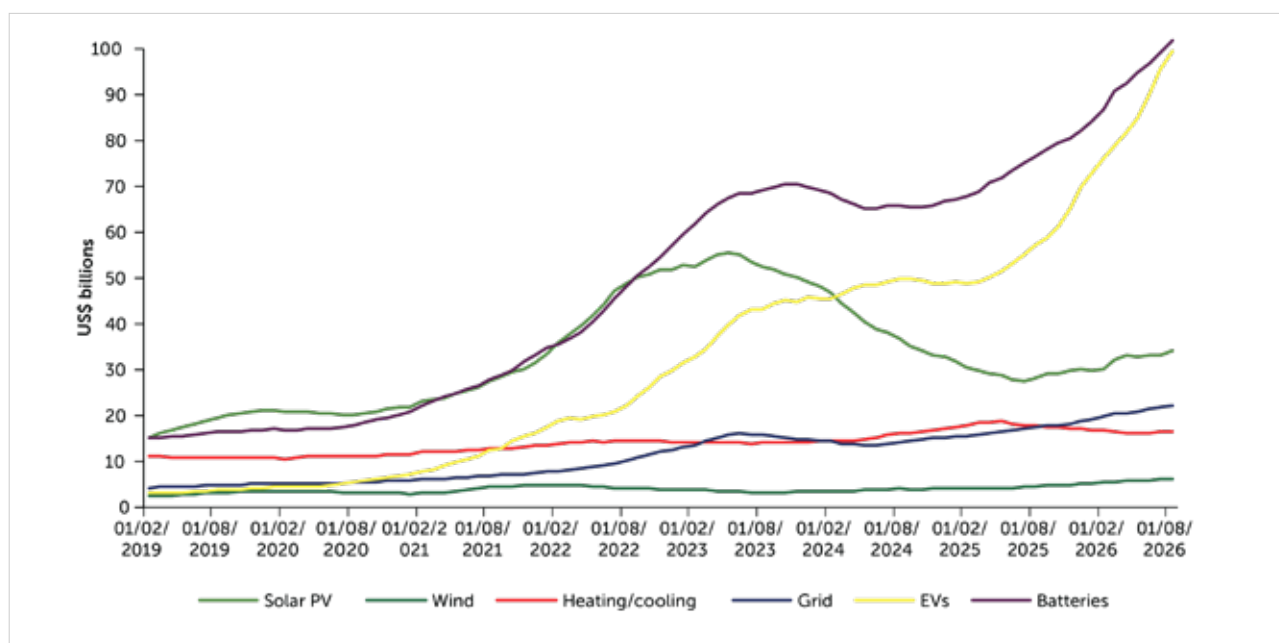
The leading destinations for China's green exports are globally diverse, with Europe and Asia featured prominently. Germany is on course to overtake the US as the largest destination this year, as its green imports approach US\$19 billion and China's direct trade with the US declines (Figure 14). Batteries dominate Germany's (and US) imports, whereas EVs are the largest category for Malaysia and most other major destinations. Among the top 21 destinations (based on the most recent data), eight are from Europe and another eight are from Asia (and four of the remainder are the US and countries it has military ties to).

Figure 12: China has rapidly replaced the US as the biggest green tech exporter



Note: Depicts the share of global exports by country averaged over the five-year periods displayed. The countries depicted all have a share of over 1% in 2019-2023.
Source: Andres & Mealy, 2023.

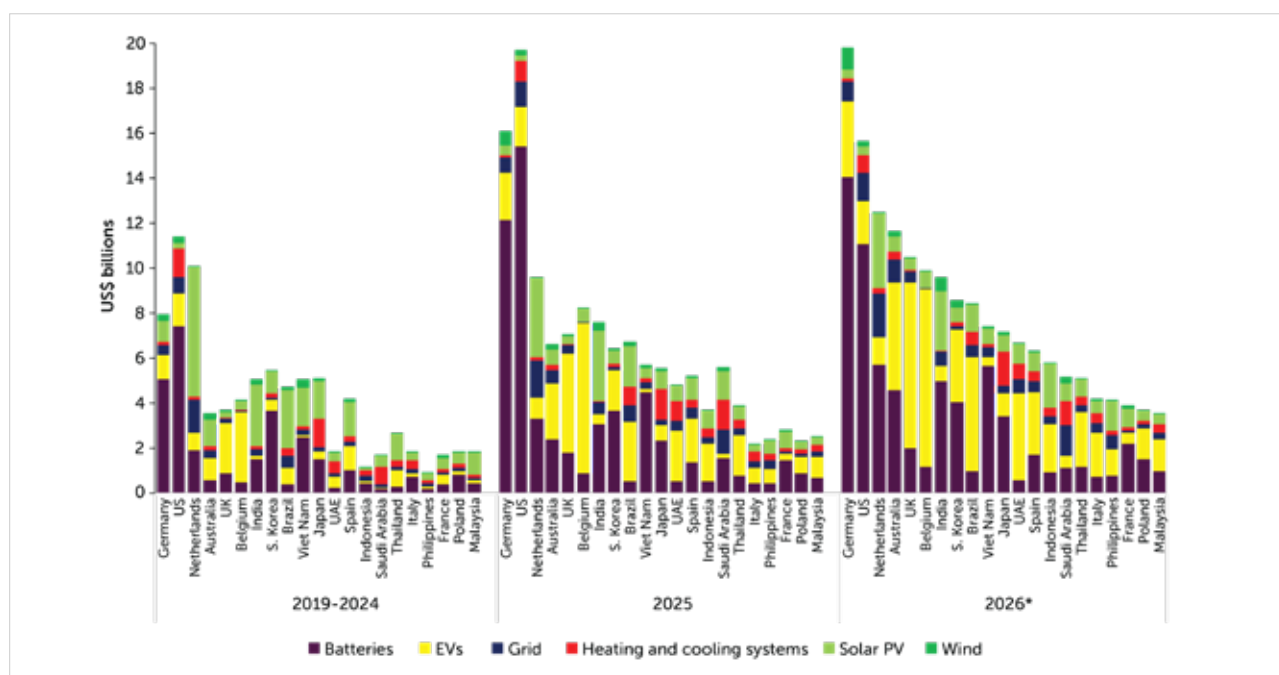
Figure 13: China's exports of batteries and EVs have exploded



Note: Depicts a 12-month rolling average of China's global exports by green export type in billions of US dollars (current).

Source: Ember (2026).

Figure 14: Germany recently became the biggest recipient of China's green exports



Note: Depicts the rolling average of China's global exports by green export type in billions of US dollars (current) for the corresponding period. 2026 includes the annualised rolling average for the first eight months.

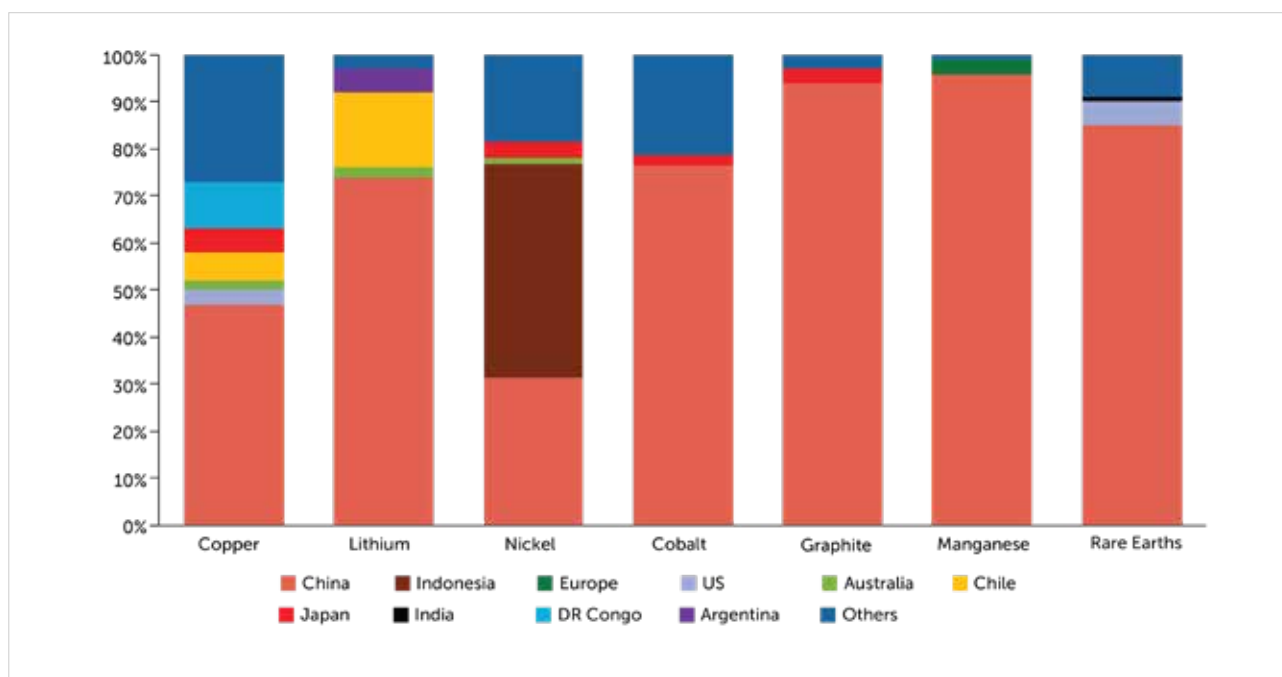
Source: Ember (2026).

China's Control of Critical Minerals

Another area in which China plays an outsized role and of increasing importance given its clean energy and high-technology applications is critical minerals. China is not only a leading producer of green technology products but a major source of the scarce raw materials used to make them. Critical minerals feature prominently in strategic discussions around future industries and dependencies due to the concentration of associated supply chains.

The US administration's motivation to diversify and control critical mineral supply chains comes from a recognition of China's dominance, especially in the refining stage (Figure 15). China produces 70 to 95% of global refined lithium, cobalt, graphite, manganese, and rare earth metals, while also commanding a strong share of copper (the majority producer) and nickel (second to Indonesia). It also dominates the mining of graphite and rare earths, whereas mining of other critical minerals is more diversified but subject to significant Chinese supply chain and investor influence (Figure 16).

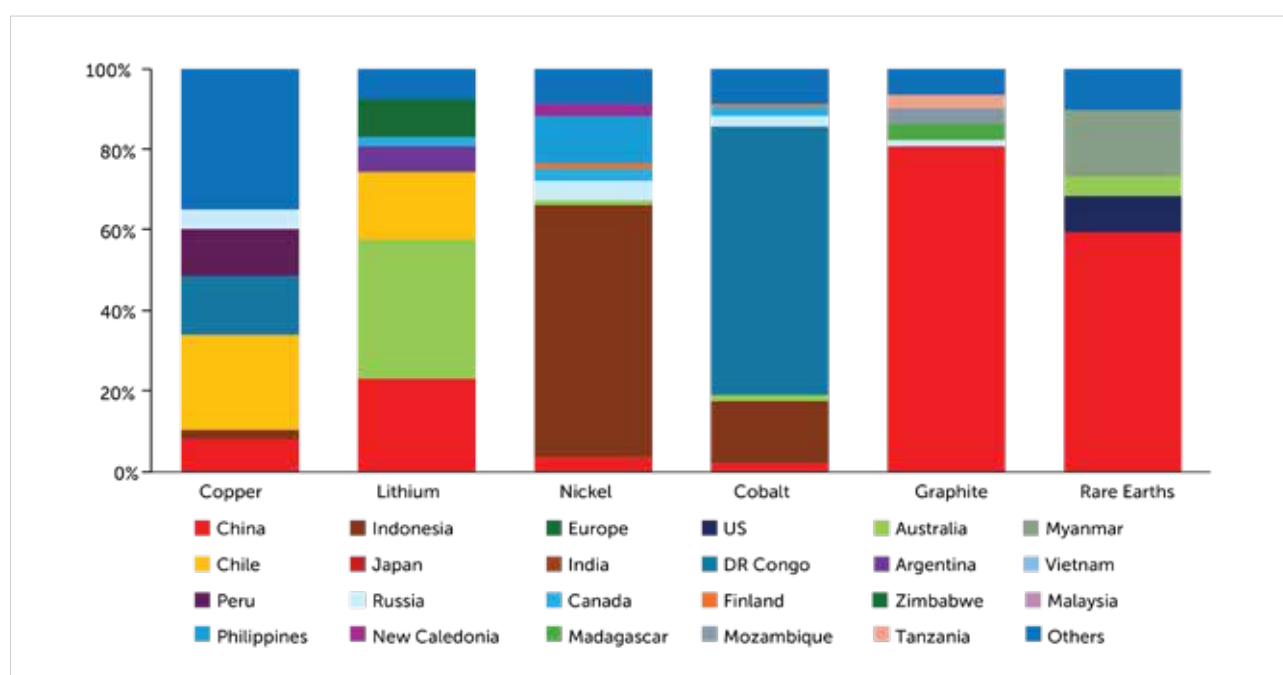
Figure 15: China dominates refined critical minerals production except for nickel (2025)



*Note: The chart presents the share of global refined material production by country.
Source: IEA (2026b).*

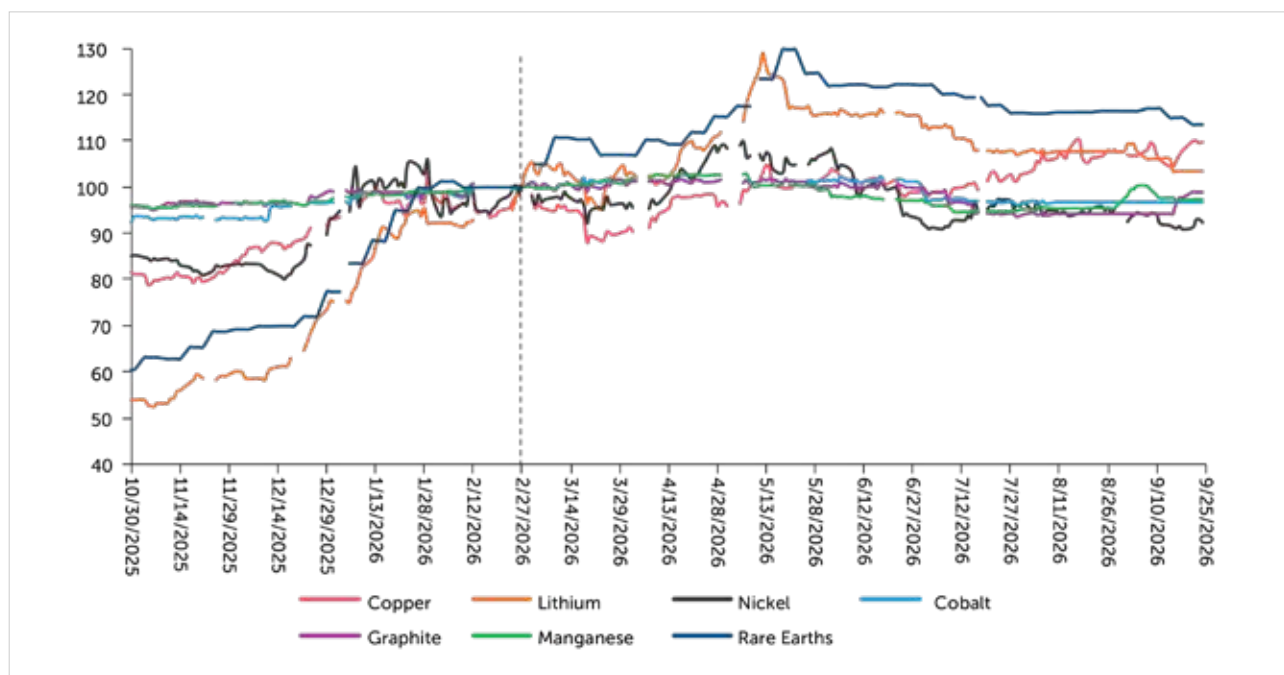
The outlook for critical minerals supplies and prices is increasingly uncertain as key suppliers — principally but not only China — impose export restrictions and major power rivalry and energy geostrategy threats escalate. Rare earths and lithium prices have risen sharply since the Iran war commenced, following an even steeper increase for strategic metals gallium, germanium and rare earths in 2025 on the back of China's export controls (Figure 17) (IEA, 2026b). Amid concerns surrounding dependence on key chokepoints like the Strait of Hormuz or on fossil fuel imports generally, the green energy alternative appears increasingly attractive but is also strategically fraught due to China's dominance.

Figure 16: Mining is more diversified, except graphite and rare earths (2025)



*Note: The chart presents the share of global mined production by country.
Source: IEA (2026b).*

Figure 17: Rare earths and lithium prices have risen sharply since end February



Note: Prices are indexed to 27 February 2026 = 100.

Source: KOMIS (2026).

Indeed, renewable energy in its current configuration presents a distinct energy security challenge compared to fossil fuels. Fossil fuels — as finite and unequally geographically distributed resources — are highly interchangeable and readily traded commodities. They have transparent current and forward pricing and sophisticated supply chains operating largely under long-term contracts. A combination of geopolitics, physical (geographical and infrastructure) bottlenecks, and increased cross-border energy flows creates an inherent vulnerability for large fossil fuel importers with often turbulent relationships with exporting countries and companies. Renewable energy by comparison is predominantly a domestically produced and infinite (though temporally variable) energy source captured through trade in technology, critical mineral, and rare metal intensive manufactured products. Renewable energy is traded across borders through grid integration (cabling), but trade provides a much smaller share than for fossil fuels. While renewable energy is mostly produced within the consuming country's jurisdiction, it can (and mostly does at present) involve digital technologies and replacement parts that create an import dependency. Products like solar panels and batteries also engage the highly concentrated raw materials supply chains mentioned above. And digital technologies most readily associated with renewable energy can engage remote access — and therefore sabotage and espionage — concerns, though bringing traditional grid infrastructure online engages similar considerations and not necessarily more or less risk. It is beyond the scope of this paper to provide a detailed security assessment and suffice to say that renewable energy engages both familiar and unfamiliar strategic challenges for policymakers.

Summarising the Environment for Policymakers

Before narrowing the focus to Malaysia and Germany, this section provides a quick summary of the preceding discussion and what it means for policymakers everywhere.

The world has a rising thirst for energy and continues to rely heavily on fossil fuels to meet overall demand. A move towards electrification and the increased price competitiveness of solar, wind, and batteries has meant most additional demand is being met by renewable energy. Most developed economies have long been reducing their carbon intensity but developing countries have increased theirs in lockstep. Trade in energy has risen over time, creating greater interconnectivity and interdependence. Within this, China and the US are heading in opposite directions geopolitically, with America increasingly positioned as a global petroleum supplier as China has risen to dominate green product exports. Critical minerals supply chains have also become a bilateral and wider geopolitical faultline, owing to their importance to green and digital technology sectors and China's dominance of refining.

Energy security is not a new problem for policymakers, rather the circumstances surrounding different energy choices have changed dramatically in recent months and years. There are more options available with renewable energy having gained economic competitiveness in many parts of the world. At the same time, the world is much less stable than it was a decade ago. Geopolitics is increasingly rivalrous, a series of major shocks has roiled policymakers and markets, indefinite conflicts involving large oil producers are being waged, and both energy and critical minerals are being weaponised more frequently. China maintains significant restrictions on trade and has a history of imposing penalties on geopolitical targets, while the Trump administration has taken trade weaponisation to new depths. Sharper choices between the US and China as a multidimensional security and economic partner include widening divergence between the former as a new bastion of fossil fuels and the latter as the green manufacturing goliath.

The immediate environment is also clouded by a 2026 that has seen the US prepared to mobilise militarily against selected oil rich countries, resulting in a protracted disruption to tanker traffic in the Strait of Hormuz. In so doing, and alongside economic coercion against friends and allies over trade and critical minerals, the Trump administration crossed lines that might irreparably tarnish America's reputation as a reliable partner for energy and wider security. The US may be large enough militarily and economically to remain systemically important for the foreseeable future, but its actions undoubtedly create incentives for other countries to reduce their dependence on it.

Policymakers in Malaysia and Germany approach the challenging environment for energy security from very different positions, as the subsequent sections discuss. Their contrasting contexts, actions, and inaction highlight both their individual policy dilemmas and the parallel choices facing policymakers in capitals the world over.

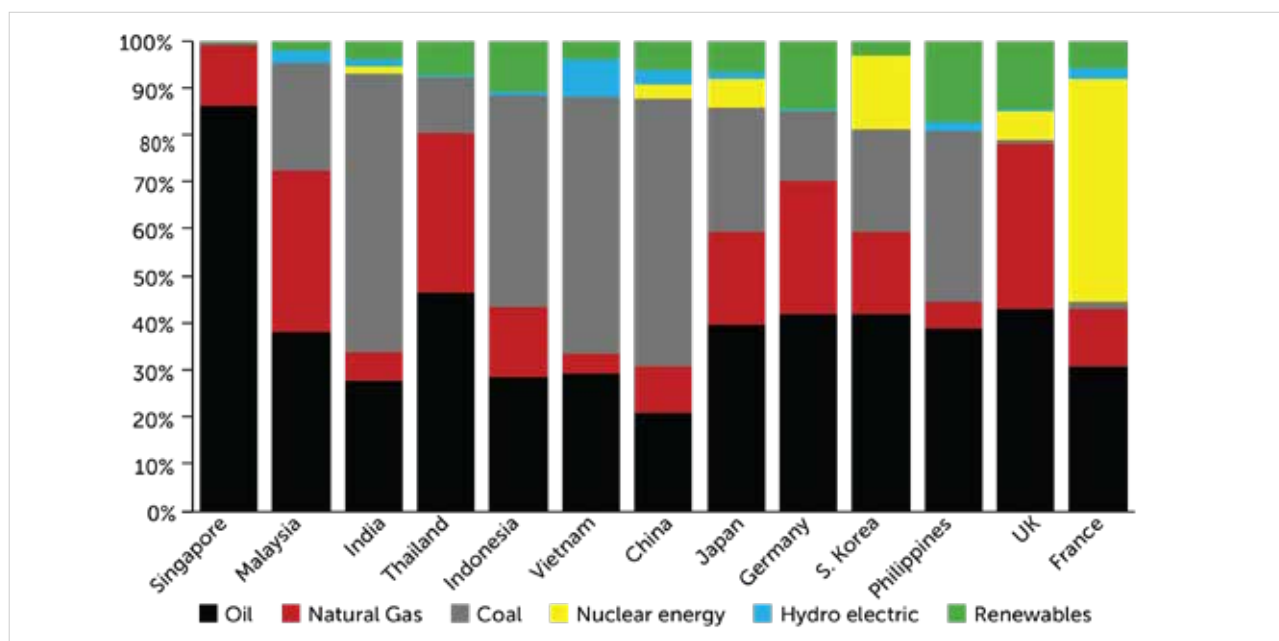
Malaysia's Multidimensional Exposure and Resilience Imperative

Malaysia's experience engages many important energy, economic, geostrategic, and policy dimensions of wider interest as it navigates global uncertainty from a position of modest strength and significant vulnerability. It has made serious commitments to pursue decarbonisation but is making slow progress from a baseline of heavy fossil fuel dependence. It is a considerable two-way trader of oil and petroleum products and a significant exporter of gas. Malaysia's economy is growing strongly but the structural decline of its budget finances leaves it with little ammunition to cushion shock impacts. Both the oil market disruptions in 2022 and 2026 created significant dislocation for public finances as fuel subsidy costs spiked without a clear compensating revenue windfall from petroleum export dividends. The continued use of untargeted subsidies to cushion shock impacts is unsustainable and damaging in two key respects: it reduces funds available to invest in economic transformation and it depresses the market signal for households and firms to pursue energy efficiencies and greener sources. Malaysia does not face significant energy exposure to either the US or China specifically, but it risks increasing entanglement both economically and strategically through both energy and non-energy fault lines. To best position itself for an energy secure and economically resilient future, Malaysia needs to get ahead of the rolling shocks and divisive geopolitics through a serious uplift in its preparedness efforts, by accelerating the green energy transition, and by building credible partnerships with trusted international partners.

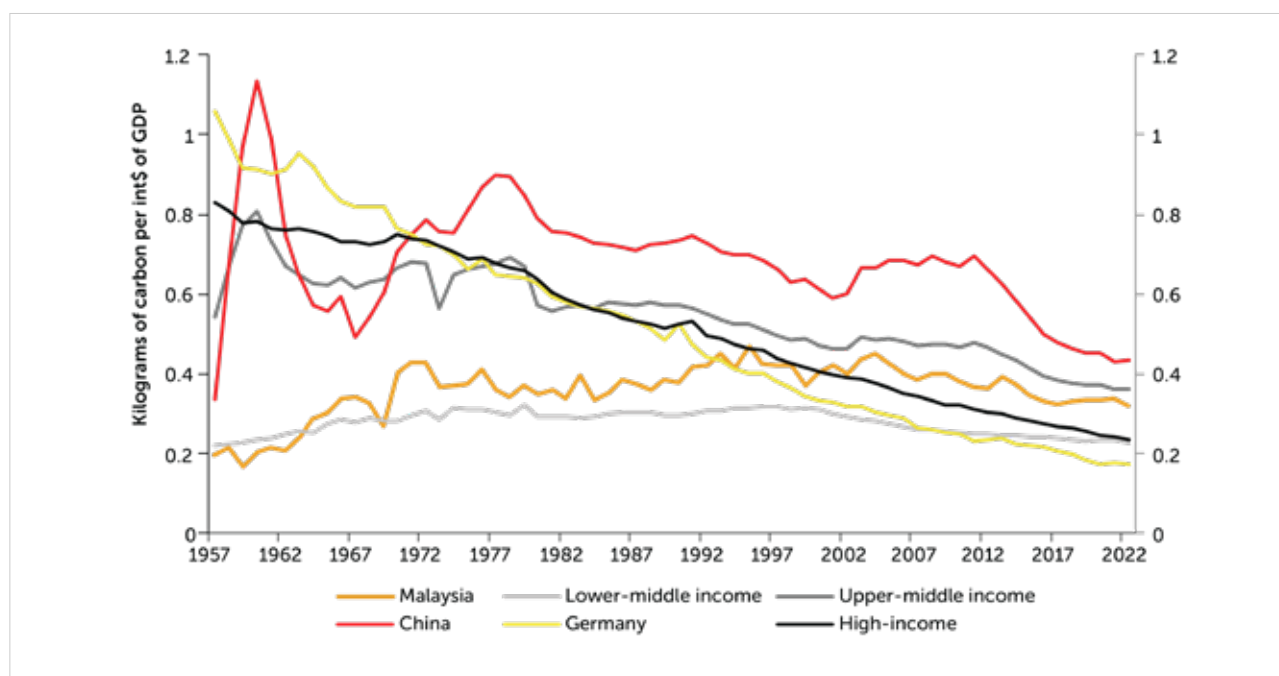
Malaysia is Highly Dependent on Fossil Fuels

The starting point for understanding Malaysia's position in an increasingly uncertain global energy landscape is its fossil fuel heavy energy mix. More than 95% of its total energy supply comes from fossil fuels, including about 38% from oil, 34% from gas, and 23% from coal (Figure 18).

Malaysia's heavy reliance on fossil fuels for energy is reflected in its carbon intensity comparing unfavourably. Malaysia has long been classified as an upper-middle income country with gross national income per capita hovering around 85% of the threshold for high-income set by the World Bank; making it relatively prosperous without being rich. As shown in Figure 3, its CO₂ emissions per capita now exceed industrial majors like Germany and Japan and are still growing. This is despite its level of development and the increasingly favourable market context for decarbonisation each providing tangible greener choices. This is further evidenced by Malaysia's carbon intensity of GDP having overtaken high-income countries and converging on other upper-middle income countries including China, whose carbon intensity has fallen sharply in the past 15 years (Figure 19).

Figure 18: Malaysia depends heavily on fossil fuels (2025)

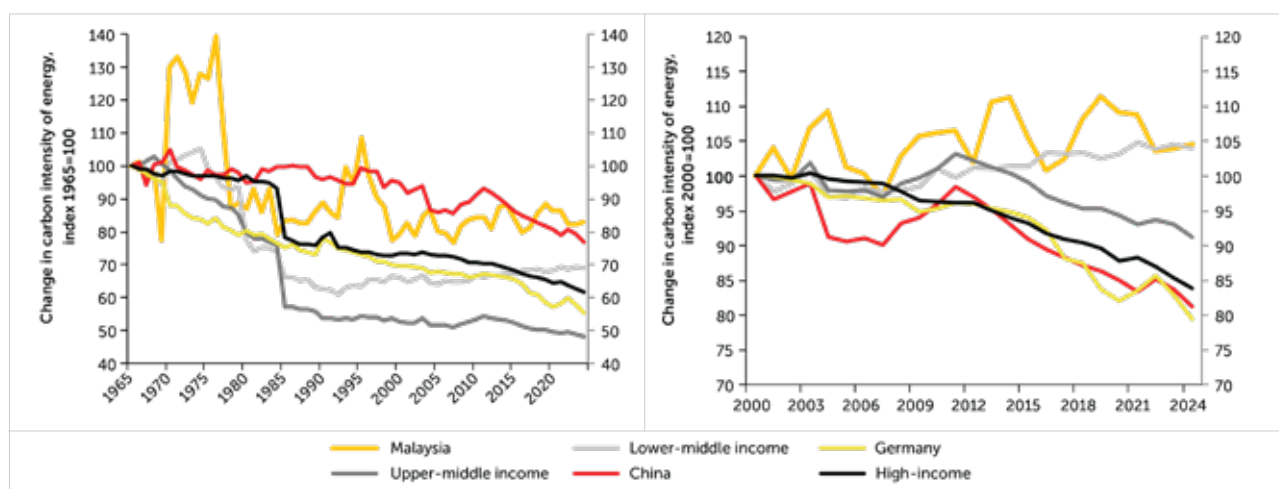
*Note: Displays the share of each country's total energy supply by source in 2025.
Source: Energy Institute (2026).*

Figure 19: Malaysia's GDP has become relatively carbon intensive

*Notes: Displays the carbon intensity of GDP in kilograms of carbon emissions per GDP (in constant 2011 international dollars).
Source: Ritchie et al. (2023); authors' calculations.*

Malaysia's energy supply has remained stubbornly carbon intensive when other comparable countries have taken advantage of lower carbon sources. This pattern is evident both long-term and in more recent times when global trends have favoured decarbonisation (Figure 20). It is particularly stark since the turn of the century, as Malaysia's carbon intensity of energy supply has increased about 5% alongside upper-middle income countries reducing theirs by 9% and China by 19%. Malaysia has more stubbornly and closely mapped to the pattern of less developed countries that are less able to afford cleaner energy.

Figure 20: Malaysia's energy supply has remained stubbornly carbon intensive



Notes: Displays the carbon intensity of energy in index form, converting underlying data in grams per unit of energy. The left-hand panel displays the data with index year 1965=100 and the right-hand with index year 2000=100.

Source: Ritchie et al. (2023); authors' calculations.

Energy contributes the greatest amount to Malaysia's overall carbon footprint. It was responsible for about 59% of carbon dioxide emissions directly and a combined 78.5% with transport in 2019 (Ministry of Economy, 2023).

Significant Gas (and Oil) Exporter

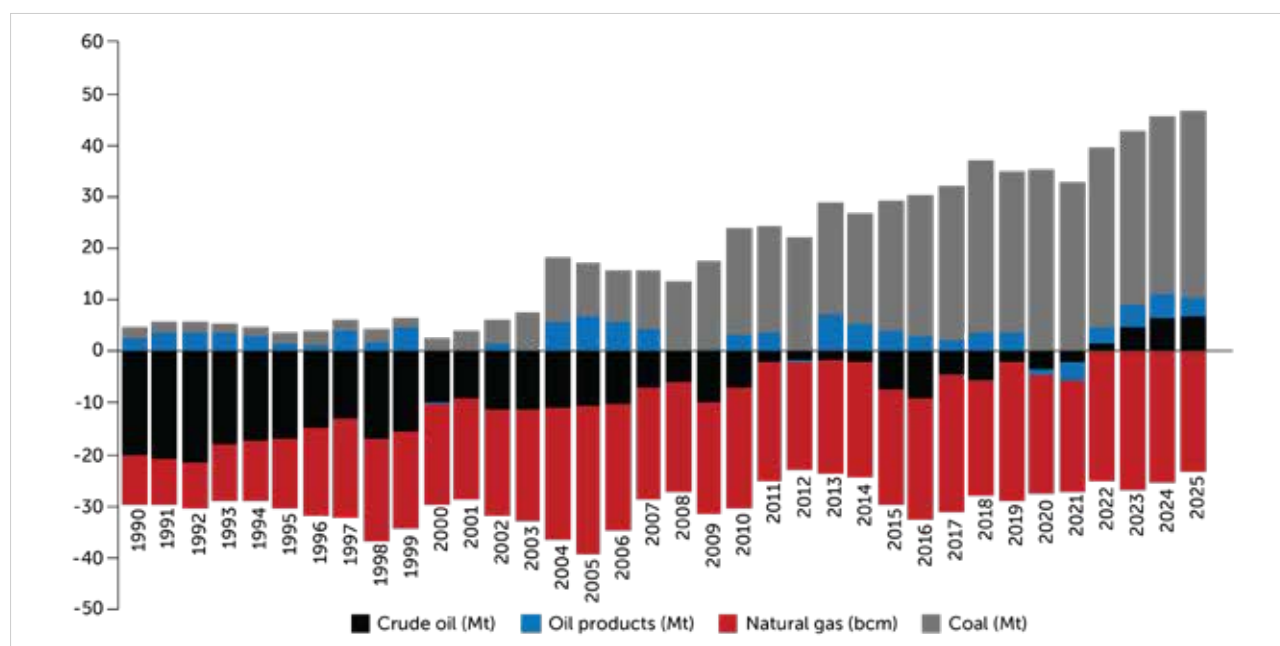
Contributing to Malaysia's continued fossil fuel dependency and carbon intensive economic structure is that it has traditionally been, and to a decreasing extent continues to be, a fossil fuel exporter. Malaysia has been in a long transition from — and is clinging to — its role as a natural resource extractor that has benefited from a significant but diminishing supply of oil and gas and the proceeds of sales to world markets. The oil and gas sector has played a critical role in national development and its strategic ties to government finances are also an important consideration (discussed below).

Throughout the 1990s and the early 2000s, Malaysia was a considerable net exporter of crude oil and a growing net exporter of natural gas (Figure 21). It remains a large net exporter of gas at over 23 billion cubic metres in 2025, but despite the national imagination still associating Malaysia with oil wealth, it is now a modest net importer of both crude oil

and oil products. Over the past 20 or so years it has also become a large net coal importer as it has largely chosen to meet increased energy demand via this channel. While not the focus of this paper, the conversation around reducing oil dependency through renewable energy choices equally applies to reversing an increasing dependence on imported coal.

Narrowing in on the contemporary two-way trade picture for oil and gas highlights that for oil in particular, Malaysia is less self-sufficient and more part of a patchwork of global dependencies. Malaysia produces and exports petrol products and crude to various parts of its Asia-Pacific neighbourhood, but at the same time it imports substantial volumes of crude from the Middle East, Africa, and the US and refined products especially from Singapore (Figure 22). And while it imports LNG from Australia, it is a sizeable net exporter of gas to East Asia.

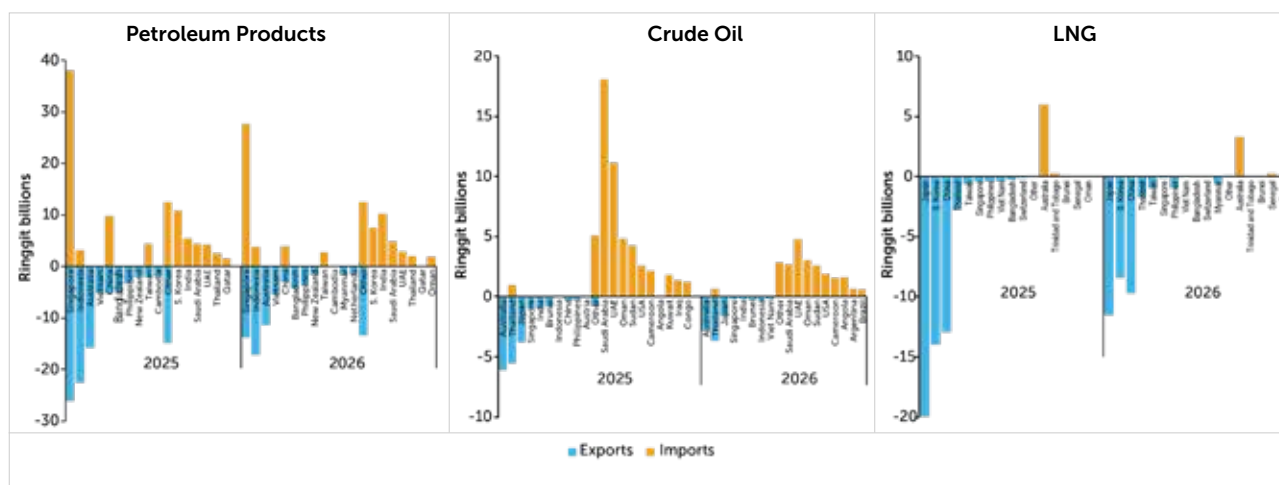
Figure 21: Net Imports of Fossil Fuels have increased



Note: Data are presented in millions of metric tonnes (Mt) and billions of cubic meters (bcm).

Source: Enerdata (2026).

Figure 22: Malaysia is a large exporter of LNG and a modest exporter of petroleum



Note: Data for 2026 is the total for January to July.

Source: Malaysia External Trade Development Corporation (MATRADE) (2026).

An important note is that this discussion focuses on volumes and value from a Malaysia-centric perspective. Fossil fuel trade is of meaningful size to be significant to Malaysia's economy and energy security. Globally however, Malaysia's roles as both a supplier and consumer are comparatively minor and it cannot materially influence energy trade or markets.

State and Fiscal Capture on Fossil Fuel Revenues

The preceding sections depict Malaysia as a country that depends heavily on fossil fuels, has carbon intensive economic and energy systems, and is a significant but diminishing trader of oil and a major exporter of gas. This section highlights how this relates to and influences the government and its bottom line.

The oil and gas industry and all directly associated supply chains in Malaysia are owned and controlled by and the regulatory responsibility of PETRONAS (Petroleum Nasional Berhad). This government-linked company (GLC) was established in 1974 in the shadow of a major oil shock, replacing private monopolist Shell with an entity designed to grow the wealth of both Malaysia and the ruling party (Samarathisa, 2025). PETRONAS was made the sole owner and custodian of Malaysia's oil and gas resources and would share 5% of the profits to each of the federal and state governments.

Under the extraordinary powers vested in it, PETRONAS has been quite successful in building a large and profitable business that has generated substantial revenues for Malaysia's governments. It is among the top 20 to 30 largest oil companies globally and reported RM266.1 billion in revenue (down from RM320 billion), RM45.4 billion in profits, and total assets of RM775 billion in 2025 (PETRONAS, 2026). It has leveraged its resource monopoly and regulatory powers for upstream (exploration) and downstream

(especially petrochemical) industry licensing to create a large and diversified business both domestically and internationally (Gill, 2023). Recently it has also been called upon to support the green transition.

Its historical and prevailing government ties, and perhaps longstanding regrets among governments since the 1980s that the founding deal did not enshrine larger royalties, have seen PETRONAS treated as a cash cow by revenue-hungry governments. Raising revenue via taxation is politically unpopular and can be technically and administratively challenging, whereas tapping a politically enmeshed GLC is comparatively simple. There is doubtless pushback when governments come asking for extraordinary dividends, not least because ad hoc interventions impede long-term commercial investment planning to the detriment of both parties. But dividends have nonetheless become a recurring feature and a fiscal crutch.

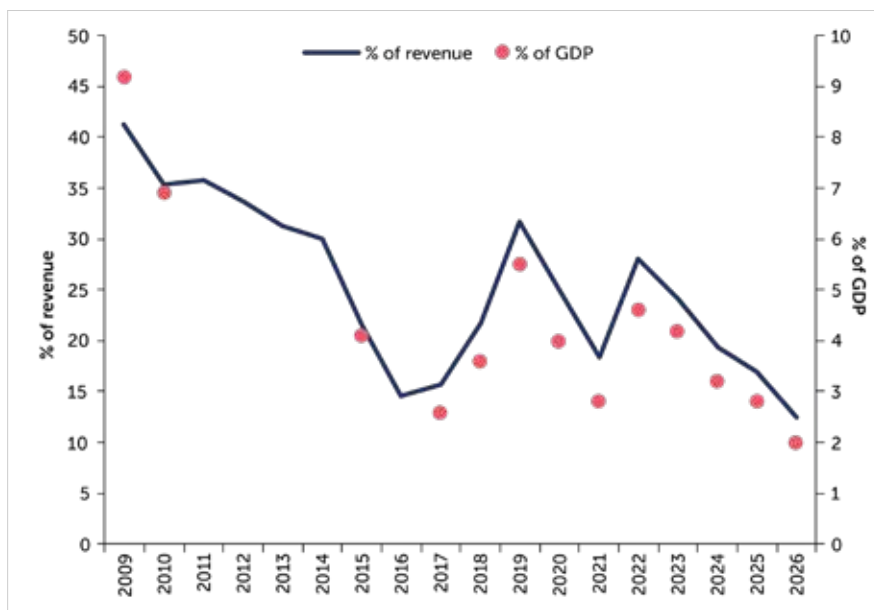
Petroleum revenue consequently contributes a substantial and economically overweight share of federal government budget revenues, though both petroleum and overall revenue are in structural decline. As recent as 2009, petroleum contributed over 41% of total revenue and over 9% of GDP (Figure 23). It has oscillated between about 25 to 30% of revenue in years with higher oil prices and dividends and about 20% otherwise, with the only exception being a short-lived low around 15% in 2016-17 when oil was down and a goods and services tax (GST) was in place. Forecasts in October 2025 pointed to a steep decline in oil revenue in 2026, but the Iran War shock to markets is expected to support a renewed revenue spike. The steeper decline in revenues as a share of GDP reflects the diminishing outlook for oil and gas sector profitability and the government not having pursued alternative tax policies to compensate; with Malaysia posting consistently negative tax buoyancy¹ in normal (non-oil price windfall) years (Nixon and Mohamed, 2026).

Malaysia's fiscal balance is also exposed to oil price movements on the expenditure side, though this is less historically entrenched and poorly documented. Indeed, under current settings an oil price spike no longer delivers a budget windfall but almost certainly a net loss resulting from generous and untargeted fuel subsidies. In 2022, with fixed price petrol subsidies in place and Russia's invasion of Ukraine precipitating an oil price spike, Malaysia's fuel subsidy bill soared from about RM10 billion to RM45 billion²; or about 13.5% of overall government expenditure (Tee, 2023; Figure 24). History is repeating in 2026, with expected outlays approaching RM40 billion compared to an initial budget allocation of RM15 billion (Khoo, 2026). Malaysia did not always face such a high fuel subsidy bill, with prices floated in 2014 only to be fixed again in 2018 (Lee, H., 2025).

¹ A negative tax buoyancy is where GDP growth exceeds revenue growth.

² Note that there are competing figures for the fuel subsidy spend in 2022. This figure comes from the Auditor-General's Year End Report, which is arguably the most trusted and reliable source. However, the Economic Report 2023 reported a figure of RM52 billion amid oil prices hitting US\$100 per barrel.

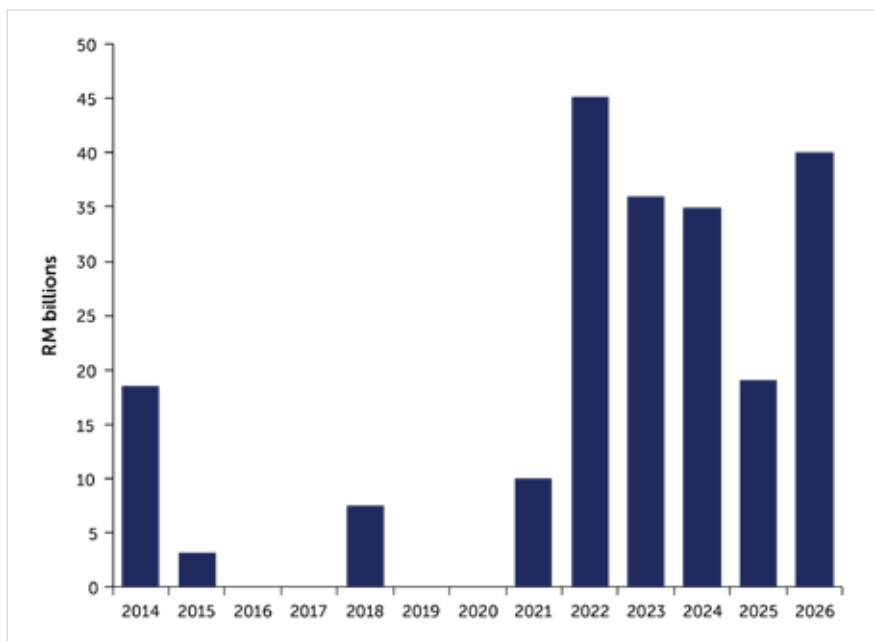
Figure 23: Petroleum revenue is declining but remains significant



Note: The figures for 2025 and 2026 represent estimates made at the time of the 2026 Budget. The 2026 figure is almost certain to be revised steeply upwards in line with previous oil price windfalls and the additional PETRONAS dividends that accompany them.

Source: Ministry of Finance (MOF) Malaysia (various years).

Figure 24: Fuel subsidy costs jump during shocks



Note: Figures provided for the years in which estimates are available, with no figures found for 2016, 2017, 2019 and 2020.

Sources: MOF (2024, 2026a, 2026b), Tee (2023), National Audit Department of Malaysia (2026).

As discussed in the later section on the Strait of Hormuz disruption, the government has largely maintained the pre-disruption, fixed price fuel subsidies and prior to Budget 2027 had not commented on the revenue implications of higher oil prices.

Net Zero Target, Energy Transition Progress, and Policies

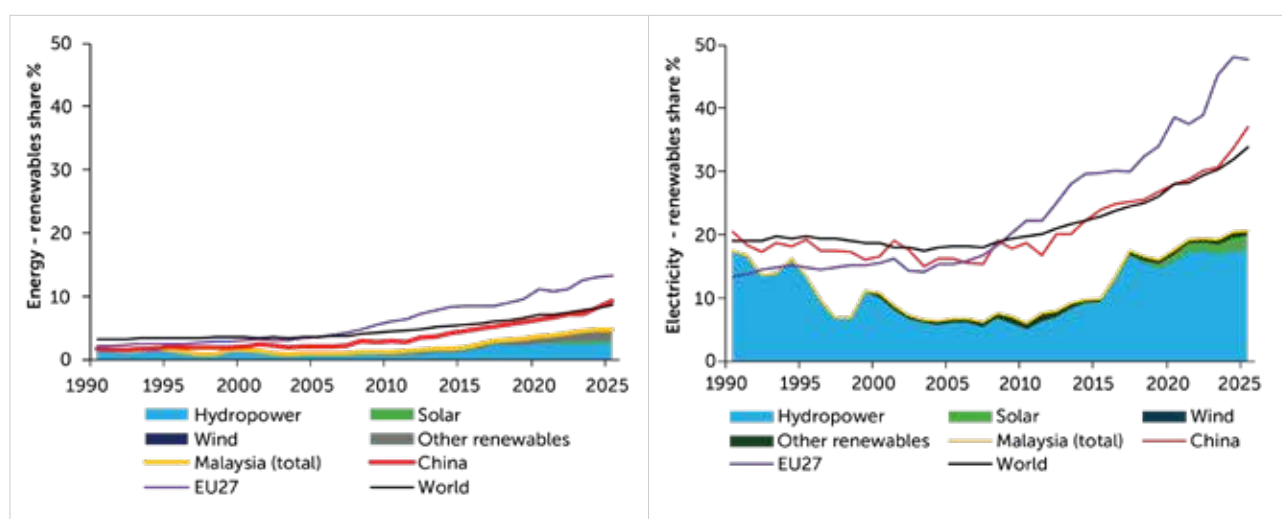
Having established that Malaysia is a carbon intensive country with a powerful fossil fuel monopolist contributing significantly and directly to government policies and finances, this section turns to the emergence of climate change policies and renewable energy installation. Here, Malaysia's intent is thus far stronger than its execution, with it having greater ambitions and imperatives to transition quickly than it has policies to make it happen.

Malaysia is a sincere and constructive contributor to international climate change discussions and has committed to achieving net zero emissions by 2050. It recognises that while its individual contribution to global emissions is small, the vulnerability of Malaysia and its neighbours to damage from global warming is high given its tropical latitude and development levels. It is pursuing the clean energy transition under a suite of recent policies, most notably the National Energy Transition Roadmap (NETR), the National Climate Change Policy 2.0 (NCCP), and the New Industrial Master Plan 2030 (NIMP) (Ministry of Economy, 2023; Ministry of Trade and Industry, 2023; Ministry of Natural Resources and Environmental Sustainability, 2025). These policies establish targets including to:

- Raise the "renewable energy" share of electricity capacity to 40% by 2035 and 70% by 2050;
- Eliminate coal from energy supply by 2050;
- Mobilise six energy transition levers — Energy Efficiency, Renewable Energy, Hydrogen, Bioenergy, Green Mobility and Carbon Capture, Utilisation and Storage (CCUS) — and 10 flagship projects to generate RM25 billion in investment;
- Pursue industrial sector plans identifying advanced materials, electric vehicles, renewable energy, and CCUS as new growth priorities;
- Reduce carbon intensity of GDP by 45% by 2030 compared to 2005 levels;
- Increase the share of urban public transport and electric vehicles to 50% and 38% respectively by 2040, and 60% and 80% by 2050; and
- Achieve energy efficiency savings of 23% and 20% for businesses and households by 2050.

Converting bold plans into concrete action is proving easier said than done, with Malaysia lagging in policy activity and renewable energy results to date. Stakeholders routinely raise concerns with implementation being held up by both government and GLC red tape. Malaysia ranks just 49th on the Climate Change Performance Index (CCPI) 2026, where it is rated a 'low performer' in climate change policymaking (CCPI, 2026). And this is translating into Malaysia's renewable energy share of electricity and energy being not only well below averages for the world, Europe, and China but losing ground (Figure 25). Thirty-five years ago Malaysia's hydropower capacity exceeded the total renewable electricity generation share for Europe, and while hydro has grown again since 2010, the contributions of solar and wind remain miniscule by comparison.

Figure 25: Malaysia's renewables share of energy and electricity is rising slowly



Source: Ritchie and Rosado (2025).

One notable policy exception that appears well received is CRESS — the Corporate Renewable Energy Supply Scheme. The scheme is an attempt to facilitate renewable energy supply agreements between developers and green consumers, alleviating a supply bottleneck (Shu Pin, 2026). CRESS is relatively new and its returns to date modest, but it is being monitored for its potential to accelerate renewable energy generation capacity growth.

At the same time that petroleum-related government revenue is declining, Malaysian governments have not been investing anywhere near enough to build renewables generation. Accounting precisely for government expenditure on renewable energy installations runs into budget reporting limits, but the entire budget for the natural resources and environment ministry amounts to just 0.1% of GDP in 2025 and 2026 (and is consistently below 0.5%, compared to fuel subsidies exceeding 10% of government expenditure). More broadly, the entire development expenditure budget across all government infrastructure and maintenance activities is below 4% of GDP, which indicates a broader crisis of underinvestment in structural transformation and future productivity drivers (Nixon and Mohamed, 2026).

A complication with this story is that much of the clean energy fitout has been shifted off budget to state monopoly electricity generator, transmitter, and distributor (all-in-one) Tenaga Nasional Berhad (TNB) and PETRONAS. TNB, akin to PETRONAS for oil and gas, dominates electricity markets and in practice is the sole arbiter of who gets electricity and in what form it is produced. It makes strong profits for a state enterprise and distributes about 60% of these to its myriad government-linked investors (TNB, 2026). The ordinary investments of TNB and other GLCs are being packaged as budget expenditure; investments that look large in nominal terms (RM 43 billion over three years) but are very small compared to needs (Mardhiah, 2025, 2026a).

This relationship also contributes to gas remaining a central component of Malaysia's net zero ambitions. As the NETR explains, *"Natural gas is set to be not only a transitional fuel, but also the primary contributor of Total Primary Energy Source (TPES) at 57 Mtoe (56%) followed by renewables that include solar, hydro and bioenergy, which collectively contribute 23% of TPES in 2050 from a mere 4% in 2023"* (Ministry of Economy, 2023). New gas plants and pipelines continue to be commissioned and long-term supply agreements pursued. As discussed later, disruptions in the Strait of Hormuz have (if anything) seen Malaysia double down on gas as primary energy source for 2050 and beyond.

However Malaysia's green investment and implementation of climate change mitigation activities are counted, much more needs to be done and faster to meet the net zero by 2050 target. Recent scenarios analysis by the OECD shows it is well off course and needs to take drastic measures — including removing fuel subsidies — to achieve its target (OECD, 2026a).

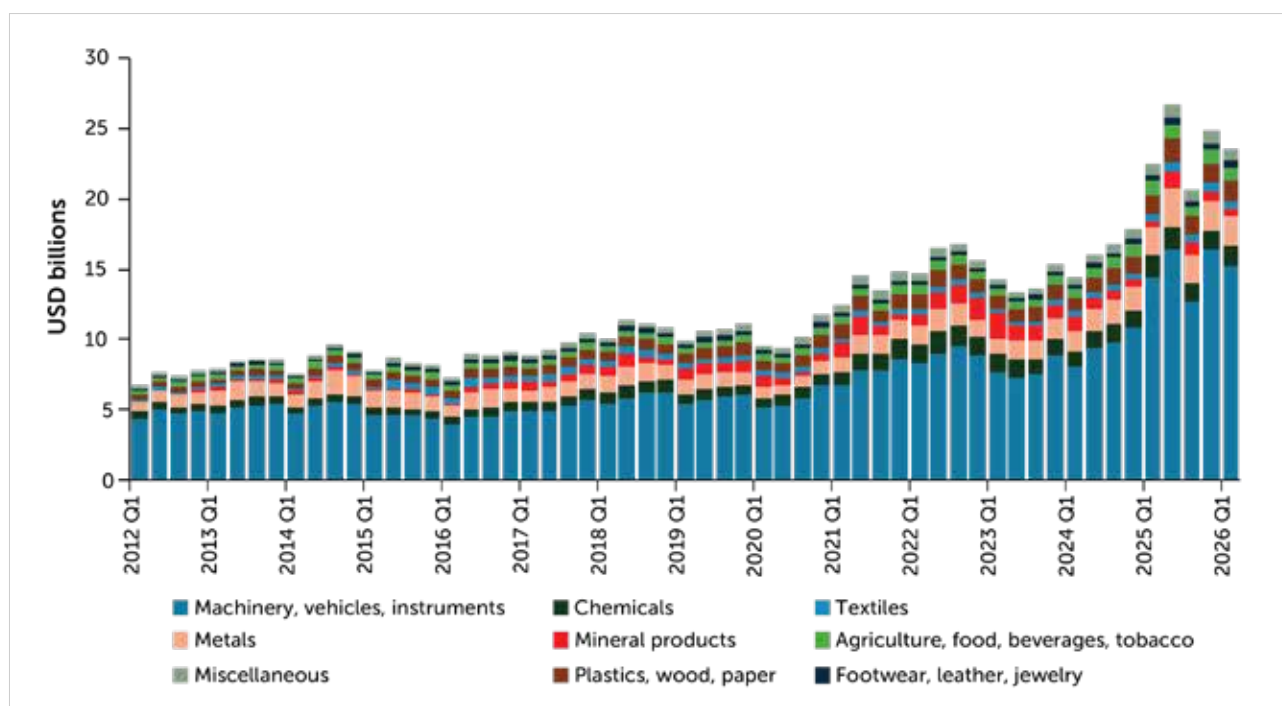
Green Ambitions and China Competition

Having established Malaysia's domestic energy context and trade patterns, the next few sections look outwards; positioning Malaysia within the wider energy security and geostrategy context. This section continues the discussion surrounding the green transition with a focus on China as a manufacturing competitor, with a specific focus on green product supply chains.

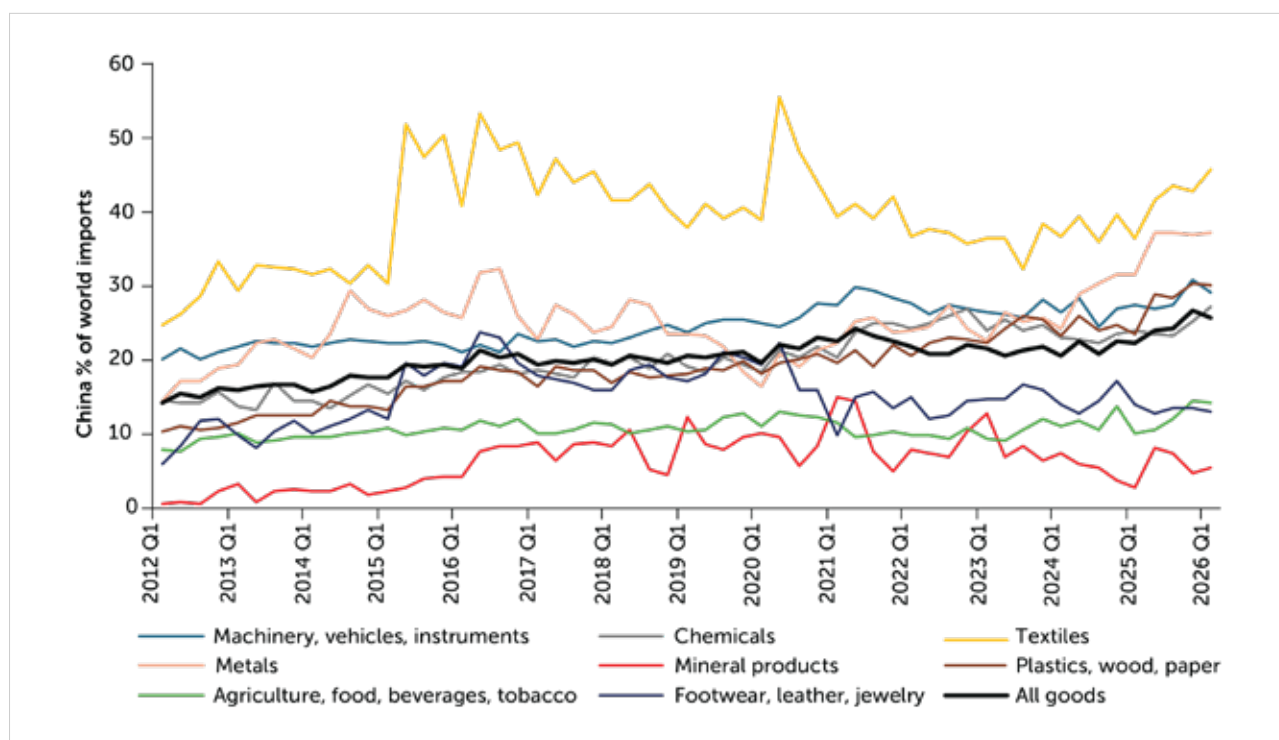
Malaysia is among China's many significant trading partners, with the countries maintaining a positive bilateral relationship built principally around economic ties. Bilateral relations are at a relative high point at present, with Prime Minister Anwar Ibrahim's prolific diplomacy since 2022 having strengthened bonds following some pointed challenges between 2018 and the COVID-19 shock. Historically, relations have a cyclical tendency with a ceiling imposed by Malaysia's political winds; with rising racial tensions that engage the Malaysian-Chinese community associated with a correction in bilateral intersections. Challenges surrounding Malaysia's and China's relationships with the US have also deepened solidarity of late.

Increased connectivity is evident in the steep rise in Malaysia's imports from China in the period surrounding the second Trump administration's tariff policies. Overall import values have surged about 45% when comparing quarterly averages for 2024 with 2025-26 (Figure 26). The largest increases have been for machinery and vehicles (57%), textiles (40%), and metals (36%), while minerals is the only category to experience a small decline. China's share of total Malaysian imports is around 26% and is significant across several broad categories including textiles (46%), metals (37%), plastics, wood and paper (30%), and machinery and vehicles (29%) (Figure 27).

Figure 26: Imports from China have surged in the past 18 months



Source: ASEANStats (2026).

Figure 27: China commands a large share of many imports

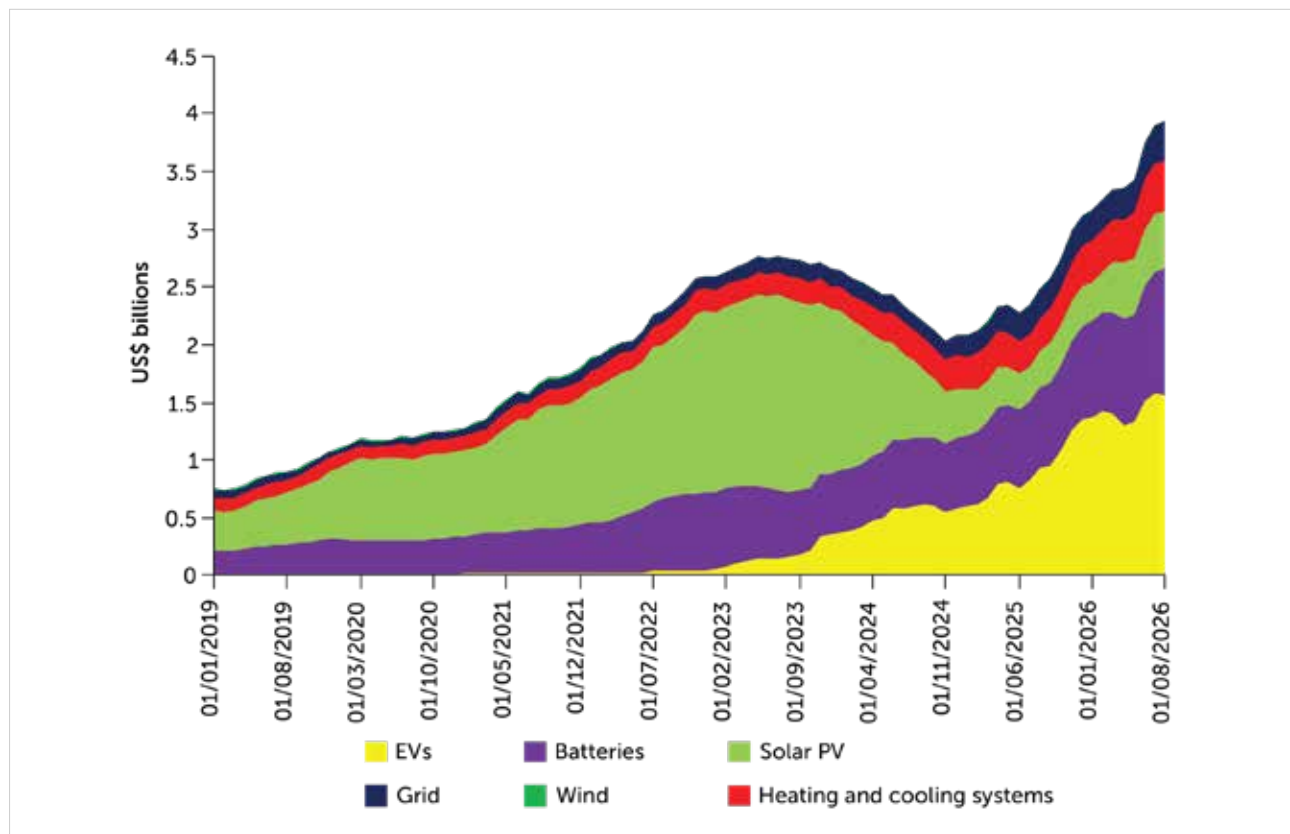
Source: ASEANStats (2026).

While narratives surrounding a “China Shock 2.0” are less alarmist than those in the West (especially Europe; Tooze, 2026), that appears to be changing with Malaysia and its ASEAN neighbours central to recent trade and investment shifts. There are increasing reports of businesses under pressure from sharply rising Chinese competition and of Malaysia being used to dump products, tranship exports, and host hollowed out investments to navigate trade agreement rules of origin (Yusry, 2026; Tee, 2025). China is also increasingly exporting its labour-saving machinery, though Malaysian policymakers are more likely to welcome this given Malaysia’s preponderance of low-skilled foreign workers (Mardhiah and Zainuddin, 2026). In contrast to Europe where the lived experience of Chinese competition exceeds that evidenced by trade patterns, ASEAN including Malaysia has gaudy trade numbers but seemingly lower direct impacts (Peters, 2026).

Specific to this paper’s energy strategy interests, the remainder of this section focuses on green products and investments where China doubles as a supplier and competitor to growing Malaysia’s indigenous industries. Beginning with headline trade figures, there has been significant but differentiated growth in China’s green exports to Malaysia since 2019 (Figure 28). The most recent surge since 2023 has been dominated by electric vehicles, which benefited from a temporary relaxation (recently reversed) in import standards (the most meaningful of which was a minimum sales price of RM100,000; since raised to RM200,000 on 1 July; Dasar, 2026). There has also been steady growth in battery and heating and cooling system imports. Solar imports dominated until mid-2024 when US

lawmakers began to impose tariffs and quotas on Chinese solar cell manufacturers across Southeast Asia over dumping concerns (Malay Mail, 2026a). The trickle of imports since then indicates the vast majority of exports before 2025 were passing through on the way to the US.

Figure 28: China's green exports to Malaysia have risen strongly



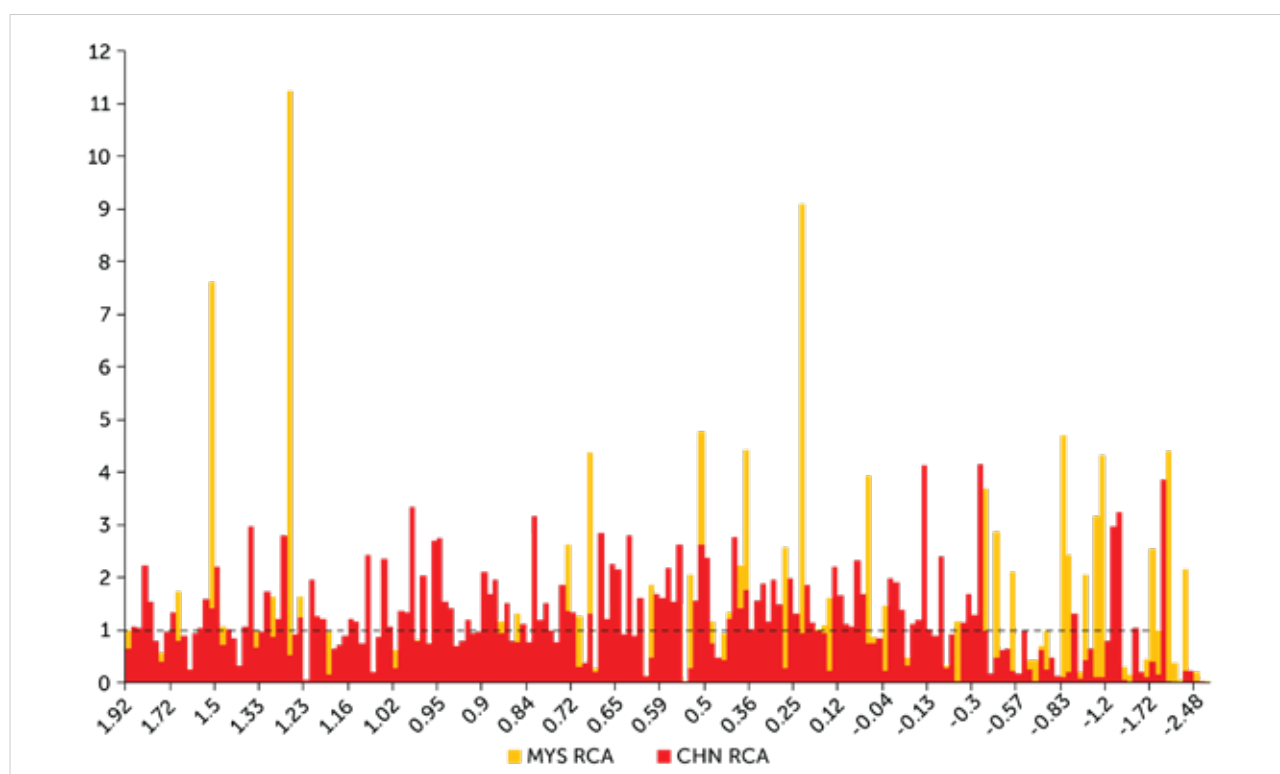
Note: Depicts the annual rolling average of China's exports to Malaysia by green export type in billions of US dollars (current) for the corresponding period.

Source: Ember (2026).

In parallel with the trade pattern, China has also featured heavily in green investments over the past decade. While dedicated tracking is limited, a recent study identified 26 Chinese investments since 2015 providing around RM57 billion for "Solar/PV", RM49 billion for "EV/Automotives", and over RM16 billion for "EV/Batteries" (Chai, 2026). One important caveat with this data is that the automotives category is dominated by a large investment by Geely, which is the 49.9% owner/partner of Malaysian automaker Proton. Proton is the product of a decades-old nation-building project determined to produce Malaysian built cars, and while it is now owned by and dependent on technology from China's Geely, investments under the partnership benefit from government policies protecting it from competition. Malaysian officials appear determined to give Geely/Proton a competitive advantage while frustrating the attempts of BYD to invest in Malaysia (Tan Chiew Tieng, 2026, Lee, S., 2026).

With Malaysia still in its green industry infancy and looking to compete across more green products, it is worth examining its competitiveness vis-a-vis China and the potential for frictions to mount. Using the Harvard Kennedy School's Greenplexity analytical tool, Figure 29 shows the comprehensiveness of China's dominance of Malaysia across most of the 195 green supply chain products. China is stronger across 132 of these products, but more importantly it is stronger for 89 products for which it also has a revealed comparative advantage globally. Malaysia is stronger than China in just 38 products for which it has a revealed comparative advantage, with examples including certain stainless steel products, electronic integrated circuits, liquid and gas measuring instruments, and electrical resistors. It is also noticeable that most of the products for which Malaysia currently outperforms China are among the least complex (Figure 29 orders products from most to least complex).

Figure 29: China's green product competitiveness dominates Malaysia's (2023)



Note: Displays the Revealed Comparative Advantage (RCA) for Malaysia (MYS) and China (CHN) in 2023. Columns each represent one green product HS Code, ordered from most to least complex. A score above 1 indicates a positive relative global export competitiveness. The horizontal axis provides the product complexity score, with higher numbers indicating greater complexity.

Source: Harvard Kennedy School (2026).

One final difficult lesson from the Greenplexity analysis is that China is not only dominant now but projects to be even more so. The tool includes a measure of “feasibility”, assessing the depth of knowledge, skills, and capability available to jumpstart an industry. For all 195 products, China’s feasibility is greater than Malaysia’s, which highlights Malaysia’s substantial need to invest in building its business and workforce competitiveness in green products.

Relations with the United States

In the context of rising major power rivalry as a factor in energy security and wider multidimensional security decisions, it is also worth considering the state of Malaysia’s relationship with the US. Geography limits direct intersections on the energy front, with bilateral energy trade fairly limited; though the Strait of Hormuz disruption has seen the US share of Malaysia’s crude oil imports rise. Non-energy relations and emerging critical minerals cooperation are nonetheless relevant to the energy geostrategy discussion.

Relations between Malaysia and the US are historically deep and contemporaneously navigating points of friction with calm. The US is one of Malaysia’s largest overall investors: fourth largest in terms of FDI stocks and the largest in terms of portfolio investment stocks (Department of Statistics Malaysia (DOSM), 2026a). Despite Trump’s Liberation Day tariffs, Malaysia’s exports to the US soared by 17.5% in 2025 (to RM234 billion) and are up 58.3% year-on-year in the first seven months of 2026 (almost RM207 billion already; MATRADE, 2026). The AI boom is a significant contributor to this, with Malaysia benefiting from a surge in electrical and electronics exports. The US and Malaysia have a Comprehensive Strategic Partnership and in October last year signed an MOU on Defence Cooperation built upon 40 years of defence ties (US Embassy in Malaysia, 2025a). Malaysia is not among America’s formal defence allies in the region but maintains close relationships with and undertakes regular training exercises with all of them. The countries also signed an MOU regarding critical minerals supply chains in the same week as the Defence Cooperation MOU (US Embassy in Malaysia, 2025b).

The headline economic figures and cooperation agreements seemingly betray major challenges affecting bilateral relations. The Gaza War is a particular sore point, with Malaysia condemning US support for Israel’s assault on Muslim Palestinians. Malaysia has also condemned the attacks on Iran for similar reasons (by contrast Malaysian governments have a mixed and much less vocal record on the treatment of Uyghurs by China). As a relatively open economy supported by high levels of trade and investment, Trump’s tariff war has also created frictions.

The Agreement on Reciprocal Trade (ART) between the US and Malaysia expended significant relationship capital for what turned out to be a short-lived and politically damaging deal for the Malaysian government (White House, 2025). Malaysia was among the bigger targets under the preliminary Liberation Day Tariffs and promptly sought an audience with the White House. While policymakers defended Malaysia’s early conclusion of a deal last October, which helped secure President Trump’s attendance at the ASEAN

Summit in Kuala Lumpur, the ART attracted widespread criticism for cowering to US coercion, undermining Malaysia's non-aligned status, and ceding Malaysia's sovereignty (Nixon, 2025; Fonbuena, 2025). Malaysia was reportedly the first country to 'cancel' its bilateral agreement with the US in February after the US Supreme Court voided its legal basis (Monica and Pratama, 2026), though in a strict legal sense the ART remains to be ratified.

Perhaps the most relevant development signalled by the ART was Malaysia's agreement to terms that directly mix Malaysia's economic policies with US national security. The ART contains clauses engaging consultation mechanisms that the US could readily leverage to compel Malaysia to impose trade barriers on US enemies. It has been widely read as a provision by which the US could force Malaysia to join its trade war with China. The ART also included a commitment by Malaysia not to ban or impose restrictions on the export of critical minerals and rare earth elements to the US. And the heavily lopsided nature of the agreement itself effectively legitimised Trump's weaponisation of trade.

These and other recent policies targeting Malaysia's relationship with China raise serious questions about whether Malaysia's neutral, non-aligned stance can be maintained and in what form. Both the ART and Malaysia's naming in the White House's *'The Great Transshipment Scam'* report demonstrate a US willing to target partners that it sees as too interconnected with China (Sta Maria, 2026). Malaysia's determination not to choose between rivalrous major powers and to advance an ASEAN-centric regional order are being increasingly tested (Nixon, 2026).

So while headline figures suggest relations are thriving, serious points of friction are bubbling below the surface. And like other countries, Malaysia has learned to doubt relationship equality and reciprocity under Trump and is deepening ties with others to hedge against increased US sovereign risk.

The Impact of Energy Shocks on Malaysia

This paper does not attempt a granular assessment of energy shock impacts on Malaysia, noting instead that such an exercise (while potentially labour-intensive) would be of significant value to policymaker preparedness efforts. Recent and ongoing shocks, most notably Russia invading Ukraine and disruptions to the Strait of Hormuz, offer fertile ground for building deeper market, supply chain, and scenario-based intelligence. That neither these shocks nor others (trade wars, the COVID-19 pandemic) have prompted such analysis is concerning and leaves Malaysia more economically vulnerable to future shocks than it otherwise could be.

As noted earlier in the case study, energy shock impacts on Malaysia primarily transmit through budgetary channels, via both higher revenues and expenditures. Higher oil prices have traditionally raised petroleum-related taxes and dividends by more than wider activity-based taxes have fallen. This also reflects that fixed retail price fuel subsidies on both consumer petroleum and freight diesel cushion the direct and indirect impacts of the shock on prices and production. There are no free lunches however, with an absorption-heavy

resilience strategy severely depleting government finances and incentivising Malaysia to maintain a fossil fuel-heavy economic structure and its associated vulnerabilities.

One caveat of importance to the ongoing episode is that the energy security interventions of PETRONAS appear increasingly expensive to execute. As the GLC and pseudo-ministry entrusted with maintaining fuel supplies, PETRONAS must still compete in commercial markets for depleted stocks. Analysts believe that the past few months have depleted its cash reserves and eaten into its profits, so when the government comes asking for a contribution to its skyrocketing fuel subsidy bill it may leave with a lot less than it may have expected based on past experience (FMT, 2026). With each shock, PETRONAS' and Malaysia's buffers are eroded and leave it less able to mount an effective response.

The short-term trade, activity, and price impacts of both recent energy shocks have been relatively benign in headline terms. Given the much greater media focus on the Strait of Hormuz³, it would perhaps surprise many that the impacts are not too different and the Russia-Ukraine shock was slightly greater. In rolling average terms, real GDP grew an identical amount in the three months after each shock and was up 3.5% and 2.7% after Russia and Hormuz respectively began (Table 2). Consumer prices also rose nearly identically by just under 1% in the first three months and reached 2.4% higher after six months of Russia but just 1% higher since Hormuz began. Both rolling average exports and imports have experienced sharp growth in the early period of each shock, but where Hormuz differs is that it has delivered a larger export windfall and a much less significant import spike; resulting in a growing trade surplus in 2026 where it shrank in 2022. While this analysis does not seek to estimate the deviation from pre-shock trend growth — in part because the proliferation of shocks makes trend establishment difficult and somewhat arbitrary — the headline economic data does not suggest an economy hit hard by either shock. Quite the opposite in terms of the short-term trade windfall.

Taking a closer look at sector patterns suggests that shocks have differentiated impacts that could represent significant winners and losers.

Beginning with exports, the Russia-Ukraine shock saw trade continue its strong growth and the Hormuz disruption has coincided with a trade boom (The Star, 2026), but the shocks shifted the fortunes of individual sectors. Mineral fuels exports surged over 41% within six months of Russia's invasion and have experienced one of the biggest trend changes under Hormuz as well (from a steady decline to over 10% growth; Figure 30). Machinery and equipment exports have also done relatively well across both shocks. Crude materials, miscellaneous manufactures, animal and vegetable oils, and 'other' exports have experienced the most obvious temporal shifts, with the first two doing much better during the Hormuz shock and the latter two boosted more by the Russia shock. Exports of manufactures, chemicals, and other commodities (food, beverages, crude materials) have fared less well but do not appear to have deviated substantially from trend (they just have not benefited from a windfall).

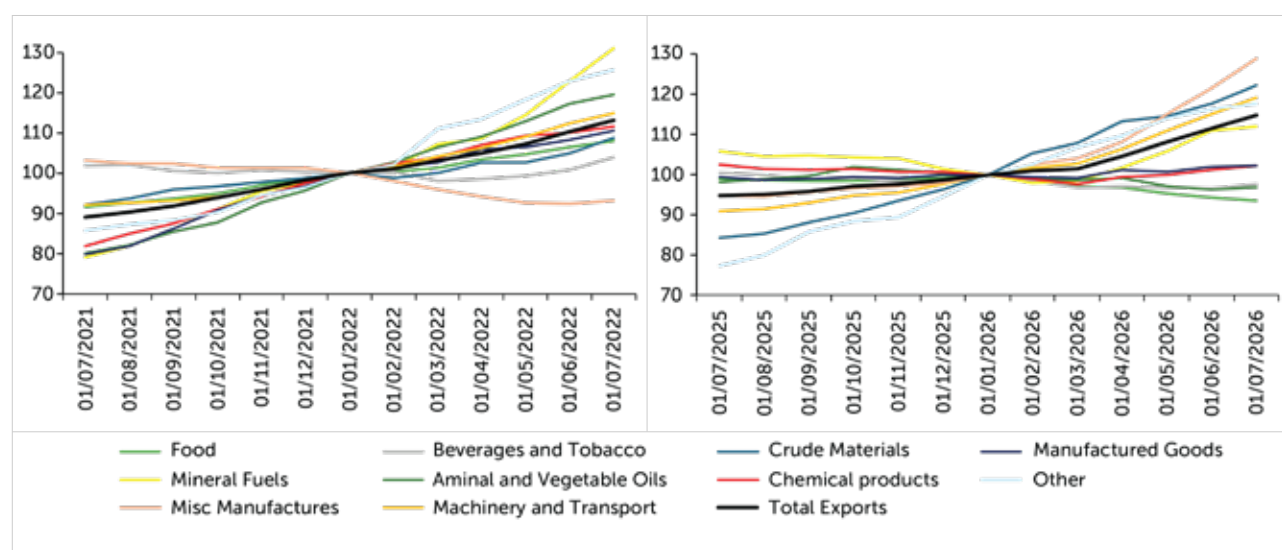
³. At least from a simple Google Trends comparison of news trends for terms like 'war' and 'oil'.

Table 2: Energy shock impacts on Malaysia have been fairly muted

Index = 100	After 3 Months		After 6 months	
	Russia-Ukraine	Strait of Hormuz	Russia-Ukraine	Strait of Hormuz
Real GDP	101.3	101.3	103.5	102.7
Inflation	100.8	100.9	102.4	101.0
Exports	104.9	104.5	113.2	114.8
Imports	105.6	103.2	116.7	110.9

Note: The figures represent the closest approximate 3- and 6-month periods possible with quarterly data (for real GDP) and monthly data (for inflation and trade). The baseline for real GDP is the quarter immediately prior to the shock (Q4 2021 and Q4 2025 respectively) and for inflation and trade is January of 2022 and 2026 respectively. GDP and trade are presented as rolling 12-month averages to neutralise cyclical fluctuations.

Sources: DOSM, 2026b, c, and d.

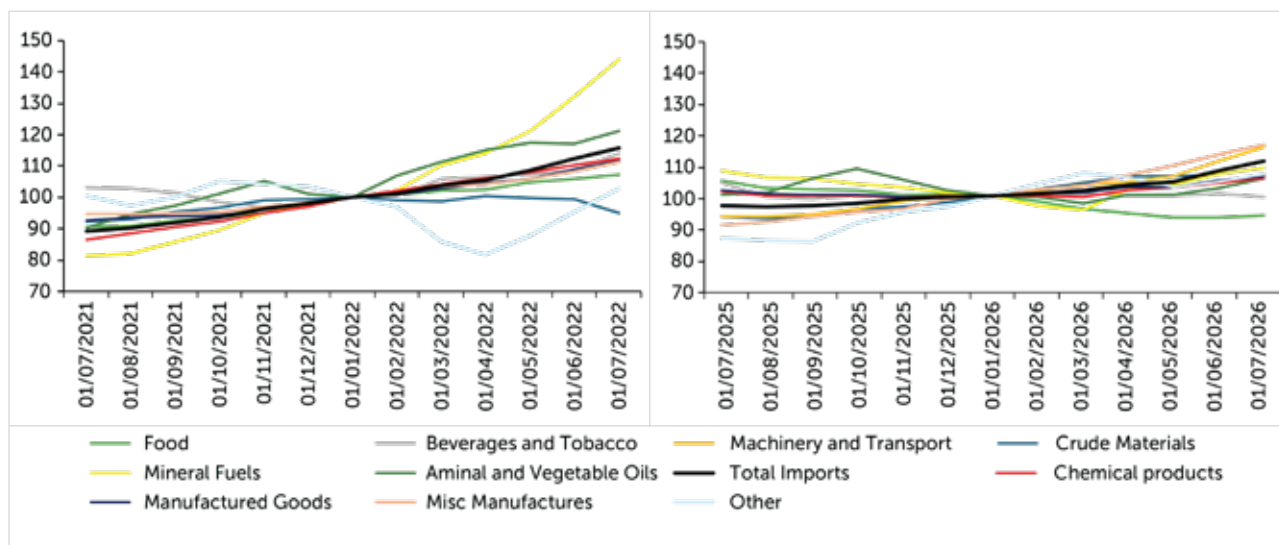
Figure 30: Exports have grown despite energy shocks, but fortunes differ by sector

Note: The left-hand panel shows monthly export values indexed to January 2022 = 100 (the Russia-Ukraine shock), while the right-hand panel shows the same indexed to January 2026 = 100 (the Strait of Hormuz disruption). Comparing the slope of the line pre- and post-shock depicts changes in trend growth.

Source: Authors' calculations from DOSM (2026c).

On the import side, there is a noticeable difference between the magnitude and variance of changes in 2022 and 2026. Neither shock displays a profound overall pattern of short-term trend deviation, but the Russia-Ukraine event occasioned much greater divergence between sectors. Imports of mineral fuels and animal and vegetable oils grew the most during the Russia shock, but neither has experienced the same boost during the prevailing Hormuz disruption (Figure 31). Crude materials and 'other' imports fell noticeably under Russia-Ukraine but not Hormuz to date. For the remaining sectors the deviation from short-term trend is not stark.

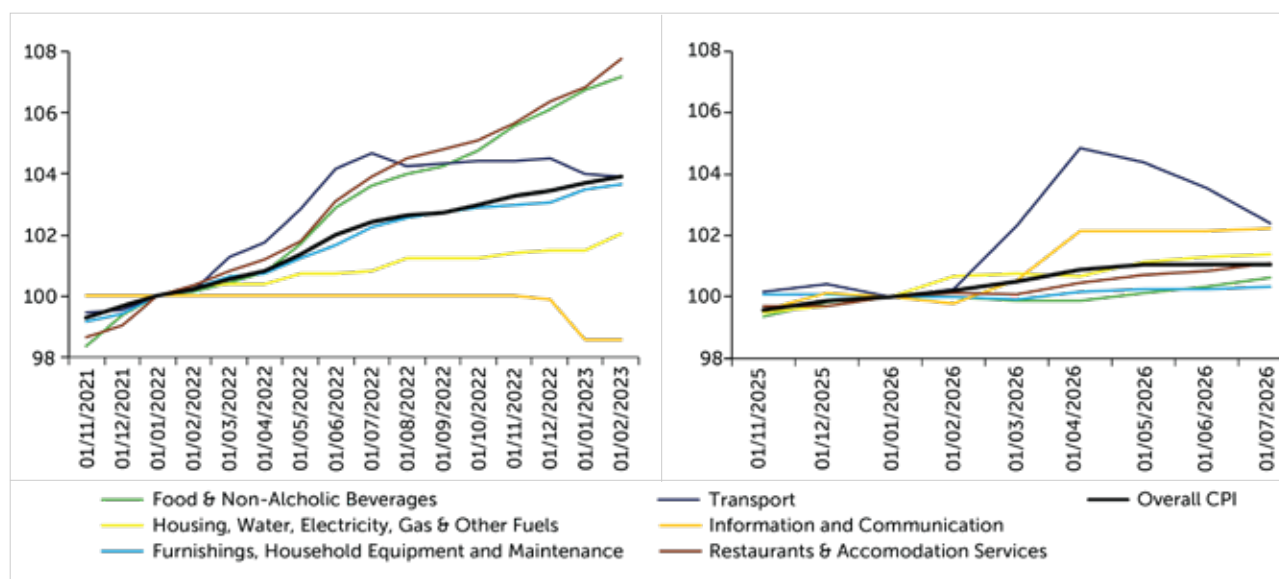
Figure 31: Imports have also grown, with Russia the much bigger shock



Note: See Figure 30.

Source: Authors' calculations from DOSM (2026c).

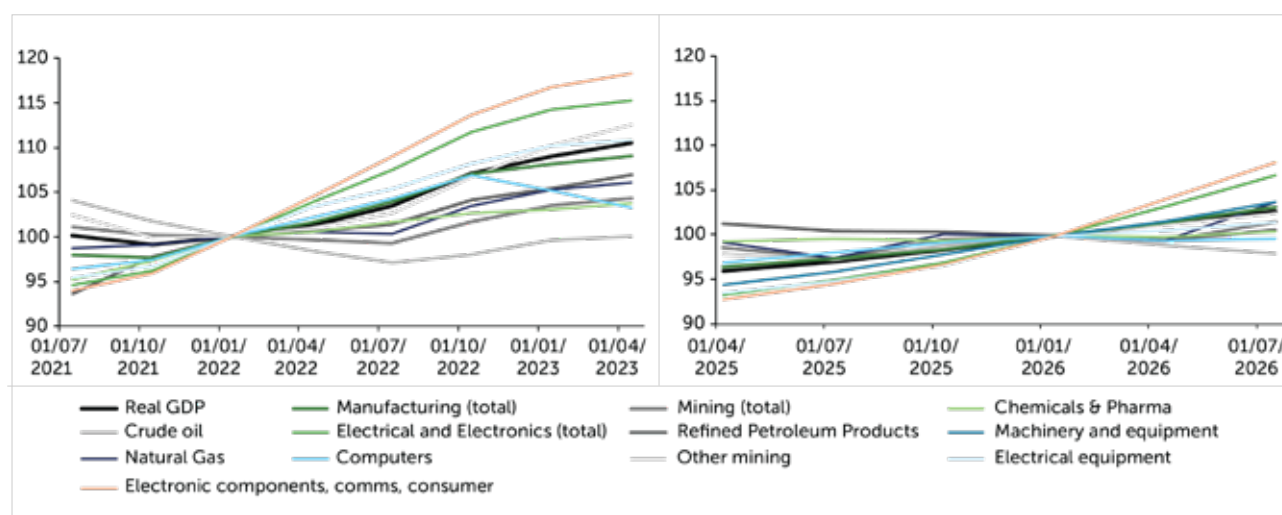
Consistent with the significant neutralisation of direct fuel price impacts via government subsidies, the inflationary impact of the shocks is not widespread but contained to specific sectors (and not definitively caused by the shock itself). The most consistent impact across the two shocks has been an immediate but short-lived spike in transport prices, which increased about 4% in the first six months (Figure 32). Beyond that the sector composition of the shocks looks very different. The Russia-Ukraine shock saw major increases in other categories including food and beverages, restaurants and accommodation, and furnishings and household equipment; in part due to the COVID-19 overhang (demand growing faster than supply upon reopening) and due to Russia's importance to specific markets including timber and fertiliser. Non-transport prices have barely moved under the prevailing shock, with the information and communications sector the exception (though it is not clear that this connects to the disruption).

Figure 32: The Russia-Ukraine shock delivered a more widespread inflation impact

Note: See Figure 30.

Source: Authors' calculations from DOSM (2026d).

In respect of real GDP impacts, both shocks appear to have amplified pre-shock growth trends. Malaysia's fastest growing sectors — electrical and electronics, especially components, communications and consumer goods — seem to be lapping other sectors by more than they were pre-shocks (Figure 33). Petroleum products, crude oil and mining have naturally suffered relative falls or slowdowns.

Figure 33: The shocks have favoured the stronger growth sectors, raising real GDP

Note: See Figure 30.

Source: Authors' calculations from DOSM (2026b).

The broad sector-based examination here could mask some steeper changes for individual producers. It also ignores the distributional impacts on households with differing income levels, geographic locations, and more. Policymakers need to be examining such differentiation in greater depth, but nothing in the authors' conversations with relevant stakeholders suggests this has happened for either shock.

The long-term impacts also warrant greater attention, as disproportionate focus surrounds the more observable immediate impacts and not the lingering damage to people and activity dislocated by the shocks.

One final observation on the impacts of the Hormuz shock relates to how it is perceived. Malaysia like many countries is caught in a pervasive and persistent rising cost of living narrative, despite inflation being subdued and unemployment low. Despite the cushioning impact of subsidies, Malaysians are exhibiting increasingly cost-conscious spending behaviours (Malay Mail, 2026b). This could reflect the lingering effects of previous shocks on inflation perceptions and/or the differing impact on households with less means to absorb shocks.

Policy Response to the Strait of Hormuz Shock

A useful way to organise discussion of Malaysia's response to the ongoing disruption in the Strait of Hormuz is through the lenses of risk and resilience and preparedness and reactivity. This helps identify whether efforts represent a coherent strategy, or instead policies are working at crosshairs or based more on listening to the loudest voices not shrewd targeting.

Strategy or reaction?

Despite the series of shocks that Malaysia (and the world) has faced in recent years, the government has yet to develop an overarching risk, resilience, and reward strategy. This equally applies to specific priorities like energy security, for which a whole-of-government plan and scenarios testing (beyond individual agency strategic plans) is missing. When ministers seek urgent advice on how to manage energy shocks, civil servants' advice is likely to be guided by siloed interests instead of an overarching purpose.

The absence of an overarching strategy and clearly stated objectives contributes to the overall response being slow and untargeted. Trying to understand shocks in real time without prior simulation and deep market intelligence is an impossible task and concentrates response resources on learning and monitoring instead of policy implementation. Malaysia thus responds by creating monitoring and consultation processes and under political pressure runs out of time to design targeted responses, relying instead on increasing existing, broad-based subsidies to fill the void.

It should be acknowledged that the fuel subsidies themselves constitute a degree of preparedness, even if their purpose is ongoing cost-of-living relief and not shock absorption. Having price caps in place provides an automatic shock absorber, transferring the impact and risk from households and businesses to the government.

General response features

Understandably, the initial response to the Hormuz crisis focused on the safety of Malaysians in the Middle East including repatriation efforts, and diplomatic messaging calling for peace. Intersecting national, energy, and economic security considerations followed soon after, with an announcement almost a month into the conflict that the Home and Defence Ministries had been instructed to carry out conflict monitoring and geopolitical, economic, and security scenarios analysis⁴ (Zak and Latif, 2026). At the time of writing, progress in analysing scenarios is unclear and has not been publicly communicated.

In early April, a Crisis Management Task Force (PPPK) was established under the National Economic Action Council and tasked with coordinating the government's response to the global energy crisis resulting from hostilities in the Middle East (Malay Mail, 2026c). The PPPK's remit, powers, and activities remain unclear, with limited public communication by the Committee Chairman mostly highlighting the activities of others. The Chairman has noted the activities of civil servants and PETRONAS and a focus on *"protecting vulnerable families, keeping critical supply lines open and managing price volatility."* (Bernama, 2026a).

The role of PETRONAS warrants specific mention, in its capacity as both a commercial entity and a pseudo-ministry. It has been acting to secure (imported) supplies and compensate for shortfalls among other distributors. As noted previously, it has done so effectively as there have been no supply shortfalls to date, but at considerable cost to its bottom line (though the hit is shared with the government through the fuel subsidies; Malay Mail, 2026d; FMT, 2026). While not endorsing the specific structure of or powers underpinning the arrangement, PETRONAS' responsibility as an energy security guarantor has some benefits that deserve deeper exploration.

The other notable broad feature was the creation of the Global Supply Crisis Malaysia Dashboard 2026 (pantaukrisis.gov.my; Ministry of Economy, 2026) to provide real time information on the crisis. The website provides data on fuel prices, trade, exchange rates and more to make public information more accessible and to help detect early signs of economic stress (Bernama, 2026b). It has helped bring relevant information together in one place, reportedly supporting holistic monitoring by officials. It may have also contributed to reassuring the public that the situation is at hand and that the government is not hiding any nasty surprises.

⁴ Why these were described as separate geopolitical, economic, and security scenarios is unclear, as they cannot and should not be considered in isolation analytically. Serious scenarios analysis takes months to draw on cross-disciplinary expertise and skills and is best performed before not during an event.

Addressing risk

Directly addressing the threat or hazard of an external energy shock is challenging, especially for a resource importer and developing (not rich) country like Malaysia. The main threat vector of the Hormuz disruption is a war that Malaysia has no control over, so it has no means of eliminating or mitigating this risk directly. It can call for and help support ceasefire and peace proceedings but is not a leading player in that space.

Malaysia walks a diplomatic tightrope as a non-aligned and overtly neutral state. As noted earlier, it has a strong relationship with the US but is increasingly alienated by this and other wars (both military and trade). Meanwhile, it does not recognise Israel's nationhood and maintains positive relations with Iran; meaning it has open communication channels with both sides of the conflict but not Israel. Having signed a defence MOU with the US in October 2025, in August 2026 it signalled intent to sign a defence cooperation MOU with Iran (Bernama, 2026c).

Malaysia's exposure and vulnerability to external energy shocks are more within its control but hard to address in the short-term. This goes to how reliant Malaysia is on (imported) fossil fuels for its energy, where it sources them, and their criticality to sensitive systems.

An advantage of Malaysia's geopolitical neutrality is it faces fewer restrictions and has more potential partners to diversify its imports; both before and during a crisis. In recent months it has secured long-term oil and gas supply pledges from Russia (albeit a somewhat loose arrangement) and PETRONAS has obtained gas exploration concessions in Turkmenistan (Krishnan, 2026). It has also strengthened energy security ties with Japan and Australia, though these too are gas-centric and would benefit from further institutionalisation.

Malaysian flagged vessels have also benefited from the government's relationship with Tehran, at times securing preferential safe passage through the Strait of Hormuz and Red Sea (Krishnan, 2026). Neutrality also matters here, as positive relations with the US allow these arrangements to proceed without retaliation.

What has been notably absent from the response is an intensification of energy diversification efforts, in particular to accelerate renewable energy installation. An effective way to reduce exposure and vulnerability is to diversify the energy mix and reduce dependence on imported fossil fuels, with renewables not only a cleaner choice but a means of onshoring energy supply. Malaysia has neither seized upon the crisis to accelerate the clean energy transition nor moved noticeably away from its clean energy plans. Beyond official rhetoric around developing stable, domestic, and sustainable energy sources being central to energy security, policies and procurement have not materially shifted since the war began (Mardhiah, 2026b). Other countries have adopted diverging strategies of either boosting renewable energy installations or burning more coal (Global Carbon Fund, 2026; Palan, 2026).

Resilience measures

Malaysia's resilience approach is heavily focused on absorption over adaptation and transformation. Its mitigation strategy is skewed towards maintaining the status quo rather than changing behaviour and depends on broad-based subsidies to cushion a blow that not every recipient experiences equally.

As already highlighted, retail price cap subsidies on both petrol and diesel are the primary resilience measure and largely pre-date the shock. Launched in late 2025, the Budi95 petrol subsidy scheme represented a modest rationalisation of prior subsidies that excluded foreigners, the top 5% of income earners, and usage above a generously set 300 litres per month (Lee, H., 2026). The scheme was briefly curtailed to 200 litres per month between 1 April and 31 August amid rising oil prices and a mounting subsidy bill, but the government claims very few consumers were affected by the lower cap (Yusof, 2026; Zahiid, 2026a).

An additional diesel subsidy scheme mirroring Budi95 was introduced on 1 July, converting a 400 ringgit monthly cash assistance scheme into a fuel subsidy. Whereas Budi95 caps prices for RON95 petrol at 1.99 ringgit per litre, the diesel scheme sets prices at 2.10 ringgit per litre for the first 200 litres (300 for pickup truck and SUV owners; Yusry, 2026). The subsidy allowances for each category were subsequently raised by 100 litres on 1 September (Chandra, 2026).

Fuel-specific subsidies have been supplemented by the coincidental ramp up of income subsidies for households. Quarterly and monthly cash aid programmes have provided more frequent and predictable cost-of-living relief than previous schemes (Bernama, 2026a, 2026d). These pre-shock measures provide further absorption support while not representing a shock-specific response.

Small businesses have received fresh support through a subsidised loan guarantee scheme. In late April, Bank Negara Malaysia (BNM) announced the SME Stabilisation Relief Facility, which provides a RM5 billion financing facility offering up to RM750,000 at a maximum 3.75% interest rate (80% fully guaranteed) for eligible small businesses (BNM, 2026, Zahiid, 2026b). SMEs have been quick to take advantage of this and existing schemes, with about 1,500 businesses participating within the first month.

It is worth noting in the absorption context that Malaysia does not have a strategic contingency fuel reserve or stockpile. It relies on commercial fuel in circulation, which is enough for about two months at most (The Sun, 2026). Malaysia thus falls well short of 90 days' reserves, which is the de facto international standard. Existing regional (ASEAN) arrangements for fuel sharing and stockpiling are voluntary and on a commercial basis only, with the third iteration of the ASEAN Petroleum Security Agreement in any case not ratified. The Hormuz disruption has prompted some ASEAN leaders to call for a regional stockpile, though this is highly unlikely to be created expediently (Mahmud, 2026).

Consistent with subsidies encouraging the continued use of fuels, policymakers have focused less on adaptation. Data on recent fuel consumption patterns is not readily available but a noticeable shift since the war began is not apparent. An indication of this comes from the government's main attempt to encourage adaptive behaviour: a work-from-home policy for selected civil servants. In the first three months of the policy, only a cumulative 75,000 of Malaysia's over 1.3 million civil servants utilised work-from-home, saving about 4 million litres of fuel; Malaysia consumed around 15,500 million litres of petrol in 2024 (Malay Mail, 2026e; Energy Commission, 2026). The government also temporarily sought to reduce air conditioning use in government buildings and on occasion asked the public to conserve energy, but it is difficult to argue these represent meaningful efforts to change behaviour.

Likewise, there has been essentially no policy intervention to build resilience through transformation. The government has not sought to encourage a shift to cleaner energy or to increase public transport use. Measures to reduce the cost of frequent public transport patronage pre-date the Iran war, with more recent announcements relating to these the government readvertising existing policies not changing incentives.

Challenges for Policymakers

Malaysia's energy future looks more hazy and precarious than it perhaps should, with policy choices contributing as much to this as external uncertainty. Malaysia faces steep challenges weaning itself off imported fossil fuels and maintaining economic competitiveness in a lower carbon world. Achieving this would beneficially reduce its exposure to external energy shocks and improve fiscal sustainability.

Somewhat ironically for a country with an abundance of plans, Malaysia is missing a clear strategy to navigate external volatility. Its preparedness appears suboptimally low, with activities like scenarios analysis, market intelligence building, and the creation of emergency powers and distribution mechanisms raised in response to shocks, not developed in advance. When a crisis arrives, policymakers are caught on the hop without firm expectations of how it might unfold, a deep understanding of economic exposure, nor clear policy means to provide timely and targeted relief to those businesses and households that actually need it. And without an overarching strategy to guide policymakers on how to prioritise and balance risk, resilience, and reward trade-offs, advice risks being siloed, incoherent, and unhelpful to decision-makers faced with urgent and high impact decisions.

Malaysia's entrenched dependence on fossil fuels is perhaps the steepest challenge it faces. The government and key GLCs may sound sincere and active in their efforts to increase renewable energy installations but Malaysia is starting from a position of high carbon intensity and is falling further behind. Its economic structure remains biased heavily in favour of fossil fuels, including through generous petrol and diesel subsidies, the delayed and narrow introduction of carbon pricing, the entrenched but misleading perception that prolonging the exploitation of resource wealth is good for Malaysia

instead of a looming barrier to global markets, and the near monopolisation of the green energy transition by two GLCs with sizeable vested interests in slowing the pace. Until it gets serious about the imminent threat of dirty energy becoming a barrier to participation in international trade, Malaysia's economy will be left behind.

Perhaps the uncertainty surrounding China's clean energy rise and America's geostrategic manoeuvring targeting oil and critical minerals can provide much needed impetus to diversify away from fossil fuels faster, not just to diversify fossil fuel partners. As both recent oil shocks have demonstrated, all countries are exposed to the price volatility of a fungible globally traded commodity like oil regardless of their resource wealth and geopolitical connections. Malaysia's structurally declining budgetary position cannot afford to keep absorbing the costs of repeated shocks.

To avoid simply shifting from a dependence on imported energy inflows to imported clean energy technologies and products, Malaysia should seek to build its own capabilities and competitiveness (and those of other partner countries). That involves both investing in the human and physical capital deepening needed to grow indigenous production, but also removing market distortions that suppress demand. Malaysia will struggle to gain competitiveness in green industries and skills if its economy continues to subsidise petrol and diesel.

And finally, Malaysia can reduce its dependencies and shock impacts by building credible partnerships with a diverse range of international stakeholders. Modern shocks are often exacerbated by the selfish responses of geopolitical and commercial actors fending for themselves rather than working together to calm markets and restore order. Uncertainty breeds distrust and me-first policymaking, resulting in the poorest countries, communities, and people bearing the biggest brunt while richer countries pay massive premiums for scarce supplies. Malaysia can be a force for good, leveraging its neutrality to support the development of regional and global partnerships that establish credible emergency mechanisms and collaborative preparedness and response coordination efforts.

Lessons Learned and Way Forward

The combination of recent energy shocks and wider instability presents several key lessons for Malaysia and its energy security choices:

- **Developing and executing a preparedness strategy would be beneficial.** Better understanding energy security risk, resilience, and reward trade-offs, deepening market intelligence and trusted networks, and creating the policies and processes needed to respond to shocks would support a faster, more efficient, and more coherent response.
- **Publishing real-time information may help suppress potential for panic.** While causation is difficult to establish, the creation of a public dashboard contributed to a sense of order and transparency around shock handling. Together with the absorptive

effect of fuel price caps, Malaysia has avoided panic buying and other antisocial behaviours that perceived fuel supply shortages can cause.

- **An absorption-centric resilience strategy is fiscally unsustainable.** Fuel subsidies may cushion the blow for businesses and consumers by transferring the hit to public finances, but this approach can only be achieved occasionally and for short periods. A prolonged, more severe, or frequently repeating shock (or series of shocks) would see this measure abandoned and a potentially severe impact eventuate. Malaysia's COVID-19 response provides precedent, where an effective but expensive public health-centred containment strategy worked for about nine months but had to be abandoned on fiscal grounds (leading to an abrupt and harmful change in strategy).
- **Malaysia's production of oil and gas and state-owned monopolist does not shield it from world markets.** Malaysians' imaginations are caught in a past in which state control and net exports of both oil and gas protected Malaysia from energy shocks. But Malaysia is no longer a net exporter of crude oil and depends on Middle Eastern imports for consumer petroleum (among other products), and like all trading nations is vulnerable to sudden price increases. PETRONAS operates as a commercial importer seeking to secure scarce supplies on world markets and pays a pretty penny to do so.
- **But imposing energy security responsibilities on energy companies might be advantageous.** The role of PETRONAS in securing Malaysia's energy supplies deserves further examination, though public details are scarce. It operates under the contradictions of being a government-owned commercial enterprise but with ministerial powers and responsibilities including an obligation to safeguard Malaysia's energy security. As a commercial enterprise with deep industry connections and supply chains it would seem better placed to execute this than the state officials and ministers who assume this crisis responsibility in many countries. It may be that the obligations on, rather than the structure of, PETRONAS is key from an energy security perspective.
- **Malaysia's carbon intensive energy mix and economy together with its slow transition increase and prolong its energy security risks.** Accelerating Malaysia's decarbonisation efforts would reduce imported fossil fuel dependency and reduce the risk of businesses being excluded from markets under future green standards. It is starting from a fossil-fuel-intensive position and must overcome vested interests' intent on slowing the transition.
- **It also needs to position itself for green competitiveness or risk shifting dependencies.** Malaysia is experiencing an overall investment and export competitiveness boom with some positive signs that it can compete in green export markets. But it is attracting more data centres than renewable energy installations and is dominated by China in both current and potential green product making. Malaysia should seek to avoid overdependence on imported (including Chinese) green technology and use partnerships and indigenous investment to grow its own capability alongside imports.

- **Mounting great power rivalry will test its neutrality.** Malaysia is thus far successfully walking a diplomatic tightrope, though the current faultline is with the US alone over its military engagements. It has grievances with China too (over the treatment of Muslims and South China Sea territorial claims) but is presently less vocal about these. America's weaponisation of trade for national security, its targeting of transshipment, and its building critical minerals and metals partnerships exclusive of China will all present difficult choices for Malaysia to navigate with consequences for future energy security.
- **Building trusted partnerships to prepare for and manage shocks is an area of potential strength and necessity.** Malaysia has a strong reputation as a constructive international partner and a mostly free and fair trader. Its neutrality positions it with many potential arrangements to help mitigate shock impacts. Few credible partnerships surrounding critical supplies in crisis scenarios currently exist globally but they are emerging. Malaysia can seek to position itself at the forefront of these, both to help coordinate future shock responses and to learn from the preparedness efforts of others.

Germany's Energy Geostrategy Pincer Grip Amid Rising Gas, Geopolitical, and Political Pressures

Introduction — Germany's energy policy landscape

Context, Policies, and Targets

Germany is a strongly export-oriented industrial nation that committed early to the green energy transition. This is also reflected in the growing importance of green tech, with around 9% of German gross value added in 2023 generated by environmental and climate protection goods and some 7.5% of the workforce employed in this field (according to the *Umweltbundesamt* (UBA, German Environment Agency). The green tech sector also accounted for more than 8% of German exports in 2023 (UBA, 2025).

At the same time, Germany's specialised competitive advantages are diminishing amid changing consumer preferences, especially through the shift to electric vehicles. This shifting economic reality is both an opportunity and a risk (BCG, BDI and IW, 2024). Even though support for climate protection in Germany remains relatively high, political and social problems are becoming apparent precisely in those regions most affected by economic transformation. The far-right party *Alternative für Deutschland* (AfD) is making significant electoral gains, with its strongest support in transformation regions. The future of high industrial value added industries is most uncertain in these regions in view of decarbonisation. Economic worries, structural change, and a sense of regional status loss provide fertile ground for the narratives of the far-right party (Bergmann et al., 2025).

These tensions play out within a framework of targets that is set both in Brussels and in Berlin. First and foremost, Germany's climate policy is embedded in the European framework. Under the Paris Agreement, Germany does not submit its own Nationally Determined Contribution; the EU does so jointly for all member states. The binding basis is the European Climate Law of 2021, which enshrined climate neutrality by 2050 and a net reduction of at least 55% by 2030 compared with 1990. In March 2026, it was amended to include a binding 2040 target of a 90% net reduction, subject to a review every two years. From 2036, up to five percentage points of this may be achieved through high-quality international carbon credits (European Parliament, 2026). Emissions from power generation, energy-intensive industry and intra-European aviation and shipping are covered by the EU Emissions Trading System (EU ETS, often referred to as ETS1 since the introduction of ETS2). For buildings, transport, agriculture and smaller installations, the Effort Sharing Regulation sets national reduction obligations; for Germany, this means a cut of 50% by 2030 compared with 2005.

From 2028, a second emissions trading system (ETS2) will additionally price fuels used in buildings and road transport across the EU. Its start was postponed by one year, largely at the insistence of Poland and other Central and Eastern European member states, which fear substantial distributional effects on households. Germany has priced these fuels through a national emissions trading system since 2021. From 2028, this national system

will be replaced by ETS2 for the fuels it covers, so that the carbon price in heating and transport will then be set at the European rather than national level. Many other member states, by contrast, do not yet price carbon in these sectors. ETS2 would therefore raise heating and fuel costs there for the first time, often in countries with a high share of fossil-based heating and lower household incomes. The Social Climate Fund, with up to 65 billion euros from 2026 to 2032, is intended to cushion these effects, with more money going to member states with many heavily affected households.

On top of this, Germany has set itself a more ambitious national target. The *Bundes-Klimaschutzgesetz* (KSG, Federal Climate Change Act) was adopted in 2019, after it had become apparent that Germany would miss its earlier target for 2020. In 2021, following a *Bundesverfassungsgericht* (Federal Constitutional Court) ruling that the law was partly unconstitutional by leaving the reduction path after 2030 undefined — it shifted a disproportionate share of the burden onto future generations — the government brought the target for greenhouse gas neutrality forward from 2050 to 2045 and tightened the interim targets. A 2024 amendment then replaced binding annual emission budgets for individual sectors with a cross-sectoral total budget.

The most important national targets and instruments include:

- **Emissions:** a reduction of greenhouse gas emissions by 65% by 2030 and 88% by 2040 compared with 1990, net neutrality by 2045 and net negative emissions after 2050. Under current policies, however, emissions are projected to fall by only 62.6% by 2030, with buildings and transport lagging furthest behind (UBA, 2026a).
- **Renewable electricity:** a share of 80% of gross electricity consumption by 2030. It is backed by expansion paths of 115 Gigawatts (GW) onshore wind and 215 GW solar PV, rising to 160 GW and 400 GW by 2040, plus 30 GW offshore wind. A proposed reform before the parliament keeps these targets but ends fixed feed-in tariffs for new small rooftop systems and shifts support towards cheaper ground-mounted PV and grid-friendly locations.
- **Renewable Energy Directive (RED III):** a contribution to the binding EU target of 42.5% renewables in gross final energy consumption by 2030; Germany's own share stood at 23.8% in 2025 (UBA, 2026b). The directive also sets sub-targets, such as a 42% share of renewable hydrogen (RFNBOs) in industrial hydrogen use.
- **Hydrogen production:** the *Nationale Wasserstoffstrategie* (National Hydrogen Strategy) targets at least 10 GW of domestic electrolysis capacity by 2030, with most demand to be met by imports. With only around 181 megawatts (MW) installed, the target will likely be missed (EWI, 2026). Since demand is also falling short of projections due to industrial restructuring and high hydrogen prices, the target no longer appears up to date anyway.

- **Hydrogen infrastructure:** a privately built core network of 9,040 km is to be completed by 2032 at a cost of around 18.9 billion euros. Capped network charges during the ramp-up are bridged by an amortisation account, pre-financed by the KfW, Germany's state-owned development bank, with a federal guarantee, to be balanced by 2055. No comparable model yet exists for distribution grids, which matters for industrial consumers not located on the core network.
- **Industry:** companies can apply for carbon 'contracts for difference' that cover the additional costs of climate-neutral production processes over 15 years, adjusting to energy and carbon prices. They are awarded through competitive auctions, and payments are made after emission reductions have been delivered. A first round in 2024 awarded up to 2.8 billion euros to 15 companies; a second round with 5 billion euros, now also open to carbon capture, closed for bids in September 2026.
- **CCUS:** the amended *Kohlendioxid-Speicherungs- und Transportgesetz* (KSpTG, Carbon Dioxide Storage and Transport Act), in force since November 2025, permits CO₂ capture, transport and storage on an industrial scale. Offshore storage in the German North Sea becomes possible, while onshore storage requires an opt-in by the federal states. Since early 2026, CO₂ can also be exported for storage, for example to Norway or Denmark.
- **Energy efficiency:** under the Energy Efficiency Act of 2023, Germany aims to reduce final energy consumption by at least 26.5% and primary energy consumption by at least 39.3% by 2030 compared with 2008, as its contribution to the EU-wide target. Under the cabinet draft of June 2026, these would become merely indicative, and targets beyond 2030 would be dropped. The EU-wide target is to cut final energy consumption by 11.7% by 2030.

Several of these targets have been recalibrated since the federal government changed in 2025, reflecting both slow progress in individual sectors and changed external conditions, such as higher energy prices, weaker industrial demand and tighter public budgets. Where the transformation has advanced furthest, and where it is stalling, becomes clear when looking at the individual sectors.

From Policies to Energy Transformation

A central foundation for the climate policy transformation was laid out in the *Erneuerbare-Energien-Gesetz* (EEG, Renewable Energy Sources Act). It initially remunerated electricity fed into the grid from wind, solar, and other renewable sources through fixed feed-in tariffs. The system has been adjusted several times over the years but its basic principle — the politically organised expansion of renewable energy through long-term support and market mechanisms — remains in place.

The EEG has contributed to renewables already covering 55.1% of German gross electricity consumption in 2025 (Figure 34; UBA, 2026c). This cannot be taken for granted in a

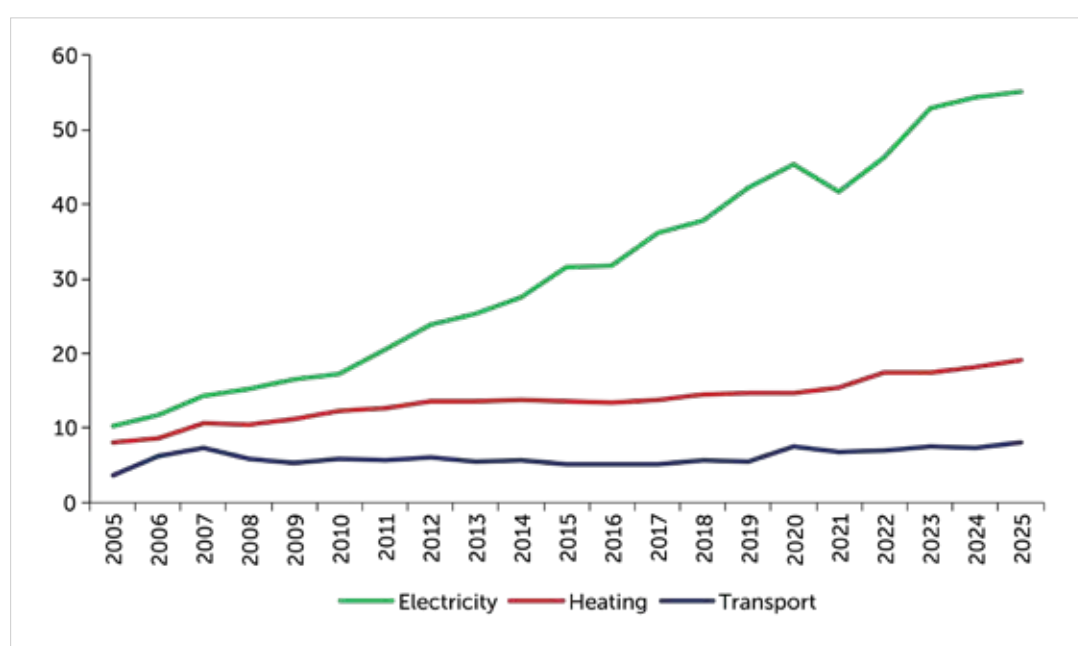
densely built-up industrial country with comparatively limited hydropower potential — unlike Scandinavia, for example — and with lower solar irradiation than countries such as Spain or Italy. At the same time, a look at other sectors shows how unevenly the transformation is advancing: in heating, the renewables share stood at 19.0% in 2025, in transport at 8.0%. Across all sectors, the share of gross final energy consumption reached 23.8% (UBA, 2026c).

In the coming years, the focus will therefore shift: the electricity transition must become an energy transition. Expanding renewable electricity generation remains central. But it must be considered together with the decarbonisation of heating, transport, and industrial processes, with grid expansion, storage, and flexible generation capacity. Considerable effort is going into building an initial hydrogen and CO₂ infrastructure.

In pursuing further decarbonisation, Germany and the EU rely on a market-based approach: with the EU ETS established across Europe in 2005. A limited number of emission allowances is issued for the installations covered. These allowances can be traded, so that emissions are reduced where this is possible at the lowest cost. The annually declining cap tightens the supply of allowances and thus gradually raises the carbon price.

By 2025, greenhouse gas emissions in Germany had fallen by 48.2% compared with 1990. The German climate target of greenhouse gas neutrality by 2045 sets the binding roadmap for what follows. The decisive question is therefore not whether the transformation will take place, but how it can be organised under conditions of energy price risks, international competition, and limited political and financial resources (UBA, 2026d).

Figure 34: Share of renewable energy in the electricity, heating, and transport sectors



*Note: Displays the share (percentage) of energy for each sector provided by renewables.
Source: UBA (2026c).*

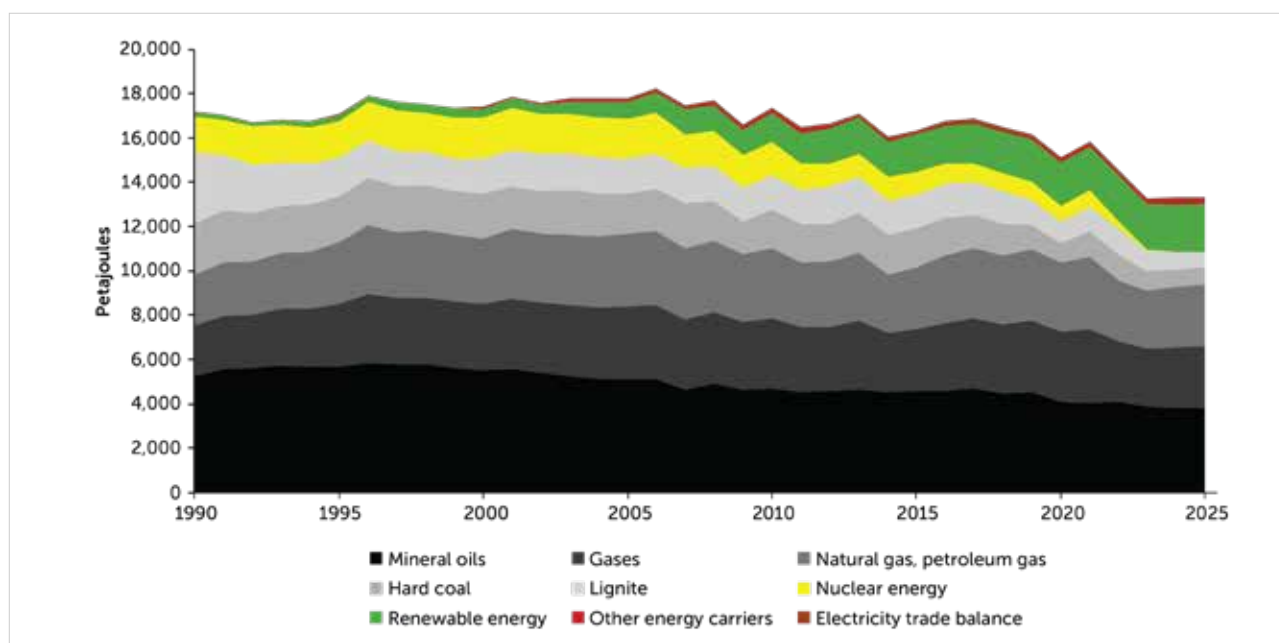
No further contribution to decarbonisation is to be expected from nuclear power. In 2011, following the reactor disaster at Fukushima, Germany decided to phase out nuclear power. Nuclear energy, which at the time contributed around 18% of gross electricity generation (IAEA, 2025), was gradually taken off the grid with an eventual end date of 15 April 2023. The original shutdown date for the last three plants was 31 December 2022, but the energy crisis resulting from Russia's invasion of Ukraine saw nuclear operations controversially extended for four months. In Germany, the technology had traditionally been accompanied by strong protests since the 1970s. It was from this anti-nuclear and environmental movement that today's party Bündnis 90/Die Grünen (the Greens) ultimately emerged.

For energy security, the nuclear phase-out was nevertheless unproblematic as Germany's challenge lies less in an insufficient electricity supply than in flexibility and firm capacity. The price effects of the nuclear phase-out remained manageable because the three remaining plants had contributed only around 6% of gross electricity generation in 2022.

In climate policy terms, it would in hindsight have been more consistent to exit coal-fired power generation first. The framework for this is set by the *Kohleverstromungsbeendigungsgesetz* (KVBG, Act to Reduce and End Coal-Fired Power Generation) of 2020, which provides for an end to hard coal and lignite power generation by the end of 2038 at the latest. For the Rhenish mining region, the phase-out was brought forward to 2030 in 2022 under an agreement with energy company RWE. While hard coal has been imported in full since the end of domestic mining in 2018, lignite comes exclusively from domestic production.

An earlier end for coal would nonetheless have been a hard road politically and economically. The phase-out path is part of a political compromise that in return guarantees the mining regions planning certainty and structural aid of up to 40 billion euros (Federal Ministry for Economic Affairs, n. d.). How high the stakes are in regional policy terms is particularly evident in mining-heavy Lusatia — especially Brandenburg and Saxony — where the AfD reached some of its strongest results in the 2024 state elections. Structural change there is less a question of shutdown dates than of economic prospects. In economic terms, the debate about end dates is likely to lose relevance in any case: through European emissions trading, coal-fired power generation is expected to be pushed out of the market by the early 2030s — because the declining volume of allowances is driving carbon prices upward. The additional regulatory targets therefore mainly create predictability and provide the regions with a reliable phase-out schedule.

Natural gas, by contrast, has played and continues to play a larger role than nuclear energy (Figure 35). In Germany it was long regarded as a bridging technology and was intended to enable companies and the energy sector to switch gradually to climate-neutral energy sources. Natural gas is indeed lower in emissions than coal, but it is by no means climate-neutral. Its role as a bridge therefore depends on how quickly renewable energy, electrification, energy efficiency, and — for certain industrial applications — climate-neutral hydrogen become available.

Figure 35: Primary energy consumption by energy carrier in Germany

Note: One petajoule equals around 278 million kilowatt hours.

Source: AGEBA (2026).

Given limited domestic oil and gas reserves, Germany has traditionally been heavily dependent on energy imports. Domestic crude oil production covers only a very small share of consumption; natural gas production, too, remains marginal. In 2025, around 34 TWh of natural gas was produced in Germany, which is under 4% of total consumption of 864 TWh (Bundesnetzagentur [Federal Network Agency], 2026a). For crude oil, domestic production meets an even lower share at less than 2% of demand (BVEG [German Oil, Gas, and Geoenergy Industry Association], 2026).

For its imports, Germany long relied heavily on Russia. In 2020, around 55% of natural gas, some 35% of crude oil, and 45% of hard coal came from Russia (Fischer and Küper, 2022). At the same time, close economic and political ties with Russia were cultivated. Warnings from European and transatlantic partners that Germany was making itself dependent on Russia were for a long time not sufficiently heeded.

The 2022 turning point

The Russian invasion of Ukraine hit Germany particularly hard in 2022, because it was precisely in energy supply that a key element of diversification was missing. The high concentration of imports turned into immediate economic and political vulnerability.

As early as the summer of 2021, the gas storage facilities controlled by Gazprom and Gazprom Germania in particular — among them the Rehden facility — were not being filled sufficiently. Russia gradually reduced gas deliveries to Europe. After a throttling

of deliveries that was initially explained as a need for maintenance and repairs, the gas flow through Nord Stream 1 ended on 31 August, 2022. On 2 September, Gazprom declared deliveries suspended for an indefinite period, citing an oil leak. Explosions on 26 September, 2022 finally rendered the pipelines unusable. Other supply routes fell away as well: the route via Poland was effectively no longer available from the spring of 2022 onward; transit through Ukraine was considerably reduced from May 2022 but continued until the transit contract expired at the end of 2024.

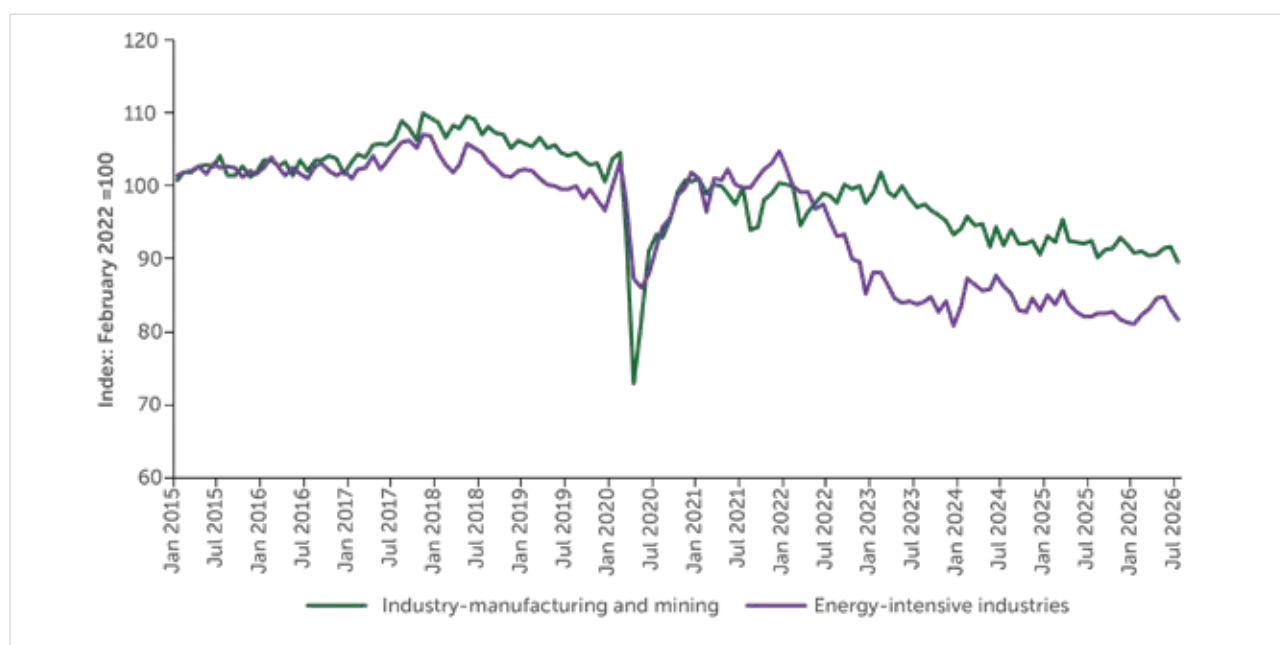
For coal, the switch on the world market was comparatively straightforward. The EU embargo on Russian coal entered into force in August 2022. For crude oil, the adjustment was more difficult, but likewise possible. The EU embargo on Russian seaborne crude oil entered into force on 5 December, 2022; for Russian refined petroleum products, the embargo applied from 5 February, 2023. Germany ended imports of Russian pipeline oil at the turn of the year 2022/23. The challenge here lay not only with crude oil itself, but also with the products refined from it. Germany had high diesel consumption and depended to a considerable extent on imports of petroleum products. Russian crude oil flows were delivered, among other routes, via pipelines to refineries such as Schwedt, while petroleum products were imported via various trading and transport channels.

Replacing natural gas was the most difficult task. Unlike coal and oil, natural gas could not be replaced on the world market at short notice. One reason was a lack of infrastructure: before the crisis, Germany had not built a single LNG import terminal of its own and new import capacity could not be created overnight. In the short term, additional volumes arrived via pipeline connections to neighbouring countries and Norway. Further unused LNG import capacity existed elsewhere in Europe, particularly on the Iberian Peninsula. However, weak pipeline connections to the rest of the European gas grid meant that it could contribute little. More broadly, the European gas network had historically been built around east-west flows, with Germany as its central storage and transit hub. This created physical bottlenecks in other areas as well, for instance in supplying certain central and south-eastern European countries via alternative routes. In practice, replacement at short notice was therefore not possible, and high prices and uncertain supply forced consumption down instead.

Since gas could not be replaced at short notice, a physical supply shortage was a real risk. In the run-up to winter 2022/23, Germany therefore saw extensive debate about a shut-off sequence and about which sectors should be classified as systemically relevant. In the end, this was never put to the test, as demand destruction driven by high prices reduced consumption, above all in industry. Households, which in Germany are typically supplied by municipal utilities and energy suppliers under longer-term, hedged contracts, were not directly exposed to spot market risk and felt the price increases only gradually. Energy-intensive industry, by contrast, was hit hardest and earliest. Price peaks were cushioned by several relief measures: a one-off emergency payment for gas and district heating customers in December 2022, followed by electricity and gas “price brakes” from early 2023 (applied retroactively from January). These capped prices for a subsidised base volume of roughly 80% of previous consumption for households and 70% for industry, while higher market prices applied above that volume, so that the incentive to save was

preserved to some extent. However, these measures could only provide temporary relief. Energy prices in Germany and Europe remained well above pre-crisis levels, and industrial production, in basic materials production in particular, fell sharply. German industrial production has not recovered since and forms part of a broader decline in industrial output that has been observable across the manufacturing sector since 2018 (Figure 36).

Figure 36: Production decline in German industry and energy-intensive industry



Source: German Federal Statistical Office (2026a).

As early as 17 December, 2022, the then Chancellor Olaf Scholz inaugurated Germany's first LNG terminal in Wilhelmshaven. His sentence "This is the new German pace" became a catchphrase (Der Spiegel, 2022). What he meant was an allusion to the typically long bureaucratic delays in the planning and permitting of new infrastructure. The rapid construction was made possible, among other things, by the *LNG-Beschleunigungsgesetz* (LNG Acceleration Act), which shortened and simplified planning and permitting procedures.

From then on, new supply contracts for gas were concluded worldwide. What also stuck in the memory was the image of the then Minister for Economic Affairs, Robert Habeck, a member of the Green party of all people, courting new energy partnerships on his visit to Qatar. For some this was an expression of a new dependency, for others of a pragmatic and solution-oriented policy under exceptional time pressure.

Together with its European partners, Germany was able to compensate for the missing Russian volumes, if not to replace them entirely, without major supply interruptions occurring in Europe. In doing so, Germany and the EU did not merely try to substitute one gas supplier for another. With REPowerEU, presented by the European Commission in May 2022 (European Commission, 2022), the EU also pursued a structural move away

from gas and oil: through lower demand, higher energy efficiency, greater diversification of imports, and a faster expansion of renewable energy and of the infrastructure required for it.

Requirements for the filling of gas storage facilities additionally ensured that the mistakes of 2021 were not repeated. With the *Gasspeichergesetz* (Gas Storage Act), which entered into force at the end of 22 April, binding filling-level targets were established for the first time (Sections 35a ff. of the *Energiewirtschaftsgesetz*, EnWG, Energy Industry Act): 80% by 1 October, 90% by 1 November, and 40% by 1 February. As early as July 2022, the *Gasspeicherfüllstandsverordnung* (Gas Storage Filling Level Ordinance) raised the targets for 1 October and 1 November to 85 and 95% respectively and added an interim target of 75% by 1 September. The February target remained unchanged at 40%.

The targets were later relaxed. With the extension of the Act until April 2027, the February target was lowered to 30% in 2024. A 2025 amendment to the ordinance abolished the October target and lowered the November target for most storage facilities from 90% to 80%. Lower or higher values apply to a few facilities depending on their technical characteristics and regional importance. The binding targets are scheduled to expire at the end of March 2027, and there is an ongoing debate on whether they are still needed, even at the reduced level of 80%. The federal government points to the flexible LNG import capacity built since 2022, whereas critics, including parts of the storage industry, warn that storage levels have been historically low in 2026 and that market incentives to fill storage may be insufficient.

Overall, Germany came through the crisis with only a black eye. The market adjustment came, however, at a very high price. Because the EU and Germany had to procure large volumes of gas and oil on the world market, costs for companies and households rose considerably (Hüther, Küper and Schaefer, 2023).

Between two crises

Through the switch to LNG and to energy traded more heavily on world markets, Germany's price competitiveness in gas has shifted considerably. German companies today no longer pay primarily a price shaped regionally by pipeline imports; they compete more directly with buyers in Asia and other world regions for globally available LNG volumes. As a result, prices that were roughly twice as high as in the United States before 2021 are now about five times higher (BCG, IW and BDI, 2025). Through the stronger orientation toward the global LNG market, German gas prices have also converged with those in countries such as China and India. These countries, however, start from better conditions: industry there is in part considerably less dependent on gas, cheap coal continues to play a larger role, and gas is in part produced domestically to a greater extent or made available with political subsidies (Küper et al., 2026). For German companies, what matters is therefore not only the absolute gas price, but the entire cost structure of energy supply, including electricity prices, network charges, CO₂ costs, taxes, and levies.

High gas prices in fact set a strong incentive for decarbonisation. For many companies, it would make economic sense to replace gas through electrification, efficiency measures, or other climate-compatible energy sources. At the same time, electricity prices have risen. For many hours each day, gas-fired generation sets the marginal price via the merit order; high gas prices can then raise the electricity price as well. As a result, in some areas the business case for switching is missing despite high fossil fuel costs. The high uncertainty about long-term electricity price developments also contributes to this.

In addition, lengthy permitting procedures and missing infrastructure are slowing the transformation. In some cases, companies wait years for an adequate electricity grid connection (German Chamber of Industry and Commerce (DIHK), 2026). The hydrogen ramp-up is also progressing more slowly than originally expected — even though Germany will depend on hydrogen or other climate-neutral molecules for parts of its basic materials industries.

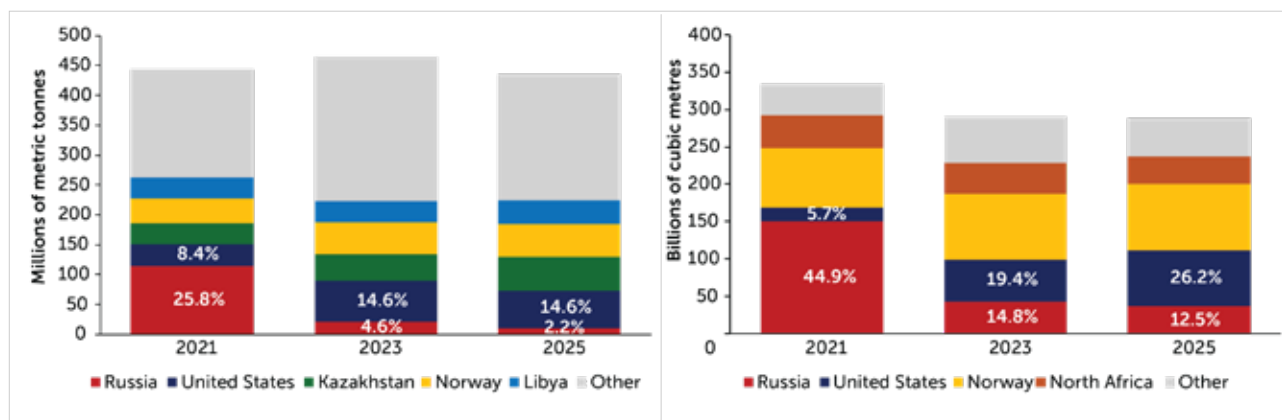
Germany therefore must pursue a twin-track approach: the burden of high fossil gas prices has to be cushioned while the transformation is set in motion at the same time. The lesson from the crisis is unambiguous: a need for more and faster transformation. In practice, however, the achievable speed is capped by infrastructure, permitting, investment cycles, skilled labour, and international competitive conditions.

The growing importance of the United States as Europe's energy supplier

Europe's growing reliance on US LNG deserves closer attention. Without US LNG, households and companies would have come through the crisis considerably worse. A good four years after the start of the crisis, however, 96% of German LNG imports in 2025 came from the United States. This is barely visible in the overall balance, because LNG accounts for only around 10% of German gas imports (Bundesnetzagentur, 2026a). However, part of the pipeline gas imported from the Netherlands, Belgium, and France is also of US origin, so the actual US share of German gas supply is likely to be roughly twice as high (Figure 38). EU-wide, the United States already accounted for 26.2% of gas imports in 2025, while Russia's share fell from around 40% in 2021 to 12.5% (European Council, 2026b). Within just a few years, US LNG has thus become a central pillar of German and European gas supply (Küper, 2024).

This is not a dependence comparable to that on Russia. US supply shares are still considerably lower and LNG terminals, unlike a pipeline, can also be supplied by other providers (Figure 37). Switching suppliers would nevertheless come at a cost as replacement volumes would have to be sourced on a tight global LNG market in competition with Asian buyers. How much weight this concentration carries also depends on how the United States uses its role as a supplier; a question that the 2025 tariff deal has brought to the fore.

Figure 37: Oil and natural gas imports in Europe before and after the crisis



Source: European Council (2026a), European Council (2026b).

The tariff deal concluded between the EU and the United States in 2025 contains the promise to import US energy worth 750 billion US dollars by 2028, which critics see as a risk to the energy transition and the entry point into a new dependence similar to that on Russia. Assessing this risk requires distinguishing between the deal's actual effects, which are likely to be very limited, and the political signal it sends.

As regards the actual effects, the concern misjudges who decides on imports. Oil and gas are purchased by private European companies according to supply, demand, and world market prices, not by the EU according to political strategy. The figures also point to limited effects: EU energy imports from the United States amounted to around 77 billion US dollars in 2024. Meeting the pledge would require roughly 250 billion US dollars per year, more than tripling this value within three years and equalling more than half of the EU's total energy imports from all countries (around 440 billion US dollars in 2024) (Iwd, 2025). Two factors make this unrealistic. First, European demand is receding. Consumption of oil products is already declining and while gas demand is still recovering from the energy crisis, it remains below its previous peak and is likely to decline further, driven by policy plans such as REPowerEU and the currently very high price level. Second, the United States could not supply such additional volumes in the short term, as export capacities can only be expanded gradually. In economic terms, the purchase pledge is therefore largely symbolic.

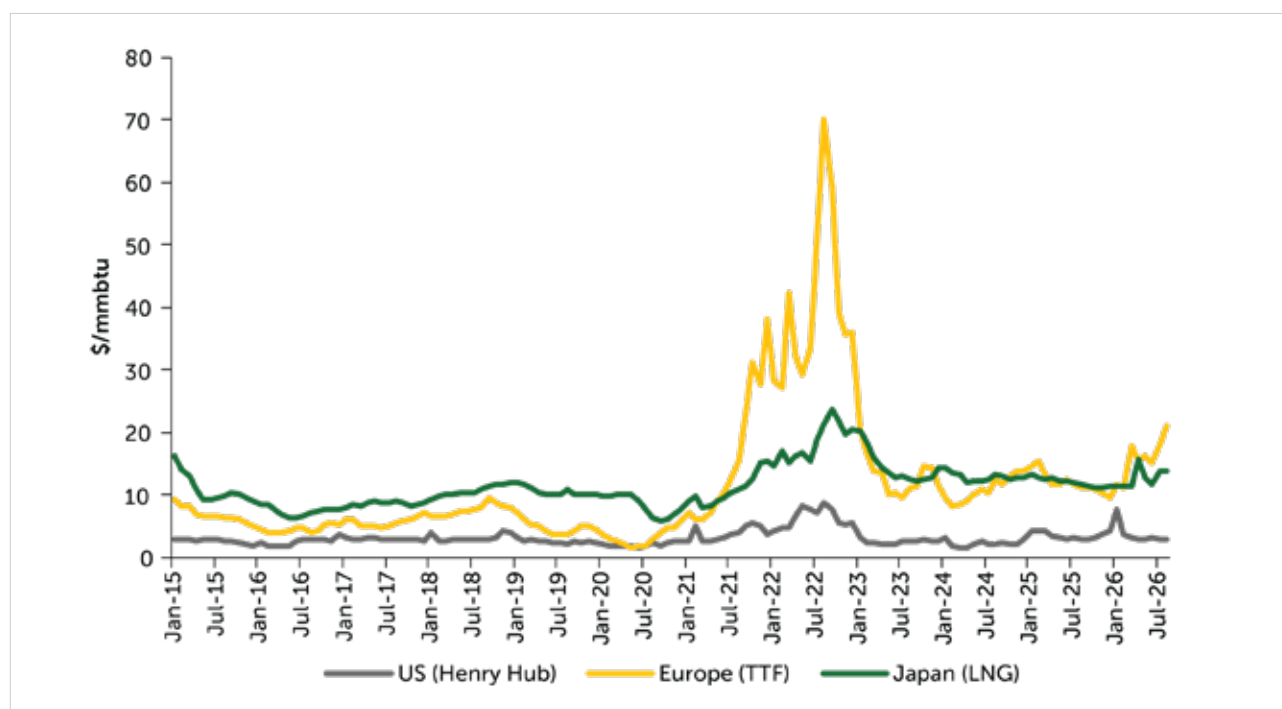
The political signal, however, is harder to dismiss. The energy commitment was not the outcome of a cooperative process but part of a package negotiated under the threat of higher US tariffs. Unlike Russia's pipeline gas, US energy is traded by private sellers on global markets, so the risk is less a physical supply cut than the readiness of a key partner to link trade, energy, and security for political leverage. This matters all the more as the strained global LNG market and Germany's strong exposure to spot-market purchases already leave it vulnerable to supply incidents and political threats, since even announcements can move prices noticeably. The appropriate response is therefore not to avoid US energy but to avoid concentration on any single supplier — allies included. This is all the more

important because the conflict potential is structural. The EU, one of the most important customers for US energy exports, has embarked on a long-term shift away from oil, gas, and coal, while the United States aims to keep exporting these products in ever larger volumes. Further tensions are therefore likely.

A new energy shock in 2026

Until the beginning of this year, hopes for lower gas prices also rested on the expected capacity expansion in Qatar and the United States (IEA, 2025b). More LNG supply could have eased the global market. The Iran war and the associated disruptions in the Middle East have, however, markedly dampened this hope. In early March 2026, shipping traffic through the Strait of Hormuz came to a near-complete halt. Germany does not source any significant volumes of LNG directly from Qatar, but the price increase affects it nonetheless because German buyers compete with Asian purchasers for the remaining volumes on a globally integrated market. Prices for crude oil, jet fuel, and petroleum products also reacted markedly. Germany sources a good 6% of its crude oil from the Middle East (German Federal Statistical Office, 2026b).

Figure 38: Natural Gas prices in Europe, US and Japan



Note: Europe: Dutch Title Transfer Facility (TTF). United States: Henry Hub spot price. Japan: LNG import price (cif); latest two months estimated. \$/mmbtu is US dollars per million British thermal units.

Source: World Bank (2026).

The effects of the current crisis are not equivalent to the acute gas crisis of 2022. They do, however, awaken painful memories of how vulnerable the system continues to be. This is particularly evident in gas storage: in mid-August 2026, levels stood at just under 50% and thus around 16 percentage points below the previous year's figure — the lowest level for this time of year since records began (Gas Infrastructure Europe, 2026). The *Bundesnetzagentur* currently assesses supply as stable and the risk of a strained situation as low, but is monitoring developments with particular attention (Bundesnetzagentur, 2026b).

The crisis response in 2026 largely resembled the response to the energy crisis of 2022: the state attempted to limit short-term price spikes and to relieve households and companies. In part, the same instruments were used as four years earlier.

The federal government thus cut the energy tax on gasoline and diesel by 14.04 cents per litre each from 1 May to 30 June, 2026. Including the corresponding share of value-added tax, this amounted to relief of around 17 cents per litre (German Federal Finance Ministry, 2026). Rather than targeting support at particularly affected sectors such as logistics and construction and at low- and middle-income households that depend on their cars, the government again relied on broad-based, untargeted relief. This was expensive and offered only temporary support, since prices rose markedly again immediately after the measure expired. Moreover, in a situation of physical scarcity, it weakened the price signal to use fuel sparingly at a time when it was unclear whether the disruption would last a few weeks or several months.

As early as 1 April, the *Kraftstoffpreisanpassungsgesetz* (Fuel Price Adjustment Act) had brought into force the so-called noon rule, under which filling stations may raise their prices only once a day (around midday); price reductions remain possible at any time. It was intended to dampen fuel prices driven up by the Iran war and to make the market more transparent. The effect, however, remained — as many observers had criticised beforehand — limited at best. One month after the rule was introduced, two economic research institutes concluded that it had not brought the price level down but instead contributed to markedly higher profit margins, particularly for gasoline (DICE/ZEW, 2026).

Also discussed, but so far not implemented, was a tax on the supposed excess profits of oil companies. Finance Minister Lars Klingbeil (SPD), together with his counterparts from Portugal, Spain, Austria, Italy, and Poland, is advocating an EU-wide framework under which such profits could be taxed. The concept is politically contested and its contribution is presumably overestimated. Experience with the levy on windfall profits in the course of Russia's war of aggression supports this thesis. The charge, imposed from December 2022 to June 2023, was intended to skim off profits that were expected at renewable, nuclear, and lignite power plants as a result of increased electricity prices. In the end, however, it raised only a fraction of what had been expected, because prices fell earlier and more sharply than assumed (Veit, 2024).

Overall, the federal government thus once again followed the pattern of dampening price increases in the short term. In an acute crisis this can be politically necessary. From an economic policy perspective, however, it merely shifts the costs of the crisis into the state budget and can — where price signals are weakened — even increase them and aggravate scarcity. The better course would have been targeted relief and incentives for a structural move away from fossil fuel energy sources. Where the state intervenes, this should as far as possible be time-limited, precisely targeted, and combined with structural reforms. Otherwise, there is a risk that the costs of energy dependence are shifted onto the state budget, while incentives for saving, diversification, and decarbonisation are weakened.

Lessons from the crisis in an increasingly unstable world

The aftershocks and experiences of the crisis years have reignited debate about resilience and sovereignty, as well as the focus on the EU's economically weakened performance. Climate policy and the Green Deal are also under closer scrutiny. Some see them as an additional burden on global competition and are calling for climate targets to be postponed or for their implementation to be handled more pragmatically (The European Steel Association, 2026).

The difficult balancing act is also evident in two statements by Commission President Ursula von der Leyen from July 2024. On the one hand, she declared: "Our first priority will be prosperity and competitiveness (European Commission, 2024a)." At the same time, she emphasised: "We must and will stay the course on the goals set out in the European Green Deal (European Commission, 2024b)." European policy is thus attempting to advance climate neutrality, industrial competitiveness, and security of supply simultaneously. It is precisely this simultaneity that makes implementation demanding in political and economic terms.

The German transformation is taking place under changed geopolitical conditions. Since reunification, Germany has built its prosperity on an international order resting on free trade, multilateralism, and geopolitical stability. This model rested on three relationships that complemented one another: military protection by the United States, energy supply from Russia, and economic integration with China. Over several decades, Berlin regarded these mutual dependencies as factors making for peace, growth, and security (Stark, 2026).

Russia's war of aggression against Ukraine and the growing uncertainty about the reliability of American NATO guarantees — a risk that is gaining weight through the policy of the Trump administration — increase the need to strengthen defence and external security quickly. At the same time, Germany must finance considerable investment in infrastructure, decarbonisation, and digitalisation. Competition for scarce public and private funds is becoming sharper as a result.

Over the next few years, European climate policy is entering a new phase. The EU ETS 1, which covers the energy sector and large parts of industry, is turning from an instrument with high free allocation into a cost factor that more and more companies feel. After years in which many sectors were shielded from the effects of rising carbon prices by the free allocation of allowances, the pressure to adjust is increasing (Schaefer et al., 2026).

With the Carbon Border Adjustment Mechanism (CBAM), the EU is planning and implementing a carbon border adjustment. It is intended to protect European companies against competitors that are not subject to comparable carbon pricing and to prevent carbon leakage. CBAM has been in its definitive phase since 2026. In its current design, however, at least three problems remain. First, there are risks of circumvention and relocation, particularly for downstream products and complex supply chains. Second, CBAM offers no complete solution for export-oriented companies that continue to compete on third-country markets with producers that do not bear comparable carbon costs. Third, considerable administrative burdens and new trade policy conflicts arise (Schaefer et al., 2026). CBAM can therefore limit carbon leakage within the EU market, but it does not replace a comprehensive strategy for the international competitiveness of European industry.

Added to this is the growing dependence on China — in green tech products as much as in critical raw materials. At the same time, industry faces increasingly sharp competition from China. A recent study by Jürgen Matthes (2026) sees strong indications that a large part of German deindustrialisation since 2019 is likely to be attributable to Chinese competition, which is in large measure unfair.

The study argues that the loss of price competitiveness relative to China is not due to productivity or cost structures alone. According to Matthes, the Chinese currency has not appreciated correspondingly despite the pronounced shift in relative producer prices; in parallel, the euro area's trade deficit with China has risen markedly. The study takes the yuan to be substantially undervalued in principle. This undervaluation is said to have globally relevant effects and is likely to have favoured China's market share gains at the expense of the German economy as well in recent years. Added to this are extensive industrial subsidies in China, which are considerably higher than in Europe. According to Matthes, around 60% of China's global market share gains in the period from 2005 to 2023 are attributable to subsidies recorded by the OECD (OECD, 2026b).

One EU response to cheap goods from China is more local content, that is, a preference for European products in the award of public contracts and in state-supported investment. With the Industrial Accelerator Act (IAA), Brussels intends to strengthen products "made in Europe" and to reduce dependencies. Under the Commission's draft, products from the EU are to be given preference where public money is used. For certain construction and infrastructure projects, requirements for low-carbon and European steel, concrete, mortar, and aluminium are envisaged, among other things. The IAA is also to contain requirements regarding the EU origin of electric vehicles, energy storage, solar technologies, and heat pumps.

What sounds straightforward at first glance could, however, prove in practice to be a drag

on competitiveness (iwd, 2026). If public contracting authorities have to fall back on more expensive European intermediate products, costs rise for companies and consumers. At the same time, local content requirements can strain international partnerships, make supply chains more expensive, and trigger conflicts with the rules of the World Trade Organization. An industrial policy meant to reduce dependencies must therefore not turn into a policy that cuts Europe off from low-cost and innovative global supply chains.

Transatlantic economic relations, too, are deteriorating further from a German perspective. Unpredictable US tariff policy weighs on trade and investment decisions. German companies are by now scaling back their engagement in the United States considerably. According to a new report by Sultan (2026), German direct investment in the United States in the first half of 2026 stood at around 4.3 billion euros — 65% less than in the same period of the previous year and just under 80% less than in the first half of 2024. Trade in goods is under pressure as well: German exports to the United States fell by almost 8% in nominal terms in the first three quarters of 2025. For motor vehicles and motor vehicle parts, the decline between February and October 2025 was almost 19%, for machinery around 10%, and for chemical products more than 10%.

This decline cannot, however, be attributed to tariffs alone. The depreciation of the dollar and waning confidence in the stability of US economic policy also play a role. At the same time, the United States depends in the short term on European imports of important chemical products and machinery. The EU and Germany should use this position, but at the same time open up new sales markets, dismantle trade barriers within the single market, and strengthen the international competitiveness of Germany as a business location (Sultan, 2026).

For energy policy, a twofold conclusion follows: Germany must further reduce its dependence on individual energy and technology suppliers. Diversification alone, however, is not sufficient. New suppliers can likewise generate geopolitical risks, high price risks, or dependencies in infrastructure and technologies. Long-term resilience therefore only emerges from a combination of diversified imports, competitive renewable energy, adequate infrastructure, and a transformation at a pace that companies can manage.

Overall Learnings

... from the crisis of 2021/2022

- **The energy risk lies not only in the supplier, but in whether the infrastructure can be switched.** In 2020, 55% of gas came from Russia, tied to pipelines that could serve only one source. Today, 96% of LNG comes from the United States — via terminals that any supplier can serve. The relevant indicator for security of supply is not the share by country of origin alone, but whether the infrastructure can change supplier.

- **Substitutability follows market structure.** In 2022, coal was quickly replaceable on the world market, oil with some effort, gas barely at all — because import terminals were lacking and pipeline gas is not freely tradable. Analyses of dependence must therefore also assess the tradability of the energy source, not import shares alone.
- **Precautionary obligations work, but they also come at a cost.** Storage facilities remained empty in 2021 because filling them lay at the discretion of an operator controlled by the supplier. Binding filling-level requirements corrected this and secured supply through the crisis winters. But they also mean that procurement has to take place on politically set reference dates — irrespective of market conditions. The step-by-step lowering of the target values since 2025 reflects this weighing of trade-offs.

... from the renewed shock of 2026

- **Physical independence offers no protection against price risk.** Germany sources hardly any LNG directly from Qatar and was nonetheless hit by the closure of the Strait of Hormuz. On integrated world markets, diversification lowers volume risk, not every price risk.
- **Price dampening is no substitute for structural policy.** The policy reaction to the 2026 crisis were mostly broad-based and untargeted, and weakening the price signal in a situation of physical scarcity risked aggravating that scarcity. State responses to energy crises should be time-limited, precisely targeted, and tied to structural reforms; otherwise they merely shift the costs of the crisis into the public budget.
- **High fossil fuel prices generate investment in climate-friendly energy sources only where the alternatives are available and affordable.** Oil and gas have risen in price — that alone does not yet trigger a switch, as long as companies wait years for a grid connection, the hydrogen ramp-up falls short of expectations, and future electricity price developments are uncertain. Price pressure on the fossil fuel side must be complemented by available infrastructure and calculable costs on the climate-neutral side.

...for the transformation

- **Transformation is also structural and regional policy.** Where industrial value added depends on fossil processes and conventional products, decarbonisation decides the economic future of entire regions at the same time. In these regions, economic upheaval and shifts in political majorities frequently coincide.
- **Market-based approaches and regulatory requirements are not mutually exclusive.** Coal-fired power generation is likely to be pushed out of the market in the early 2030s in any case through the rising EU ETS price. The statutory phase-out dates nonetheless provide something the carbon price does not deliver: a reliable roadmap for mining regions, employees, and investors to orient themselves by. Regulatory law can flank the price mechanism where predictability is needed; it cannot replace it.

- **The energy transition shifts energy security towards raw materials and technologies.** It reduces exposure to fossil-fuel imports, price volatility and geopolitical chokepoints, but it is itself not free of dependencies. However, the risks associated with these dependencies differ in both nature and scale from those associated with fossil-fuel dependence: disruptions to solar-panel deliveries, for example, would primarily delay new installations, whereas a gas supply cut can threaten current energy consumption, as in 2022. At the same time, concentrated dependence on heavily state-supported green technologies and critical raw materials from China can weaken domestic capabilities and related value chains, while potentially allowing dominant suppliers to raise prices or exert pressure during trade conflicts. The need for resilience does not disappear in a low-carbon energy system, but changes in character. Resilience does not mean autarky, especially for export-oriented countries like Germany, but requires diversified suppliers, substitution options, and open, competitive markets.

Opportunities for collaboration and shared learning

The experiences of Malaysia and Germany provide fertile ground for mutual learning and future collaboration opportunities. They have approached recent energy shocks from quite different vantage points and policy settings, though transferrable lessons and shared interests are apparent from comparing across the case studies.

A starting point would be to **establish more forums for cooperation and exchange**. Relations can continue to advance economic development opportunities while simultaneously recognising that cooperation should also support growth that is less volatile and more sustainable, not just faster. Preparing for the worst may not be as glamorous as building bigger and better, but shocks have an increasing, lasting, and regressive impact on economic prosperity in both countries; with sociopolitical spillover effects beyond economic harms.

As both sizeable and well-connected global economies and regional leaders, Germany and Malaysia can **collaborate towards the formation of formal bilateral and plurilateral agreements supporting joint preparedness, crisis response, and pooled resilience mechanisms**. Both countries still support trade and investment governed by mutually agreed rules and norms and bound by formal commitments; as do the EU and ASEAN. Agreements in this space are in their early infancy, with the recently concluded Agreement on Trade in Essential Supplies between Singapore and New Zealand a rare example. Forging binding regional agreements to share preparedness efforts (such as pooled stockpiles), develop pooled financing mechanisms for both preparedness and response efforts, and establishing procedures and government-to-government and government-to-business networks to work together (not in competition with each other) during shocks could deliver sizeable shock mitigation and absorption benefits. Recent shocks have seen unhealthy competition and coercive behaviours, even between friends, exacerbate supply shortages and price increases; with agreements among trusted partners the only way to prevent this from happening again.

Advancing international cooperation must be grounded in **clearer national strategies and assessments of energy shock risk, resilience, and reward trade-offs**. Energy (and other) shocks in the independent global economy of the 21st century are inherently complex and policymakers have a dizzying set of potential preparedness and response options available to them. A clear lesson from recent shocks is that the set of effective policy options increases with preparedness and strategic clarity, with better prepared policymakers able to reduce risk and mobilise more effective and efficient resilience. Meanwhile reactive policymakers are forced to divert resources to understanding an unanticipated shock and developing emergency policies in a state of immense pressure and unrest. The clarity of policy advice is also related to the clarity of a predetermined strategy; that is, an adviser empowered to focus on say an adaptation strategy for a specific sector will be much more effective than one having to advise on absorption, adaptation, and transformation options simultaneously for an indeterminate amount of potentially affected stakeholders. Reducing risk and building resilience are not costless however, with the attainable or forgone rewards from such activities needing to be considered alongside these.

Another key aspect of preparedness evident in both countries' experiences is a need for **deep market intelligence and targeting mechanisms to focus crisis support**. The midst of a crisis is not the time to be learning how supply chains connect and operate or to develop channels for targeting funding to where it is most needed. Crises provide opportunities for rent-seeking, which together with the absence of sophisticated mechanisms for policy targeting compels policymakers to respond with broad-based subsidies and tax breaks. Broad-based emergency support is expensive and unsustainable and rewards the most effective lobbyists over actual needs. Now is the time for both Malaysia and Germany to advance their supply chain intelligence and subsidy targeting systems ahead of an inevitable future shock.

Related to this is a need to **shift away from fiscally unsustainable absorption strategies** for managing shocks. Beyond the aforementioned need for stricter targeting, the predominance of absorption as a resilience approach needs revisiting. Policies that seek to preserve the pre-shock status quo neutralise the market signals needed to encourage businesses and households to build resilience through adaptation and transformation. Absorption measures can help cushion the shock somewhat, but it is both unhelpful and unsustainable to completely blunt market incentives each time. This further highlights the need for overarching risk, resilience, and reward strategies that engage all resilience dimensions, not just absorption.

Absorption strategies in the context of recent energy shocks have dampened incentives to **reduce risk by accelerating decarbonisation**. Yet it should be immediately apparent to policymakers everywhere that increasing the renewable energy share is the most immediate and tangible way to reduce the risk of prevailing and future energy (fossil fuel) shocks. Renewable energy is not riskless, but for most countries including Malaysia and Germany it represents a diversification of energy sources and a replacement for energy imports from geopolitically fragile locations. It replaces imported energy flows with (mostly) domestic energy generation, shifting the risk to technology and product disruptions that are more likely to affect marginal growth and replacement than abruptly disrupt energy supplies. Doubling down on fossil fuels amid supply disruptions is not a sound energy security strategy.

Efforts to accelerate decarbonisation should seek to **avoid creating a fresh energy security dependency**. Dependency on products and technology rather than continuous energy trade may be inherently less volatile but it comes with its own risks that are best avoided. The green transition is an opportunity for both Malaysia and Germany to build indigenous green technology and product capabilities and competitiveness, and to work together and with regional partners to develop diversified and trusted supply chains for clean energy products and critical mineral and metal inputs. Building greener energy and industries has a related economic and social imperative to create sustainable jobs and wider competitiveness in a world that is increasingly shaped by decarbonisation and environmental protection standards.

Part of avoiding such dependency is **promoting open and accessible infrastructure, technology, markets, and supply chains**. Certain fossil fuel dependencies have been built around single-use, concentrated, or captive infrastructure such as company-owned pipelines without substitutes. By contrast, fungible commodities that are freely exchanged on mature and transparent global markets provide greater flexibility and automatic shock absorption. Renewable energy sources have the potential to create similar dependencies through technology lock-in and immature and highly concentrated supply chains for critical minerals and rare metals. Though the risk should be qualified somewhat by examples of business innovation rapidly adapting to restrictions on the trade of such resources. Germany and Malaysia can nonetheless support efforts to ensure the global renewable energy sector avoids overconcentration or excessive control of key technologies, infrastructure, and supply chains.

Consistent with the idea of transparent markets, another lesson from recent experience is that **effective public communication and information strategies contribute to an effective shock response**. Amid the uncertainty and turbulence of an emerging global shock, policymakers face coordination problems and the minds of the public can run wild with fear. Having clear, transparent, centralised, credible, accessible and routinely updated information — coupled with clear and calm communications — can reduce unease and support policymaker collaboration. A crisis can quickly worsen if there is a sense that the government is not in control or is suspected of hiding something.

The roles for government and commercial actors, separately and together, are worth further exploration and clearer codification. Not just in energy but in response to wider shocks, corporations are increasingly shifting risk and responsibility to governments; almost automatically receiving financial support or windfall profits during crises while doing little to support preparedness and shock mitigation efforts. Governments intervene to secure energy supplies in a crisis but they are not ordinary market participants. PETRONAS provides an intriguing example of a commercial operator that is also a pseudo-ministry, and as such must balance profits with securing Malaysia's energy supplies. While the structure of PETRONAS is not readily transferrable to other country contexts including Germany, and many would argue it has serious detractors, its crisis role and responsibilities are worth further understanding to support better aligned and more cooperative energy security approaches involving both government and commercial actors.

A specific area for government and business cooperation is around supply chain management and redundancy, including the maintenance of emergency stockpiles. **Maintaining stockpiles of any commodity or product comes at an efficiency and holding cost, and shock episodes have shown that businesses driven by profit motive alone do not maintain socially optimal quantities of contingency reserves.** From a social, political, and economic stability standpoint, maintaining sufficient reserves to navigate the initial shock storm is worth the efficiency cost, whereas excessive stockpiling comes at too great a financial and opportunity cost. Stockpiles are likely to be more efficiently managed by commercial actors but need to be closely monitored to ensure obligations are met. And while regional and plurilateral pooling mechanisms offer more efficient and

scalable options than for individual countries, they need to operate under credible rules and governance and a shared vision for how they are built and drawn down on.

Finally, a universal lesson from both recent energy shocks is that **sovereign production and diversification alone do not shield countries from the price effects**. A country can be a major petroleum or gas exporter but will still be subject to price volatility when supply shortages hit global markets. In the absence of export restrictions that can cause more harm than good (by eliminating windfall export profits, adding to global supply pressures, and tempting retaliation from trading partners), taxpayers will still have to pay a premium to secure domestic supplies. Due to specialisation and gains from trade, most major exporters including Malaysia are also major importers of adjacent products, so having a lot of oil and gas does not guarantee the country produces the products consumed domestically. Diversification can be beneficial in securing harder to reach supplies from a wider variety of producers, and for adapting to acute disruptions. As discussed for critical minerals, diversification brings more value in reducing the concentration of risk (and therefore the size of any shock) than it does in widening response options.

In summary, there is a large and diverse range of opportunities for Malaysia and Germany to learn from each other and work together to support greater energy security. From strategic clarity to mutually beneficial preparedness, and from promoting rules-based international cooperation to advancing open and shared infrastructure and technology, both bilateral and regional ties can be leveraged to reduce the harmful effects of future shocks — from traditional and new energy sources.

Conclusion

Policymakers in Malaysia and Germany face an increasingly challenging geostrategic environment with both short- and long-term implications for their energy security choices. Major shocks in 2022 and now 2026 have forced a reassessment of supply chains, geopolitical relationships, and energy sources. Increasingly broad and dense global production networks and the advent of affordable and reliable renewable energy products provide policymakers with a greater variety of options than in decades past. But these also raise expectations on policymakers' ability to navigate heightened complexity and higher stakes risk, resilience, and reward trade-offs.

This paper provides a critical examination of global energy shifts and uses the experiences and perspectives of Malaysia and Germany to explore the different choices and policy approaches available to countries. It highlights the interconnectivity and interdependence of energy trade and how rivalrous geopolitics, trade weaponisation, and rising conflict have destabilised markets and supply chains. How the US and China present competing visions for future energy, and how dependency on fossil fuels relates to energy imports while emerging dependency on renewables instead engages domestic energy production using imported technologies, products, and critical minerals and metals. And how in an increasingly shock prone world, preparedness is essential to understanding how shocks transmit, where they concentrate, what policy levers need to be developed, and how they can be most effectively deployed.

Malaysia and Germany approach energy security from very different foundations but with many areas for mutual learning and future cooperation. Germany is further along on its economic development and clean energy transition journeys, more dependent on imported gas, more contemporaneously exposed to competition from China, and is more acutely seeing the political consequences in the rise of right-wing politics. Malaysia is more carbon intensive, more economically and fiscally constrained, government monopolies dominate its energy sector, geopolitically neutral, and appears to greatly underestimate the looming economic competitiveness consequences of rising green standards and rules globally. But both seek stability and certainty from global energy markets, traditional and emerging. Both are more reactive than proactive and default to unsustainable, broad-based subsidies to counter shocks when greater adaptation and transformation would be beneficial. And both want to avoid concentration of risk across energy sources, geography, infrastructure, technology, and critical minerals and to shrewdly navigate sharper choices necessitated by the actions of Washington and Beijing.

The authors hope this paper provides fertile ground for deeper collaboration between Malaysia, Germany, and their respective regions to build preparedness and develop joint strategies to secure a more sustainable and less volatile future for global energy.

References

- Al Jazeera. (2026, January 8). *Which are the 66 global organisations the US is leaving under Trump?* <https://www.aljazeera.com/news/2026/1/8/which-are-the-66-global-organisations-the-us-is-leaving-under-trump>
- Anderson, S. R., et al. (2026, January 5). *Making sense of the US military operation in Venezuela*. Brookings Institution. <https://www.brookings.edu/articles/making-sense-of-the-us-military-operation-in-venezuela/>
- Andres, P., & Mealy, P. (2023). *Green Transition Navigator*. <https://www.green-transition-navigator.org/>
- Arbeitsgemeinschaft Energiebilanzen. (2026, July 6). *Auswertungstabellen* [Evaluation tables]. <https://ag-energiebilanzen.de/daten-und-fakten/auswertungstabellen/>
- ASEAN Secretariat. (2026). *Quarterly trade in goods*. ASEANstats. <https://data.aseanstats.org/trade-quarterly>
- Bank Negara Malaysia. (2026, April 28). *Bank Negara Malaysia introduces RM5 billion SME Stabilisation Relief Facility to support businesses affected by the West Asia conflict*. <https://www.bnm.gov.my/-/sme-srf>
- Bergmann, K., et al. (2025, July 21). *AfD gewinnt gerade in Transformationsregionen* [AfD is gaining ground particularly in transformation regions] (IW-Kurzbericht No. 62/2025). Institut der deutschen Wirtschaft. <https://www.iwkoeln.de/studien/afd-gewinnt-gerade-in-transformationsregionen.html>
- Bernama. (2026a, June 8). *Stability not by chance, result of early action – Hassan Marican*. <https://www.bernama.com/en/news.php?id=2565848>
- Bernama. (2026b, May 15). *Govt launches real-time dashboard to track global supply crisis*. <https://www.bernama.com/en/news.php?id=2557434>
- Bernama. (2026c, August 10). *Malaysia ready to strengthen defence cooperation with Iran*. <https://www.bernama.com/tv/news.php?id=2592807>
- Bernama. (2026d, August 15). *5.3 mln recipients to receive STR Phase 3 payments starting today – MOF*. <https://www.bernama.com/en/general/news.php?id=2594754>
- Biden, J. (2024, September 20). *Fact sheet: Biden-Harris administration takes further action to strengthen and secure critical mineral supply chains*. The White House. <https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2024/09/20/fact-sheet-biden-harris-administration-takes-further-action-to-strengthen-and-secure-critical-mineral-supply-chains/>

Bogage, J. (2026, October 1). *Trump says he is still considering diesel export ban*. Reuters. <https://www.reuters.com/business/energy/trump-says-he-is-still-considering-diesel-export-ban-2026-09-30/>

Boston Consulting Group et al. (2024). *Transformationspfade für das Industrieland Deutschland* [Transformation pathways for Germany as an industrial nation]. https://assets.foleon.com/eu-central-1/de-uploads-7e3kk3/50809/2025_transformationspfade_lang_de.7fb1f7b111f4.pdf

Boston Consulting Group et al. (2025). *Energiewende auf Kurs bringen* [Getting the energy transition back on course]. https://assets.foleon.com/eu-central-1/de-uploads-7e3kk3/50809/bcg_bdi_energiewende_auf_kurs_bringen_final.9c45b14d197e.pdf

Brooks, R. (2026, May 26). What demand destruction actually looks like. *Substack*. <https://robinjbrooks.substack.com/p/what-demand-destruction-actually>

Bundesnetzagentur. (2026a). *Rückblick: Gasversorgung im Jahr 2025* [Review: Gas supply in 2025]. https://www.bundesnetzagentur.de/DE/Gasversorgung/a_2025/start.html

Bundesnetzagentur. (2026b). *Current status of gas supply in Germany*. <https://www.bundesnetzagentur.de/EN/Areas/Energy/SecurityOfSupply/GasSupply/start.html>

Bundesverband Erdgas, Erdöl und Geoenergie. (2026). *Jahresbericht 2025: Erdölförderung* [Annual report 2025: Crude oil production]. <https://www.bveg.de/jahresbericht/jahresbericht-2025/erdoelfoerderung/>

Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. *American Economic Review*, 112(4), 1194–1225. <https://doi.org/10.1257/aer.20191823>

Caldara, D., et al. (2019, September 4). *Does trade policy uncertainty affect global economic activity?*. https://www.policyuncertainty.com/trade_cimpr.html

Cembalest, M. (2026). *Fighting words* (16th Annual Energy Paper). J.P. Morgan Asset Management. <https://cdn.jpmorganfunds.com/content/dam/jpm-am-aem/global/en/insights/eye-on-the-market/fighting-words-amv.pdf>

Chai, J. (2026, August 18). *Friends with the dragon: Chinese technology investments in Malaysia (2015–2026)* (ISEAS Perspective No. 2026/59). ISEAS – Yusof Ishak Institute. https://www.iseas.edu.sg/wp-content/uploads/2026/08/ISEAS-Perspective_2026_59.pdf

Chandra, C. (2026, September 1). *Pickup and SUV owners can get up to 400L of subsidised diesel a month*. RinggitPlus. <https://ringgitplus.com/en/blog/personal-finance-news/pickup-and-suv-owners-can-get-up-to-400l-of-subsidised-diesel-a-month.html>

Chivvis, C. S., & Hsia, S. (2026). *Implementing the Biden administration's China strategy*. Carnegie Endowment for International Peace. https://assets.carnegieendowment.org/files/Chivvis_US-China-202603.pdf

Chtatou, M. (2026, June 28). *Shockwaves from the Gulf: The Iran war and its impact on the global economy and energy markets – Analysis*. Eurasia Review. <https://www.eurasiareview.com/28062026-shockwaves-from-the-gulf-the-iran-war-and-its-impact-on-the-global-economy-and-energy-markets-analysis/>

Climate Action Campaign. (2026). *Trump's climate and clean energy rollback tracker*. <https://www.actonclimate.com/trumptracker/>

Climate Change Performance Index. (2026). *Malaysia – Climate performance ranking 2026*. Accessed August 28, 2026. <https://ccpi.org/country/mys/>

Climate Power. (2026). *Snapshot: Trump's energy crisis spikes utility bills by 16%*. <https://climatepower.us/wp-content/uploads/2026/06/June-2026-Energy-Crisis-Snapshot.pdf>

Collins, M. (2026, January 3). *Maduro bolted for the door as US forces raided. Trump's attack stuns the world*. USA Today. <https://www.usatoday.com/story/news/politics/2026/01/03/us-attack-venezuela-surprises-details/88005930007/>

Council on Foreign Relations. (2026). *U.S.-China relations timeline*. Accessed June 23, 2026. <https://www.cfr.org/articles/us-china-relations>

Davies, D. (2026, June 17). *An inside look at President Trump's campaign to acquire Greenland*. NPR. <https://www.npr.org/2026/06/17/nx-s1-5860861/an-inside-look-at-president-trumps-campaign-to-acquire-greenland>

Department of Statistics Malaysia. (2026a, June 24). *Statistics of foreign direct investment (FDI) in Malaysia 2025*. <https://www.dosm.gov.my/portal-main/release-content/statistics-of-foreign-direct-investment-fdi-in-malaysia-2025>

Department of Statistics Malaysia. (2026b). *Quarterly real GDP by economic sector*. OpenDOSM. Accessed September 11, 2026. https://open.dosm.gov.my/data-catalogue/gdp_qtr_real_supply

Department of Statistics Malaysia. (2026c). *Monthly trade by SITC section (1 digit)*. OpenDOSM. Accessed September 11, 2026. https://open.dosm.gov.my/data-catalogue/trade_sitc_1d

Department of Statistics Malaysia. (2026d). *Monthly CPI by division (2-digit)*. OpenDOSM. Accessed September 11, 2026. https://open.dosm.gov.my/data-catalogue/cpi_headline

Der Spiegel. (2022, December 17). *Das ist das neue Deutschland-Tempo* [This is the new Germany speed]. <https://www.spiegel.de/wirtschaft/olaf-scholz-eroeffnet-lng-terminal-das-ist-das-neue-deutschlandtempo-a-3918de6b-a473-495c-ba0e-8594e26ef049>

Düsseldorf Institute for Competition Economics & ZEW – Leibniz Centre for European Economic Research. (2026, April 27). *The 12 o'clock fuel regulation: 6-cent increase in retail margins*. ZEW. <https://www.zew.de/en/zew/news/the-12-oclock-fuel-regulation-6-cent-increase-in-retail-margins>

Earth.org. (2026, January 20). *One year of Trump: How the US reversed climate progress, at home and abroad*. <https://earth.org/one-year-of-trump-how-the-us-reversed-climate-progress-at-home-and-abroad/>

Ember. (2026). *China cleantech export data*. Accessed August 22, 2026. <https://ember-energy.org/data/china-cleantech-export-data/>

Enerdata. (2026). *World energy and climate statistics yearbook 2026*. Accessed August 8, 2026. <https://yearbook.enerdata.net/crude-oil/crude-oil-balance-trade-data.html>

Energy Commission Malaysia. (2026). *Energy database*. Accessed September 12, 2026. <https://myenergystats.st.gov.my/dashboard>

Energy Institute. (2026). *Statistical review of world energy*. Accessed July 11, 2026. <https://www.energyinst.org/statistical-review>

Esomonu, E., et al. (2025, December 4). *Tracking Trump's presidential promises*. AP News. <https://apnews.com/projects/trump-campaign-promise-tracker/>

European Commission. (2022). *REPowerEU*. https://commission.europa.eu/topics/energy/repowereu_en

European Commission. (2024a, July 18). *Statement at the European Parliament Plenary by President Ursula von der Leyen, candidate for a second mandate 2024–2029*. https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_24_3871

European Commission. (2024b). *Europe's choice: Political guidelines for the next European Commission 2024–2029*. https://commission.europa.eu/document/download/e6cd4328-673c-4e7a-8683-f63ffb2cf648_en

European Council. (2026a). *Where does the EU get its oil from?* <https://www.consilium.europa.eu/en/infographics/where-does-the-eu-get-its-oil-from/>

European Council. (2026b). *Where does the EU's gas come from?* <https://www.consilium.europa.eu/en/infographics/where-does-the-eu-s-gas-come-from/>

European Parliament. (2026, February 10). *EU climate law: A 2040 emissions*

reduction target of 90% for the EU. <https://www.europarl.europa.eu/news/en/press-room/20260205IPR33620/eu-climate-law-a-2040-emissions-reduction-target-of-90-for-the-eu>

European Steel Association. (2026). *The Antwerp Declaration for a European industrial deal*. <https://www.eurofer.eu/publications/position-papers/the-antwerp-declaration-for-a-european-industrial-deal>

Falkner, R. (2026). Geopolitics and tariffs: An international relations perspective. *LSE Public Policy Review*, 4(2), Article 3. <https://doi.org/10.31389/lseppr.157>

Fischer, A., & Küper, M. (2022). *Die Bedeutung russischer Gaslieferungen für die deutsche Energieversorgung* [The importance of Russian gas supplies for Germany's energy supply]. Institut der deutschen Wirtschaft. https://www.iwkoeln.de/fileadmin/user_upload/Studien/Gutachten/PDF/2022/IW-Gutachten_Die_Bedeutung_russischer_Gaslieferungen.pdf

FitzGerald, J. (2026, January 22). *Why does Trump want Greenland and what could it mean for NATO and the EU?* BBC News. <https://www.bbc.com/news/articles/c74x4m71pmjo>

Fonbuena, C. (2025, November 5). Malaysia defends Trump trade deal after critics warn it will compromise country's sovereignty. *The Guardian*. <https://www.theguardian.com/world/2025/nov/05/malaysia-defends-trump-us-trade-deal>

Free Malaysia Today. (2026, September 4). *Costlier second shock likely as oil buffer shrinks*. <https://www.freemalaysiatoday.com/category/nation/2026/09/04/costlier-second-shock-likely-as-oil-buffer-shrinks>

Fukuyama, F. (2026, June 16). The art of the non-deal. *Persuasion*. <https://www.persuasion.community/p/the-art-of-the-non-deal>

Gas Infrastructure Europe. (2026). *Aggregated Gas Storage Inventory*. Accessed September 2026. <https://agsi.gie.eu/>

German Chamber of Industry and Commerce. (2026, July 27). *The DIHK views the Grid Connection Package as a first step in the right direction*. <https://www.dihk.de/en/newsroom/the-dihk-views-the-grid-connection-package-as-a-first-step-in-the-right-direction-185374>

German Federal Ministry for Economic Affairs and Energy. (n.d.). *Strukturstärkungsgesetz Kohleregionen* [Structural Strengthening Act for Coal Regions]. <https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Textsammlungen/Wirtschaft/strukturstaeckungsgesetz-kohleregionen.html>

German Federal Ministry of Finance. (2026, May 1). *Questions and answers on the temporary reduction of the energy tax on road transport fuels*. <https://www.bundesfinanzministerium.de/Content/DE/FAQ/energiesteuersenkung.html>

German Federal Statistical Office. (2026a). *Economic sectors and enterprises*. https://www.destatis.de/EN/Themes/Economic-Sectors-Enterprises/Industry-Manufacturing/_node.html

German Federal Statistical Office. (2026b, March 9). *6,1 % der deutschen Rohöl-Importe 2025 aus dem Nahen Osten* [6.1% of German crude oil imports in 2025 came from the Middle East]. https://www.destatis.de/DE/Presse/Pressemitteilungen/2026/03/PD26_N016_51.html

Gill, R. S. (2023). *Malaysian oil & gas industry: A legal overview*. AAR Law. <https://www.rajvingill.com/post/oil-gas-in-malaysia-a-legal-overview>

Global Carbon Fund. (2026, April 17). *Hormuz crisis sparks renewable surge, not coal revival, new data shows*. <https://globalcarbonfund.com/carbon-news/hormuz-crisis-sparks-renewable-surge-not-coal-revival-new-data-shows/>

Global Energy Flow. (2026). *Global fuel shortage tracker – Jet fuel, petrol, diesel & heating oil alerts*. <https://global-energy-flow.com/shortages/>

Goldman, D. (2026, August 29). *Trump found an unusual solution to his Venezuela problem*. CNN. <https://edition.cnn.com/2026/08/29/business/venezuela-oil-deal-trump>

GreyB. (2026). *Global patent and innovation leadership report – 2026*. <https://insights.greyb.com/resources/global-patent-and-innovation-leadership-report/#GGPILR-2026>

Habeshian, S. (2026, August 30). *Trump hails ‘historic’ deal for US to control 65bn barrels of Venezuela’s oil*. BBC News. <https://www.bbc.com/news/articles/cx2zlwe7qj1o>

Harvard Kennedy School. (2026). *Greenplexity*. Growth Lab, Harvard University. <https://growthlab.app/greenplexity>

Horsley, S., et al. (2026, June 17). *Here’s how much the Iran war cost – and how its effects will linger*. NPR. <https://www.npr.org/2026/06/17/nx-s1-5860739/iran-war-cost-oil-military-trade>

Hüther, M., et al. (2023, March 30). *Zukunft Erdgas* [The future of natural gas]. Institut der deutschen Wirtschaft. <https://www.iwkoeln.de/studien/michael-huether-malte-kueper-thilo-schaefer-wie-viel-brauchen-wir-noch-und-was-kommt-dann.html>

Informationsdienst des Instituts der deutschen Wirtschaft. (2025, August 27). *USA und EU: Ein unrealistischer Energie-Deal* [USA and EU: An unrealistic energy deal]. <https://www.iwd.de/artikel/usa-und-eu-ein-unrealistischer-energie-deal-660080/>

Informationsdienst des Instituts der deutschen Wirtschaft. (2026, June 9). *Pläne der EU für grüne Leitmärkte sind unausgereift* [The EU's plans for green lead markets are immature]. <https://www.iwd.de/artikel/plaene-der-eu-fuer-gruene-leitmaerkte-sind-unausgereift-683003/>

International Atomic Energy Agency. (2025). *Nuclear power reactors in the world* (Reference Data Series No. 2). https://www-pub.iaea.org/MTCD/Publications/PDF/RDS-2-45_web.pdf

International Energy Agency. (2025a). *Energy statistics data browser*. Accessed August 8, 2026. <https://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser>

International Energy Agency. (2025b, October 27). *Coming surge in LNG production is set to reshape global gas markets*. <https://www.iea.org/news/coming-surge-in-lng-production-is-set-to-reshape-global-gas-markets>

International Energy Agency. (2026a). *Reliance on Middle East oil and gas supplies by country*. Accessed August 8, 2026. <https://www.iea.org/data-and-statistics/data-tools/reliance-on-middle-east-oil-and-gas-supplies-by-country>

International Energy Agency. (2026b). *Global critical minerals outlook 2026*. <https://www.iea.org/reports/global-critical-minerals-outlook-2026>

International Monetary Fund. (2026a). *World Economic Outlook database*. <https://data.imf.org/en/datasets/IMF.RES:WEO>

International Monetary Fund. (2026b). *PortWatch*. Accessed July 11, 2026. <https://portwatch.imf.org/>

International Renewable Energy Agency. (2026). *Renewable energy highlights*. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2026/Jul/IRENA_DAT_Renewable_energy_highlights_2026.pdf

Jin, C. (2016, December 14). *How America's relationship with China changed under Obama*. World Economic Forum. <https://www.weforum.org/stories/2016/12/america-china-relationship/>

Jones, B., & Peck, J. (2026). *The untold and underappreciated outcomes of Biden's clean energy strategy*. Roosevelt Institute. https://rooseveltinstitute.org/wp-content/uploads/2026/04/RI_The-Receipts_Report_202604_2.pdf

Jones, D., et al. (2026). *Solar met 61% of US electricity demand growth in 2025*. Ember. <https://ember-energy.org/latest-insights/solar-met-61-of-us-electricity-demand-growth-in-2025/>

Katrungalos, G., et al. (2026, June 2). *UN experts strongly condemn new US threats and coercion against Cuba*. Office of the United Nations High Commissioner for Human Rights. <https://www.ohchr.org/en/press-releases/2026/06/un-experts-strongly-condemn-new-us-threats-and-coercion-against-cuba>

Khoo, D. (2026, September 2). Marginal impact seen on revised subsidy bill. *The Star*. <https://www.thestar.com.my/business/business-news/2026/09/02/marginal-impact-seen-on-revised-subsidy-bill>

Kimball, S. (2025, July 29). *Trump's EU trade deal is based on massive energy purchases that are unlikely to materialize, analysts say*. CNBC. <https://www.cnbc.com/2025/07/29/trump-eu-trade-deal-energy-gas-oil-lng-nuclear.html>

Korea Resource Information Service. (2026). KOMIS. Accessed August 8, 2026. <https://www.komis.or.kr/>

Krause-Jackson, F., et al. (2026, July 9). *Trump's Greenland obsession is back: 'Stupidly, we gave it back'*. MSN. <https://www.msn.com/en-us/news/other/trump-s-greenland-obsession-is-back-stupidly-we-gave-it-back/ar-AA27t7Or>

Krishnan, D. B. (2026, August 13). *When neutrality pays: How Malaysia is navigating the global fuel crisis*. Malay Mail. <https://www.malaymail.com/news/malaysia/2026/08/13/when-neutrality-pays-how-malaysia-is-navigating-the-global-fuel-crisis/230857>

Küper, M. (2024, July 12). *LNG: Die Bedeutung der US-Importe für die deutsche Gasversorgung* [LNG: The importance of US imports for Germany's gas supply] (IW-Kurzbericht No. 43/2024). Institut der deutschen Wirtschaft. <https://www.iwkoeln.de/studien/malte-kueper-die-bedeutung-der-us-importe-fuer-die-deutsche-gasversorgung.html>

Küper, M., Bähr, C., Trenz, M., Fischer, A., & Schäfer, T. (2026). *Ursachen der aktuellen Industrieschwäche: Determinanten der industriellen Entwicklung in Deutschland* [Report in preparation].

Latchem, T. (2026, February 28). *All the times Trump, 79, claimed he was the 'peace president' before bombing Iran*. The Daily Beast. <https://www.thedailybeast.com/all-the-times-donald-trump-claimed-he-was-the-peace-president-before-bombing-iran/>

Lee, H.-A. (2025, October 22). *Floating prices, fearing backlash: Economics and politics of Malaysia's petrol subsidy reform*. Fulcrum. <https://fulcrum.sg/floating-prices-fearing-backlash-economics-and-politics-of-malasyias-petrol-subsidy-reform/>

Lee, H.-A. (2026, March 26). *Malaysia's oil shock absorption: Adding agility to the subsidy regime*. Fulcrum. <https://fulcrum.sg/article/commentaries/malasyias-oil-shock-absorption-adding-agility-to-the-subsidy-regime/>

Lee, S. (2026, September 23). BYD Malaysia scraps Tanjong Malim plant, local CKD still on with new partner. *The Sun*. <https://thesun.my/news/byd-malaysia-scraps-tanjong-malim-plant-local-ckd-still-on-with-new-partner/>

Li, C. (2016, August 30). *Assessing U.S.-China relations under the Obama administration*. Brookings Institution. <https://www.brookings.edu/articles/assessing-u-s-china-relations-under-the-obama-administration/>

Mahmud, A. H. (2026, May 11). *ASEAN's proposed resilience measures must go into 'full gear', but domestic priorities a stumbling block*. CNA. <https://www.channelnewsasia.com/asia/asean-fuel-stockpile-food-security-domestic-priority-6111996>

Malay Mail. (2025, January 21). *Malaysia's solar sector hit as Chinese firms scale down due to US tariffs*. <https://www.malaymail.com/news/malaysia/2025/01/21/malaysias-solar-sector-hit-as-chinese-firms-scale-down-due-to-us-tariffs/164056>

Malay Mail. (2026b, September 9). *Malaysia retail growth slows to 2.5pc in Q2, but Budi95 and other subsidies sustain household demand*. <https://www.malaymail.com/news/money/2026/09/09/malaysia-retail-growth-slows-to-25pc-in-q2-but-budi95-and-other-subsidies-sustain-household-demand/234489>

Malay Mail. (2026c, April 3). *Hassan Marican leads Malaysia's new crisis task force to monitor fuel, food supply amid West Asia conflict*. <https://www.malaymail.com/news/malaysia/2026/04/03/hassan-marican-leads-malaysias-new-crisis-task-force-to-monitor-fuel-food-supply-amid-west-asia-conflict/214950>

Malay Mail. (2026d, June 8). *Crisis task force chief says rationalised subsidy policy shields Malaysia, but soaring RM5b bill unsustainable*. <https://www.malaymail.com/news/malaysia/2026/06/08/crisis-task-force-chief-says-rationalised-subsidy-policy-shields-malaysia-but-soaring-rm5b-bill-unsustainable/222943>

Malay Mail. (2026e, July 17). *Work from home policy saves four million litres petrol, trims RM7.3m subsidies in three months, says MOF*. <https://www.malaymail.com/news/malaysia/2026/07/17/work-from-home-policy-saves-four-million-litres-petrol-trims-rm73m-subsidies-in-three-months-says-mof/227906>

Malaysia External Trade Development Corporation. (2026). *Malaysia external trade statistics*. <https://www.matrade.gov.my/en/export-to-the-world/step-4-export-opportunities/malaysia-external-trade-statistics>

Manak, I., & Smith, A. J. (2026, March 17). *Tracking Trump's trade deals*. Council on Foreign Relations. <https://www.cfr.org/articles/tracking-trumps-trade-deals>

Mardhiah, A. (2025, October 10). Malaysia targets 70% renewable power by 2050 under Budget 2026. *The Malaysian Reserve*. <https://themalaysianreserve.com/2025/10/10/malaysia-targets-70-renewable-power-by-2050-under-budget-2026/>

Mardhiah, A. (2026a, June 3). Malaysia to invest RM43b in grid upgrades through 2027. *The Malaysian Reserve*. <https://themalaysianreserve.com/2026/06/03/malaysia-to-invest-rm43b-in-grid-upgrades-through-2027/>

Mardhiah, A. (2026b, April 14). Hormuz disruptions sharpen Malaysia's push for energy security. *The Malaysian Reserve*. <https://themalaysianreserve.com/2026/04/14/hormuz-disruptions-sharpen-malysias-push-for-energy-security/>

Matthes, J. (2026). *Chinas Beitrag zur De-Industrialisierung – eine grobe Abschätzung* [China's contribution to deindustrialisation – A rough estimate] (IW-Kurzbericht No. 43/2026). Institut der deutschen Wirtschaft. <https://www.iwkoeln.de/studien/juergen-matthes-chinas-beitrag-zur-de-industrialisierung-eine-grobe-abschaetzung.html>

Mazumdar, S. (2026, May 28). Iran war: Oil shortages threaten global energy security. DW. <https://www.dw.com/en/iran-war-oil-shortages-economy-iae-energy-crisis-strait-of-hormuz/a-7731346>

McDermott, J. (2026, June 18). Trump administration to buy back another energy company's offshore wind leases for 4 more projects. AP News. <https://apnews.com/article/trump-offshore-wind-energy-climate-interior-inenergy-2809c57fa04b59a21927631b91b4b69f>

Ministry of Economy Malaysia. (2023). *National Energy Transition Roadmap: Energising the nation, powering our future*. https://www.st.gov.my/sites/default/files/2026-02/National_Energy_Transition_Roadmap.pdf

Ministry of Economy Malaysia. (2026). *Global supply crisis Malaysia dashboard 2026*. <https://pantaukrisis.gov.my/>

Ministry of Finance Malaysia. (n.d.). *Fiscal outlook and federal government revenue estimates* (various years). <https://belanjawan.mof.gov.my/en/fiscal>

Ministry of Finance Malaysia. (2024). *Federal government expenditure: Budget 2024*. <https://belanjawan.mof.gov.my/pdf/belanjawan2024/revenue/section3.pdf>

Ministry of Finance Malaysia. (2026). *Federal government expenditure: Budget 2026*. <https://belanjawan.mof.gov.my/pdf/belanjawan2026/revenue/section3.pdf>

Ministry of International Trade and Industry Malaysia. (2023). *New Industrial Master Plan 2030*. https://www.nimp2030.gov.my/nimp2030/modules_resources/bookshelf/NIMP_20303/NIMP_20303.pdf

Ministry of Natural Resources and Environmental Sustainability Malaysia. (2025). *National Climate Change Policy 2.0*. <https://www.nres.gov.my/ms-my/pustakamedia/Penerbitan/National%20Policy%20on%20Climate%20Change%202.0.pdf>

Mitrova, T., et al. (2026, August 28). *Beyond crude: Iran war reveals refined products as an energy security blind spot*. Center on Global Energy Policy, Columbia University. <https://www.energypolicy.columbia.edu/publications/beyond-crude-iran-war-reveals-refined-products-as-an-energy-security-blind-spot/>

Monica, L., & Pratama, R. (2026, March 18). *Malaysia is the first country to cancel the US tariff agreement*. IDN Financials. <https://www.idnfinancials.com/news/62315/malaysia-is-the-first-country-to-cancel-the-us-tariff-agreement>

National Audit Department of Malaysia. (2026). *Laporan Ketua Audit Negara 2/2026: Penyata kewangan Kerajaan Persekutuan tahun 2025* [Auditor-General's Report 2/2026: Federal Government Financial Statements for 2025] <https://lkan.audit.gov.my/laporan?task=manage.preview&uid=1748ba83a5d5d224f05c33d4-a334f49177c6d350f4c08bf8a9462b462578b72e30Sep2026063338==&document=2922>

Nixon, S. (2025, December 7). *The ART of the deal lost in US–Malaysia pact*. East Asia Forum. <https://eastasiaforum.org/2025/12/06/the-art-of-the-deal-lost-in-us-malaysia-pact/>

Nixon, S. (2026, January 15). *Divided we fall: ASEAN's response to Trump's illiberal trade agenda*. Institute for Democracy and Economic Affairs. <https://www.ideas.org.my/publications/divided-we-fall-aseans-response-to-trumps-illiberal-trade-agenda/>

Nixon, S., & Mohamed, N. N. (2026, January 9). *IDEAS knowledge series: What Budget 2026 reveals about Malaysia's public finances*. Institute for Democracy and Economic Affairs. <https://www.ideas.org.my/for-media/ideas-knowledge-series-what-budget-2026-reveals-about-malysias-public-finances/>

Noor, D. (2026, January 27). 'Abdication': Trump takes US out of Paris climate agreement for a second time. *The Guardian*. <https://www.theguardian.com/us-news/2026/jan/27/trump-withdraws-paris-climate-agreement>

Ong, C. (2026, September 23). *CNA explains: What does the US-Greenland security deal actually change?* CNA. <https://www.channelnewsasia.com/world/greenland-us-deal-military-base-denmark-cna-explains-6401501>

Organisation for Economic Co-operation and Development. (2026a). *OECD economic surveys: Malaysia 2026*. OECD Publishing. <https://doi.org/10.1787/9ab6b826-en>

Organisation for Economic Co-operation and Development. (2026b). *OECD MAGIC database of industrial subsidies*. OECD Publishing. <https://doi.org/10.1787/ce94f33b-en>

Our World in Data. (2026). *Electricity as a share of primary energy*. Accessed August 8, 2026. <https://ourworldindata.org/grapher/electricity-as-a-share-of-primary-energy>

Pachman, E. (2026). *Interactive 3-2-1 crack spread chart*. Data4ThePeople. Accessed September 23, 2026. <https://www.data4thepeople.com/p/crack-spread-chart>

Palan, A. (2026, August 17). *Renewables surge and coal rises simultaneously as Hormuz closure reshapes global energy*. One Stop ESG. <https://onestopesg.com/esg-news/us-iran-war-europe-asia-renewables-surge>

Payne, J., & Scheyder, E. (2026, June 15). *Trump's critical minerals pricing plan faces skeptical G7, divided industry*. Reuters. <https://www.reuters.com/world/americas/trumps-critical-minerals-pricing-plan-faces-skeptical-g7-divided-industry-2026-06-15/>

Pengkaji Dasar. (2026). *The end of cheap EV imports: Malaysia's new MITI policy from 1 July 2026 & its implications*. Mahersaham. <https://mahersaham.com/blogs/end-cheap-ev-imports-miti-policy-malaysia>

Peters, B. (2026, August 10). *The first-shock was the real policy shock*. *Demographics & Capital*. <https://demographiccapital.substack.com/p/the-first-shock-was-the-real-policy>

Petroleum Nasional Berhad. (2026). *Integrated report 2025: Shaping the next era of energy*. <https://www.petronas.com/sites/default/files/uploads/content/2026/PETRONAS%20Integrated%20Report%202025.pdf>

Picciotto, R. (2024, May 14). *Biden raises tariffs on \$18 billion of Chinese imports: EVs, solar panels, batteries and more*. CNBC. <https://www.cnbc.com/2024/05/14/biden-raises-china-tariffs-on-evs-solar-panels-batteries-.html>

PolitiFact. (2026). *MAGA-Meter: Trump's second term*. The Poynter Institute. <https://www.politifact.com/truth-o-meter/promises/maga-meter-tracking-donald-trumps-2024-promises>

Popovich, N., et al. (2020, October 15). *The Trump administration is reversing nearly 100 environmental rules. Here's the full list*. *The New York Times*. <https://www.nytimes.com/interactive/2020/climate/trump-environment-rollbacks.html>

Rahn, W. (2026, February 2). *Trump announces India 'trade deal' after Modi call*. DW. <https://www.dw.com/en/trump-announces-india-trade-deal-after-modi-call/a-75776655>

Reuters. (2026, January 15). *Donald Trump says no tariffs on rare earths, critical minerals for now; will seek overseas supplies*. *The Economic Times*. <https://economictimes.indiatimes.com/news/international/global-trends/donald-trump-says-no-tariffs-on-rare-earths-critical-minerals-for-now-will-seek-overseas-supplies/articleshow/126537307.cms>

Ritchie, H., & Rosado, P. (2025). *Malaysia: Energy country profile*. Our World in Data. <https://ourworldindata.org/profile/energy/malaysia>

Ritchie, H., et al. (2023). *CO₂ and greenhouse gas emissions*. Our World in Data. Accessed September 1, 2026. <https://ourworldindata.org/co2-and-greenhouse-gas-emissions>

Roy, D. (2026, March 31). *Trump's 'maximum pressure' campaign on Cuba, explained*. Council on Foreign Relations. <https://www.cfr.org/articles/trumps-maximum-pressure-campaign-on-cuba-explained>

Samarathisa, E. (2025, January 5). *Petronas: An origins story*. *The Malaysianist*. <https://www.themalaysianist.com/p/petronas-an-origins-story>

Schaefer, T., et al. (2026, July 14). *Reform des EU-ETS-1 und flankierende Instrumente: Ein Policy Mix für die Dekarbonisierung der Industrie* [Reform of the EU ETS 1 and accompanying instruments: A policy mix for decarbonising industry]. Institut der deutschen Wirtschaft. <https://www.iwkoeln.de/studien/thilo-schaefer-andreas-fischer-malte-kueper-reform-des-eu-ets-1-und-flankierende-instrumente-ein-policy-mix-fuer-die-dekarbonisierung-der-industrie.html>

Sherman, N. (2026, April 2). *A year on: Four ways Trump's tariffs have changed the global economy*. BBC News. <https://www.bbc.com/news/articles/c79j1rd92ypo>

Shetty, R. (2024, May 21). *New energy competition: It's politics first for both US and China*. *The Diplomat*. <https://thediplomat.com/2024/05/new-energy-competition-its-politics-first-for-both-us-and-china/>

Simon, J. (2026, July 9). *The Iran war has pushed some countries away from oil and toward clean energy*. KUOW. <https://www.kuow.org/stories/the-iran-war-has-pushed-some-countries-away-from-oil-and-toward-clean-energy>

Sta Maria, R. (2026, August 17). *Opinion: The great US trade misclassification – Malaysia must push back*. *The Edge Malaysia*. <https://theedgemalaysia.com/node/814777>

The Star. (2026, July 20). *Malaysia's trade surges 22.4% to record RM1.796 trillion in 1H26*. <https://www.thestar.com.my/business/business-news/2026/07/20/malaysia039s-trade-surges-224-to-record-rm1796-trillion-in-1h26>

Stark, H. (2026). *Germany in the shadow of the United States, Russia, and China – Systemic paradigm shifts*. French Institute of International Relations. <https://www.ifri.org/en/studies/germany-shadow-united-states-russia-and-china-systemic-paradigm-shifts>

Sultan, S. (2026, August 17). *Minus 65 Prozent: Deutsche Firmen drosseln USA-Investitionen drastisch* [Minus 65 percent: German firms drastically cut investment in the

USA]. Institut der deutschen Wirtschaft. <https://www.iwkoeln.de/presse/iw-nachrichten/samina-sultan-deutsche-firmen-drosseln-usa-investitionen-drastisch.html>

The Sun. (2026, July 23). *Strategic stockpile review key to extending Malaysia's fuel supply*. <https://thesun.my/news/malaysia-news/people-issues/strategic-stockpile-review-key-to-extending-malaysias-fuel-supply/>

Tan, S. C. T. (2026, September 5). *BYD to unveil Malaysia EV development plan within a week*. Bernama. <https://www.bernama.com/en/news.php?id=2603465>

Tee, K. (2023, October 10). *Auditor-General says govt spent RM55.4b on subsidies in 2022, up 322.1pc from 2021; lion's share on petrol-based products*. Malay Mail. <https://www.malaymail.com/news/malaysia/2023/10/10/auditor-general-says-govt-spent-rm554b-on-subsidies-in-2022-up-3221pc-from-2021-lions-share-on-petrol-based-products/95462>

Teekah, E. (2026). U.S.–China trade war. In *Encyclopaedia Britannica*. Accessed June 24, 2026. <https://www.britannica.com/money/US-China-trade-war>

Tenaga Nasional Berhad. (2026, February 26). *Powering nation's progress: TNB's FY2025 growth returns value to rakyat*. https://www.tnb.com.my/assets/press_releases/20260226_03_eng.pdf

Tooze, A. (2026, July 30). Chartbook 462: China shocked – Beyond 1.0 and 2.0 to the “Big One.” *Chartbook*. <https://adamtooze.substack.com/p/chartbook-462-china-shocked-beyond>

Trellis Staff. (2026, February 12). *Trump era chaos: A timeline of government climate moves*. Trellis. <https://trellis.net/article/trump-timeline-government-energy-climate-sustainability/>

Trump, D. J. (2017a, March 28). *President Trump's energy independence policy*. The White House. <https://trumpwhitehouse.archives.gov/briefings-statements/president-trumps-energy-independence-policy/>

Trump, D. J. (2017b, June 1). *President Trump announces U.S. withdrawal from the Paris Climate Accord*. The White House. <https://trumpwhitehouse.archives.gov/articles/president-trump-announces-u-s-withdrawal-paris-climate-accord/>

Trump, D. J. (2025a, February 14). *Fact sheet: President Donald J. Trump establishes the National Energy Dominance Council*. The White House. <https://www.whitehouse.gov/fact-sheets/2025/02/fact-sheet-president-donald-j-trump-establishes-the-national-energy-dominance-council/>

Trump, D. J. (2025b, January 20). *Declaring a national energy emergency*. The White House. <https://www.whitehouse.gov/presidential-actions/2025/01/declaring-a-national-energy-emergency/>

Trump, D. J. (2025c, March 20). *Immediate measures to increase American mineral production*. The White House. <https://www.whitehouse.gov/presidential-actions/2025/03/immediate-measures-to-increase-american-mineral-production/>

Trump, D. J. (2025d, January 20). *Unleashing American energy*. The White House. <https://www.whitehouse.gov/presidential-actions/2025/01/unleashing-american-energy/>

Trump, D. J. (2026a, February 24). *American energy dominance is back under President Trump*. The White House. <https://www.whitehouse.gov/releases/2026/02/american-energy-dominance-is-back-under-president-trump/>

Trump, D. J. (2026b, January 7). *Withdrawing the United States from international organizations, conventions, and treaties that are contrary to the interests of the United States*. The White House. <https://www.whitehouse.gov/presidential-actions/2026/01/withdrawing-the-united-states-from-international-organizations-conventions-and-treaties-that-are-contrary-to-the-interests-of-the-united-states/>

Trump, D. J. (2026c, January 14). *Adjusting imports of processed critical minerals and their derivative products into the United States*. The White House. <https://www.whitehouse.gov/presidential-actions/2026/01/adjusting-imports-of-processed-critical-minerals-and-their-derivative-products-into-the-united-states/>

Turnbull, T. (2026, September 13). *Saudi Arabia shuts key oil pipeline after drone attack launched from Iraq*. MSN. <https://www.msn.com/en-us/news/world/saudi-arabia-shuts-key-oil-pipeline-after-drone-attack-launched-from-iraq/ar-AA2c3D73>

Umweltbundesamt. (2025, June 30). *GreenTech Atlas 2025*. <https://www.umweltbundesamt.de/themen/wirtschaft-konsum/wirtschaft-umwelt/wirtschaft-fuer-umwelt-klimaschutz/greentech-atlas-2025>

Umweltbundesamt. (2026a, March 14). *Treibhausgasdaten zeigen: Klimaschutz braucht neuen Schub* [Greenhouse gas data show: Climate action needs fresh momentum]. <https://www.umweltbundesamt.de/presse/pressemitteilungen/treibhausgasdaten-zeigen-klimaschutz-braucht-neuen>

Umweltbundesamt. (2026b, March 5). *Erneuerbare Energien in Deutschland: Wachstum 2025 verhalten* [Renewable energy in Germany: Subdued growth in 2025]. <https://www.umweltbundesamt.de/themen/erneuerbare-energien-in-deutschland-wachstum-2025>

Umweltbundesamt. (2026c, March 5). *Erneuerbare Energien in Zahlen* [Renewable energy in figures]. <https://www.umweltbundesamt.de/themen/klima-energie/erneuerbare-energien/erneuerbare-energien-in-zahlen#berblick>

Umweltbundesamt. (2026d, July 2). *Treibhausgas-Emissionen in Deutschland* [Greenhouse gas emissions in Germany]. <https://www.umweltbundesamt.de/daten/umweltzustand-trends/klima/treibhausgas-emissionen-in-deutschland>

U.S. Bureau of Economic Analysis (BEA). (2026). *Real private fixed investment: Nonresidential: Structures: Manufacturing* (C307RX1Q020SBEA). FRED, Federal Reserve Bank of St. Louis. <https://fred.stlouisfed.org/series/C307RX1Q020SBEA>

U.S. Embassy in Malaysia. (2025a, October 30). *Joint media statement on United States-Malaysia bilateral meeting*. <https://my.usembassy.gov/joint-media-statement-on-united-states-malaysia-bilateral-meeting/>

U.S. Embassy in Malaysia. (2025b, October 26). *Concerning cooperation to diversify global critical minerals supply chains and promote investments*. <https://my.usembassy.gov/mou-us-malaysia-diversification-cooperation/>

U.S. Energy Information Administration. (2025). *Amid regional conflict, the Strait of Hormuz remains critical oil chokepoint*. Today in Energy. <https://www.eia.gov/todayinenergy/detail.php?id=65504>

U.S. Energy Information Administration. (2026a). *Short-Term Energy Outlook*. Accessed July 11, 2026. https://www.eia.gov/outlooks/steo/report/global_oil.php

U.S. Energy Information Administration. (2026b). *World oil transit chokepoints*. https://www.eia.gov/international/analysis/special-topics/World_Oil_Transit_Chokepoints

U.S. Energy Information Administration. (2026c). *Total energy*. Accessed August 21, 2026. <https://www.eia.gov/totalenergy/data/monthly/#petroleum>

U.S. Energy Information Administration. (2026d, September 4). *Elevated crack spreads and crude oil prices contribute to higher prices at the pump*. Today in Energy. <https://www.eia.gov/todayinenergy/detail.php?id=68104>

Veit, A. (2024, March 14). *Übergewinnsteuer: Nur zwei Prozent der erwarteten Einnahmen erreicht* [Windfall profits tax: Only two percent of expected revenue achieved]. Table Media. <https://table.media/berlin/news/uebergewinnsteuer-nur-zwei-prozent-der-erwarteten-einnahmen-erreicht>

Waldman, S., & Schonhardt, S. (2026, May 13). *Iran war is fueling China's clean energy surge ahead of Trump-Xi talks*. Politico. <https://www.politico.com/news/2026/05/13/iran-war-is-fueling-chinas-clean-energy-surge-ahead-of-trump-xi-talks-00918799>

Walker, C. (2025, February 1). *'No new wars': Trump boasts he bombed Somalia*. The Daily Beast. <https://www.thedailybeast.com/no-new-wars-trump-boasts-he-bombed-somalia/>

The White House. (2025, October 26). *Agreement between the United States of America and Malaysia on reciprocal trade*. <https://www.whitehouse.gov/briefings-statements/2025/10/agreement-between-the-united-states-of-america-and-malaysia-on-reciprocal-trade/>

World Bank. (2026). *Commodity markets*. Accessed September 2026. <https://www.worldbank.org/en/research/commodity-markets>

Yeo, S. P. (2026). *CRESS explained: Key features and potential risks*. Shu Pin and Associates. <https://www.splegal.com.my/cress-explained-key-features-and-potential-risks/>

York, E., & Durante, A. (2026, May 5). *Tracking the impact of the Trump tariffs & trade war*. Tax Foundation. <https://taxfoundation.org/research/all/federal/trump-tariffs-trade-war/>

Yusof, T. A. (2026, March 27). *Budi95 limit reduced to 200 litres*. *The Star*. <https://www.thestar.com.my/news/nation/2026/03/27/budi95-limit-reduced-to-200-litres>

Yusry, M. (2026, June 22). *RM2.10 diesel from July 1: Who qualifies, how it works and how much fuel you can buy*. Malay Mail. <https://www.malaymail.com/news/malaysia/2026/06/22/rm210-diesel-from-july-1-who-qualifies-how-it-works-and-how-much-fuel-you-can-buy/224789>

Zahiid, S. J. (2026a, August 30). *Budi95 quota restored to 300 litres, Anwar announces goodies ahead of Merdeka celebration*. Malay Mail. <https://www.malaymail.com/news/malaysia/2026/08/30/budi95-quota-restored-to-300-litres-anwar-announces-goodies-ahead-merdeka-celebration/233292>

Zahiid, S. J. (2026b, July 7). *Anwar: Govt approved RM6b in loans, guarantees to help SMEs cope with war fallout*. Malay Mail. <https://www.malaymail.com/news/malaysia/2026/07/07/anwar-govt-approved-rm6b-in-loans-guarantees-to-help-smes-cope-with-war-fallout/226664>

Zak, J., & Latif, Y. A. (2026, March 25). *Iran war: Malaysia is safe but must remain vigilant, says Anwar*. *The Star*. <https://www.thestar.com.my/news/nation/2026/03/25/iran-war-malaysia-is-safe-but-must-remain-vigilant-says-anwarRela>

Note



The Institute for Democracy and Economic Affairs (IDEAS) is a nonprofit research institute based in Malaysia dedicated to promoting solutions to public policy challenges. Our work is independent of vested interests and partisan influences. Our vision is :

"A Malaysia that upholds the principles of liberty and justice"

We achieve our goals by:

- Publishing cutting-edge research work.
- Initiating dialogues with government, lawmakers, businesses, and civil society.
 - Providing thought leadership.
- Facilitating networking between like-minded individuals.
 - Organising educational programs.

We act as an intellectual centre, creating space for cross-partisan, principles-centric, and results-oriented dialogue

Our work focuses on three overarching missions:

- Advancing a competitive economy,
- Ensuring trust in institutions, and
- Promoting an inclusive Malaysia.

Please support us by making a donation. You can make a contribution by cheque payable to "IDEAS Policy Research Berhad" or by transfer to our account CIMB 8008852042.

© 2026 IDEAS. All rights reserved.

IDEAS Policy Research Berhad
Suite 10-02, 10th Floor, Menara Atlan, 161B, Jalan Ampang, 50450
Kuala Lumpur

www.ideas.org.my
Reg No.: 1219187-V

Selection of IDEAS' Publications (2025 - 2026)

Policy Ideas

Policy Ideas No. 97 – Towards an Economically Competitive, Inclusive, and Green Malaysia: Policymaking to Create Sustainable Jobs and Industry by Dr Stewart Nixon, Afqah Zulkifli, Jazreen Harith Jefri, Sharmila Suntherasegarun, Nimitraa Youganesparan and Durrah Sharifah Ahmad Azlan (September 2026)

Policy Ideas No. 96 – Malaysia Open Budget Index (MyOBI) 2026 by Nischal Ranjinath Muniandy, Ahmad Abi Shifa Mohd Hassan, Dara Waheda Mohd Rufin and Dr Stewart Nixon (August 2026)

Policy Ideas No. 95 – Youth Voices, Future Choices: Comparing Agriculture Aspirations, Perceptions, and Career Preferences Across Education Pathways in Malaysia by Priya Kaur Sachdev, Prof. Dr. M. Niaz Asadullah, Dr. Stewart Nixon, and Naveen Mahasen Weerasinghe (July 2026)

Policy Paper No. 94 – The Governance of Fiscal Transfers in Malaysia: Is it rule-based, predictable, and transparent? by Sri Murniati Yusuf (June 2026)

Policy Paper No. 93 – Guidance for Malaysia's Caretaker Government: Lessons From Four Commonwealth Jurisdictions by Wo Chang Xi (May 2026)

Policy Paper No. 92 – How Costly are Political Parties? Exploring Political Expenses and Implication for Democracy by Muhammad Nur Syazwan Zainal Abidin, Sabrina Firdaus Aloysius and Mohammad Imamul Ariffin (May 2026)

Policy Paper No. 91 – Federal Transfers and Fiscal Capacity in Malaysia: Evidence on Equalisation Across States by Nor Nazirah Mohamed, Zheng Sheng Lew, Nurul Aqilah Abdul Hadi (April 2026)

Brief Ideas

ASEAN and OECD Alignment on State-owned Enterprise Governance Reforms by Alissa Marianne Rode and Ng Chien Chern (January 2026)

Future-proofing Investment Regulation Across ASEAN by Mohammad Jamil Hilmi bin A Ghani and Dr Stewart Nixon (January 2026)

Divided We Fall: ASEAN's Response to Trump's Illiberal Trade Agenda by Dr Stewart Nixon (January 2026)

Report

ASEAN Integration Report 2025: Challenges and Opportunities for ASEAN MSME Trade – Insights from the Food and Beverage Industry by Sharmila Suntherasegarun, Amir Najmi, Priya Kaur Sachdev, and Nimitraa Youganesparan (November 2025)

Policy IDEAS are IDEAS' regular publications that introduce and propose policy reforms based on analysis of existing policies and best practices.

Institute for Democracy and Economic Affairs (IDEAS)
Suite 10-02, 10th Floor, Menara Atlan, 161B, Jalan Ampang, 50450 Kuala Lumpur