

Europe reengages with energy security

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Introduction

The security and affordability of energy supplies is again high on the agenda for governments, consumers and companies. For governments in Europe, this is proving to be a significant reengagement, and they have acted strongly in response. Over the past two years, as they have faced the challenges of meeting demand growth post-COVID-19 in the face of diminishing and uncertain supply following the Ukraine invasion, European governments have taken action on four fronts. They have pressed for new infrastructure to import oil and gas; they have promoted new development of domestic hydrocarbons; they have sought additional supplies of oil and gas and encouraged development of new supplies around the world; and — notably — they have made large, direct payments to energy consumers to subsidize their consumption of traditional fossil fuels. At the same time, they have stepped up their support for renewable energy and the energy transition. In the developing world — the Global South — less well-resourced governments have replicated, as best they can, these behaviors and actively sought to increase domestic oil and gas supply and production. But financial constraints limit the scope in much of the world, and there is tension over the impact that European measures have had elsewhere. This has deepened preexisting differences over the cost and timing of transition to renewable energies, where the relative burdens between developed and developing countries remain unresolved, as well as on strategies for energy security. It also demonstrates how interconnected policies of Europe and other developed countries are with the developing world.

For companies, the implications of the renewed emphasis on energy security are no less significant. Companies are expected to make sure they can secure reliable supplies for their customers. Traditional fuels are the energies that their customers, overwhelmingly, still use and demand. Thus, secure, affordable supply of these energies is a fundamental mission on which companies are expected to deliver. Since the Russo-Ukrainian war, the spotlight has been on natural gas, owing to its role as a fuel for industry, home heating and electric generation, as well as a feedstock for essential material. At the same time, companies are continuing to respond to the challenges of meeting the objectives and requirements of climate-driven policy with low-carbon strategies. Governments, as well as many shareholders and lenders, continue to signal that investment programs should be steered toward new and renewable energies in support of a transition away from traditional fuels. More recently, though, this has somewhat changed because of a renewed emphasis on financial returns on the part of investors. At the same time, companies are having to respond to the new emphasis on energy security that is highlighted today by what governments are doing, as well as by what governments say.

Europe's challenge

The energy security situation is acute for Europe. The consequences of Russia's 2022 invasion of Ukraine have been dramatic for energy supply, especially gas, to European consumers. Profound changes have occurred — prohibitions, sanctions, countersanctions and wild price gyrations — leading some companies into bankruptcy and others into effective nationalization.¹

1. From “nimble” new entrants to the retail energy markets for gas and electricity in the UK (29 of which, including individual suppliers with over one million customers, went bankrupt by May 2022) to a major established private player like Uniper SE in Germany, neither reputation nor size could protect such companies from the consequences of the radical shift in gas and electricity costs (see the UK's National Audit Office Report by the Comptroller and Auditor General, June 22, 2022, p.4 et seq., and Uniper Annual Report 2022, p.4, for details of the December 2022 transaction conferring majority ownership and control to an agency of the federal German government).

In the spring and summer months of 2022, there was concern that the coming winters of 2022–23 and 2023–24 would bring about significant hardship, with the real danger of Europe “running out of the gas” that heated over 100 million of its homes, powered industry and drove the turbines of many of its power stations. The political response and, crucially, the remarkable and effective adaptability of the global and Atlantic energy markets mitigated the risks. In addition, Norway has substantially increased its pipeline shipment of natural gas to Europe, underlining its key role in European energy security. Two years into the Russo-Ukrainian war, there is a greater relative sense of confidence about European energy supplies.

In February 2024, as the end of a second winter with much less Russian gas is in sight (and in Europe, without Russian oil and coal as well), the ability of diverse supplies of traditional fuels to step up to fill the gap has proved its worth. The response has shown that “energy security for Europe” was not just a phrase and a political ambition. It is a real and living factor that became a priority to assure the lives and livelihoods of half a billion European citizens. The transition to renewable and alternative energies remains a priority. Ambitious steps to promote renewable energies and to support electrification in transport, heating and industry are being pursued in the interest of a growing base for energy security in the long run. Governments have, however, shown through their actions in the past two years, that as long as their citizens depend on traditional fuels, varied and concerted action under the nexus of energy security will remain a central focus. How has this happened?

The global context for European energy

No man is an island. So wrote the 17th century poet John Donne. Europe’s energy security is intimately connected with, and has consequences for, the rest of the world.

In 2022 and 2023, this has been abundantly clear, both on the supply side and on the demand side.

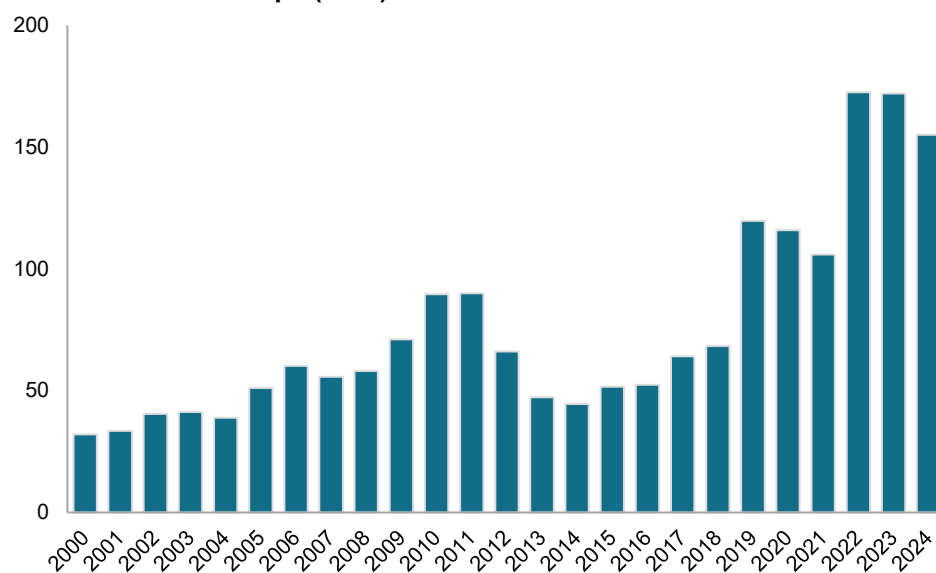
Supply

The increasing amount of LNG in European gas consumers’ purchasing activities is a story of accelerating growth in 2022, although it is not entirely a new story.

Figure 1 shows the buildup of LNG deliveries to Europe over the past 23 years, with expected demand in 2024. Increasing import of LNG, as well as of new pipeline gas, has for decades been a steady response to the decline in domestic European gas production from its supplies in the UK and the Netherlands in the face of continuing demand.

Figure 1

LNG demand in Europe (Bcm)



As of Jan. 25, 2024.

Source: S&P Global Commodity Insights.

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In 2022 and 2023, LNG supplied a record 172 billion cubic meters (Bcm) of gas to Europe. The significant point of Figure 1 is that the 20-year buildup has not followed a uniformly steady path. There have been peaks and troughs. Careful examination of the figure shows a previous peak — in 2010 and 2011 — when supplies hit 90 Bcm. LNG demand then dropped back to annual rates below 50 Bcm in the following years. This pattern is explained by the 2011 tsunami in the Pacific Ocean that devastated northern Japan, causing flooding and radioactive leakage at the Fukushima nuclear power station. The Japanese nuclear shutdowns that followed meant that Japanese imports of LNG had to increase sharply to meet electricity demand. European purchases of LNG dropped and were replaced by more pipeline gas — primarily from Russia — and by more coal burning in European power stations. Events elsewhere in the world, such as low hydropower levels in Brazil, have also impacted the LNG supplies available to European customers.

In short, Europe's LNG imports have always been part of a wider global market. They remain so today, in a traded market that, worldwide, has quadrupled in less than a quarter century — from 100 million metric tons (137 Bcm) in 2000 to 404 million metric tons (555 Bcm) in 2023. The global growth of gas trade is set to continue in the years ahead as many countries will need and want to substitute gas for coal to reduce their emissions of greenhouse gases — a transitional strategy acknowledged at COP28 as consistent with the Dubai consensus. As the world's gas market has become larger, it has also become more liquid and flexible, with cargoes traded and changing direction while on the high seas, a new feature compared with earlier years.

It is essential for supply security that European companies remain fully engaged with this market to meet the needs of industrial, residential and electricity-generating customers. The ability to respond flexibly to uncertain events, whether in Europe itself or in the rest of the world, is one of the central requirements for the security of gas supply.

But while the flexibility of European companies to engage in and respond to global developments was a necessary condition for gas supply security after the Russian invasion of Ukraine, on its own it, has not been a sufficient condition. It was also driven by policies and initiatives of European governments. Policy and market conditions in other jurisdictions — in the US and in the developing world — were also necessary on the supply side.

US energy bolsters Europe

In 2022 and 2023, Europe also found itself in the position of being able to take advantage of the very rapid construction of new North American LNG facilities. Europe was fortunate. US LNG developers had not originally expected nor intended that their cargoes would primarily be heading across the Atlantic Ocean. The main drivers for development of North American LNG were the prospects for significant growth in Asian markets along with markets elsewhere in the world.

- The US shale revolution and the prospect of strong Far East demand had meant that in the previous five years, US LNG capability and production grew considerably. Europe was not identified as a major market because its continuing reliance on pipeline gas was a settled assumption. But when circumstances abruptly changed, European buyers were able to call upon an infrastructure and investments that had been largely designed to supply other parts of the world.
- European customers were also beneficiaries of US public policy that had for many years generally encouraged fracking — which was not permitted anywhere in Europe itself. The scale of the new resources therefore available in the US enabled the government to support a “both/and” approach — leading to both a substantial reduction in local energy costs that has reinvigorated US manufacturing and at the same time permitting exports of gas to the rest of the world.

Contracts for LNG supply from the US were signed in 2022 and 2023 by Dutch, German, French and UK companies. Receiving (“regasification”) terminals were expanded, and new ones were connected as floating terminals in order to allow the newly contracted LNG to access the European markets (see Figure 2). Governments took a proactive approach to support, and supplement, commercial activity — and they did so with great urgency. When the first shipment of LNG arrived in Germany, Robert Habeck, the German vice chancellor and minister for economic affairs and climate action, declared, “Today we are making a very important step towards energy security in Germany.”

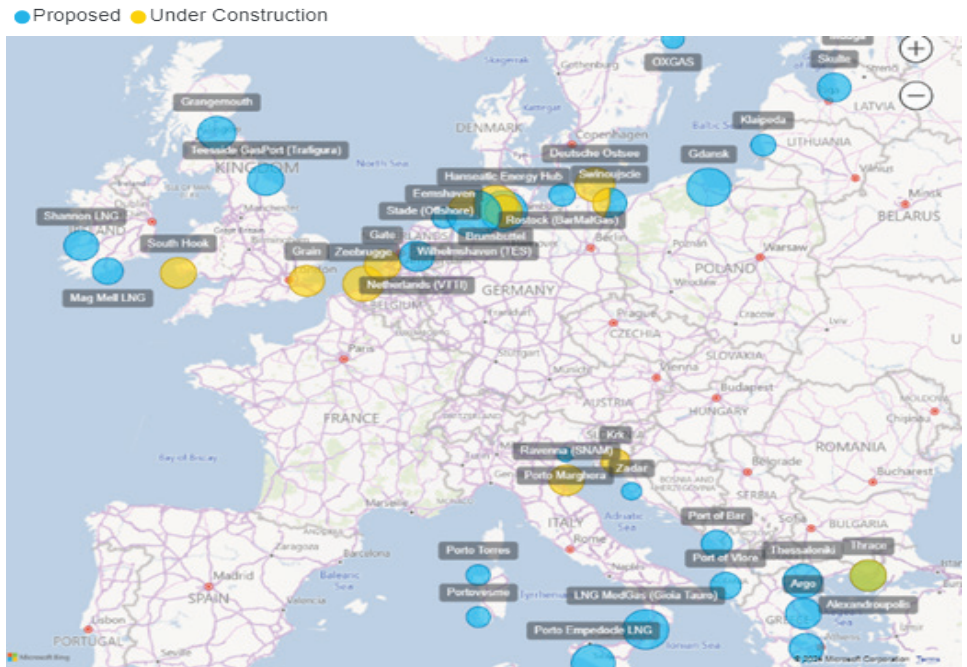
Moreover, in Germany, where the preference for private or regional/ local state ownership of energy infrastructure has long been an established principle, the government set up a federal state entity (SEFE Securing Energy for Europe GmbH) to take over and operate the German-registered trading assets of Russia’s PJSC Gazprom in Germany, elsewhere in Europe and in Singapore. These assets included large gas storage caverns in Germany itself, which Gazprom had left undersupplied in 2021 — now looked back on as a preemptive attempt to enhance Russian political leverage over its Western customers when the anticipated full-scale invasion of Ukraine took place at the beginning of 2022. SEFE itself became a direct customer for US LNG, as well as signing deals with Qatar and Nigeria, and was heavily involved in aggressive purchasing to make sure that storage caverns were full ahead of the coming winter. (SEFE subsequently continued its quest for secure supplies by signing a 10-year, \$55 billion contract for Norwegian natural gas.)

Indeed, it was a clear *political* drive to make sure that gas storage was full in order to secure consumers’ winter needs. The 27 member states of the European Union collectively signed off on an arrangement that their gas companies’ available storage had to be 80% full by Nov. 1, 2022. The commitment also stipulated that in the following year (2023), storage should be 90% full, and there is advice that this strategy should continue for future years.

Europe’s aggressive bidding to meet its gas needs and fill storage had a dramatic impact on global gas prices.² This had consequences for other countries, notably in

Figure 2

Proposed and under-construction regasification terminals



Screenshot as of Jan. 25, 2024.

Source: S&P Global Commodity Insights. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

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2. See, for example, the report commissioned for the German Federal Network Agency (Bundesnetzagentur): “Strategien für die Bewirtschaftung von Gasspeichern durch Trading Hub Europe,” BET and Düsseldorf Competition Economics, May 2023, https://www.bundesnetzagentur.de/DE/Gasversorgung/Krisenvorbereitung/Download/Gutachten_Speicherstrategie.pdf?__blob=publicationFile&v=1, accessed Jan. 18, 2024.

the developing world. High prices in Europe were passed through to consumers, whose household bills were then often subsidized by direct government support (see below) — in effect, underwriting affordability and consumption for consumers. Governments in the developing world were not able to match that kind of fiscal response; and customers in some countries, including power generators, simply could not afford to buy gas and so either switched to coal or did without and faced blackouts.

The demand side — political responses

Energy companies are obliged to operate in line with laws and governmental regulations. While such laws and regulations are generally meant to be clear, governments' behavior when the unexpected happens also sends telling signals to companies about how they too are expected to behave.

Russia's 2022 invasion of Ukraine and the responses of European governments are a case in point. For three decades, since the collapse of the Soviet Union, there had been a bargain of mutual dependence — Russia needed money, Europe needed gas and a Russia with nuclear weapons needed to be integrated with the West. But now there was recognition that Russia did not need the money (it has been running trade surpluses for many years and had built up hundreds of billions of dollars in reserves) and was now able, and willing, to cut off most gas supply to Europe as a weapon against its Western customers.

European governments have made it abundantly clear that it is unacceptable to allow exceptionally high costs for conventional fuels to be borne fully by their customers, even as they anticipate that the energy transition will eventually wean customers away from the traditional fuels. Under the rubric of "protection," national governments in Europe responded to the new, unexpected context with direct subsidies to support fossil fuel consumption. The European Commission gives a breakdown of where the total subsidies were directed:

"In 2021-2022, energy subsidies linked to new national measures to protect EU consumers from the high prices accounted for an estimated EUR 195 billion. Across the EU, at least 230 temporary national measures were introduced to address the energy price crisis. Households were the main direct beneficiaries of these support measures (EUR 58 billion), followed by business and industrial consumers (EUR 45 billion) and road transport (EUR 23 billion). Cross-sectoral support was EUR 69 billion."³

In addition, the commission pointed to certain key measures that were not counted in these sums, as there were also

"... special measures in response to the crisis to provide substantial support directly to energy companies. For instance, in Germany, Uniper was supported through capital injection (EUR 34 billion), while in France, EDF was re-nationalised (EUR 9.4 billion). Since the ultimate aim of these measures was to ensure security of supply as well as lower prices to customers or the wholesale market, they were not included in the subsidy database" (italics added).

The "at least 230 temporary national measures" that the commission identified were to be found across Europe. Clear examples of the substance and character of governments' practical responses can be seen in Germany, the UK and the Netherlands.

3. "Report from the Commission to the European Parliament and the Council: 2023 Report on Energy Subsidies in the EU," European Commission, Oct. 24, 2023, https://energy.ec.europa.eu/system/files/2023-10/COM_2023_651_1_EN_ACT_part1_v4.pdf, accessed Jan. 17, 2024.

Germany

In Germany, there was a sharp turnaround in the focus of energy policy after February 2022. This turnaround is demonstrated by a series of practical measures taken by the federal government, by its agencies and by the support given to private sector commitments to long-term supplies of natural gas.

- To replace Russian gas, **new physical capacity** to import was required. Three new LNG receiving terminals, and the infrastructure to connect them to the German gas grid, were acquired or constructed in the space of 18 months. Two more will come into operation in 2024. In addition, major new **gas supply contracts** were signed — both by commercial parties such as chemical company BASF SE and energy companies RWE AG and EnBW AG, and by the new government-owned entity SEFE. Contract terms run from relatively short (four years — SEFE-Oman LNG) to as long as 15 to 20 years (RWE-Sempra, BASF-Cheniere, SEFE-Venture Global).
- The government engaged in **proactive diplomacy** with a range of potential LNG suppliers. Federal Economic Affairs and Climate Action Minister Robert Habeck visited Oman, Qatar and Nigeria in rapid succession to help assure potential suppliers of Germany's intention to be a reliable purchaser of their energy, in spite of the German government's declared intention to transition completely away from fossil fuels by 2045. Chancellor Olaf Scholz visited Senegal to encourage a new supplier of gas to enter the global market with a promise of German purchases.
- **Security of oil supply** was also a major issue for Germany in the wake of EU sanctions on the import of Russian oil, which took effect in late 2022 (for crude oil) and early 2023 (for oil products). The Schwedt refinery in the east of the country had depended on direct supply of Russian crude oil by pipeline from Soviet times. New pipeline connections were made to Baltic Sea ports (Rostock and Gdansk) to enable some diversification of supply.
- Nuclear, lignite and hard coal power stations that had been scheduled for closure in 2022 were allowed to **continue operating** into 2023 or to be on standby in case of emergency or high electricity demand triggered by extreme weather. The government's willingness to commit to new gas capacity and supply was explicitly linked to these other energy policy decisions. Announcing the decision to allow the extensions, Minister Habeck was able to promise, "In winter 2023/24 we will have different and better starting conditions. We will be able to import significantly more gas, also via our own LNG terminals."⁴

The possibility of having access to world supplies of LNG proved to be vital for Germany's ability to switch rapidly away from dependence on Russian gas and oil. Of note as well is that this also allowed the country to be in a position to deliver on other long-standing policy objectives, namely the continued phaseout of nuclear power and the planned phasedown of coal and lignite.

Demand for gas is unlikely to peak or decline as rapidly as the most ambitious policies and scenarios would seem to prescribe. There was political controversy in Germany in 2023 over the government's perceived over-ambitious policy to require residential customers to install heat pumps. Consumer resistance obliged the government to withdraw its proposals. This episode can be seen as a possible sign of customer (and voter) reactions elsewhere in the continent. In February 2024, the German government announced a \$17 billion plan to subsidize the construction of 15 to 20 new natural gas-fired electricity generating plants in order to avoid shortages of electricity. It will require that the plants be capable of shifting to hydrogen by 2040.

4. "German cabinet approves extended reactor operations," World Nuclear News, Oct. 20, 2022, <https://world-nuclear-news.org/Articles/German-cabinet-approves-extended-reactor-operation>, accessed Feb. 28, 2024.

United Kingdom

The UK was less exposed than Germany to a direct physical shortage of gas — the LNG import infrastructure was already well-developed — but the change in policy focus was no less striking. The practical consequences that have followed are that the UK has encouraged a new phase in the development of its North Sea and frontier oil and gas resources.

The UK government's energy policy before 2022 dealt almost entirely with matters related to energy transition. Three major policy statements — *Ten Point Plan for a Green Industrial Revolution* (November 2020), *Powering Our Net Zero Future* (December 2020) and *Net Zero Strategy: Build Back Greener* (April 2021) — made either no reference, or only brief passing reference, to energy security. Then in 2022 and 2023, energy security came to the fore. *British Energy Security Strategy* (April 2022) and *Powering up Britain: Energy Security Plan* (March 2023) emphasized the importance of domestic hydrocarbon resources and diverse imports of oil and gas. “Without a stable nationally controlled energy mix we won't have the foundation to shift ... towards net zero.”⁵

The process of encouraging energy companies to explore and develop the UK's hydrocarbon resources — the Licensing Rounds — accelerated sharply.

The 33rd Licensing Round, in October 2022, invited bids for 898 blocks — substantially higher than in previous Licensing Rounds.⁶ The government's body responsible for managing the process, the North Sea Transition Authority (NSTA), reported that it “received 115 applications from 76 companies for 258 blocks ... This was the highest participation since the ... 29th Round in 2016/17.”

The Rosebank field was approved for development in September 2023. It will be the first major new oil and gas field in UK waters for several years. The UK government directly links its development to the need to improve the security of energy supply.⁷

The Netherlands

The Netherlands already before 2022 took a fairly pragmatic approach to maintaining as best as possible its (modest and declining) North Sea production of natural gas. The context was the rapid decline and anticipated early 2020s closure of its major onshore gas field, Groningen. So, the North Sea Agreement (Akkoord voor de Noordzee) of May 2020 already established the principle that domestic gas should remain a first priority:

“With the reduction of gas extraction from Groningen, the Netherlands has now become an import country. The parties agree that extracting domestic natural gas is better than importing foreign gas, because gas extraction from small fields now has climate benefits and is better for the economy and security of energy supply. Predictable licensing is important for this.”⁸

After February 2022, an urgent concern arose for reinforcing supply security through additional imports as well. The capacity to bring LNG from the global market was doubled, from 12 Bcm to 24 Bcm, by expanding the GATE receiving terminal at Rotterdam and by constructing a new receiving terminal at Eemshaven. A major program of additional investment in the national gas infrastructure was undertaken to improve storage access and to enable the flows of imported gas (which had primarily

5. Chris Skidmore, “Mission Zero: Independent Review of Net Zero,” p. 66, <https://assets.publishing.service.gov.uk/media/63c0299ee90e0771c128965b/mission-zero-independent-review.pdf>, accessed Feb. 28, 2024.

6. Source: <https://www.nstaauthority.co.uk/news-publications/nsta-launches-33rd-offshore-oil-and-gas-licensing-round/>.

7. Source: <https://www.gov.uk/government/news/government-backs-new-oil-and-gas-to-safeguard-uk-and-grow-the-economy>.

8. “Het Akkoord voor de Noordzee,” <https://open.overheid.nl/documenten/ronl-99d46f4b-1d45-49cd-a979-2ce8bf737e22/pdf>, accessed Feb. 28, 2024.

been from northeast, where Russian and Norwegian gas arrived) to switch direction — prioritizing the import of LNG.⁹

The capacity expansions were supported by new contracts for LNG supply, including a 27-year contract from Qatar beginning in 2026.¹⁰

Europe's reengagement with energy security is mirrored in its major partners

United States

The Joe Biden administration's domestic policy response to global energy market developments in 2022 included a reopening of federal lands for leasing for oil and gas drilling¹¹ and a swift — and sustained — recourse to drawing oil from the US Strategic Petroleum Reserve (SPR). The US put the SPR in place in response to 1970s oil crises. It has been a fundamental pillar of the architecture of global energy security ever since, as part of an overall agreement among International Energy Agency (IEA) countries. The withdrawals in 2022 and 2023, from a previous level of over 600 million barrels, leave the SPR in early 2024 standing at a little over 350 million barrels — an unprecedented rate of draw.

The international dimension of the US energy policy response has been, up to now, to approve and encourage exports of natural gas, notably in the framework of diplomatic support for the US's European allies. US President Biden and the European Commission President Ursula von der Leyen jointly committed, in the spring of 2022, to support an increase in transatlantic LNG supply by 50 Bcm¹² — a promise that has been amply delivered on. Moreover, based on new projects already approved, this quantity is likely to be doubled in the next few years.

The recent announcement from the White House that further new proposed LNG projects will not automatically be given export licenses should be seen in the context of the large number of projects that have already been approved. The US has become in a very short time the largest exporter of LNG, and its capacity will almost double over the next few years. The review only pertains to export projects beyond that doubling. It may, however, call into question whether European and Asian customers will be able to rely on a continuing increase in availability of US LNG beyond the second half of this decade.

Japan

Japan, almost wholly dependent on energy imports as its economic lifeblood, has a longstanding concern about and commitment to energy security. Its *International Resource Strategy* (March 2020) and the *Sixth Strategic Energy Plan* (October 2021)

9. "Start consultation addendum to the Investment Plan 2022," Gasunie Transport Services BV, April, 19, 2023, https://www.gasunietransportservices.nl/en/news/start-consultation-addendum-to-the-investment-plan-2022?utm_campaign=Start+consultation+addendum+to+the+Investment+Plan+2022&utm_medium=email&utm_source=Mailer, accessed Feb. 28, 2024.

10. Zacks Equity Research, "Shell (SHEL), QatarEnergy Sign LNG Deal to Support Netherlands," Oct. 23, 2023, <https://www.nasdaq.com/articles/shell-shel-qatarenergy-sign-lng-deal-to-support-netherlands>, accessed Feb. 28, 2024.

11. "Biden Administration Reopens Federal Lands for Oil and Gas Leasing Under Reformed Program," Brownstein Hyatt Farber Schreck LLP, April 20, 2022, <https://www.bhfs.com/insights/alerts-articles/2022/biden-administration-reopens-federal-lands-for-oil-and-gas-leasing-under-reformed-program>, accessed Feb. 28, 2024. In 2021 the Administration had previously suspended leasing.

12. "Joint Statement between the United States and the European Commission on European Energy Security," The White House, March 25, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/25/joint-statement-between-the-united-states-and-the-european-commission-on-european-energy-security/#:~:text=The%20United%20States%20and%20European,and%20its%20neighbouring%20partner%20nations>, accessed Feb. 28, 2024.

both reinforced the traditional weight that Japanese governments have given to energy security.¹³

In 2022, the Japanese Cabinet noted, perhaps with a certain pungency, “In light of Russia’s aggression against Ukraine, ensuring energy security has re-emerged as an important issue in other countries as well.”¹⁴ More explicitly, the chairman of Japan’s Institute for Energy Economics and former Ministry of Economy, Technology and Industry (METI) vice minister, Tatsuyo Terazawa, remarked that the crisis was “a wake-up call and reminder for the world to look not only through the lens of climate but also seriously to look at the importance of energy security and the stability of energy markets.”¹⁵ Japanese policy since 2022 has involved further diversification of LNG supplies — with new contracts signed for supply from producing companies in Oman, the United Arab Emirates, Malaysia and the US. It is notable also, however, that Japanese companies have kept their engagements in Russian LNG projects in Sakhalin and the Yamal peninsula in order to support electric power generation. Step by step, the government is also keeping open options for further nuclear expansion in future.

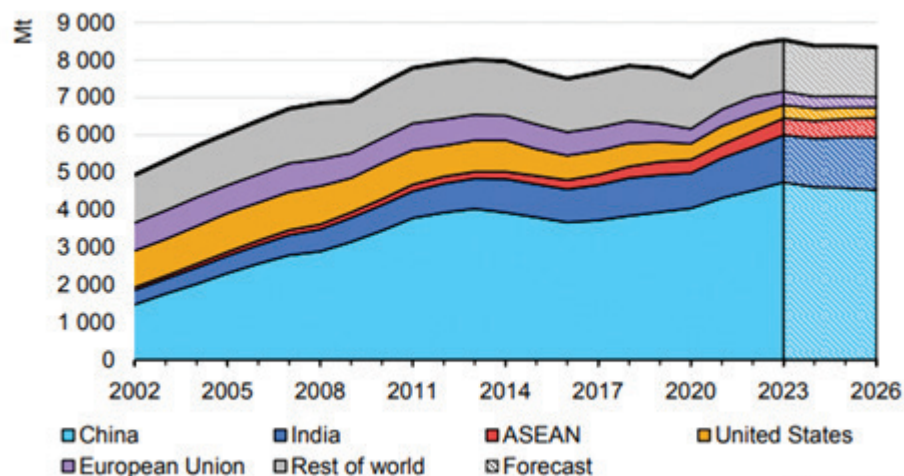
Drop in gas imports and increase in coal consumption since the Ukraine war

The gas shortages that prompted European buyers, including Germany’s state buyer, to bid extraordinarily high prices for LNG, effectively drove gas out of the market for many developing world buyers. As a consequence, in 2022, coal demand reached a new record high of 8,415 million metric tons, increasing by 4%. The increase was driven both by demand for coal to generate electricity (5,687 million metric tons), mainly in countries that rely heavily on coal, such as China and India (see Figure 3), and by coal use for other purposes (2,728 million metric tons). Extraordinarily high gas prices and generally weaker nuclear power and hydropower production drove growth in demand for coal to generate power.

In 2023, global coal demand increased another 1.4%, reaching a new all-time high of about 8,536 million metric tons. What is apparent in the surge of coal demand is the imperative of energy security. While renewable growth is significant, natural gas is the main alternative to electricity generation by coal. In the absence of natural gas and LNG specifically, countries will burn more coal, raising emissions.

Figure 3

Global coal consumption, 2002-2026



Source: IEA (2023), Coal 2023, IEA, Paris <https://www.iea.org/reports/coal-2023>, Licence: CC BY 4.0

IEA. CC BY 4.0.

13. https://www.meti.go.jp/shingikai/enecho/shigen_nenryo/pdf/20200226_report.pdf and https://www.enecho.meti.go.jp/en/category/others/basic_plan/pdf/6th_outline.pdf.

14. <https://www5.cao.go.jp/keizai-shimon/kaigi/cabinet/honebuto/2022/decision0607.html>.

15. Tatsuya Terazawa, “Chairman’s Message,” March 2022, Institute of Energy Economics, Japan.

A North-South divide on climate and energy security

The national examples elucidated above give a clear message of the developed economies governments' concerns for energy security as representing a duty of care to their citizens. But, in an interconnected world, it is not only their own citizens who are affected by measures taken in Europe and other developed economies. There is also a clash over energy security and climate policies within the developing world.

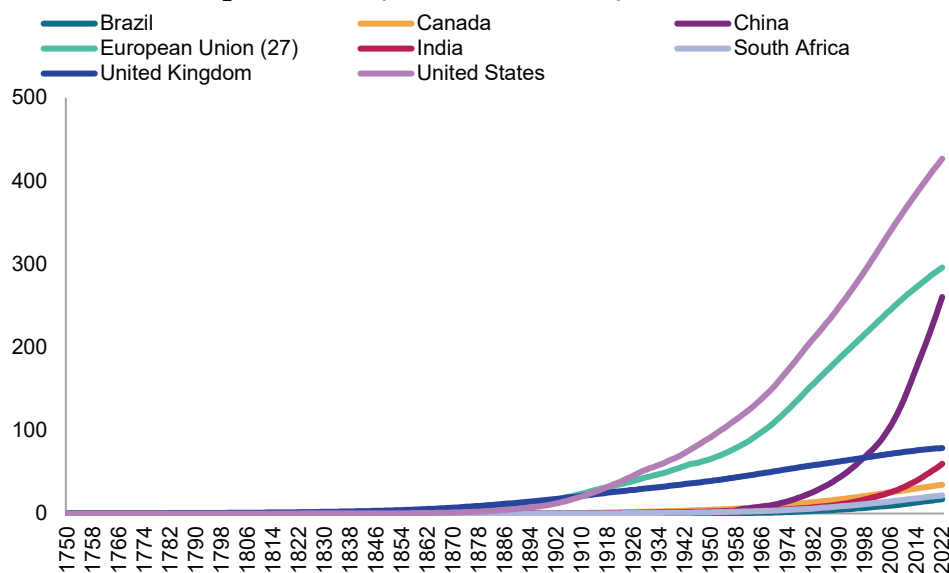
The emergence of a new North-South divide — between the industrial countries of the “Global North” and the developing countries of the “Global South” — was especially highlighted by the impact of Europe’s energy security response. The context was an already sharp debate over the cost and timing of energy transition; of the relative burdens between wealthy and developing countries; and of the compatibility of energy transition with other priorities of economic growth, poverty reduction and improved health. The trilemma of energy security, affordability and sustainability looks very different in Africa, developing countries of Asia and in Latin America compared with Europe or the US, where per-capita incomes are as much as 40 times higher. This divergence makes addressing the gaps in policy, technology and financing a significant challenge across geographies.

Increasingly, emerging economies feel as if they are being asked to shoulder more of the burden for global decarbonization than the principles of common but differentiated responsibility would ordinarily imply. As development banks and capital markets increasingly focus on net-zero, project finance for fossil fuel extraction and use is increasingly difficult to come by. Renewable power and other clean technology solutions are far cheaper than they were just a few short years ago, but cost declines cannot offset the higher cost of capital faced by emerging markets compared with their developed country peers. Also present are issues around infrastructure: electric vehicle charging networks are unlikely to spring up in countries that struggle to maintain adequate supplies of electricity for basics such as lighting, heating and refrigeration and where substantial parts of the population do not have access to reliable electricity. For emerging markets, the low-carbon energy transition remains an expensive prospect and one that does not necessarily comport with the urgency of economic development.

Developing countries observe in international forums that they are not responsible for the bulk of historical emissions. Accordingly, they feel they should be able to develop their own natural resources, including hydrocarbons where appropriate, to support their economic growth. Global warming is driven by accumulated greenhouse gas emissions in the atmosphere, principally anthropogenic CO₂ emitted since the start of the

Figure 4

Cummulative CO₂ emissions (billion metric tons)



As of January 2024.
Source: Our World in Data.
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industrial age. The US and European Union (excluding the UK) together account for 62% of global cumulative CO₂ emissions since pre-industrial times (see Figure 4). China's current emissions are now the highest of any country, and cumulative emissions will soon overtake the European Union's. By contrast, the whole of Africa and all of South America have contributed just 3% each to global cumulative emissions.

Since 2020, governments in developing economies have also, like their developed world counterparts, adopted various practical and policy measures to ensure that their citizens have access to affordable and secure supplies of energy.

Energy affordability and security in the Global South

In 2022, many governments in the Global South sought ways to avoid passing on high and volatile prices to consumers. In some instances, these measures involved direct allocations from national budgets; in other cases (notably among the fossil fuel exporters), governments kept domestic prices much lower than international benchmarks. Tax exemptions and reductions also had a significant impact. Some of these interventions include fixing prices, capping price increases, extending subsidies and exempting from taxes. These policy interventions ranged across the Global South — from Egypt and Thailand to South Africa and Peru.

Compensation mechanisms varied for different affected groups of consumers, including households, businesses and industrial consumers; for example,

- In **India**, the cost of the Pradhan Mantri Ujjwala Yojana subsidy scheme, which supports access to liquefied petroleum gas for the poorest segments of the population, reached \$820 million.
- Governments also spent considerable sums on recapitalization, debt suspension and support for energy companies or key energy-intensive industries.
- Attesting to the emphasis that many developing nations put on natural gas, in 2024, India announced a \$67 billion program to expand its natural gas system and raise gas's share in the overall energy mix from the current 6% to 15%.

But most developing countries did not have the fiscal “firepower” to match the scale of intervention that developed countries could unleash. In effect, Europe's energy insecurity in 2022 and 2023 was transferred to the developing world. Electricity was curtailed in Pakistan and Bangladesh as gas supply fell short, impacting livelihoods and families in those countries. It was Pakistani and Bangladeshi schoolchildren, rather than Europeans, who went without electricity as result.¹⁶ The experience of the past two years makes clear that, in the developing world, lack of energy security means great human hardship.

16. See the Commodity Insights Profile [Pakistan Natural Gas Market Profile](#).

A changed world

Energy security has a long history. For Winston Churchill, converting the British navy from coal to oil was a technological necessity to enhance the speed and efficiency of ships as World War I loomed. He had to persuade a skeptical parliament in 1913 that diversity of imports was the key to making oil supply as secure as the coal that lay in domestic British coalfields: “On no one country, on no one route ... must we be dependent. Safety and certainty in oil lie in variety and variety alone.”¹⁷

As the world changes, the concerns and the solutions to energy security evolve too. Concerns that had been national have become transnational in scope.

In the 1960s and 1970s, energy security was at the very top of the international policy agenda for the western world and for oil importing countries in the developing world. Two deep economic recessions followed major changes in the terms of trade¹⁸ between the commodity exporters and importers. In response, in 1974, 21 western countries established by treaty among themselves the International Energy Agency to monitor energy security and to promote and encourage policies that would diminish the dependence on imported oil. The role of the IEA remains important today; its brief has expanded (see “The IEA scenarios” below) to include work on the global challenge of greenhouse gas emissions, in which energy use plays a significant role.

But the demand for energy will continue to grow. Fifty years further on from the 1970s, there are two major changes that shape the modern world’s energy security framework.

The first is that the global population has doubled since the crisis years. It now exceeds 8 billion, more than twice as large as the 4 billion of the 1970s. All these people use energy every day in their daily lives. The second is that geopolitical developments in the 2020s imply a multipolar world. Transnational decision-making is more complex, and patterns of economic trade in commodities have changed, including notably for oil and for gas. Decision-making is also overshadowed by the possible prospect of armed conflict on a scale not seen since World War II, extending energy security questions again into the military sphere.¹⁹ The largest land war in Europe since the end of World War II is a grim premonition of what could lie ahead.

The demands for energy of a world of eight billion people — and, barring disaster on a scarcely imaginable scale, ten billion by 2050 — is the primary fact for energy use in our time. The ambitions of many people for a higher quality of life, which implies economic growth, will drive more use of energy. The world is trying to find ways to ensure that the increase in energy use will have less impact on atmospheric concentrations of greenhouse gases than the energy that is used today.

The geography of energy trade has also changed fundamentally, complicating Europe’s calculus for energy security. The new prominence of China in global affairs is mirrored in the global patterns of energy supply. China has taken over from the US as the primary destination for Middle Eastern oil. As the US has moved to energy independence, with the revolution in producing oil and gas from domestic shale deposits, so China’s industrialized economy has become dependent on imports of crude oil. Chinese oil

17. Cited in Daniel Yergin, *The Prize*, Simon and Schuster 1991, p. 160.

18. Formally, in economists’ parlance, the “terms of trade” for any country or group of countries is the ratio of their import prices to their export prices. Sudden radical changes to the terms of trade, as triggered by the “oil shocks” of 1973–74 and 1979–80, will trigger economic recession. This is the major macroeconomic, as opposed to military and strategic, factor behind governments’ concerns about energy security.

19. See, for example, <https://www.nato-pa.int/document/2023-energy-security-report-baldwin-023-esc>. “The energy crisis has forged new linkages among national security, energy security, climate security and economic security in Allied thinking. These ostensibly different realms of economic and political activity are, in fact, highly interrelated. Policy makers need to ensure that policies in these areas are mutually reinforcing.”

demand is reaching 17 million barrels per day, and imports are running over 11 million barrels per day, with about half of oil imports coming from the Middle East.

The US still actively maintains its role in multilateral energy security. But its allies may question whether the urgency of its commitment may be lessened as its dependence on the Middle East has declined. As a recent report from Japan's METI states, referring to the new geography of trade, "These changes may impact Japan, which is still heavily dependent on the Middle East, increasing risks associated with its energy procurement."²⁰ The same concerns apply in Europe.

In contrast to the US, China has historically prioritized a bilateral rather than a multilateral approach to energy security. Some ambitious bilateral schemes — such as an agreement with Pakistan to fund a pipeline from its coast to bring Middle Eastern oil by land to China over the Himalayas — have fallen by the wayside in the light of overwhelmingly difficult engineering and economic challenges (it is not easy to pump oil 4,000 meters uphill). Bilateral arrangements in Africa have had more success, and the brokering of a partial Saudi-Iranian rapprochement illustrates China's recent engagement in the Middle East. But China, although it seeks some alignment, is not a member of the IEA; and, given geopolitical trends, it seems unlikely that, even as the world's largest importer of oil and LNG, it will ever be drawn in the direction of multilateral cooperation for energy security.

The renewed focus on energy security is also evident in the multilateral institutions that are essential parts of Europe's energy and economic architecture.

Energy security — the transnational governance framework

The IEA scenarios

The Paris-based IEA is widely regarded as a leading authority on energy trends and policies. Its official status as the representative of its member governments²¹ enhances the perception of its authority. The IEA's mission at its founding 50 years ago,²² and a major focus still today, is the security of energy supply for its members, which include 23 European countries. In recent years, IEA widened its brief to include widely cited analysis of the implications for energy, and for energy policies, of internationally agreed measures to reduce the emission of greenhouse gases.

In November 2023, the IEA secretariat published its "flagship" annual World Energy Outlook (WEO 2023). This document demonstrates the reemergence of energy security into the forefront of policy — in sharp contrast to the IEA's position in 2021.

There are two important points to note about the IEA's work here.

- The first is that a transition toward clean energy remains a major emphasis of the policy recommendations of the IEA, and this has been reaffirmed at the latest meeting of IEA ministers in February 2024.

20. "The Increasing Importance of Energy Security in the Face of the Energy Crisis," METI, March 16, 2023, https://www.enecho.meti.go.jp/en/category/special/article/detail_181.html, accessed Jan. 10, 2024.

21. The IEA now has 31 members.

22. See the international treaty basis of the IEA, "Agreement on an International Energy Program, 18 November 1974," published in Richard Scott, *The History of the International Energy Agency*, Vol 1, Appendix III, OECD 1995.

- But the second is that there was, in 2023, a significant change of priorities in discussing key elements of the IEA’s own 2021 publication of a Net Zero Economy (NZE) scenario — specifically, a recognition that new investment is needed in oil and gas in order to ensure energy security. The 2021 NZE scenario presented an aggressive change in energy mix to 2050 — and particularly that for oil and gas — that would not require new investment in oil and gas. This work has been cited by the IEA as an “essential benchmark for policy makers, industry, the financial sector, and civil society.”

In various communications, this conclusion was presented as a policy recommendation and a statement of fact and, at other times, as a scenario. The agency pointed out that if demand is to follow a downward trajectory radical enough to attain this objective, annual investment in clean energies would need to run at a much higher rate — at about \$4.5 trillion per year compared with the current rate of about \$1.8 trillion. In a much-reported corollary, the associated rapid decline in demand for oil and gas would mean that new investment in oil or gas fields would not be needed.

This interpretation of the IEA NZE scenario was widely adopted. For instance, a British newspaper cited it as a given takeaway: “No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body...Exploitation and development of new oil and gas fields must stop this year ... if the world is to stay within safe limits of global heating and meet the goal of net zero emissions by 2050, the world’s leading energy organisation has said.”²³

However, in WEO 2023, the IEA made clear that it should no longer be seen as advocating a cessation of oil and gas investment. It sought to recast its position:

“The end of the growth era for fossil fuels does not mean an end to fossil fuel investment... Simply cutting spending on oil and gas will not get the world on track for the NZE Scenario; the key to an orderly transition is to scale up investment in all aspects of a clean energy system.”

Strikingly as well, a renewed emphasis on energy security is clear in 2023 that was absent in 2021:

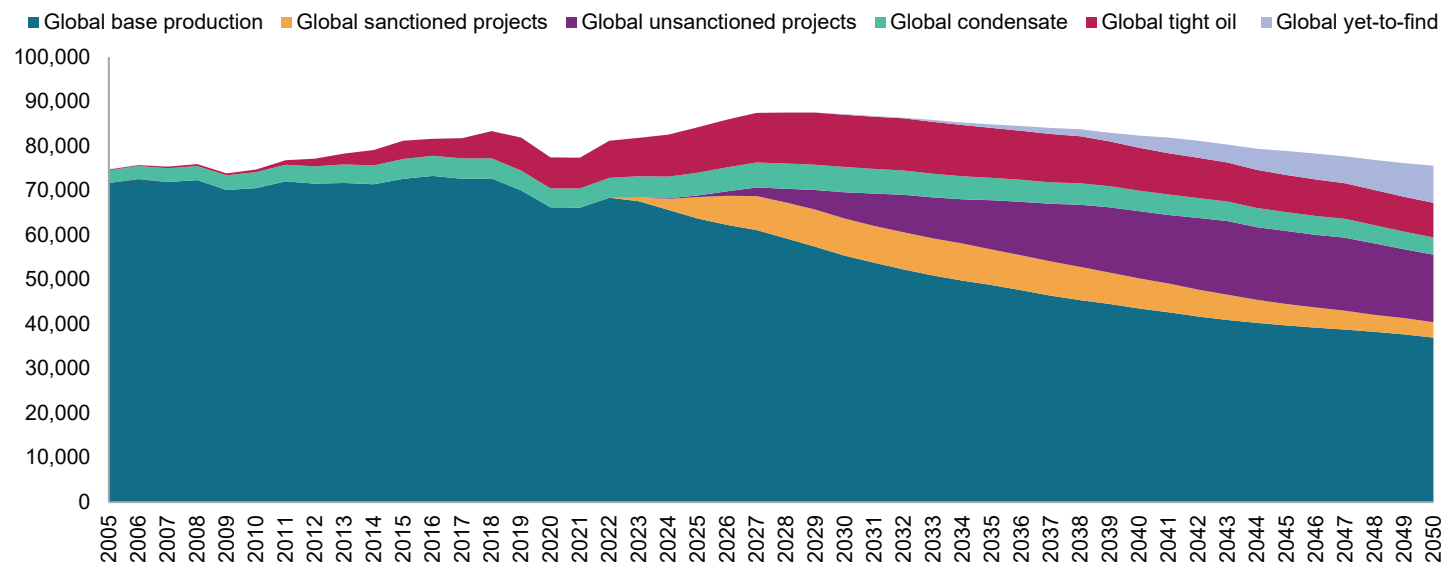
“Even as demand for fossil fuels falls, energy security challenges will remain since the process of adjustment to changing demand patterns will not necessarily be easy or smooth. For example, the peaks in demand we see based on today’s policies do not remove the need for investment in oil and gas supply, given how steep the natural declines from existing fields often are.”

These “natural declines” from existing production run typically at a rate of about 3% per year (see Figure 5). So, in order for production to “stand still,” commensurate new investment is needed each year. With the aggregate base decline at about 3% per year, the bulk of new supply volumes are needed just to keep world oil production flat. Even by 2050, with oil demand falling in the Commodity Insights outlook, most of the expected supply will be contributed by fields or projects that are today neither discovered nor developed. These new investments will contribute 31 million b/d of new crude and condensate production by 2040, equivalent to nearly 40% of 2022 world output — future production that is not in existence today.

23. Betsy Reed, “No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body,” The Guardian, May 18, 2021, <https://www.theguardian.com/environment/2021/may/18/no-new-investment-in-fossil-fuels-demands-top-energy-economist>, accessed Feb. 28, 2024. See also Brad Plumer, “Nations Must Drop Fossil Fuels, Fast, World Energy Body Warns,” The New York Times, May 18, 2021, <https://www.nytimes.com/2021/05/18/climate/climate-change-emissions-IEA.html>, accessed Feb. 28, 2024.

Figure 5

Global crude oil and condensate production outlook (thousand b/d)



As of Feb. 15, 2024.

Source: S&P Global Commodity Insights.

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The IEA also makes clear that futures other than its NZE are possible. Indeed, the NZE is the most abrupt of all its scenarios. The IEA has another outlook based on policies that have been adopted by governments and represent their current priorities (the “STEPS” scenario), as well as a scenario that calculates the implications of pledges that have already been made (the Advanced Pledges, or APS, scenario) on the working premise that they will in fact be implemented as policy. The agency concludes:

“Continued investment in fossil fuels is essential in all of our scenarios. It is needed to meet increases in demand over the period to 2030 in the STEPS and to avoid a precipitous decline in supply that would far outstrip even the rapid declines in demand seen in the NZE Scenario. ... simply cutting spending on oil and gas will not get the world on track for the NZE Scenario: the key is to scale up investment in all aspects of a clean energy system to meet rising demand for energy services in a sustainable way.”

Lastly, the IEA emphasizes the care that government policymakers should take as they approach this issue. In guarded language, it comments:

“Both overinvestment and underinvestment in fossil fuels carry risks for secure and affordable energy transitions. Any assessment of the implications of investment needs to take into account who is investing and the efficiency of the spending, and policy makers need to be mindful in particular of trends that could point to a future concentration in supply or other energy security risks.”

In sum, in response to the imperative of energy security, the IEA clearly felt it necessary in 2023 to correct the interpretation that no new investment was needed in oil and gas and to convey that message to European governments.

The IMF and EU energy subsidies

The International Monetary Fund, alongside the OECD with which the IEA is linked, regularly monitors the level of government subsidies in the energy sector. The message of the past two years is that direct subsidies to consumers to support their use of

fossil fuels have increased — and substantially, to over \$1 trillion annually of explicit subsidies. This gives the clearest possible indication of governments' concerns for the security and affordability of their consumers' energy use.

The scale of European government subsidies speaks of how strongly and how quickly the concern for security and affordability can become an urgent concern. The response since 2021 is that governments have directly supported the supply and consumption of fossil fuels while continuing with policies to promote energy transition.

Conclusion

Energy security has returned to center stage. Conflict, and the prospect of conflict, has focused political attention on the security of traditional forms of energy supply, in addition to the established focus on the imperatives of the earth's changing climate system. Governments, especially in Europe, have acted strongly in response. They have sought to source alternative supplies of energy and establish new supply chains and have proactively encouraged the construction of new infrastructure for the import of oil and gas. They have emphasized anew the importance of developing domestic hydrocarbons and have adopted policies and incentives to make that happen. Notably, many governments have made large, direct payments to energy consumers to subsidize their consumption of traditional fossil fuels. Overall, while continuing to focus on energy transition, the critical need for governments is to assure citizens of the provision of secure and affordable energy supply. And, since 2021, they have done exactly that.

Author biographies

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Atul Arya is responsible for integrating energy content, analysis and insights across the entire energy value chain. He previously held leadership positions with BP PLC in upstream oil and gas, technology, solar photovoltaics and corporate strategy.

Arya has served on boards of several companies and institutions. He was a member of the World Economic Forum's Agenda Councils on Climate Change, Advanced Energy Technologies & Future of Oil and Gas and served as adjunct senior fellow at the Council on Foreign Relations.

Most recently, Arya led the Global Energy Solutions Initiative in collaboration with the International Energy Forum and was the lead author of the report on *Multidimensional Energy Transition* (2023). He is a member of the CERAWEEK leadership team and leads program design for Innovation Agora. Arya holds a Bachelor of Science, a Master of Science and a Ph.D. degree in engineering.

Simon Blakey

Simon Blakey is a leading authority on the European energy industry. He was the founding director of the European natural gas and electric power research practices at Cambridge Energy Research Associates, a predecessor company of S&P Global Commodity Insights, and held executive positions at the International Energy Agency. He served for four years as special envoy for Eurogas, the association of European gas companies.

He is currently a senior advisor at S&P Global and holds a Senior Visiting Fellowship at the School of Transnational Government in the European University Institute in Florence, Italy. Blakey's current research specialties include hydrogen as a future fuel and the management of global methane emissions. He is the author of *Understanding Methane; Hydrogen: New Ambitions and Challenges; and Gas, Steel, and Money: Financing the European Gas Industry*.

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