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POLICY BRIEF

KEEPING THE LIGHTS ON: THE EU'S ENERGY RELATIONSHIPS SINCE RUSSIA'S INVASION OF UKRAINE

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SUMMARY

- Since the start of Russia's all-out invasion of Ukraine, the EU has sought to rapidly reduce its dependence on Russian gas and oil.
- Many alternative major suppliers to Europe stepped up as 'friends in need' in the first year of the war, helping the EU plug the gap.
- The EU's climate goals direct it to encourage the development of renewable energy sources – meaning it must also cultivate 'friends indeed,' which can supply clean energy as well as gas and oil.
- The countries best able to fulfil both short-term needs and long-term ambitions are Norway and the US, which have stable supplies of gas and are making progress in clean energy.
- The EU and member states have the instruments and investment resources to advance the potential of other supplier countries as well – to help them too transform from 'friends in need' to 'friends indeed.'

Introduction

Among its many geopolitical implications, Russia's full-scale invasion of Ukraine has had profound consequences for the European Union's relations with key energy suppliers. Soon after the war began, the EU began imposing sanctions on Russia, including on fossil fuel imports. In March 2022 the president of the European Commission announced the complete phase-out of imported fossil fuels from Russia by 2027.

But the EU was heavily dependent on Russian gas at the outset of the conflict. Since February 2022, therefore, reduced gas and oil supplies from Russia, and EU embargoes on imports of coal and petroleum products, have obliged member states to quickly seek out alternative sources. In the first year of Russia's war, the EU and its member states concluded around 100 energy cooperation agreements. Most of these were with countries that feature among the EU's largest, and most longstanding, suppliers of fossil fuels: 17 agreements with the United States, 9 with Azerbaijan, 9 with Norway, 8 with Qatar, and 7 with Algeria.

At the same time, the EU is facing a challenge: the bloc needs significant amounts of fossil fuels, mainly gas, from sources other than Russia in the short to medium term – but it also needs to progress its own transition to net zero as well as help others to fulfil their Paris accord climate commitments. This means that the EU and its member states have to balance meeting these short-term needs with building lasting energy alliances that support the EU's energy transition goals in the long term.

This policy brief aims to identify which of the EU's energy partners are not only 'friends in need' – countries able to step up to assist in crisis situations to ensure security of supply – but also which are, or could become, 'friends indeed' – countries that are pressing forward with the green transformation by shifting away from the extraction, use, and sale of fossil fuels. The paper finds that Norway and the US are leading in acting as both principal friends in need and friends indeed, being able both to increase fossil fuel supplies in the short term but having already taken steps to develop domestic clean energy, some of which may be exportable. Other states have also acted as friends in need over the last year. But to become friends indeed they will need extra support to ensure that the pressures generated by the energy crisis do not discourage them from developing their renewable energy sectors (including exploring the possibilities of hydrogen).

The paper recommends that the EU take the opportunity provided by the past year's vigorous deal-making to secure supplies, which is likely to continue, and use this enhanced engagement to offer support to partner states to develop green energy. EU and member state policymakers will need to take careful account of the balance between requesting and

encouraging increases in fossil fuel production and export and assisting other states to undertake the clean energy transition. Questions over the length of contracts and the risk of creating stranded assets – and indeed of failing to progress rapidly enough away from fossil fuel use – are factors that weigh on decision-makers' minds on both sides of the negotiation table. Equally, Russia retains good relations with many of the EU's friends in need, as well as Turkey, which is not a major supplier of fossil fuels but which is aiming to becoming an energy hub. Russia also remains an important energy supplier to countries around the world. Its relationships with other states will continue to influence Europeans' decisions and freedom to manoeuvre.

The geographic scope of this policy brief's analysis focuses on countries that were among the largest suppliers of gas and oil to the EU before the start of Russia's attacks on Ukraine: Norway, the US, Algeria, Qatar, Nigeria, Azerbaijan, Kazakhstan, and Saudi Arabia. The policy brief also covers Turkey as a transit country for fossil fuels to Europe.

The search for friends in need: Striking the right energy balance

Many countries that were already major suppliers of energy resources to the EU responded flexibly to EU states' increased demand for gas and oil following Russia's invasion of Ukraine and the EU's imposition of sanctions on Moscow. They proved to be able to meet the needs of their 'friends' in a time of crisis.

Following the drastic reduction in gas imports from Russia, Norway became the most important supplier of gas to the EU, ahead of the US and Algeria. The US provided the largest absolute increase in gas supplies; the US is the biggest supplier to the EU of liquefied natural gas (LNG), which is transportable by sea and does not rely on existing pipeline infrastructure, ahead Qatar and Russia. Both Qatar and Azerbaijan also feature among the countries that began sending more gas to the EU. (Importers in the EU can still buy gas from Russia, both in the form of LNG and through existing, operating gas pipelines, as this gas is not covered by EU sanctions. Indeed, in the first year of the war, LNG imports from Russia to the EU actually rose.)

Prior to the start of the war, Norway was the second largest supplier of gas to the EU after Russia, with a 25.1 per cent share in 2021, as well as being an important supplier of oil, with a 9.4 per cent share in 2021. Other "swing suppliers" – countries that are flexible enough to adapt to unexpected changes in supply – were also able to redirect significant flexible volumes to the European market, such as Egypt, Angola, and Trinidad and Tobago.

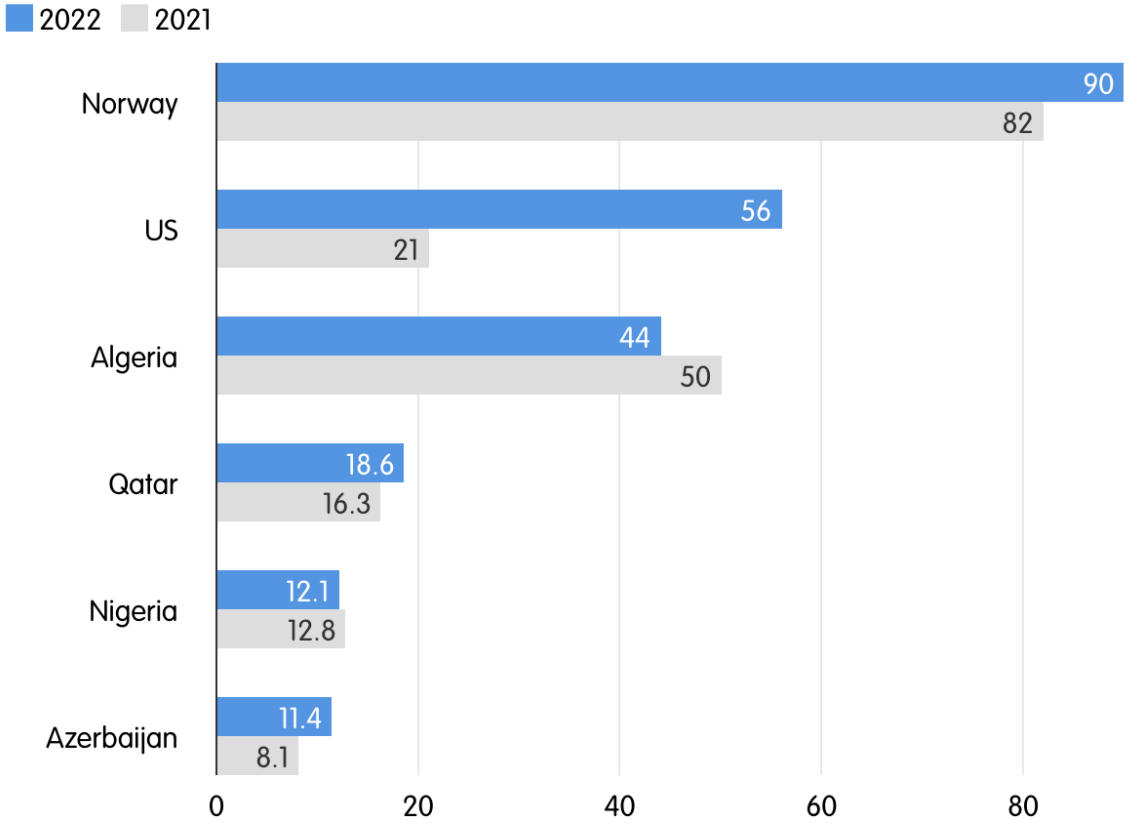
Following the invasion, the EU and member states ramped up their deal-making activity, concluding new gas and oil supply agreements with countries around the world. These included an April 2022 agreement reached between the EU and the US to increase gas supplies by 15 billion cubic metres (bcm) of natural gas that year and by 50 bcm each year until 2030. Annual demand for gas in the EU was 360 bcm in 2022. In July 2022, Azerbaijan agreed to increase gas supplies to the EU that year and pledged to double exports to the EU by 2027. At the member state level, deal-making by Germany, Italy, and Poland in particular contributed to the increase in the supply of fossil fuels, principally gas.

This trend was not evident among all of the EU's traditional non-Russian suppliers. For example, Algeria is normally one of the largest gas suppliers to Europe, but it actually reduced its total exports to the EU in 2022. It did increase its gas deliveries to Italy in 2022 by 10 per cent compared to the previous year, which may have been partly linked to a change in Spain's position on Western Sahara. Nigeria is also an important supplier of fossil fuels to Europe, but, like Algeria, its exports to the EU declined in 2022.

Overall, most existing gas and oil suppliers to the EU successfully fulfilled the role of friends in need, with Norway and the US particularly standing out in terms of their absolute contribution. This was due to their flexibility in being able to redirect exports (the US) but also displaying the political will to support European allies during a period of crisis. At the same time, the process of diversifying sources of supply was associated with higher costs and other challenges for EU countries because of the soaring prices of gas and oil. With all this in mind, European policymakers will now have to consider which countries could play the role of friends in need not only during the long war, but also in the years after its possible end.

Key non-Russian natural gas suppliers to the EU (2021–2022)

In billion cubic metres



Source: CSIS, Global X, Asharq Al-Awsat

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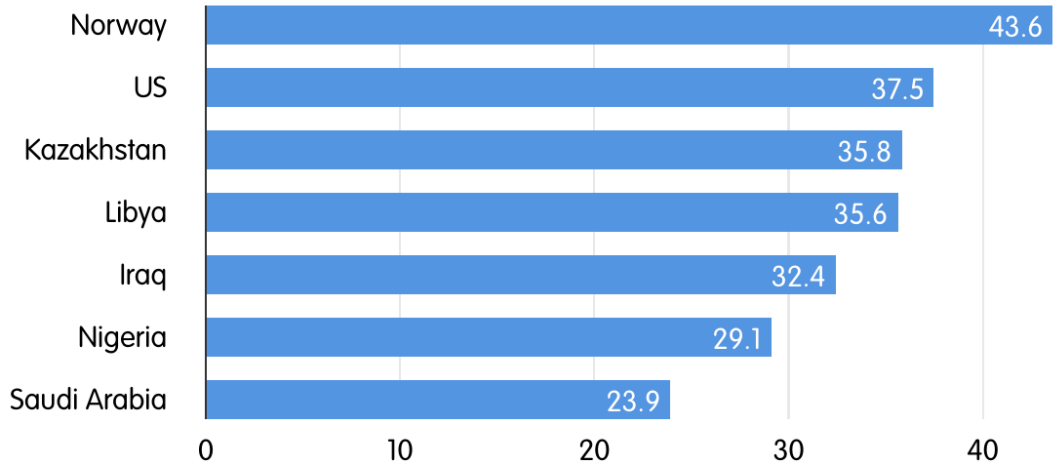
Key non-Russian crude oil suppliers to the EU (2021)
In million tonnes



Source: Eurostat
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Making – and keeping – friends in need

EU will remain dependent on fossil fuels at least in the medium term. Domestic demand means that member states are compelled to maintain energy cooperation with existing suppliers at least to some degree. And Europeans' dependence on gas in particular is stark, something which is reflected by the new deals struck by the EU and member states in the first year of the war, predominant among which are gas supply agreements.

A number of challenges stand in the way of increased cooperation on fossil fuel imports between the EU and supplier partners. These range from partner states' domestic constraints on increasing supply to fulfilling the EU's (and others') formal commitment to decarbonisation goals.

Challenges to external cooperation

Capacity constraints on increasing supply

Although some countries declare their willingness to increase energy resource export to the EU – especially gas – in practice, not all partners have the capacity to do this. The sole exception is the US. All other countries examined in this study face constraints that will

prevent them from significantly contributing to increased fossil fuel imports for the EU.

The United States

The only country with any realistic potential to increase gas supplies to the European market relatively quickly is the US. And it is already taking steps to do so: the US plans to commission more LNG export terminals between 2024 and 2025, whose total capacity would provide an extra 15.6m tonnes per year. ECFR's Energy Deals Tracker found that the US has concluded the largest number of new and binding contracts and indicative agreements for gas supplies to EU countries since Russia's all-out invasion of Ukraine.

Norway

Norway is likely to remain a reliable supplier of significant volumes of natural gas for the EU in the coming years. On the face of things, it might at first appear that supply increases are possible. As early as September 2021, the Norwegian government had already begun to increase gas production permits due to rising prices. And in November 2022, Norway's major state-owned energy company Equinor announced a $1.44 billion investment in a new gas field in the Norwegian Sea and the Barents Sea: the Norwegian government offered energy companies a record high 92 new petroleum exploration blocks in the Arctic. However, projections suggest that in a few years' time supplies could settle at 2022 levels, or about 122 bcm of gas a year (including deliveries to the United Kingdom). Still, Norway appears set to remain a steady energy partner for the EU: its authorities have made clear their intention to maintain a stable and long-term supply of oil and gas to the EU and the UK.

Azerbaijan

Some countries have significant proven fossil fuel reserves but face obstacles to raising output. In the case of Azerbaijan, its own gas extraction is growing relatively slowly, and at a rate that is disproportionate to the increase in its domestic consumption. In addition, the resources of the Absheron deposit (discovered by the French company TotalEnergies in 2011), one of the biggest in Azerbaijan, are not as large as expected. Moreover, the anticipated level of production in the deposit will not be significant – it is estimated at 5-6 bcm – and may not be reached earlier than 2027. The risk is that, to meet domestic demand and to send more supplies to the EU at the same time, Azerbaijan may increase its purchases of gas from Russia. Infrastructure constraints also apply: the country's 2022 agreement to increase gas supplies to the EU would require the expansion of the capacity of gas pipelines, particularly the Trans-Adriatic pipeline, from 10 bcm to 20 bcm. Investment in this expansion could take 3-4 years.

Algeria

As in Azerbaijan, problems in the upstream sector (the exploration and extraction of oil and gas deposits) are evident in Algeria. Admittedly, the country plans to increase its gas exports to the EU from 56 bcm in 2022 to 100 bcm in 2023. But the rate at which domestic consumption is growing means that the realisation of these intentions must also be in doubt. In early 2022, Sonatrach, Algeria's state-owned energy company, announced plans to invest some €40 billion over five years in gas and oil development and production, as well as in the refining sector, but on the assumption that foreign gas importers will invest in upstream projects in Algeria.

Infrastructure constraints could further prove a barrier. Algeria is connected to Europe by three pipelines, only two of which are currently in operation (Medgaz and TransMed) with a combined capacity of only 42 bcm. Until 2021, Algeria also exported gas to the EU via the Maghreb-Europe pipeline (whose annual capacity was 12 bcm) but political tensions between Algeria and Morocco led to the suspension of transmission via this route. Algeria has LNG export terminals with a nominal capacity of 30m tonnes (around 40.5 bcm), but existing infrastructure needs upgrading.

Qatar

Infrastructure constraintsmay also prove to be a significant obstacle for Qatar. Its share of gas supplies to Europe is currently about 5 per cent, but its existing capacity is almost fully utilised, meaning it has little chance of increasing exports in the short term. And, although Qatar has significant upstream potential, with LNG production capacity expected to rise significantly, from 77m tonnes in 2022 to 126m tonnes, this will not happen until 2025-2027. Qatar is in the process of developing its export infrastructure, but it will be some time before these projects make much difference to the country's export capacity. Nevertheless, Qatar has a long-term interest in expanding its share of the European market. It has increased its reservation of storage and regasification capacity in LNG terminals in Europe to enable it to send more gas. This was in train even before Russia's invasion of Ukraine: Qatar had already booked regasification capacity in Zeebrugge up to 2044, in the French Montoir terminal up to 2035, and in the British Isle of Grain up to 2050.

Nigeria

There is also little chance that Nigeria will be able to increase its LNG export capacity. Its newest (seventh) production line of its LNG terminal is only 30 per cent ready, and it is operating at just under two-thirds of its capacity. In addition, although in 2022 there were

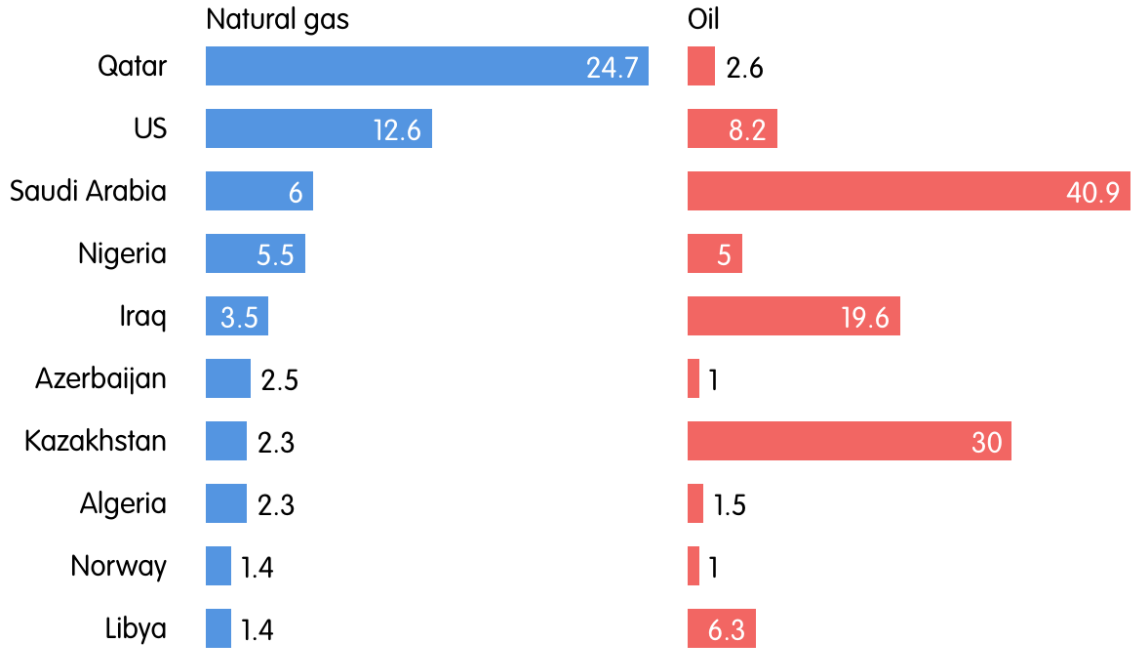
attempts by Nigeria and Morocco to reactivate two major gas pipeline projects in Africa – the nearly 40-year-old Trans-Saharan pipeline project from Nigeria to Algeria and a pipeline from Nigeria to Morocco – prospects for their implementation are uncertain. So far, only memoranda have been concluded for these pipelines, and no dates are specified for their implementation; nor is there any European involvement in these memoranda. Besides, these projects would be expensive to implement (the cost of the Nigeria-Morocco gas pipeline is estimated at $13 billion) and it is unlikely that African countries would be able to finance such major investments without the participation of foreign investors.

Saudi Arabia

Saudi Arabia is among the key oil suppliers to the EU and has significant potential to increase its deliveries to Europe in place of sanctioned Russian oil. The country has the largest proven oil reserves in the world after Venezuela. It is also the world's largest exporter of oil and, after the US, is the second largest producer of oil globally. Moreover, Saudi Arabia plans to expand its export potential from the current 10m to 13m barrels per day by the end of this decade.

Proven reserves of gas and oil (at end 2020)

Natural gas, in trillion cubic metres. Oil, in thousand million tonnes.



Source: BP Strategic review of World Energy 2021
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Kazakhstan

Kazakhstan can play the role of a friend in need for Europe in the field of oil supplies. It has significant proven crude oil reserves and, according to declarations by Kazakh authorities, it plans to increase its output from 86m tonnes in 2021 to 104m tonnes by the end of the decade. However, the most serious challenge for Kazakhstan is the issue of export routes. Before Russia's war on Ukraine, more than 90 per cent of oil exports from Kazakhstan, including volumes dedicated to European customers, passed through Russia, primarily through the Caspian Pipeline Consortium (CPC) oil pipeline (and, to a lesser extent, through the Russian oil terminal in the Baltic port of Ust-Luga). Kazakhstan is trying to diversify its export routes, in particular through oil pipelines passing through the territory of Azerbaijan – the Baku-Supsa and Baku-Tblisi-Ceyhan pipelines – but it is not clear how quickly it will be able to do this or how much volume it will be able to transfer through these pipelines.

Libya

Before Russia's all-out war on Ukraine, Libya was an important supplier of oil to the EU. Although it remained important in 2022, it may find it difficult to maintain the status of stable supplier to the EU. On the one hand, Libya has significant proven oil and gas reserves. On the other hand, its lack of domestic political stability may be a serious barrier to closer energy cooperation with European partners. It is true that in January 2023 Italy concluded strategic energy agreements with Libya, including, among other items, investments in gas fields, which ought to enable an increase in gas exports to Europe. (In 2022, gas deliveries to Italy through the GreenStream pipeline amounted to only 2.6 bcm.) But the prospects for the implementation of these agreements are uncertain due to the country's political instability.

Domestic supply

It is worth noting that Europeans have only limited capacity to increase gas production in the EU. Countries such as the Netherlands and Romania could potentially raise production, but this is unlikely. The Netherlands plans to end gas production from its Groningen field (one of the largest gas fields in Europe) by October 2024, a decision motivated, among other drivers, by environmental considerations. Romania has significant onshore and offshore gas reserves, but 2027 is the earliest date by which it could begin gas exploitation in the Black Sea.

EU climate policy

One crucial factor in whether friends in need can become friends indeed for the EU is its own climate legislation. Notably, the EU's desire to become independent of fossil fuel supplies

from Russia as soon as possible – while at the same time declaring its intention to accelerate energy transition processes and achieve climate neutrality by 2050 – could create a divergence of interests between the EU and its fossil fuel suppliers over the long term.

One major sticking point could be the EU's carbon border adjustment mechanism (CBAM). It is difficult to make a full assessment of the effects of the new instrument on the EU's relations with suppliers of energy resources to Europe at the present stage, as not all details related to the functioning of the new mechanism are clear. Still, on the one hand, under current proposals the CBAM will not cover the supply of fossil fuels. On the other hand, however, the measure will include the import of electricity and hydrogen.

For many fossil fuel suppliers to Europe, the EU is their most important trading partner, or is among the most important trading partners. Although the CBAM regulations envisage a transitional period up to 2025, under which products such as electricity or hydrogen imported from third countries will not be subject to the tax (and their EU importers will be required only to report their purchases), the impending new rules have already caused worry among third countries. Some countries have concerns about the costs that the new mechanism may generate for their exporters. This includes Gulf Arab states and African states, but also Kazakhstan, for which, according to World Bank estimates, the mechanism could incur $250m in losses per year, and up to $1.5 billion per year if the mechanism is extended to oil. This raises numerous questions about what balance to strike, and it will impact on the EU's relations with its supplier partners. Equally, if it remains too reliant on fossil fuel imports and delays the introduction of the CBAM or particular measures under the instrument, the EU could lose its reputation as a leader in the fight against climate change.

From the point of view of exporter states, the risk is that a rapid EU shift away from fossil fuels could mean they invest in upstream activities but then find themselves less able to sell the newly available raw materials. In a variety of scenarios, European actions could slow the transition from friends in need to friends indeed.

Contract length and content

From the perspective of third countries, risk factors include cyclical fluctuations in energy commodity prices, the possible emergence, as noted, of a stranded assets trap amid the global energy transition trend, and the costs of maintaining infrastructure. However, the EU has evinced little interest in concluding the sort of long-term fossil fuel supply contracts that could address these concerns. This might deter some countries from expanding production capacity and building new infrastructure. Indeed, gas infrastructure, both LNG and pipelines, are costly, long-term investments and need at least one decade of operation, or sometimes

even two decades, to pay for themselves.

But the EU has so far sought to avoid binding long-term contracts. Even before the start of the war in Ukraine, the European Commission opposed the conclusion of long-term contracts for the supply of fossil fuels (especially gas) by member states, in particular those proposed to last beyond 2049. The commission's position is motivated by the EU's climate goals, and in particular the bloc's plan to achieve climate neutrality by 2050. And, despite the pressures generated by the war, so far few EU countries or companies have concluded such long-term contracts.

Practical considerations relating to contracts can also have an impact on the EU's partners and influence whether they will act as friends in need or be friends indeed. For example, the specificity of exporters' demands for particular clauses in contracts may also be a challenge. In the case of Qatari companies, a characteristic practice is to write clauses into contracts that limit buyers' ability to re-export gas. This was the subject of allegations on the part of the European Commission and an antitrust investigation it initiated against Qatar Petroleum (now Qatar Energy), even before the Russian invasion of Ukraine.

The length of contracts is also a contentious issue for the EU's partners. Negotiations between Qatar and Germany are illustrative of this problem. Qatar wanted a long-term deal, but Germany rejected its offer of a 20-year agreement, and also rejected indexation to oil prices. Eventually, a contract was concluded for the supply of LNG from Qatar to Germany, but it is not a direct contract between German and Qatari companies. In November 2022, the American company ConocoPhillips signed a contract with Qatar Energy for the supply of 2m tonnes of LNG to Germany. The deal was concluded for a shorter period of 15 years. Negotiations on a direct Qatari-German contract are still ongoing.

Domestic economies

The centrality of the oil and gas sector to the economies of friends in need also matters significantly in EU-supplier relations. For many exporter states, fossil fuels will remain an important factor in economic development and a source of financial revenue for some time to come. Oil and gas represent one-fifth of Norway's GDP and half of its total exports in 2021. Sales of fossil fuels accounted for more than 90 per cent of Algeria's export revenues and around 50 per cent of state budget revenues in recent decades. Fossil fuel production and export revenues account for about 60 per cent of Qatar's and Saudi Arabia's GDP. Qatar has large gas reserves that are of interest to third countries both from a narrow energy security perspective – maintaining security of supply – and as a transition fuel in energy transition processes. This applies particularly to Asian countries such as China, India, Japan, and South

Korea, which were the main importers of LNG from Qatar in 2021. In Libya, hydrocarbon revenues account for 97 per cent of GDP, 97 per cent of exports, and 99 per cent of states budget revenues.

Norway

The significant economic importance of profits from oil and gas exports contains particular challenges from Norway's perspective, although these are of a specific nature. Regardless of the importance of fossil fuels in the Norwegian economy, the government is committed to implementing climate goals and strengthening international cooperation on climate issues. However, Norway's energy policy bases its own power generation on renewables while exporting fossil fuels: produce renewables to live, produce petroleum to sell. Thus, plans to export clean energy (including hydrogen) are not uncontroversial. When electricity prices in Norway rose substantially in 2022, the point emerged during the public debate that this was partly because the country exports electricity to the EU and the UK. Among other matters, this underlines the lower profitability (than fossil fuels) of clean energy exports. In 2022 Norway earned only €1 billion in renewables-related exports. Even with the expansion of energy partnerships with other countries, these profits could rise only to €8 billion by 2030. Although Norway is willing to cooperate with EU countries on green energy projects (such as joint hydrogen projects planned with Germany), Oslo wants clarity about the demand for oil and gas in the EU beyond 2030. Brussels, on the other hand, is trying to avoid incurring long-term liabilities. According to media reports, the EU has twice rejected Norway's proposal to obtain a long-term commitment from the EU to import Norwegian oil and gas after 2030. This remains an obstacle in negotiations related to the formation of the EU-Norway Green Alliance for Industry. Although the agreement was finally reached in April 2023, and the parties declared their willingness to develop comprehensive cooperation to achieve the goals of the energy transition, the document creates no specific obligations for the parties. Moreover, the agreement does not address the issue of cooperation in the supply of fossil fuels from Norway to the EU, which further suggests the EU is unwilling to make long-term commitments in this regard.

The United States

Lack of clarity around the future of gas import demand in Europe is also a challenge for the US. Some American experts argue that the US should increase production and further expand its export potential to become a reliable supplier of raw materials to Europe over the long term. Indeed, oil and gas will remain important raw materials even if the most ambitious sustainable development scenarios for each type of fossil fuel (as set out by the International Energy Agency – IEA) can be achieved. But without an increase in US crude production and

exports, Europeans will face supply problems and increasing new dependencies on, for example, China exporting large quantities of petroleum products made from Russian oil bought by China at discounted prices. Others warn that a significant increase in US gas production could lead to a fossil fuel investment trap lasting decades. Each scenario poses challenges for Europeans. The lack of an appropriate number of medium- and long-term contracts may result in American companies contracting gas supplies with partners from outside Europe. Then, in the event of further possible energy crises related to gas shortages, EU countries may incur significant costs in obtaining raw material, having to purchase it at higher prices on spot markets. That being said, concluding too many long-term contracts with US companies (and for too long) may slow the process of moving away from fossil fuels in the EU, and thus have a negative impact on the pace of energy transformation.

Negotiating strength

Individual suppliers of fossil fuels to the EU have different options for neutralising these risk factors and thus have a stronger negotiating position vis-à-vis European partners, whether the EU itself or individual member states. For example, exporters such as the US, Qatar, and Saudi Arabia enjoy a strong position in the global market, and are therefore able to redirect supplies to alternative markets. Qatar is currently mostly tied to long-term contracts, mainly with Asian customers, allowing it the possibility of exporting about 10-20 per cent of its production to Europe. But the opportunity for European customers is that, by 2025, many of Qatar's previous trade agreements will expire and Qatar Energy will have around 75m tonnes to contract by 2027. Qatar has signed at least ten contracts (ranging between 10-20 years in length) to supply 17.8m tonnes of LNG between 2021 and 2022: 5 contracts with China (for 8.5m tonnes), and 5 each with Bangladesh, Pakistan, Taiwan, Singapore, and South Korea (for 9.3m tonnes). In contrast, the US has both the means and the technological capacity to accelerate the decarbonisation of its buildings sector, thereby reducing fossil fuel consumption, especially domestic gas. The volumes of crude saved could be exported to third-country markets, including Europe. This could be a short-term solution to a long-term problem for both the US and the EU. It would reduce the risk of increasing the extraction of fossil fuels in the US while at the same time providing a medium-term remedy for the supply of fossil fuels to the EU. It would also not pose a threat to the strategic goal of achieving climate neutrality by the EU and the US.

Elsewhere, countries such as Norway and Azerbaijan are less flexible in responding to changes in demand in external markets and have limited ability to freely redirect fossil fuel exports. To a lesser degree, this also applies to Algeria. These countries export most of their gas via pipelines and are therefore more dependent on the European market. (Azerbaijan

only exports gas by pipeline.)

One further challenge is that a limited supply of fossil fuels, particularly of natural gas, could lead to increased competition between European countries on strictly economic grounds, that is, for access to supplies from sources other than Russia. This could result in periodic price increases in the medium term, generating additional costs for importers. Indeed, it appears that Algeria uses competition between EU importers as political leverage. In 2022, representatives of EU institutions and some European countries (including France, Italy, and Slovenia) visited Algeria to intensify energy cooperation. There are indications that Algeria may be playing EU countries off against each other, hoping for specific political and economic benefits, or for them to support the Algerian position on Western Sahara. In November 2022, Algeria closed one of the two pipelines carrying gas to the Iberian peninsula because of tensions with Morocco. That said, the economic factor may also have had an impact: Spanish companies do not possess the technological capabilities for the development of fields or the construction of LNG infrastructure and offshore pipelines in the way Italian companies do.

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While most of the EU's key energy suppliers have significant proven fossil fuel reserves, only the US has the ability to strengthen its friend in need role with relative ease, especially with respect to natural gas supplies. Countries such as Norway retain the status of significant suppliers but remain unable to increase exports; partners such as Qatar will only be able to significantly increase what it sends to Europe after it has commissioned new export infrastructure. Other countries, such as Azerbaijan, Algeria, and Nigeria (as well as Turkey) face barriers to raising exports that include both infrastructural challenges and problems related to the upstream sector. In the case of Libya, political instability may be a problem for maintaining and increasing the supply of fossil fuels to the EU. The long-term goals of the EU's energy and climate policy generate specific challenges for key suppliers of fossil fuels to the EU market. They create uncertainty as to the long-term demand for fossil fuels (after 2030), but also to regulatory changes introduced in the EU, especially related to the implementation of the European Green Deal and geopolitical challenges such as the war between Russia and Ukraine and its consequences for regional and global order.

The geo-economic picture

The geo-economic position of various key players will also influence Europeans' efforts to transition to green energy while maintaining fossil fuel supplies for the time being. These

include the US, Russia, and Turkey.

The United States

A long-term strategic challenge for the EU's energy balancing act is the United States' political and economic rivalry with China. Some important decisions regarding economic policy, including energy policy, may be heavily influenced by these global dynamics, such as the legislative changes taking place in the US, including laws such as the Bipartisan Infrastructure Law and the Inflation Reduction Act. On the one hand, these serve to promote the development of green projects, including renewables. On the other hand, they are part of US strategy on China, and may also have an impact on US relations with the EU. For example, subsidising green projects may draw European companies to the US, which may indirectly affect the pace of implementation of energy transformation projects in the EU itself. Although the US under the current administration can be counted among the EU's friends indeed in the context of cooperation for the global energy transition, as confirmed by the recent meeting of the EU-US Energy Council, legislative actions such as the IRA may be a challenge in relations between the partners.

Russia

A year since it invaded Ukraine, Russia's importance in the EU's energy sector has significantly decreased, both due to EU sanctions and actions taken by Moscow itself. An ultimate effect of the war may be the building of energy alliances by the EU and its member states, which, by accelerating the energy transformation, will significantly limit the possibility for Russian companies to regain lost positions on the EU energy market. At the same time, Russia will certainly use available political means, as well as economic and military instruments, to make it difficult for European countries to implement plans to diversify the sources of fossil fuel supplies to Europe. The EU's energy decoupling is not only an economic challenge but a geopolitical one, and political and military ties between some third countries and Russia also have a bearing on this process. In November 2022, Algeria applied for membership of the BRICS group. In addition, in 2021 Algeria finalised $7 billion worth of arms purchases from Russia. Russia supplies about 80 per cent of Algeria's arms, and Algeria itself is the third most important market for Russian arms exports after India and China. Cooperation with Russia, especially in the energy sphere, is also important for Turkey. For years, Ankara has been not only one of the largest importers of Russian gas, but also a transit route for the transmission of Russian gas via a branch of the TurkStream gas pipeline.

The Russia factor is also important in terms of oil supplies to EU countries. Russia may try to use available political opportunities to hinder the EU from strengthening energy relations

with friends in need. For example, Kazakhstan is an important oil supplier to the EU but remains heavily reliant on Russia as a transit country. In 2022, over 90 per cent of its exported oil was transported through pipelines running through Russia. In the same year, Russia several times limited the possibilities of full use of the CPC oil pipeline, officially justifying it for technical or legal reasons, but in fact attempting to curtail the possibilities of exporting Kazakh oil to the European market. Like Kazakhstan and Azerbaijan, Saudi Arabia is cooperating with Russia under the OPEC+ format, which could have implications for European customers in future oil crises. Moscow and Riyadh have regularly coordinated their policy on oil extraction, which has often led to increases in oil prices. European policymakers must expect Russia as a major energy supplier to continue to use all available means to weaken European resolve.

Turkey

Turkey has little by way of oil or gas deposits with which it could begin its own extraction and export activities. The country plans to reach an annual production potential of 14-15 bcm of gas by 2026 from fields discovered in the Black Sea, and about 19-20 bcm of gas annually by 2029, but this is only a small portion of the EU's needs. Moreover, it is likely that Turkey would use its own gas to meet its domestic demand first.

Turkey's particular significance to Europe's energy challenge is likely to be as a transit country. Russia's invasion of Ukraine has strongly influenced Turkish calculations in the energy arena. On the one hand, Turkey is interested in using the EU's diversification efforts to strengthen its position as an energy player in the region, primarily as a transit country. At the same time, Turkey wants to maximise the benefits of energy cooperation with Russia, especially in light of Russia losing its key sales market – the EU – and its search for alternative export markets. Turkey already has preferential conditions for gas and oil supplies from Russia, and could obtain more.

The Turkish government plans for the country to become a huge gas hub for Europe. Turkey has certain advantages in this regard. For example, its LNG infrastructure (both existing LNG infrastructure and floating terminals currently under construction) could prove valuable in terms enabling European countries to source increased regasification capacity to meet their own needs. In January 2023, Bulgaria concluded a binding agreement with Turkey in this respect. Such developments will be important not only from the point of view of diversifying the sources of gas supply to Turkey but can also be used to send gas to Bulgaria, Romania, Ukraine, and other European countries.

However, prospects are uncertain for Turkey realising its ambition to become a gas hub.

Although Turkey could theoretically act as a transit country for gas shipments from central Asia and the Middle East, various political conditions may prove to be a permanent barrier to realising them. Although a convention adopted by the states around the Caspian Sea in 2018 partially resolved the issue of the status of the basin and theoretically allowed for the laying of gas and oil pipelines, clauses in the document enable states to block such investments on environmental grounds. It is probable that in the case of plans to build a trans-Caspian gas pipeline, Russia or Iran would take advantage of the possibility to block such investments. It is in Moscow's interest to undermine any projects that would enable European countries to obtain energy, especially gas, from alternative sources. Imports from Turkmenistan would likely fall foul of such objections.

Political considerations also stand in the way of possible plans for Turkey to transit gas found in offshore deposits in the eastern Mediterranean. In March 2022, the Israeli president visited Turkey, which raised hopes for the construction of a gas pipeline from Israel to Turkey, linking the Leviathan field off the coast of Israel to Turkish territory. This 550 km pipeline would cost an estimated $1.5 billion. But political considerations (in relations between Turkey and the Republic of Cyprus) mean this pipeline is unlikely ever to be built.

Infrastructure barriers also mean that Turkey is equally unlikely to become a transit country for gas from other locations. For example, transmission of gas from Turkmenistan through Iran would be difficult not only due to infrastructure constraints between Iran and Azerbaijan, but mainly due to political tensions between both countries. The gas infrastructure connecting Iran and Azerbaijan is old and the total annual capacity is very small (1 bcm). Meanwhile, with regard to Iraqi gas, which is located in Iraqi Kurdistan, Kurdistan will not be able to export gas in the coming years due to production and infrastructure constraints. Besides, ongoing legal and political issues between the Iraqi central government and the Kurdistan regional government remain. The contentious issue is the limits of the Kurdish authorities' independence, for example in making strategic economic decisions (including energy).

There is some possibility that Azerbaijan would be able to send gas to Europe through Turkey. Azerbaijan is already a gas supplier to the EU, and the pipeline infrastructure exists to do so. But, besides Azerbaijan, no other third country will be able to send its gas through Turkey's pipelines in the medium term, at least. This significantly limits the country's potential transit role for EU needs.

In this context, a certain risk is that Russia may be interested in and able to increase its exports to Turkey, or transit its gas through Turkey. It could do thisthrough existing pipelines and try to sell its gas further on the European market through the Southern Gas Corridor,

which is theoretically intended to obtain gas from other sources. Indeed, Russia is an important oil supplier to Turkey and is additionally implementing the large Akkuyu nuclear project. In late 2022, Moscow also made its own proposal for a Russian-Turkish gas hub located in Turkey, to which Ankara responded positively. Russia could work with Turkey to add lines to the TurkStream pipeline, although this will be difficult given the sanctions now applied against Russia. Although Turkey maintains a highly pragmatic approach towards its relations with Russia, moving closer to Moscow could harm Ankara's relationship with Brussels.

From friends in need to friends indeed: Prospective areas of cooperation in the green energy sector

Stable partnerships with reliable suppliers of fossil fuels are necessary for the EU in the medium term. But to achieve its long-term energy and climate goals, the EU will need to ensure its energy cooperation with third countries enables it to go further on promoting the development of renewable energy, including in forms it can import to replace fossil fuels. In short, it needs to help its friends in need become friends indeed.

Of the agreements concluded by the EU and member states with the EU's key fossil fuel suppliers since Russia's invasion of Ukraine, only about one-fifth provide for a clean energy component. This suggests the EU has some way still to go to turn its 'friend in need' relationships into 'friends indeed' relationships – ones that over time reduce the exploitation and use of fossil fuels and promote renewable energy.

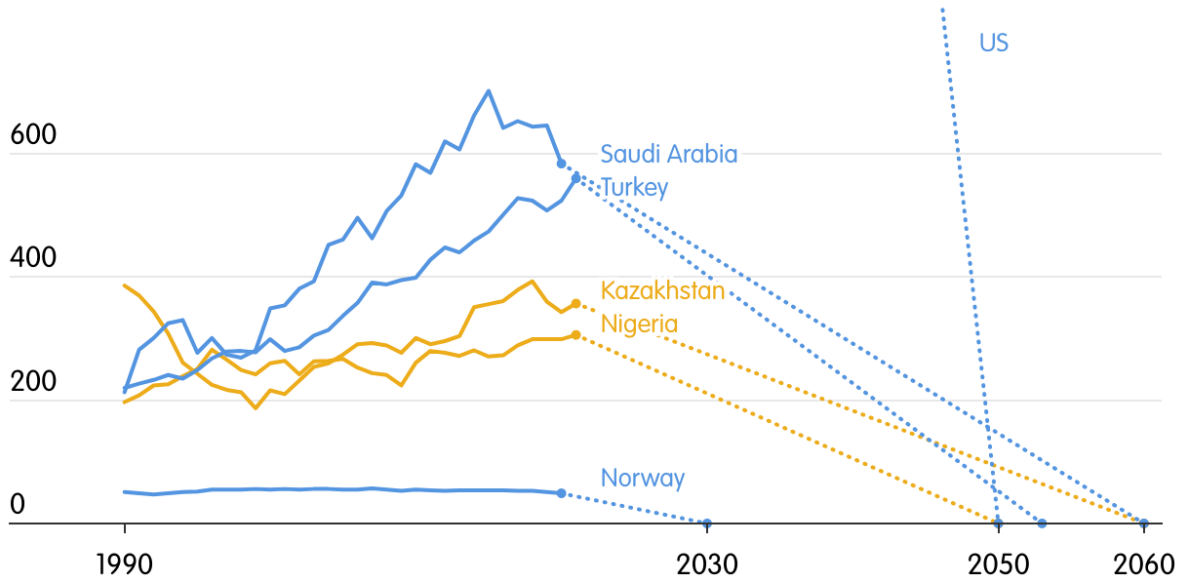
Third countries' climate goals

In policy terms, the foundations are in place for the EU to work with partner countries to progress towards decarbonisation objectives. The key suppliers of fossil fuels to the EU have varying ambitions for their climate goals, but most of them say they want to achieve climate neutrality on a time horizon similar to that of the EU – by the middle of the century.

The most ambitious plans are those of Norway, which is aiming to reach climate neutrality by 2030. Some countries have adopted climate neutrality as a goal in formal policy documents: the US (by 2050), Turkey (by 2053), and Saudi Arabia (by 2060). Other countries have made policy statements to achieve climate neutrality by 2050 (Nigeria) and by 2060 (Kazakhstan). Nigeria plans to reduce greenhouse gas emissions by 47 per cent by 2030, and emissions from the oil and gas extraction sector by 60 per cent by 2031. Kazakhstan is less ambitious, aiming to reduce greenhouse gas emissions by 15 per cent by 2030. In the case of Azerbaijan and

Qatar, plans so far are limited to emissions reductions in the medium to long term. In 2021, at the COP26 in Glasgow, Azerbaijan made a new commitment to reduce greenhouse gas emissions – by 40 per cent by 2050. Qatar's National Environmental and Climate Change Strategy contains a 25 per cent reduction in greenhouse gas emissions by 2030 and reductions in water use (groundwater extraction) of 60 per cent. Some exporters of fossil fuels to the EU have taken, or are planning to take, steps to reduce the emission intensity of their energy sectors. In terms of the EU's climate goals, it is helpful that crucial suppliers of fossil fuels and friends in need – Norway and the US – are well advanced in this area. The ability to decarbonise fossil fuel extraction means that key oil and gas suppliers can play the role not only of friends in need, but friends indeed. In this respect, it matters that some other fossil fuel suppliers to the EU have embarked on this path. Saudi Arabia plans to build a large carbon capture, usage, and storage (CCUS) plant in cooperation with the German company Linde. Qatar has started to develop a decarbonisation roadmap that will include the deployment of carbon capture and storage technologies as well as hydrogen.

Climate goals of key non-Russian oil and gas suppliers to the EU
Defined in policy document or policy statement



Qatar, Azerbaijan, Algeria, Libya, and Iraq have not yet declared climate neutrality goals.
Historical emissions data exclude forestry/LULUCF, in MtCO2e.

Source: ECIU, Climate Action Tracker
ECFR · ecfr.eu

Renewable energy

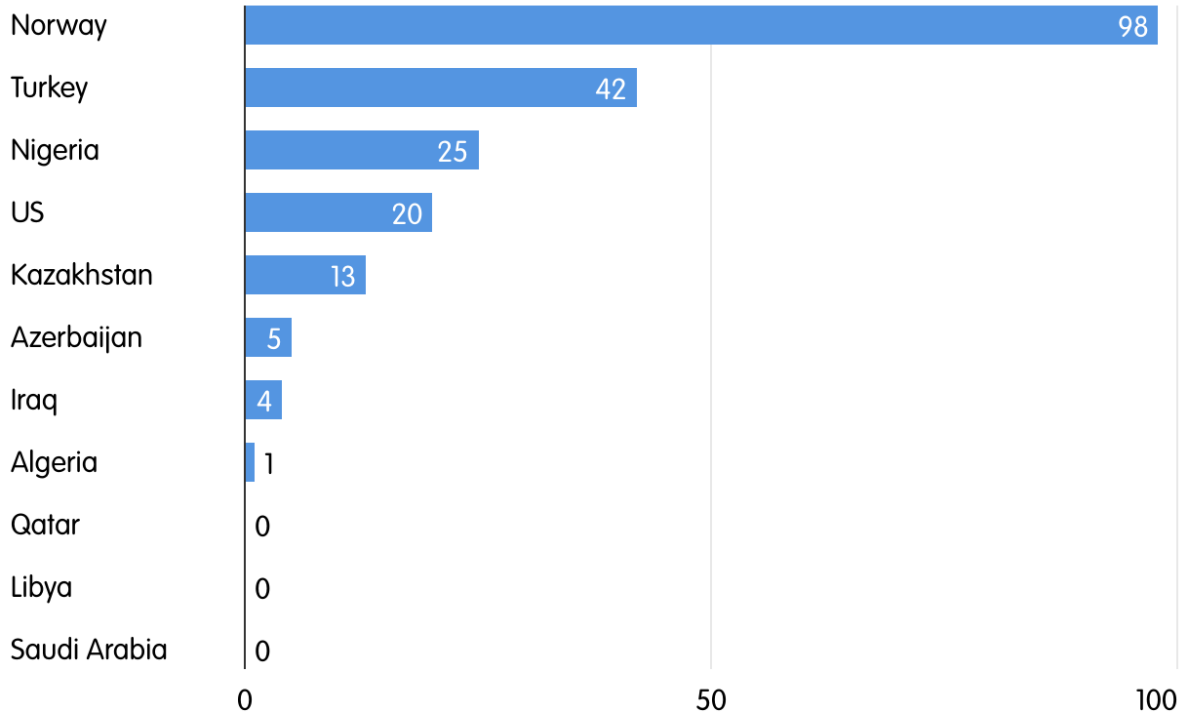
Working with partner states to foster their renewable energy sectors will be crucial to EU efforts to forge relationships that promote clean energy development and use while transitioning away from fossil fuels.

Fortuitously, many important suppliers of fossil fuels to the EU market are also among the world leaders in the development of the renewable energy sector, or have significant potential to develop the sector. That being said, decision-makers should beware that the use or expansion of renewables generation capacity may influence many countries to maintain their status as important suppliers of gas and oil to the EU without having to increase investment in the upstream sector. This is because increasing investment in green projects and reducing domestic dependence on fossil fuels frees up more fossil fuels for export without having to invest in the upstream sector.

Still, the current leaders in renewable generation include Norway in particular, where the share of renewable energy in national electricity generation is close to 100 per cent, of which about 95 per cent comes from hydroelectric power and about 3.5 per cent from wind power. The US is the global runner-up in terms of renewable energy generation capacity. Electricity generated from renewable energy accounts for around 20 per cent of electricity in the US. Turkey could also be a friend indeed in terms of renewable energy potential. Forty-two per cent of its electric power generation capacity comes from renewable energy, including hydroelectric, wind, solar, geothermal, and biomass power plants. This makes Turkey the fifth largest generator of renewable energy in Europe and the twelfth largest in the world.

In other countries, the share of renewable energy in electricity production is much smaller. In the case of Nigeria, it is less than 25 per cent, while in Azerbaijan it was less than 6 per cent in 2021. In Kazakhstan it is less than 13 per cent (including hydroelectric) and in Algeria 3 per cent. Saudi Arabia currently has only 1 GW of installed renewable energy capacity. In Libya, renewable energy does not contribute to electricity production at all.

Renewables (including hydroelectric) share in electricity generation (2020–2022). In per cent



Source: IRENA, BP Statistical Review of World Energy
ECFR · ecfr.eu

Many of the EU's energy partners remain heavily dependent on fossil fuels for their own power generation. Qatar is currently dependent on natural gas for 97 per cent of its power generation. Coal accounts for about 70 per cent of Kazakhstan's electricity production and more than 75 per cent in Nigeria. And indeed the Nigerian authorities plan to maintain the key importance of this resource in the country's energy sector at least until the end of this decade. In March 2021, Nigeria's president announced a "Decade of Gas Development for Nigeria". In fact, Russia's invasion of Ukraine may indirectly deepen Nigeria's dependence on fossil fuel, in part because of a delay or even abandonment of a nuclear power plant project that was to be built in the country by Rosatom. Although in 2009 the parties were planning to launch the plant in 2020, before the outbreak of war the investment was in a very preliminary preparatory stage.

Despite this, many of these countries have significant potential to develop the renewable energy sector, which could allow for the export of new sources of electricity to the EU. Algeria has particular potential for solar power development. Similarly, Kazakhstan could develop

wind and solar generating capacity on its vast steppe areas, helping it become not only a source of electricity for domestic consumption but also for export. Besides, according to the United Nations Development Programme, Kazakhstan has significant low-temperature geothermal resources that can be used as thermal energy. The opportunity exists for European companies to conduct pilot projects to assess the costs and risks of using these resources in Kazakhstan on a wider scale.

Clean energy among the EU's friends in need

Some countries appear politically committed to implementing renewable energy projects, which is important not only in the context of changing the energy mixes of these countries away from carbon-based sources. It also creates opportunities to use part of the resources for the production of clean electricity or hydrogen, which could be exported to the EU. **Kazakhstan** plans to increase the share of renewable energy sources in its energy mix to 6 per cent by 2025, to 15 per cent by 2030, and to 50 per cent by 2050. **Azerbaijan**'s energy ministry plans to increase the country's installed renewable energy capacity to 30 per cent in its national energy mix by 2030. In this regard, it has concluded agreements with foreign companies that will enable a total of up to 22 GW of electricity production it may be able to export. **Algeria**'s authorities plan to increase the installed capacity of renewable energy to 4 GW by 2024 and to 22 GW by 2030, aiming to reach a 27 per cent share of renewable energy sources by 2035. In 2020, Algeria introduced a new law exempting renewable energy investments from the "49/51" rule, which sets a 49 per cent limit on foreign ownership of Algerian companies. In the case of **Qatar**, its Vision 2030 programme envisages 20 per cent of its domestic energy use to come from outside the gas sector by the end of this decade. In **Nigeria** there is potential to increase the share of renewable energy in primary energy consumption to 47 per cent by 2030 and 57 per cent by 2050. **Saudi Arabia** plans to increase its renewable energy generation capacity from 1 GW to 58 GW by 2030, which would help it meet its goal of 50 per cent renewable energy share in its energy mix by 2030. **Turkey** can support European countries' efforts to implement green projects, such as by producing wind turbines and solar panels at competitive prices. However, the implementation of such projects will require not only political will, but also several years of preparation .

Indeed, countries such as Azerbaijan and Kazakhstan have already made legislative changes that facilitate the development of renewable energy projects and are implementing large-scale renewables schemes. For example, with the support of the Asian Development Bank and European Bank for Reconstruction and Development, two large-scale solar power plant projects are being implemented in Kazakhstan. Also in Kazakhstan, TotalEnergies is involved in a project to build the first wind power plant with energy storage. In Qatar, the Al Kharsaah project, when complete, will be the country's first large-scale solar power plant and is expected to provide about 10 per cent of Qatar's electricity needs during peak demand. Saudi Arabia has built the largest wind farm in the Middle East, Dumat al-Jandal.

These activities and plans suggest that these partner states will be able to make progress towards becoming friends indeed, albeit at differing speeds. The implementation of renewable energy projects in Kazakhstan improves the chances of implementing plans for the production of clean hydrogen, which the EU is interested in importing (see the next section). In turn, the development of renewable energy in Azerbaijan is important for plans to build a "green energy bridge". This EU-funded project will construct an offshore power line with a capacity of 1 GW connecting the parties involved, Azerbaijan, Georgia, Romania, and Hungary. The project will ultimately allow the EU to import green electricity produced by Azerbaijan. In this way, Azerbaijan can immediately become a source of clean electricity exports to the EU, while most North African countries could too in the short and medium term. So can Turkey, thanks to three electricity links with Bulgaria and Greece that are already in operation. This investment was backed by the president of the European Commission and will enable the supply of electricity to Moldova and the countries of the Western Balkans, and to Ukraine, which will help its reconstruction.

Norway can also play an important role in supplying green energy to the EU. In March 2022, Norway and Germany opened Nordlink, a direct undersea cable that will enable the export of green energy from Norway to Germany. Norway previously built similar connections to Denmark and the Netherlands. Meanwhile, although key African suppliers of fossil fuels to Europe such as Algeria, Nigeria, and Libya have no plans to export clean electricity to the EU, other African countries have some ambitions in this respect. These include Morocco, which has great potential for the development of the renewable energy sector. The EU has confirmed its interest in developing cooperation in this area through the Green Partnership with Morocco, which it concluded in October 2022. There are two electricity links between Spain and Morocco, with a third to come online in 2026. At the same time, Morocco's grid is connected to the West African Power Pool (and through it to Nigeria, among other countries), allowing for it to send clean energy to the region. Egypt is also planning to export clean energy to Europe. As an energy partner, the country currently only supplies insignificant

amounts of gas to the EU market, but is implementing a project to build an undersea electricity transmission cable to Greece.

Modest progress

However, since Russia's full-scale invasion of Ukraine, EU member states and third countries have signed only a modest number of agreements on strictly green projects. According to ECFR's Energy Deals Tracker, as of the beginning of April 2023, out of 110 agreements, 61 contained what might be termed a green component. But the vast majority of these deals are indicative and do not bind parties to strict commitments; of them, only 23 involving a green component have been concluded between the EU or member states and the main suppliers of fossil fuels to the EU. In addition, the EU or member states and third countries have concluded only 21 agreements that address hydrogen cooperation, with just two of these binding. Of these, only five agreements have been concluded between the EU and its member states and key fossil fuel suppliers, and all of them are framework or indicative. Some of the agreements that do have a green component relate to electricity generation, including those connected to the aforementioned green energy bridge.

The reason for the relative paucity of green projects in countries such as Algeria, Nigeria, Azerbaijan, and Kazakhstan is the lack of sufficient funding. This is confirmed, among other sources, by reports from the IEA, which notes that the development of renewable energy projects requires significant private investment. Moreover, in the case of some countries, such as Kazakhstan, the scale of domestic investment in renewable energy is at a much lower level than investment in the fossil fuel sector. The challenge from Kazakhstan's point of view will be to create not only the right investment climate (through private sector participation), but also to improve the capacity of the financial sector to finance green projects. Moreover, some African countries, which include Algeria, but also Egypt, Morocco, and Tunisia have declared that they intend to make emission reductions and an increase in renewable energy production, provided that adequate financing is found.

Infrastructural barriers also pose a problem regarding the development of renewable energy, such as underdeveloped electricity grids. In the case of Kazakhstan, for example, the potential for wind power development is located mainly in the country's northern and western regions, where there is insufficient demand for electricity, while in the more heavily populated south of the country the grid infrastructure is unable to accommodate significant amounts of solar-generated electricity. A similar situation exists in Nigeria: commissioned generation capacities of renewable energy sources are located in various regions of the country but are not connected to the central power grid. They often act as emergency sources of electricity in the event of a failure of the central grid. Given these challenges, future European investments

in network expansion projects would make more sense than supporting upstream investments.

Another obstacle is the high level of economic subsidies in some countries (including in the energy sector), which affects the persistence of economic dependence on fossil fuels. For example, in Algeria, gas and electricity subsidies amount to about €8 billion, or about 4 per cent of GDP. The total value of subsidies in all sectors in 2022 was estimated at €32 billion – around 23 per cent of GDP. The problem for Kazakhstan is the presence of large state subsidies for the coal and electricity sectors. The existence of such mechanisms discourages companies from switching to more energy-efficient technologies and fails to promote energy conservation. Kazakhstan is among the ten most energy-intensive economies in the world. From the EU's point of view, this creates a serious challenge to fostering the energy transition. Drastic changes in the model of how particular economies function, such as pursuing the green transition, generate social costs and the expectation that the promoter of changes – the EU – will be willing to take on the burden of their compensation.

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Most fossil fuel suppliers to the EU have the potential to develop renewable energy projects, but in many cases their implementation will require significant investment, including in power grids. At the same time, renewable energy projects developed in third countries could help them decrease their dependence on fossil fuels, and in some cases could become a source of exportable clean electricity to the EU or help produce green hydrogen, which the EU could import.

Hydrogen

A promising area of cooperation between the EU and existing suppliers of fossil fuels could be hydrogen, especially green hydrogen (which is produced by splitting water by electrolysis using renewable electricity). The EU plans to produce 10m tonnes of green hydrogen by 2030 and to import about 10m tonnes of so-called hydrogen by 2030 as part of the wider energy transition. To support this, the European Commission has proposed the establishment of a European Hydrogen Bank, which would in fact be made up of a set of instruments for financing investments related to the production, transport, and consumption of green hydrogen.

These EU plans should be encouraging to potential suppliers. At the same time, there is a large disparity in the potential of fossil fuel exporting countries to the EU when it comes to their ability to implement projects in this sphere relatively quickly. IRENA reports suggest

that countries such as Saudi Arabia and the US are attractive locations for hydrogen production in the horizon up to 2050. Joint hydrogen projects with Norwayalsoappear promising. This is, firstly, because Brussels sees the North Sea region as one of the three main corridors for hydrogen imports. Secondly, Norway is interested in developing hydrogen partnerships with third countries, as exemplified in the recent conclusion of its first binding agreements with EU countries in this area. In January 2023, an agreement was reached between Oslo and Berlin, which provides for the supply of 4m tonnes of so-called blue hydrogen (which is created from natural gas and is supported by CCUS) from Norway to Germany and the construction of a new pipeline for this purpose. In addition to the construction of hydrogen infrastructure, Oslo and Berlin have agreed to implement joint offshore wind, batteries, and green shipping projects, and to work on EU-wide carbon capture and storage standards. Norway and Belgium also reached a preliminary (indicative) agreement in February 2022 to cooperate on hydrogen projects and other green transition projects. Norwegian company Nel Hydrogen is also working on selecting sites for hydrogen production in Europe. Equinor is the second most important supplier of gas to Europe and is also focusing on hydrogen power as a potential area of cooperation in the long term.

Kazakhstan could be an important partner in developing hydrogen energy. In October 2022, Kazakh authorities signed an agreement with the international company Svevind which is currently supporting the construction in Kazakhstan of one of the world's largest hydrogen production plants. Hydrogen production would start in 2030, potentially reaching 2m tonnes by 2032. The investment is valued at $50 billion. In November 2022, the European Commission president signed a memorandum of understanding with the prime minister of Kazakhstan, pledging cooperation in, among other things, the clean energy transition and green hydrogen production. Kazakhstan has declared its intention to join the ranks of green hydrogen producers and has joined a Green Hydrogen Alliance that includes Germany, Italy, and Spain. France and Germany are also exploring the possibility of developing large hydrogen projects in Kazakhstan. The Kazakh government is planning to adopt a Hydrogen Development Strategy. State-owned energy company KazMunayGas plans to use hydrogen to decarbonise trucks and locomotives.

Turkey has the potential to produce hydrogen and could therefore become a valuable partner for the EU in this particular area. However, the development of this sector in Turkey will require very large financial outlays. Assessments indicate that, with an expenditure of $3-4 billion per year, Turkey could achieve a production potential of 3.4m tonnes by 2050, of which 1.5-1.9m tonnes could be exported.

Saudi Arabia too can be an important partner for the EU in developing hydrogen projects and the country has expressed significant ambitions in the hydrogen sector. Riyadh plans to

produce around 29m tonnes of blue and green hydrogen annually by 2030. The first green hydrogen plant in Saudi Arabia is planned to be commissioned by 2025.

Hydrogen cooperation with selected countries in Africa and the Middle East is also a possibility, although it is currently in a very preliminary stage and the most important regional partners will not necessarily be the currently significant suppliers of fossil fuels to the EU. (Most of the hydrogen cooperation agreements the EU has signed so far are with Morocco and Egypt.) In the case of Algeria, non-binding agreements have been signed with European partners at the company level, such as a declaration signed between Sonatrach and the German company VNG on hydrogen cooperation. The parties are tentatively planning to build the first green hydrogen plant in Algiers, which will produce 50 MW of power from solar energy. Another example is a memorandum signed in May 2022 between Sonatrach and Eni on, among other things, the implementation of green hydrogen pilot projects in Algeria. In addition, it is worth noting that since Russia's 2022 invasion of Ukraine, the EU and member states have signed non-binding agreements with the UAE and Egypt, among others.

The war and the EU's plans for hydrogen energy have increased interest in cooperation in this field on the part of EU countries and third countries, but most of the agreements are preliminary and general in nature. It is possible that the final adoption of the European Commission's proposal regarding the European Hydrogen Bank will help to clarify the plans of both the EU and the countries of Africa and the Middle East.

Financing aside, infrastructure may prove to be the main problemin enhancing hydrogen cooperation with a view to importing it to the EU. Although in the case of African countries, the use of the existing pipeline network to export hydrogen to the EU is a possibility, in practice their adaptation to hydrogen transmission may be extremely costly and time-consuming. This also applies to the potential export prospects of green hydrogen produced in Kazakhstan. Importing hydrogen from other locations will also require appropriate investments in infrastructure on the part of exporters and importers and, in the case of the EU, the creation of an appropriate regulatory framework.

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Although many suppliers of fossil fuels to the EU declare their interest in developing joint hydrogen projects with EU countries, as evidenced by the preliminary bilateral and multilateral agreements concluded in this area, it is difficult to predict how much will be achieved in practice. Hydrogen projects are extremely expensive, and in the case of green hydrogen production they also require an appropriate expansion of renewable energy generation capacity.

Recommendations

European countries should support decarbonisation efforts in post-Soviet states such as Azerbaijan and Kazakhstan and in African countries through financial and technological support, particularly through the EU's major infrastructure investment programme, Global Gateway, and programme to secure energy independence from Russia, REPowerEU.

Working with friends in need

Strengthen relations with existing friends in need Norway and the US

The EU and its member states should, as a matter of priority, strengthen relations with countries that, since the start of Russia's war on Ukraine, have fulfilled their role as friends in need. Some of these countries also have both the ambition and the capacity to be friends indeed. Norway is among the principal countries with which the EU should build lasting energy alliances. Norway can act not only as a stable supplier of fossil fuels to the EU in the long term, but can also be a valuable ally for cooperating on renewable or hydrogen energy projects. What is more, Norway has substantial experience in the use of CCUS technology, which could prove valuable for EU member states. Strengthening cooperation in this area could contribute to decarbonisation in the EU member states. The EU should develop a detailed action plan to implement the declarations contained in the EU-Norway Green Alliance.

The EU and its member states should also prioritise cooperation with the US, which can play the role of a stable supplier of fossil fuels to the EU, of gas in particular. Moreover, the US has opportunities to increase its export potential for fossil fuels not only by increasing investment in the upstream sector (which is a less desirable scenario from the point of view of climate goals), but also by increasing the energy efficiency of its economy. As the current Democratic administration is interested in boosting activity in the field of climate policy, the US is also an ally in strengthening cooperation on climate issues. This is important for the EU in the

context of the external dimension of the European Green Deal. Improving energy and climate cooperation with the US increases the likelihood that international forums, such as COP, will in future agree ever-more ambitious action. Moreover, the EU's chances of intensifying energy and climate cooperation with the US are increased by the existing institutional base created in bilateral relations, such as the EU-US Task Force on Energy Security and the EU-US Energy Council.

Develop energy relationships that specify future oil and gas requirements

In order to maintain stable supply channels for fossil fuels, EU and member state policymakers should build energy partnerships based on the balance of interests of the parties involved – which means acknowledging both the medium- and long-term interests of the EU and member states on the one hand and the interests of fossil fuel suppliers on the other. Although the EU has already reached some binding agreements with key fossil fuel suppliers to Europe (such as the US and Azerbaijan), it has only concluded indicative agreements with Algeria and Norway. The EU should therefore continue its efforts to conclude more binding arrangements with key fossil fuel suppliers to Europe. Taking account of the contracts already concluded by the member states, the EU should specify the amount of oil and gas and the period for which it would be interested in importing these from the current biggest suppliers. This would also make it possible to better aggregate demand and avoid overcapacity in different parts of the continent. Although member states have concluded few long-term contracts for the supply of fossil fuels since the start of the war, the risk still exists of creating new long-term dependencies and oversupplying infrastructure or raw materials in some regions of the EU. Aggregating fossil fuel (especially gas) needs at the EU level would decrease the risk of fossil fuel traps because partners would have a clearer sense of how much they need to supply.

To this end, the energy platform launched by the European Commission in 2022 as part of its response to the energy challenge could be used on a larger scale – in terms of securing the right volumes, under the right arrangements – to purchase energy resources (gas, above all) from countries such as the US, Norway, and Azerbaijan. In the case of Norway, this would also address Norwegian decision-makers' desire for clarity about the EU's long-term commitments for gas purchases. In this way, guaranteeing demand in the EU in the medium term could be beneficial to important supplier countries such as the US, Qatar, and Algeria. Qatar in particular could play the role of a strategic partner in the supply of gas to the EU if it were to obtain greater certainty about future sales. It not only has adequate upstream and infrastructural potential, but is also among those non-Western energy partners of the EU where there is negligible risk of the issue of fossil fuel supply to Europe becoming politicised.

Helping friends in need become friends indeed

Cease making new investments in upstream gas and oil projects

To ensure they comply with their own climate policies, the EU and its member states should avoid making new investments in hydrocarbons (gas and oil) projects, especially in those third countries that not only rely heavily on the fossil fuel sector but that would increase their exploitation of fossil fuels if they obtained substantial investments in the upstream sector or export energy infrastructure. This is firstly because the increase in gas demand in the EU is likely to be only short-term or medium-term in nature. Therefore, holding off on making new investments in upstream oil and gas will avoid the creation of stranded assets. Secondly, such investments are not compatible with the EU's energy and climate goals over the long term and could have a negative impact on EU's image as a global climate policy leader.

Invest in renewables and hydrogen

Another important, longer-term measure that will help transform some friends in need into friends indeed is sustained investment in renewables and in the hydrogen sector. When considering the possibilities of supporting energy projects in third countries, the EU should focus in the first instance on those that are conducive to decarbonising those countries' economies and energy sectors. Moreover, EU investment in green projects in third countries, such as Algeria, could reduce domestic gas consumption levels, freeing up some volumes for export. Further development of such renewables sectors will require the following steps: expansion of energy storage systems, CCUS systems, hydrogen production and use, and grid modernisation and use of smart grid technology. The EU could financially support green energy projects through initiatives such as Global Gateway, under which it plans to mobilise

around €300 billion for investments. In turn, under the REPowerEU initiative, the strategic goal of which is for the EU to become independent of fossil fuel supplies from Russia, investments are planned at the level of €210 billion. Of this, approximately €113 billion is to be spent on investments in renewable energy sources and hydrogen infrastructure. Investments under REPowerEU are to be financed, among other sources, from the Recovery and Resilience Facility.

Build partnerships for the supply of critical raw materials

The EU should also engage in the building of partnerships with those countries that have significant critical raw material potential, which is important for the development of low-carbon technologies. The EU can aggregate the needs of its member states and on this basis enter into more concrete arrangements with countries such as Kazakhstan, which is one of global leaders in terms of resources of raw materials that are used for low-carbon technologies. Kazakhstan has the world's largest deposits of zinc, tungsten, and baryte, and is the second biggest producer of copper and fluorite, with 10 per cent of the world's iron ore reserves. It is also the world's leading producer and exporter of uranium, with 25 per cent of world reserves. In addition, many of the critical raw materials that are used to produce clean technologies are located in African countries. Another important partner for the EU and its member states could be Saudi Arabia, which is also among those countries with which the EU should develop partner relations on critical raw materials. Based on the aggregated needs, identified from formally adopted plans and strategies, especially from the European Critical Raw Materials Act, the EU could conduct all these arrangements within the framework of the external dimension of the European Green Deal.

Develop CCUS in third countries

For those third countries where fossil fuel production is carbon-intensive (especially post-Soviet and African countries), the EU and member states should cooperate with them on sharing responsibility for CCUS. The EU and member state importers should include provisions on the use of CCUS technology in fossil fuel supply contracts.

Support regional energy integration in central Asia and Africa

The EU should support efforts to deepen regional energy integration in both central Asia and Africa. In the case of Kazakhstan, strengthening regional integration in the electricity sector could be an important element in the process of decarbonisation, especially cooperation to accelerate the implementation of projects such as Rogun and Kambarata. As Laura El-Katiri recently argued for ECFR, the EU needs to achieve better coordination among its own various

instruments and seek synergies between these instruments and local initiatives in Africa.

Use conditionality to promote decarbonisation

The EU should take the advantage of the fact that, for many countries supplying fossil fuels to Europe, the bloc is their most important trading partner (for countries such as Algeria, Azerbaijan, and Kazakhstan) or at least a key trading partner (for countries such as Saudi Arabia and Qatar). When negotiating agreements on energy cooperation, Brussels could offer preferences in terms of access to the EU market in exchange for third countries' willingness to accept new rules on energy cooperation. These rules should include not only the issues of mutually beneficial cooperation in the field of trade in raw materials, but also the issues of energy transformation in the EU and in third countries. At the same time, strengthening energy cooperation between the EU and third countries should, wherever possible, also be based on conditionality. When considering financial support for energy investments carried out in third countries, the EU should make such support conditional on whether the resulting financial benefits will support decarbonisation or the implementation of other climate goals in third countries.

About the author

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