A Changing Energy Diplomacy: The External Dimension of the REPowerEU Plan

by **Giulia Sofia Sarno and Lorenzo Colantoni**

IAI

Paper prepared in the framework of the IAI-Eni Strategic Partnership, February 2023.

Giulia Sofia Sarno is Junior Researcher in the Energy, Climate and Resources Programme at the Istituto Affari Internazionali (IAI). Lorenzo Colantoni is Researcher in the IAI's Energy, Climate and Resources Programme.

Via dei Montecatini, 17 – I-00186 Rome
Tel. +39 066976831
iai@iai.it
www.iai.it

ISBN 978-88-9368-285-5

A Changing Energy Diplomacy: The External Dimension of the REPowerEU Plan

by Giulia Sofia Sarno and Lorenzo Colantoni

Introduction

The European Commission launched the REPowerEU plan in May 2022 to respond to the global energy market disruption and energy security crisis caused by Russia's invasion of Ukraine.[1] The plan aims at lowering energy demand and diversifying energy supplies in order to reduce Europe's overdependence on Russian energy imports, while boosting decarbonisation in the EU. The core idea of the REPowerEU plan is to phase out imports of Russian fuels, while elevating decarbonisation to an energy security strategy, instead of creating competition between the energy security and energy transition pillars. Therefore, the most challenging aspect of this strategy is to reconcile short-term diversification needs, which require securing significant additional volumes of natural gas, with long-term decarbonisation objectives.

Both diversification and decarbonisation actions under REPowerEU have significant external implications. Implementing the plan requires to reshape the world's energy market, flows and routes, altering long-lasting energy and political relations. In particular, REPowerEU will redraw the EU external energy strategy and define new relations between the EU and key players. To address the external implications of REPowerEU, the European Commission adopted the EU External Energy Strategy, which aims at facilitating diversification and building long-term partnerships with suppliers, including cooperation on hydrogen and green technologies.[2]

1 European Commission, *REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast forward the Green Transition*, 18 May 2022, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131.

2 European Commission, *EU External Energy Engagement in a Changing World* (JOIN/2022/23), 18 July

Concerning diversification efforts, the objective of REPowerEU is to make the European Union independent from Russian fossil fuels well before 2030. The main focus of the plan in this regard is on natural gas, as prior to the war the EU imported 40 per cent of its total gas consumption from Russia (155 billion cubic metres, bcm). To achieve this goal, in the short-term the plan envisages to substitute Russian gas through diversification of pipeline and LNG imports using existing infrastructure (replacing 60 bcm), as well as through an increase in sustainable domestic biomethane production (replacing 17 bcm). This has to be complemented by measures to reduce gas demand, including the rapid roll out of solar and wind projects combined with renewable hydrogen deployment (saving 50 bcm) and energy saving measures (saving 13 bcm). In the medium term, the plan foresees to secure additional non-Russian gas volumes through limited new LNG and pipeline infrastructure, but it focuses mainly on accelerating decarbonisation efforts. This entails scaling up the Fit-for-55 2030 target for renewables from 40 to 45 per cent, including a target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of imports by 2030 and increasing biomethane production to 35 bcm by 2030, as well as raising the Fit-for-55 2030 target on energy efficiency from 9 to 13 per cent.[3]

In the first year since the outbreak of the war significant results to diversify away from Russian energy imports have been achieved by engaging with international actors, signing key agreements and establishing new energy partnerships. Between January 2022 and January 2023, 72 deals with 27 different countries have been signed by the EU and its member states to increase energy security through diversification.[4] Over the last year, countries such as Norway, the US, Qatar and Algeria have become critical players in the European energy security architecture, reshaping the EU external policy. Similarly, the acceleration of decarbonisation strategies as defined by REPowerEU will lead

2022, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022JC0023.

3 European Commission, *Implementing the Repower EU Action Plan: Investment Needs, Hydrogen Accelerator and Achieving the Bio-Methane Targets* (SWD/2022/230), 18 May 2022, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022SC0230; European Commission, *Factsheet on REPowerEU Actions*, May 2022, https://ec.europa.eu/commission/presscorner/detail/en/fs_22_3133.

4 Susi Dennison, Gosia Piaskowska and Pawel Zerka, *EU Energy Deals Tracker*, European Council on Foreign Relations, November 2022, https://ecfr.eu/?p=97786.

to a reconfiguration of external relations both for the import of final products (such as solar panels) and raw materials (such as critical minerals).

These new relations present both opportunities and challenges for the EU. While the overall aim is to strengthen the EU's energy security and reduce its dependence on a single supplier, both diversification and decarbonisation strategies will often still be associated with the risk of creating strong new dependency patterns with unstable or problematic partners, such as China for critical raw materials. The latter is a risk that was already triggered by the ambitious 2030 and 2050 EU energy and climate targets, but the acceleration of the transition envisaged by REPowerEU can put further strain on an already stressed market. Therefore, carefully assessing the external implications of the REPowerEU plan is critical to avoid reproducing dynamics similar to those that led to the current energy crisis in the climate neutral future that the EU is striving to achieve.

1. Diversification

The main action envisaged by REPowerEU under the diversification pillar is to engage with international energy partners to secure alternative supplies and cut energy dependence from Russia. In order to build new energy partnerships, the plan highlights the importance of strengthening cohesion, interdependence and solidarity within the EU. By acting jointly, the EU will have more leverage to establish stronger and long-lasting energy relations with international partners. At the same time, securing alternative supplies will not be sufficient, thus the plan focuses also on strengthening interconnections and solidarity within the EU to increase energy security.

In the REPowerEU Communication, published shortly after the outbreak of the war, the Commission proposed the creation of the EU Energy Platform, which was officially established in April 2022. The platform is a key tool for the implementation of the plan and in particular of its external dimension. It aims at pooling energy demand, coordinating infrastructure use, negotiating with international partners and preparing for joint gas and hydrogen purchases, and as of today it functions as a voluntary coordination mechanism. The

platform works through regional groups: South-East Europe, Central and Eastern Europe, North-West Europe, South-West Europe, Baltics and Finland. REPowerEU designed the platform to support key diversification actions with external partners, including: increasing LNG supplies from the US, Norway and Canada; intensifying cooperation with Azerbaijan on the Southern Gas Corridor; strengthening cooperation with major producers in the Gulf and Australia; managing coordination with other gas importers such as Japan, China and Korea; as well as exploring export potential in sub-Saharan African countries. In the past months, the EU initiated coordinated action on several of these fronts, building upon the creation of the platform.

Overall, the diversification efforts outlined by REPowerEU entail a substantial reconfiguration of energy flows and volumes. This will require building new infrastructures across the EU particularly to import greater quantities of LNG and boost alternative pipeline supplies, as well as to redistribute volumes to member states that face more obstacles in diversifying their supplies, such as Central and Eastern European countries. In this regard, REPowerEU places the emphasis on boosting cross-border connections to build an integrated energy system that secures and redistributes supplies in a spirit of solidarity. The plan accelerates the implementation of existing Projects of Common Interest and Projects of Mutual Interest, that include for instance pipelines interconnectors. In addition, the plan identifies limited additional gas infrastructure projects to better support diversification efforts and increase the level of preparedness for risks in the security of gas supplies. Beyond gas interconnectors, projects can concern for instance increasing gas storage and storage withdrawal capacity. According to the plan, the areas that require the most significant infrastructural interventions are Central and Eastern Europe, northern Germany and the Southern gas corridor. The plan highlights that such additional gas infrastructures are necessary to address the needs of the next decade, but it also states that they will not lead to a lock-in of fossil fuels and stranded assets that might hamper the long-term energy transition.

REPowerEU also estimates the investments required for key interventions to support diversification. The gas infrastructures needed to import sufficient LNG and pipeline gas from alternative suppliers will require investments estimated at 10 billion euro by 2030. Additional investments might be needed to connect LNG import terminals in the Iberian Peninsula and the EU network

through hydrogen-ready infrastructure, while limited additional investments will be necessary to ensure security of supply in member states almost fully dependent on pipeline oil from Russia. The plan also addresses diversification needs related to oil supplies, stating that in this regard investments will be very limited and are expected to amount up to 1.5–2 billion euro.

Despite the emphasis on joint action and measures designed by REPowerEU to promote EU coordinated action and solidarity, the vast majority of diversification efforts over the past months were undertaken by member states through bilateral agreements. Each member state designed its own diversification strategy based on available alternative options. Existing energy relationships and infrastructures were key factors in defining national diversification strategies, roughly dividing countries between those able to rapidly increase supplies from existing non-Russian partners and strike new deals with alternative suppliers, and those that had more limited options and were thus significantly more vulnerable to supply disruptions.

As an example, the two largest importers of Russian gas before the outbreak of the war, Germany and Italy, shaped their strategies and relationships with alternative suppliers very differently. On the one hand, Italy is the country that struck the highest number of deals with external partners, 13 in total, some of them securing alternative volumes already for 2022.[5] A significant advantage in securing these deals was the existing infrastructures connecting the country to Algeria, Libya and Azerbaijan. In its efforts, Rome could also rely on the well-established relationships of its national energy company Eni with key producers, especially in the African continent and the Middle East and North Africa (MENA) region, a factor which not all member states could count on. On the other hand, Germany depended almost exclusively on Russian pipelines and was thus forced to turn to costly LNG purchases on the spot market while rushing to invest in building its regasification infrastructure, as it had no LNG terminals.

5 Susi Dennison, Gosia Piaskowska and Pawel Zerka, "EU", in *EU Energy Deals Tracker*, cit., https://ecfr.eu/special/energy-deals-tracker/?country=eu.

1.1 Pipeline diversification options and main exporters

As outlined by the REPowerEU plan, in order to wean itself off Russian energy imports, the EU has two sets of options: pipelines and LNG. Both diversification strategies have strengths and weaknesses.

On the one hand, given their infrastructure that transports gas to a fixed end point, relying on pipelines has the benefit of locking supplies into the EU market. By contrast, in the LNG market cargoes can change their routes following market opportunities and the highest paying customer, in some cases even despite the existence of long-term contracts as the current situation shows. Moreover, pipelines can offer the opportunity to be converted into hydrogen infrastructures, adapting to the future EU energy mix. However, on the other hand, building new pipelines or adjusting the existing ones to increase transportation capacity requires significant time, investments and typically long-term contracts, which might not be in line with gas demand projections that foresee a decrease in the coming years as the energy transition unfolds. Significant infrastructural adjustments are required for the vast majority of pipeline diversification options. Over the past months, only in very few cases it has been possible to increase the volume of exports from non-Russian pipelines within a relatively short timeframe without undertaking major adjustments to the infrastructure. One example is TransMed – connecting Algeria and Italy via Tunisia – which was working below capacity and had sufficient production levels to quickly increase flows towards Europe.

The external implications of pipeline-based diversification strategies are defined by the originating point of such infrastructures. Excluding Russia, the EU pipeline network extends to the north through Norway, to the south through the Mediterranean area and to the south-east through Azerbaijan.

1.1.1 South-eastern route

In July 2022, the European Commission President Ursula von der Leyen signed a Memorandum of Understanding on a strategic partnership in the field of

energy with Azerbaijan.[6] The agreement envisages a substantial increase in the annual volume of gas exported from Azerbaijan over the next five years. In 2021, the country exported 8 bcm to Europe through the Trans Adriatic Pipeline (TAP), the EU section of the Southern Gas Corridor (with current capacity of 10 bcm).[7] Under the new agreement the country is expected to increase exports to 12 bcm by 2023 and 20 bcm by 2027 through the Southern Gas Corridor.

Even though not mentioned in official communications covering the signing of the Memorandum of Understanding on both sides, the agreement requires significant investments and infrastructural developments.[8] Azerbaijan does not currently have enough gas to support the expected increase of exports to Europe, which will require to boost production in new and prospective fields.[9] Moreover, in order for the EU to increase imports from this route, the TAP will need to undergo infrastructural work to reach a transmission capacity of 20 bcm, which will take at least five years.

Beyond the energy dimension, the deal with Azerbaijan is also a political agreement, as it served the important purpose of reducing Russia's influence over the country. Just two days before the outbreak of the war the President of Azerbaijan, Ilham Aliyev, signed a Declaration on Mutual Cooperation with Vladimir Putin.[10] However, following the invasion of Ukraine, strengthening the engagement and cooperation between the EU and Azerbaijan became critical for both parties.

The influence of Russia over Azerbaijan could pose a direct threat to the diversification strategy the EU is trying to design. The South Caucasus gas pipeline (SCP)[11] – covering the first section of the Southern Gas Corridor – runs

6 European Commission, *EU and Azerbaijan Enhance Bilateral Relations, Including Energy Cooperation*, 18 July 2022, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_4550.

7 "EU Signs Deal with Azerbaijan to Double Gas Imports by 2027", in *Reuters*, 18 July 2022, https://www.reuters.com/article/eu-azerbaijan-gas-idAFS8N2VR04I.

8 European Commission, *EU and Azerbaijan Enhance Bilateral Relations*, cit.

9 International Energy Agency (IEA), *Never Too Early to Prepare for Next Winter. Europe's Gas Balance for 2023-2024*, November 2022, https://www.iea.org/reports/never-too-early-to-prepare-for-next-winter.

10 Azerbaijan Presidency, *Declaration on Allied Interaction between the Republic of Azerbaijan and the Russian Federation*, 22 February 2022, https://president.az/en/articles/view/55498.

11 The South Caucasus pipeline covers the first section of the Southern Gas Corridor from Baku (Azerbaijan) through Tbilisi (Georgia) to Erzurum (Turkey) and has a capacity of 24 bcm per annum. The project shareholders are: BP (UK) 29.99 per cent, Lukoil (Russia) 19.99 per cent, TPAO (Turkey) 19 per

through Azerbaijani territory with Russian Lukoil owning 20 per cent of the project shares, thus exposing it to significant influence from Moscow which could increase the risk of attacks or disruptions. Russia would not be new to similar actions of sabotage, as in the case of those incurred by the Caspian Pipeline Consortium (CPC)[12] in July 2022.[13]

As part of the diversification strategy through the south-east route, in October 2022 was inaugurated the Interconnector Greece-Bulgaria (IGB), whose development was fast-tracked following the start of the war in the framework of REPowerEU.[14] The IGB carries gas from Greece and the TAP to Bulgaria and neighbouring countries and has an initial capacity of 3 bcm. Also in this case, the project has political significance as it allows Bulgaria to stop relying on Russian pipelines, even though political uncertainty in the country leaves open the possibility that relations with Russia could resume.

The issue of looming Russian influence also concerns several Central and Eastern European states. Typically very dependent on Russian gas imports, countries such as landlocked Slovakia, Czech Republic and Austria are struggling to access sufficient alternative supplies and could risk facing calls to stick to Russian pipelines. Recent protests in Prague could represent a warning signal.[15] Several infrastructural works have been initiated to facilitate internal gas flows in this area, such as interconnectors built between Poland and Slovakia, Poland and Lithuania and increased transmission capacity between Romania and Hungary.[16] Importantly, this area has also gained new access to supplies

cent, SOCAR (Azerbaijan) 14.35 per cent, NICO (Iran) 10 per cent and SGC Upstream (Azerbaijan) 6.67 per cent. See Southern Gas Corridor website: *South Caucasus Pipeline*, https://www.sgc.az/en/project/scp.

12 The Caspian Pipeline Consortium is one of the world's largest oil pipelines that transports oil from Kazakhstan to the Russian Black Sea port of Novorossiysk. The project major shareholders are: Transneft (Russia) 24 per cent, JSC NC "KazMunayGas" (Kazakhstan) 19 per cent, Chevron Caspian Pipeline Consortium Company (United States) 15 per cent. See CPC website: *About*, https://www.cpc.ru/en/about/Pages/default.aspx.

13 "Russian Court Orders Halt to Caspian Oil Pipeline But Exports Still Flow", in *Reuters*, 6 July 2022, https://www.reuters.com/business/energy/caspian-pipeline-consortium-says-court-orders-suspension-operations-30-days-2022-07-06.

14 European Commission, *Launch of the Interconnector Greece-Bulgaria*, 1 October 2022, https://commission.europa.eu/node/27586_en.

15 "Czech Protesters Call for New Government, Direct Gas Talks with Russia", in *Reuters*, 28 October 2022, https://www.reuters.com/world/europe/czech-protesters-call-new-government-direct-gas-talks-with-russia-2022-10-28.

16 IEA, *Gas Market Report, Q4-2022*, October 2022, https://www.iea.org/reports/gas-market-report-q4-2022.

from northern Europe through the Baltic Pipe inaugurated in September 2022 connecting Norway to Poland (10 bcm/year) and Poland to Denmark (3 bcm/year).[17]

1.1.2 Mediterranean route

Looking at the southern route going towards the Mediterranean, the existing pipelines connect the EU, through Italy and Spain, with Algeria and Libya. In particular, Algeria has significant potential to contribute to the EU diversification strategy as the existing pipelines are underutilised.

Italy played a major role in strengthening energy relations with Algeria after the invasion of Ukraine. Rome signed two binding deals between April and July 2022 to increase imported volumes by 9 bcm a year by 2023 through the TransMed pipeline, with 4 bcm of additional supply ready to be delivered already in 2022. Data show that in 2022 imports from Algeria increased by 2.3 bcm compared to the previous year (23.5 bcm of total imports in 2022), thus not fully reaching the expected increase but still making Algeria the new main gas supplier for Italy.[18]

Moreover, since the beginning of her mandate in October 2022, Prime Minister Giorgia Meloni has been actively promoting the idea of a new "Mattei Plan" – in a nod to the visionary founder of the Italian Eni – to transform Italy into an energy hub in the Mediterranean and a gateway to Europe, engaging in particular with African countries and connecting their resources with demand in the EU. Algeria represents a key partner for this strategy, as stated during Giorgia Meloni's first official visit to the country in January 2023 when she signed a joint declaration for stronger political, economic and cultural cooperation and accompanied the Eni CEO as he signed two strategic agreements with Algerian Sonatrach. The new agreements further reinforce energy ties between Italy and Algeria, aiming for a new hydrogen-ready pipeline and renewable energy projects, an undersea electric cable and increased LNG production capacity, as well as

17 Ibid., p. 14.
18 Sara Deganello, "Gas, crollo flussi Russia. Ecco le nuove rotte delle forniture", in *Il Sole 24 Ore*, 21 January 2023, https://www.ilsole24ore.com/art/gas-2022-forniture-russia-scese-61percento-AElqjZYC.

introducing opportunities for the reduction of greenhouse and methane gas emissions in production processes and carbon capture and storage projects.[19] In addition, the two energy companies will conduct studies to identify possible measures to improve Algeria's energy export capacity to Europe.

At present there are in fact considerable challenges associated with transforming Italy into a strategic hub that can redistribute gas from African countries (as well as Azerbaijan) to the rest of Europe. Namely, as pipeline entry points from Algeria, Libya and Azerbaijan are situated in the south of Italy, this strategy would require significant expansion of the infrastructure network transporting gas from the south of Italy to the north of the country and the rest of the EU, as traditionally gas in Europe has been flowing north to south, not the other way round. Moreover, the "Mattei Plan" envisaged by the Italian government should focus significantly on renewable energy and hydrogen, alongside natural gas, to become a strategic asset for the EU in its climate neutral imminent future.

Recognising the important role that Algeria can play, as highlighted in the EU External Energy Strategy, Brussels is also taking important steps to reinvigorate cooperation with the country. To this end, the existing High-Level Energy Dialogue initiative between the EU and Algeria has gained new momentum. This initiative dates back to 2015 and was launched precisely to strengthen cooperation with Algeria and increase the EU's energy security in the aftermath of the 2014 Ukraine crisis.[20] In October 2022, the High-Level Energy Dialogue saw the participation of Commissioner Kadri Simson and Algerian Minister of Energy, Mohamed Arkab,[21] and was reportedly a key step towards reaching a long-term strategic partnership between the EU and Algeria covering gas, renewables and hydrogen.[22]

19 Eni, *Eni and Sonatrach Sign Strategic Agreements to Accelerate Emissions Reduction and Strengthen Energy Security*, 23 January 2023, https://www.eni.com/en-IT/media/press-release/2023/01/eni-sonatrach-sign-strategic-agreements-accelerate-emissions-reduction.html; Snam, "Italy and Algeria Aim at New Gas-Hydrogen Pipeline", in *Energy Morning*, 25 January 2023, https://www.snam.it/en/Media/energy-morning/20230125_2.

20 Georg Zachmann and Simone Tagliapietra, "Reinvigorating EU-Algeria Energy Cooperation", in *Bruegel Blog*, 10 June 2015, https://www.bruegel.org/node/5318.

21 European Commission, *Commissioner Simson to Visit Algeria to Enhance Energy Cooperation*, 7 October 2022, https://commission.europa.eu/node/27601_en.

22 Susi Dennison, Gosia Piaskowska and Pawel Zerka, "EU", in *EU Energy Deals Tracker*, cit.

In 2022, Algeria became the second largest exporter to the EU (around 12 per cent of EU imports) via the TransMed pipeline.[23] Nevertheless, this does not reflect an increase in total volumes exported. In fact, the growing exports to Italy were possible mainly through a redirection of flows from other destinations, mainly Spain and Morocco where exports decreased due to political tensions with Algiers. To support the expected increase in exports from Algeria, in the coming years substantial investments will be necessary to boost production, since the country also faces growing internal demand. However, the development of the hydrocarbon sector in the country has long been hampered by structural issues. The heavy fiscal burden, complex bureaucratic and regulatory processes – which can lead to delays and corruption – and concerns over the rule of law are among the factors that could discourage the necessary investments, undermining production expansion.

Possible solutions to these obstacles in production expansion include an acceleration on renewables that can support growing internal demand while freeing up gas volumes for exports, as well as tackling flaring that can increase gas supplies by around 9 bcm.[24]

The Algerian government also signed a Memorandum of Understanding to revive plans for a trans-Saharan pipeline that would bring gas from Nigeria to Algeria for export.[25] However, the project faces substantial challenges due to the distance involved, the complexity of reaching individual agreements with transit countries, security issues and the scale of investments required.

Politically, the EU's increased reliance on Algeria poses some challenges. The relationship between Algeria and Spain, one of the main entry points to Europe, is challenged by the position Madrid has taken over the tensions between Algiers and Rabat caused by the disputed territory of Western Sahara and Rabat's normalisation of relations with Israel. As Algeria cut off supplies to Morocco, Spain began supplying Rabat by running the Gaz Maghreb

23 Council of the European Union, *Infographic - Where Does the EU's Gas Come From?*, last updated 7 February 2023, https://europa.eu/!Ry4j3d.
24 World Bank, *2022 Global Gas Flaring Tracker Report*, Washington, World Bank, May 2022, https://www.worldbank.org/en/topic/extractiveindustries/publication/2022-global-gas-flaring-tracker-report.
25 Lamine Chikhi, "Update 2-Algeria, Niger and Nigeria Sign MoU for Saharan Gas Pipeline", in *Reuters*, 28 July 2022, https://www.reuters.com/article/algeria-gas-pipeline-idAFL1N2Z91LM.

Europe pipeline in reverse, irritating Algiers which does not want its gas to reach Morocco circuitously.[26] In July the Algerian energy company Sonatrach reported a breakdown in Medgaz which was not confirmed by the Spanish counterpart – the incident might have been intended as a warning.

Furthermore, the long-standing political economic ties between Algeria and Russia cast a shadow on the very significant role Algeria is assuming in the EU energy security strategy. While Algeria recently abstained from a UN General Assembly vote condemning Russia's attempts to annex Ukrainian regions, Algiers is also the third largest recipient of Russian arms globally.[27] In light of these ties, within the European Parliament some pressures are emerging to review the EU's strengthened energy relations with Algeria.[28]

Libya is another North African country that could contribute to the EU diversification strategy through the Greenstream pipeline connecting the country with Italy. In 2021, Italy imported 3.2 bcm from Libya, following a steady decline from 2015 levels of around 7.1 bcm.[29] This decrease was the result of the 2011 revolution and consequent civil war, which led to the weaponisation of fossil fuel resources by local militias. Despite large gas reserves (1400 bcm in 2021) and an existing infrastructure with considerable spare capacity (around 8–10 bcm) connecting the country directly to the EU, the contribution of Libya to the EU's diversification efforts is severely limited by political instability, security challenges and an unfavourable regulatory environment.[30] In August 2022, Italy and the North African country expressed willingness to launch a new phase of investments to increase Libya's gas production, however, this remained conditional upon the internal circumstances of the country.[31] In January 2023,

26 "Spain Begins Natural Gas Exports to Morocco Following Diplomatic Row", in *Reuters*, 29 June 2022, https://www.reuters.com/article/europe-gas-spain-morocco-idAFL8N2YG17V.

27 UN News, *UN General Assembly Calls for Immediate End to War in Ukraine*, 23 February 2023, https://news.un.org/en/story/2023/02/1133847; "UN Condemns Russia's Annexation Move: How Did Countries Vote?", in Al Jazeera, 13 October 2022, https://aje.io/gmx1xx; "Infographic: Which Countries Buy the Most Russian Weapons?", in *Al Jazeera*, 9 March 2022, https://aje.io/j8s3d6.

28 Benjamin Fox, "MEPs Urge EU Response over Algeria's Military Ties to Moscow", in *Euractiv*, 17 November 2022, https://www.euractiv.com/?p=1841423.

29 Pier Paolo Raimondi, *Natural Gas in Italy: Features and Perspectives in Light of Russia's War in Ukraine*, Rome, IAI, September 2022, p. 28, https://www.iai.it/en/node/15987.

30 Ibid., p. 28-30.

31 Eni, *The National Oil Corporation Chairman Farhat Omar Bengdara Meets Eni's CEO Claudio Descalzi*, 24 August 2022, https://www.eni.com/en-IT/media/press-release/2022/08/national-oil-corporation-chairman-farhat-omar-bengdara-meets-eni-s-ceo-claudio-descalzi.html.

the situation evolved as the new Italian government supported the launch of a major gas development project in Libya on the occasion of PM Meloni's first visit to Tripoli – which focused also on another key dossier for her government: the contrast to migration flows from Libya to Italy. Eni and the National Oil Corporation of Libya (NOC) agreed on the development of "Structures A&E" that consist of two new gas fields off the coast of Tripoli, including also a carbon and capture storage facility, for an estimated investment of 8 billion US dollars and production of 21 million cubic metres of gas per day starting from 2026.[32] The large investment represents the first major project in the country since early 2000 and could contribute significantly to Libya's economic development, drawing tighter relations with Rome, while its offshore position will reduce risks related to instability in the country.

Beyond North Africa, pursuing the Mediterranean route includes also establishing new relations with countries in the eastern part of the region. Since 2009, the Eastern Mediterranean area has become a gas hotspot with several export options both via pipeline and LNG. In June 2022, the European Commission, Israel and Egypt signed a memorandum of understanding to boost gas exports to Europe. Supplies will originate from either Egypt, Israel or a source in the Eastern Mediterranean that all sides deem acceptable.[33] Israel already supplies gas via pipeline to Egypt (through the East Mediterranean Gas pipeline with total capacity of 7 bcm) which could thus export both its own and Israeli gas to Europe via LNG infrastructures – the only existing ones in the Eastern Mediterranean region and currently underutilised.[34] Another option to support the EU's diversification would be the implementation of the EastMed-Poseidon pipeline project, which would connect Israel, Cyprus, Greece and Italy with a capacity of 10 bcm for a total cost of around 6 billion euro.[35] The EU has supported the project since 2013 when it was listed as an EU Project of Common Interest (PCI). Even though it faces some challenges, including

32 Eni, *Eni Launches a Major Gas Development Project in Libya*, 28 January 2023, https://www.eni.com/en-IT/media/press-release/2023/01/eni-launches-a-major-gas-development-project-in-libya.html.

33 European Union, Egypt and Israel, *Memorandum of Understanding on Cooperation Related to Trade, Transport, and Export of Natural Gas to the European Union*, 15 June 2022, https://energy.ec.europa.eu/node/4742_en.

34 Pier Paolo Raimondi, "Eastern Mediterranean Energy Resources between Energy Security and Energy Transition: A Regional Perspective", in *IAI Papers*, No. 22|11 (May 2022), p. 9-10, https://www.iai.it/en/node/15482.

35 Ibid., p. 10.

its economic viability because of the expected reduction in gas demand, environmental impacts and long timeframe (the pipeline could be potentially operational by around 2030), the project could allow the EU to partially reduce LNG competition with other importing regions, namely Asia, and would be built hydrogen-ready to comply with the EU decarbonisation plans.

Nevertheless, the overall potential of the Eastern Mediterranean area is constrained by factors such as the lack of infrastructures to support an increased level of exports and the need to increase current production to justify export projects, economic constraints and tensions among states in the region. Geopolitical tensions and competition have increased over the past years within the region, including due to the unresolved status of Cyprus, maritime boundaries disputes and the relative disengagement of the US from the area which has exacerbated rivalries in the region.[36]

1.1.3 Northern route

Moving towards the northern pipeline route, this year Norway has become the EU's largest supplier of gas, replacing Russia. In June, the country agreed with the EU to step up cooperation to ensure additional short-term and long-term supplies, as Norway has strong potential to scale up exports to the EU. In line with the agreement, Norway increased production by diverting more gas for exports instead of injecting it back into the ground to increase crude oil production and by scaling up production in three key gas field obtaining additional 1.4 bcm.[37] In the first nine months of 2022 exports totalled 84 bcm, an increase of almost 6 bcm compared to 2021.[38]

Norway, as member of the European Economic Area, the European Free Trade Association and NATO represents a safe and reliable partner that has supplied energy sources to the EU for half a century, thus maintaining this successful

36 Ibid., p. 18-19.

37 Equinor, *New Measures to Maintain High Gas Exports to Europe*, 16 March 2022, https://www.equinor.com/news/archive/20220306-new-measures-maintain-high-gas-exports-europe.

38 Stuart Elliott, "Norwegian Gas Supplies to Europe, UK Drop in September on Heavy Maintenance", in *SP Global Commodity Insights*, 4 October 2022, https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/100422-norwegian-gas-supplies-to-europe-uk-drop-in-september-on-heavy-maintenance.

relationship for at least the next three decades is critical to support the EU's energy transition pathway. Moreover, Norwegian gas is not only a safer option but also a cleaner one, as average CO_2 and methane emissions from gas production are lower compared to other producers, accounting for less than half of the world average – thus better aligning with EU climate ambitions.[39]

Nevertheless, with gas prices that increased sevenfold over the last year, Oslo is expecting 125 billion euro in net income from its petroleum industry, with an increase of 98 billion euro compared to last year.[40] This has led EU counties, such as Poland and Germany, as well as Norwegian opposition parties to question whether it is fair for Norway to profit from the dramatic situation in Ukraine and the energy crisis it has generated.[41]

The distortive effects on prices caused by the current energy crisis might indeed generate political tensions between the EU and Norway, whose relationship has so far been strengthened by cooperation in face of the crisis. At the EU level, discussions on the possibility of imposing a price cap on surging gas prices have taken place for months, but Norway never in favour of this measure, raising concerns over implications on reduction of supply and lower focus on energy savings. In October, the European Commission proposed a dynamic price ceiling that Norway opposed.[42] An alternative and more balanced solution could be an agreement between Norway and the EU in which reduced gas prices would be compensated by long-term security of demand through new instruments allowing joint purchases at the EU level.[43]

Looking towards the northern border of the EU, another important player for its diversification strategy is the UK. The country has significant regasification

39 European Union and Norway, *Joint EU-Norway Statement on Strengthening Energy Cooperation*, 23 June 2022, https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_3975.

40 Norwegian Petroleum Directorate, *The Government's Revenues*, last updated 6 December 2022, https://www.norskpetroleum.no/en/economy/governments-revenues.

41 Charlie Duxbury, "'Selfish' Norway Accused of Ukraine War-Profiteering", in *Politico*, 15 September 2022, https://www.politico.eu/?p=2225295; Nikolaus J. Kurmayer, Oliver Noyan and Sarantis Michalopoulos, "EU Fumes as US, Norway Energy Profits Put Solidarity to the Test", in *Euractiv*, 6 October 2022, https://www.euractiv.com/?p=1819895.

42 Elena Sánchez Nicolás, "Norway Rejects EU Price Cap Proposal", in *EUobserver*, 27 October 2022, https://euobserver.com/green-economy/156351.

43 Council of the European Union, *Council Agrees on Substance of New Measures on Joint Purchases of Gas and a Solidarity Mechanism*, 24 November 2022, https://europa.eu/!nq3VGW.

capacity (about a fifth of total European capacity)[44] with three LNG terminals, including Grain LNG which is the largest terminal in Europe by tank capacity (one million cubic metres). In 2021 the country was the third largest LNG importer in Europe at 14.4 bcm, imported mainly from Qatar (39 per cent), the US (25 per cent), Russia (22 per cent), Peru (6 per cent) and Algeria (5 per cent).[45] In addition, the UK is connected via pipeline to Norway, Belgium and the Netherlands.

Therefore, the UK can have a role in EU's diversification efforts by acting as a hub for LNG imports from international markets and then redistributing supplies to the EU via pipeline. This trend has already started in 2022, with a drastic increase in volumes of UK gas exported to the EU, reaching record high levels in December (around 60 million cubic metres per day).[46] The combination of main suppliers has also changed in 2022, with the US becoming the largest source of LNG for the UK, followed by Qatar, Peru, Angola and Russia.[47] In December, the UK and the US strengthened this cooperation announcing a "UK-US Energy Security and Affordability Partnership" which includes a commitment from the White House to export at least 9–10 bcm of LNG over the next year to the UK.[48] The objective is both to support UK consumption and to increase volumes re-exported to mainland Europe via pipeline to contribute to cutting its dependence on Russian gas.

1.2 LNG diversification options and main exporters

Despite the focus dedicated to pipeline options, the REPowerEU plan places greater emphasis on the LNG market. This is mainly because LNG represents a quicker and more flexible solution. As LNG is traded in a global market, this

44 UK Office for National Statistics, *Trends in UK Imports and Exports of Fuels*, 29 June 2022, https://www.gov.uk/government/statistics/trends-in-uk-imports-and-exports-of-fuels-2022.
45 UK Department for Business, *Energy & Industrial Strategy, Supply of Liquefied Natural Gas in the UK, 2021*, 30 June 2022, https://www.gov.uk/government/publications/energy-trends-june-2022-special-feature-article-supply-of-liquefied-natural-gas-in-the-uk-2021.
46 Elena Mazneva, "UK Sends Gas to EU in Rare Role as Winter Exporter", in *Bloomberg*, 5 December 2022, https://www.bloomberg.com/news/articles/2022-12-05/uk-exporting-gas-to-europe-it-normally-keeps-at-home.
47 UK Office for National Statistics, *Trends in UK Imports and Exports of Fuels*, cit.
48 Charlie Cooper, "Gas Supply at Center of New US-UK Energy Pact", in *Politico*, 7 December 2022, https://www.politico.eu/?p=2392170.

can reduce reliance on a single supplier reinforcing energy security. Moreover, regasification infrastructures require less time to build and in the case of floating storage and regasification units (FSRUs) they can be leased for a certain amount of time and dismissed once LNG demand decreases, which makes this option particularly suitable to adjust to future reductions in gas demand in line with European climate objectives.

However, replacing substantial amounts of Russian pipeline gas with LNG is contingent on an expansion of the EU regasification capacity. EU LNG imports rose by almost 70 per cent (35 bcm) in the first eight months of 2022 compared to the previous year, leading EU existing LNG import infrastructure to be used at close to maximum rates.[49] Thus, increasing regasification capacity represents one of the key challenges for Europe's diversification strategy. Across the EU new regasification capacity has been primarily developed through new FSRUs, alongside existing onshore terminal expansions, and overall current efforts could lead to a 15 per cent rise in European regasification capacity by the end of 2023.[50] Germany is undertaking one of the most significant efforts: currently there are three LNG terminals proposed for construction and six FSRUs in development that would lead to a total of around 75 bcm in increased capacity.[51] In addition, across the EU regasification capacity is not necessarily located where is most needed, which makes building the necessary gas interconnectors a priority, as highlighted by REPowerEU in accordance with its overall approach to foster cohesive action and solidarity between member states.

In parallel to an increase in regasification capacity within the EU, liquefaction capacity at the global level will also need to undergo reconfiguration. According to the International Gas Union World LNG Report 2022, in 2021 the global LNG trade reached an all-time high of 506.5 bcm as a result of the post-pandemic recovery and global liquefaction capacity reached 626 bcm/year.[52] The main exporters in 2021 were Australia (21 per cent export market share), Qatar (21

49 IEA, Gas Market Report, Q4-2022, cit.
50 Independent Commodity Intelligence Services (ICIS), *Europe's Race to Develop New LNG and to Break Russian Dependency*, July 2022, https://www.icis.com/explore/?p=21266.
51 Giovanni Sgaravatti, Simone Tagliapietra and Cecilia Trasi, "National Energy Policy Responses to the Energy Crisis", in *Bruegel Datasets*, 15 December 2022, https://www.bruegel.org/node/8375.
52 International Gas Union (IGU), *World LNG Report 2022*, July 2022, https://www.igu.org/?p=20755.

per cent), the US (18 per cent) and Russia (8 per cent), followed by Malaysia (7 per cent), Nigeria (4 per cent) and Indonesia (4 per cent). Overall, Asia Pacific is the largest exporting region.

The current geopolitical situation led to higher demand for LNG and a spike in prices which re-invigorated appetite for new liquefaction projects. Currently, proposed new liquefaction plants amount to 1,407 bcm/year, the majority located in the US, Canada and Russia. Yet the development of the 186 bcm/year of proposed liquefaction capacity in Russia is uncertain given international sanctions and the ongoing war. Africa also has 168.7 bcm/year of proposed liquefaction capacity as of April 2022 and could emerge as a key LNG export region if these projects materialise. Mozambique is currently expected to develop the largest new liquefaction capacity, followed by Nigeria and Mauritania. In the MENA region, Qatar will increase its LNG production capacity from 104.7 bcm/year to 150 bcm/year by 2025 with the expansion of the North Field East.

Overall, by turning to the LNG market the EU can tap into a new and more diversified pool of producing countries, strengthening its energy security. Nevertheless, this diversification strategy faces important obstacles, including a tight market in the short term which will lead to competition with other importing regions, as well as challenges relating to finding a balance with climate objectives.

The main obstacle is the shortage of new LNG production globally in the short term (over the next three to four years). It will take time for exporting countries to increase production and liquefaction capacity. The 70 per cent increase in EU LNG imports in the first eight months of 2022 was only possible thanks to a number of market-driven factors. The exceptionally high gas prices in Europe attracted LNG cargoes that were originally directed towards other destinations, even when companies were bound by long-term contracts with third countries – it was often more convenient to pay the penalties for breaching contractual obligations and ship the cargoes to Europe.

Forecasts estimate that the global LNG market will remain tight at least until 2024, which will lead to competition between the EU and other importing regions, namely Asia, for existing volumes as the market awaits the

development of new production.[53] Therefore, for the EU signing new contracts with producing countries is critical to secure a sufficient share of new export capacity, which will also likely guarantee to obtain the necessary LNG volumes at a better price compared to the spot market. However, producing countries will typically push for long-term contracts, thus the EU will need to find a balance between the need to secure LNG contracts for the next years and its climate objectives, which require to reduce dependence on gas over the next decade.

Finally, among the challenges stemming from a heavier reliance on the LNG market to pursue its diversification strategy, the EU should also consider the greater greenhouse gas emissions associated with its production and transportation, as compared to pipeline options.

1.2.1 United States

The US has been the major player supporting the EU's diversification efforts in the LNG market, with a critical role especially through the difficult months of 2022. A month after the invasion of Ukraine, the US signed an agreement to supply at least 15 bcm of LNG to the EU market in 2022, while the EU offered in turn stable demand for US LNG at approximately 50 bcm per year until at least 2030.[54] The speed at which the US was able to ramp up supplies far exceeded its promises. It was the major supplier of LNG to the EU in 2022, with around 40 bcm in the first eight months of the year – almost double the total volumes supplied in 2021 (22 bcm).[55] However, reaching the 50 bcm mark will require expansion of US liquefaction capacity which will not be available before the second part of the decade.

The role taken up by the US as vital LNG supplier for the EU could create a dependence relationship that poses some risks. Over the last year, especially in face of the Russian invasion of Ukraine, the EU has benefitted from strong transatlantic unity. However, looking at the relations with China, the sharing of

53 ICIS, *How Can Europe Increase Its Access to Gas?*, September 2022, https://www.icis.com/explore/?p=21777.
54 Susi Dennison, Gosia Piaskowska and Pawel Zerka, "EU", in *EU Energy Deals Tracker*, cit.
55 Council of the European Union, *Infographic - Where Does the EU's Gas Come From?*, cit.

the burden of aid to Ukraine and tensions over the US Inflation Reduction Act, the potential for frictions in transatlantic relations is quite high which should lead to careful consideration on the part of the EU concerning its energy security strategies.[56] In particular, the potential election of a Republican president in just two years' time could have a significant impact on the EU–US relations. For instance, a Republican administration could be more sensitive to domestic interests, thus prioritising the availability of affordable domestic gas rather than exports, with considerable negative implications for EU diversification and energy security.[57]

In addition, the US does not have a state-backed energy company, thus flows are primary driven by market forces and the White House has limited capacity to influence exporters on the direction of their cargoes. Therefore, efforts such as the agreements signed between the EU and the US, as well as between the UK and the US, to increase gas supplies towards partners in Europe are limited by the fact that US gas volumes will follow market opportunities.

In May 2022, France was among the first EU countries to sign a long-term LNG contract. The French Engie and the US NextDecade signed a 15-year sale and purchase agreement for 2.4 bcm/year of LNG.[58] Negotiations were originally halted in 2020 following alleged pressure from the French government over environmental concerns, particularly methane emissions. Nevertheless, the scenario changed radically with the outbreak of the war as the EU struggled to find non-Russian gas, leading also to a second agreement signed in December 2022 between the French Engie and the US Sempra for 1.2 bcm/year of LNG for 15 years.[59] Despite this recent change of direction, the issue of methane emissions remains a challenge especially considering the EU's ambition to reduce this type of emissions, as stated in its methane emissions strategy and also in the Global Methane pledge commitment signed by the EU – as well as

56 Mark Leonard, "Peak Atlantic Unity?", in *ECFR Commentaries*, 18 November 2022, https://ecfr.eu/?p=98777.
57 Ibid.
58 Pier Paolo Raimondi and Margherita Bianchi, "Reconciling EU Energy Security with Climate Policies: Rethinking European Gas Markets", in *IAI Commentaries*, No. 22|26 (June 2022), https://www.iai.it/en/node/15557.
59 Anna Shiryaevskaya, "France's Engie Agrees to 15-Year LNG Deal With US's Sempra", in *Bloomberg Law*, 6 December 2022, https://news.bloomberglaw.com/environment-and-energy/frances-engie-agrees-to-15-year-lng-deal-with-uss-sempra.

the US – at COP26 aiming to cut methane emissions by 30 per cent by 2030.[60]

1.2.2 Qatar

In the EU scramble for LNG supplies, the state of Qatar has also emerged as a key player. Qatar from the outset showed willingness to contribute to the EU's energy diversification strategy, which led the country to gain new political capital in the West. Nevertheless, Qatari LNG is locked into long-term contracts, mainly with Asia, which represent 70 per cent of its exports, and will not have surplus volumes before 2025.[61] At the same time, the country has already in place projects to expand its gas production and export capacity which could significantly support EU demand starting from 2024–2025. Significantly, European companies such as Eni and Total are involved in the expansion of the Qatari North Field production site, which could be a supporting factor to ensure new supplies will flow towards the EU.

In November 2022, Germany struck an important deal with Qatar to secure new flows starting from 2026 for a 15-year period, providing 2.7 bcm of LNG per year. Alongside the agreements signed between France and the US, this is one of the first long-term contracts reached by EU member states to secure future LNG volumes and an important step in the EU's diversification strategy. However, the volumes are expected to cover only 3.7 per cent of Germany's gas consumption and experts have also pointed out that 2026 is a rather distant date. The priority for Germany is to secure LNG volumes at an affordable price for 2023–2024 or the country faces the risk of relying on spot LNG markets, thereby exposing itself to global price volatility.[62] Nevertheless, Germany was able to negotiate a period of 15 years (despite an initial request of five years) while Qatar was aiming for a 20-year contract, which was a positive step towards finding a balance between short-term diversification needs and decarbonisation objectives.

60 Website of the Global Methane Pledge: https://www.globalmethanepledge.org; European Commission website: *Methane Emissions*, https://europa.eu/!dBqfVk.

61 Pier Paolo Raimondi, "A Scramble for Gas: Qatari LNG and EU Diversification Plans", in *IAI Commentaries*, No. 22|18 (April 2022), https://www.iai.it/en/node/15144.

62 Andrew Mills and Maha El Dahan, "Germany to Get New Qatari LNG Flows through QatarEnergy, ConocoPhillips Deal", in *Reuters*, 29 November 2022, https://www.reuters.com/business/energy/qatarenergy-conocophillips-sign-lng-supply-deal-germany-2022-11-29.

For the EU, relying on Qatar could represent a better option compared to other suppliers in the MENA region, such as Egypt, Algeria or Libya, as the country has a stable government, substantial financial resources to support new investments and a small population which would reduce the risk of competition between exports and growing internal demand.[63] In addition, compared to other LNG producers such as the US and Australia, Qatar is closer to Europe which means lower transportation costs. Qatar also has one of the lowest carbon intensity rates in LNG production process globally and is looking into investments to further cut carbon intensity through carbon capture and storage technologies, which would make Qatari LNG more attractive for the EU for environmental reasons.[64] Nevertheless, the relationship with Qatar poses some question politically. The country mobilises energy rents to pursue an ambitious foreign policy which may not always be in line with the interests of the EU. The country has also been accused of human rights violations, that recently led to a resolution from the European Parliament condemning alleged abuses against migrant workers during the construction of the World Cup 2022 infrastructure.[65] Moreover, Qatar was recently found to be involved in a large strategic corruption case towards members of the EU Parliament. As a consequence, the EU has put on hold the approval of the visa agreement to allow visa-free short-stay travel to the EU for Qatari nationals, which points to potentially growing tensions between the EU and Qatar.[66]

While Qatar certainly has the highest potential to contribute to the EU diversification strategy, the EU has already taken steps to strengthen cooperation with the whole region – as manifested by the "Strategic Partnership with the Gulf" adopted in May 2022 which stresses the importance of energy cooperation between the two regions.[67]

63 Pier Paolo Raimondi, "A Scramble for Gas", cit.
64 Energy Intelligence, *Upheaval Prompts Qatar to Review Expansion Plan*, 19 April 2022, https://www.energyintel.com/00000180-28d7-dd6c-af83-fef71c200000.
65 Wilhelmine Preussen, "European Parliament Calls out FIFA, Qatar amid World Cup Human Rights Row", in *Politico*, 24 November 2022, https://www.politico.eu/?p=2341890.
66 Mari Eccles, "Qatar Scores Own Goal over EU Visas", in *Politico*, 13 December 2022, https://www.politico.eu/?p=2413668.
67 European Commission, *GCC: EU Unveils Strategic Partnership with the Gulf*, 18 May 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3165.

1.2.3 Russia

Despite its prominence as pipeline exporter, Russia is expanding its role in the LNG sector. Strengthening LNG was key to diversify the markets Moscow has access to – which was a strategic objective long before the conflict with Ukraine in 2022. In 2021, Russia was the fourth largest LNG exporter globally, supplying 40.4 bcm/year of LNG globally (8 per cent of global exports).[68]

Despite the important steps taken to secure LNG from alternative suppliers, currently the EU still relies on LNG imports from Russia. In contrast to pipeline imports, LNG supplies from Russia increased by 15 per cent in 2022 (reaching 13 bcm) compared to the same period in 2021.[69] This is happening under the radar as both sides have little interest in creating further tensions over energy resources. Nevertheless, continued dependency on Russian LNG poses a serious risk for such supplies to be used as an instrument for blackmail in the current geopolitical situation. Moreover, should relationships with the EU further deteriorate, Russia could divert LNG supplies to "friendly" countries and achieve political gains in developing countries that are suffering from LNG shortages due to increased EU demand, with the risk of strengthening Russian influence and energy dependence in the global south.[70]

1.2.4 Africa

Looking towards the EU's southern neighbourhood, North African countries can play a role also as LNG suppliers – namely, Algeria and Egypt which in 2021 represented 3 per cent and 2 per cent of global LNG exports. Egypt in particular can become an important partner as the only country in the East Mediterranean with LNG infrastructures and thus able to tap into the vast reserves of the area to supply the EU.

68 IGU, *World LNG Report 2022*, cit.
69 Anne-Sophie Corbeau and Diego Rivera Rivota, "Why Under-the-Radar Russian LNG Exports Matter", in *Center on Global Energy Policy Q&A*, 27 September 2022, https://www.energypolicy.columbia.edu/?p=12434.
70 Ibid.

Beyond North Africa, Sub-Saharan African countries could also contribute to the EU's diversification strategy through LNG. Italy in particular has played a key role in reaching out to exporting countries in the region mainly thanks to the long-standing relationships of its national energy company Eni in the area. New agreements have been reached with several countries such as Congo and Angola, which envisage 4.5 bcm and 1.5 bcm of new supplies respectively starting from 2023.[71]

Other EU actors have also turned to Sub-Saharan African partners for their diversification strategies. For instance, Germany expressed its interest to develop LNG projects with Senegal which is expected to become a major gas producer in the region, manly through the proposed Greater Tortue Ahmeyim project at the border with Mauritania, with an estimated potential of 434.7 bcm.[72]

Several Sub-Saharan African countries already export LNG on the global market, namely Nigeria (4 per cent of global exports in 2021) and Angola (1 per cent in 2021) which have respective LNG export capacity of 30 bcm/year (and a planned increase of 10.3 bcm/year) and 7 bcm/year of LNG export capacity.[73] Cameroon and Equatorial Guinea are also exporters with a global market share of around 1 per cent. Nevertheless, the vast natural gas resources of the continent are currently estimated at more than 5,000 bcm and remain largely untapped.[74] Countries like Mozambique, Senegal and Tanzania have plans to develop their significant resources with large and export-driven LNG projects. Mozambique already has 20.4 bcm/year of LNG export capacity in planned projects and 4.6 bcm/year under construction. In November 2022, the first ever LNG cargo from

71 "Intesa Italia-Congo per aumento forniture di gas. Eni firma accordo su Gnl", in *Il Sole 24 Ore*, 21 April 2022, https://www.ilsole24ore.com/art/gas-intesa-italia-angola-piu-forniture-oggi-maio-e-cingolani-congo-AENDXOTB.

72 Andreas Rinke and Sarah Marsh, "Germany Is Keen to Pursue Gas Projects with Senegal, Says Scholz on First African Tour", in *Reuters*, 23 May 2022, https://www.reuters.com/world/russia-looms-large-scholzs-first-africa-tour-chancellor-2022-05-22; Bp, *The Greater Tortue Ahmeyim Project*, May 2022, https://www.bp.com/content/dam/bp/country-sites/en_sn/senegal/home/pdf/gta-brochure-may-2022-en.pdf.

73 IGU, *World LNG Report 2022*, cit.; Global Energy Monitor, *Africa Gas Tracker: Summary Tables*, https://globalenergymonitor.org/?p=8786.

74 IEA, "Africa Energy Outlook 2022", in *World Energy Outlook Special Reports*, June 2022, p. 17, https://www.iea.org/reports/africa-energy-outlook-2022.

Mozambique departed from Eni's Coral Sul FLNG offshore facility.[75] Similarly, Tanzania has 13.6 bcm/year of LNG export capacity in planned projects, while Mauritania 10.2 bcm/year in planned projects and 3.4 under construction.[76] To a minor extent also Congo, Cameroon and Equatorial Guinea are planning to expand their LNG export capacity by 1.6 bcm/year, 1.7 bcm/year and 3.4 bcm/year respectively.

The spike in gas prices and increased EU demand have renewed momentum for LNG projects that have been stalled for years and have increased interest in developing new projects in the region. However, there are considerable obstacles to the development of LNG potential in the region, including climate and security issues. For instance, Total's Mozambique LNG project has been halted since 2021 following the declaration of force majeure due to security risks.[77] Financing is also a challenge as most projects are debt-financed by banks or export credit agencies located in countries with net zero emissions targets or equity-financed by oil and gas companies with similar climate goals.

Concerning climate issues, the increased interest in Sub-Sharan African gas reserves has led to concerns over the risk to lock-in fossil fuels in the future of climate-vulnerable African countries. At the 27th Conference of the Parties (COP27) that took place in Egypt, the expansion of gas in Africa has been a strongly debated issue. The African Union – backed by countries with large fossil fuels reserves – claimed the right to exploit all forms of abundant energy resources on the continent to underpin its economic development and argued that this can also be a great opportunity to support EU partners in their diversification strategy. The EU has to find a difficult balance in this regard as, on the one hand, African natural gas could be critical for its diversification strategy but, on the other, supporting the exploitation of untapped African fossil resources could impact its credibility as global climate leader. At COP27 the EU backed the right for Africa to use natural gas as a transitional fuel,[78] but

75 Eni, *Mozambique's First LNG Cargo Departs from Coral Sul FLNG, Offshore the Rovuma Basin*, 13 November 2022, https://www.eni.com/en-IT/media/press-release/2022/11/eni-coral-first-cargo.html.
76 Global Energy Monitor, *Africa Gas Tracker: Summary Tables*, cit.
77 IEA, "Africa Energy Outlook 2022", cit., p. 100.
78 European Commission, *Remarks EVP Timmermans on COP27 Outcomes during the European Parliament Plenary Debate*, 12 December 2022, https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_22_7688.

large civil society groups strongly opposed a dash for gas in Africa. The risk of increased emissions and carbon lock-ins are not the only issues they raised. There are also concerns that gas reserves will be largely used for export and the revenues likely remain in the hands of elites, with little benefit for the African population. Heavy reliance on gas exports could also expose African countries' economies to price volatility of this globally traded commodity, while new gas projects could also risk not to deliver the expected returns or being stranded as the energy transition unfolds globally. Moreover, large investments in the expansion of the gas sector could reduce available resources and political interest in the development of renewable energy projects.

To mitigate these risks and maintain its climate leadership, it is critical for the EU to attach green strings to new gas projects in Africa, for instance by investing in reducing emissions in the supply chain and in hydrogen-ready infrastructures. In parallel, the EU will need to take the lead in unlocking the necessary level of investments to scale-up renewable energy in the region, as well as to support the development of adequate infrastructures to allow African countries to use their natural gas to meet domestic energy demand, when renewables are not the most efficient resources.

1.3 Competition and cooperation with other importing countries

As discussed, in the next three to four years there is little to no possibility to increase LNG production globally. Therefore, this means that EU diversification strategies will lead to increased competition with other LNG importing countries, mainly in Asia.

In some cases, the tight market situation could lead to cooperation measures. For instance, the only way to increase LNG supplies from Qatar in the short term would be to negotiate with Asian buyers and Doha to agree on diverting to Europe part of the imports covered by long-term contracts. Some examples of cooperation have already taken place: in May 2022 Japan and Europe agreed to cooperate to support each other's security of LNG supply, after Tokyo had already diverted some surplus cargoes to Europe following a request from the

EU and the US.[79]

Nevertheless, the crisis has mainly triggered competition among buyers over the past year. In Asia, high LNG prices and rising demand in the European market led to different consequences across countries, but the overall impact was an erosion of gas demand.

In China, LNG imports fell by 20 per cent compared to 2021.[80] However, in this case it is difficult to disaggregate the impact of high prices on LNG demand from other factors, namely Covid-induced lockdowns and the consequent slowing economic activity. Certainly, the significantly lower demand in China in 2022 was a key factor that freed up LNG volumes (around 13–15 bcm) allowing them to flow towards Europe. Thus, a rebound in Chinese LNG imports could represent a major future driver for market tightness. According to the International Energy Agency (IEA), in 2023 Chinese LNG imports could return close to 2021 levels capturing over 85 per cent of the expected increase in LNG supply, thereby significantly limiting the amount of LNG cargoes available for the European market.[81]

In Japan and Korea high LNG prices led to limited impacts on demand due to a higher purchasing power (compared to other countries in the region) and traditional reliance on long-term LNG contracts. Nevertheless, measures were taken to reduce reliance on imported LNG. For instance, Japan announced a plan to accelerate the restart of seven nuclear reactors from mid-2023 and Korea suspended voluntary coal restrictions for summer 2022, while it accelerated development of new coal-fired and nuclear units.[82]

The EU scramble for LNG took a toll especially on countries with lower purchasing power in Asia, leading them to turn towards more polluting fossil fuels and causing acute crises. In India, use of gas for power generation dropped

79 Takeo Kumagai and Stuart Elliott, "Japan, EU to Cooperate to Ensure LNG Supply, Reduce Reliance on Russian Energy", in *SP Global Commodity Insights*, 12 May 2022, https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/051222-japan-eu-to-cooperate-to-ensure-lng-supply-reduce-reliance-on-russian-energy.

80 IEA, *Never Too Early to Prepare for Next Winter*, cit., p. 5.

81 Ibid., p. 8.

82 IEA, *Gas Market Report, Q4-2022*, cit., p. 22.

by 30 per cent in the first eight months of 2022 and it was mostly replaced by coal-fired plants.[83] Similarly, in Thailand power sector gas burn dropped by 6 per cent compared to 2021 and diesel power generation increased 16-fold.[84] In other cases, the consequences were more extended and severe. Pakistan experienced blackouts of up to 12 hours, double-digit inflation, reduced foreign exchange reserves and high import bills for generation fuels, while LNG imports dropped by 19 per cent compared to 2021 and oil-fired generation increased five-fold.[85] In Bangladesh, severe rationing measures were adopted including reduced working hours or bans on illuminating buildings. Moreover, alongside the diversion of LNG volumes away from Asian markets, EU diversification strategies also reduced significantly the availability of FSRU vessels to hire particularly for South and Southeast Asian markets, which relied on these infrastructures to unlock LNG demand.[86]

Therefore, the strategies put in place by the EU to diversify away from Russian energy imports have created severe negative effects especially in developing and emerging markets that relied on LNG imports and are now at risk of slowing down their energy transition, namely delaying coal-to-gas switches. This is another aspect that could threaten the credibility of the EU as global climate leader.

2. Decarbonisation

The other key pillar of REPowerEU is decarbonisation which, despite having a strong domestic focus, still maintains significant external implications.

The plan promotes a long list of new and existing initiatives concerning climate diplomacy and the global energy transition: it supports the implementation of the Joint Energy Transition Partnership with South Africa and the EU-Africa Green Energy Initiative, focuses on the Global Methane Pledge to reduce

83 Ibid.
84 Ibid., p. 23.
85 Ibid.
86 Ibid.

methane emissions – which was then signed by the EU, the US and 11 other countries in June 2022[87] – alongside the promotion of renewables and sustainable energy infrastructures, particularly through the Global Gateway connectivity strategy.[88]

More importantly, the plan foresees a large scale-up of renewable generation, ideally raising the target from the proposed 40 per cent share in the energy mix to 45 per cent by 2030 – a proposal already approved by the European Parliament[89] but that some member states may oppose.[90] To this purpose, REPowerEU includes an EU Solar Energy Strategy[91] aiming at reaching 320 GW of solar capacity by 2025, and 600 GW by 2030 (from 160 GW in 2021[92]). The plan also envisages a much larger deployment of renewables gases (hydrogen in particular), raising the previous Fit-for-55 target (5.6 Mt) almost four-fold to 20 Mt. Interconnection is part of the plan, although mostly on the domestic side – the only exception is the ELMED interconnector between Italy and Tunisia, approved in December 2022.[93]

Scaling up hydrogen and renewables, the two dominant items of the decarbonisation pillar, has compelling external implications. The boost in renewable capacity should not translate into new dependencies, either from imports of final products (wind turbines but mostly solar panels) or raw materials (particularly critical ones). The development of hydrogen will also require significant imports, covering half of the 20 Mt target in the Commission's vision.[94] This, in turn, will call for the establishment of partnerships with extra-

87 European Union and USA, *EU-US Joint Press Release on the Global Methane Pledge Energy Pathway*, 17 June 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3793.
88 Benjamin Fox, "EU Promises Investment in African Energy in Post-Summit Meeting", in *Euractiv*, 29 November 2022, https://www.euractiv.com/?p=1846815.
89 Paul Messad, "European Parliament Backs 45% Renewable Energy Goal for 2030", in *Euractiv*, 14 September 2022, https://www.euractiv.com/?p=1808871.
90 Kira Taylor, "EU Countries Eye Scrapping 45% Renewables Target: Document", in *Euractiv*, 13 October 2022, https://www.euractiv.com/?p=1823429.
91 European Commission, *EU Solar Energy Strategy* (COM/2022/221), 18 May 2022, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022DC0221.
92 European Commission, *In Focus: Solar Energy – Harnessing the Power of the Sun*, 13 September 2022, https://commission.europa.eu/node/27299_en.
93 European Commission, *Connecting Europe Facility: Over €600 Million for Energy Infrastructure in Support of the European Green Deal and REPowerEU*, 8 December 2022, https://energy.ec.europa.eu/node/4917_en.
94 European Commission, *REPowerEU Plan* (COM/2022/230), 18 May 2022, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022DC0230.

EU countries, to support the development of the hydrogen sector in these locations and – more broadly – the promotion of the expansion of the hydrogen market globally.

2.1 Hydrogen and decarbonised gases

Reaching the EU's level of ambition on hydrogen will not be an easy task, and the external component will be key.

The EU will first have to develop or strengthen partnerships with countries that are already relatively advanced in the hydrogen sector, which are not many, and some are already competitors or suppliers of the EU in other energy-related sectors. This is the case of China and the US, respectively the first and second producers and consumers of hydrogen in the world[95] (although largely grey hydrogen, i.e. from fossil fuel sources). Norway is another player which could be key for the EU. The country is already well positioned in the production of hydrogen thanks to its renewable generation and potential, the existing gas infrastructures already connecting it to the EU (which could be partially repurposed or upgraded) and its already significant involvement in the sector. Norway indeed has a new hydrogen strategy,[96] a few projects already being delivered[97] and a decades-long experience in the employment of electrolysers (although mostly for the production of fertilisers). Not by chance, the EU and Norway have recently delivered a joint statement to boost cooperation in the energy sector,[98] in which hydrogen played a key role. This kind of work is also contained within REPowerEU initiatives, which include a series of Green Hydrogen Partnerships.[99] As part of these, on 2 December 2022 the EU signed a Memorandum of Cooperation with Japan, specifically designed to promote

95 International Renewable Energy Agency (IRENA), *Geopolitics of the Energy Transformation. The Hydrogen Factor*, Abu Dhabi, IRENA, January 2022, https://www.irena.org/publications/2022/Jan/Geopolitics-of-the-Energy-Transformation-Hydrogen.

96 Norwegian Government, *The Norwegian Government's Hydrogen Strategy. Towards a Low Emission Society*, June 2020, https://www.regjeringen.no/en/dokumenter/id2704860.

97 See for instance, Sanja Pekic, "Yara and Linde to Build Green Hydrogen Plant in Norway", in *Offshore Energy*, 28 January 2022, https://www.offshore-energy.biz/?p=527844; Melisa Cavcic, "Two Norwegian Players to Explore the Use of Hydrogen as 'Fuel for the Future' in Maritime Sector", in *Offshore Energy*, 19 May 2022, https://www.offshore-energy.biz/?p=561354.

98 European Union and Norway, *Joint EU-Norway Statement on Strengthening Energy Cooperation*, cit.

99 European Commission, *REPowerEU Plan*, cit.

cooperation on hydrogen. Japan is one of the most advanced countries in the world, having published one of the first hydrogen strategies ever in 2017 and already employing the resource in a variety of sectors – including automotive, where Japan is a leader in fuel cell vehicles. While the EU can expect deliveries of hydrogen from Norway, the agreement with Japan is rather meant to promote technological cooperation, create a global market and avoid destructive competition. The basis for such cooperation is solid, the two having also committed to a "Green Alliance" in May 2021[100] and successfully cooperated on several energy-related issues – including the emergency delivery of LNG after the Russian invasion of Ukraine.[101]

However, in order to reach the 10 Mt import target, the EU will have to focus mostly on promising countries entering the hydrogen market in the coming years. Fossil fuels exporting countries are looking at hydrogen as a way to diversify their export strategy: this is the case, for instance, of Saudi Arabia, Oman and Australia – the latter being among the top three countries for potential investments in the development of hydrogen.[102] The Commission also recently signed a strategic partnership with Kazakhstan on the occasion of COP27,[103] which is focused on renewable hydrogen as one of its three central elements. The agreement follows close cooperation between the country and the EU on the resource; while Kazakhstan plans on becoming a leading exporter of hydrogen – already in October 2022 the European group Sveving Energy has signed an agreement to build one of the largest green hydrogen facilities in the world in the Mangystau region.[104] However, considering logistical difficulties, the hydrogen component of the deal will likely focus mostly on local production for local consumption. COP27 was nonetheless the occasion for the EU to conclude several similar deals. Above all, the Commission signed a bilateral Memorandum of Understanding with Egypt[105] – a country

100 European Commission, *The EU and Japan Commit to a New Green Alliance to Work Towards Climate Neutrality*, 27 May 2022, https://climate.ec.europa.eu/node/1121_en.

101 Yuka Obayashi and Marwa Rashad, "Japan to Divert LNG to Europe amid Russia-Ukraine Tension", in *Reuters*, 10 February 2022, https://www.reuters.com/business/energy/japan-diverting-lng-europe-some-already-route-industry-minister-2022-02-09.

102 IRENA, *Geopolitics of the Energy Transformation. The Hydrogen Factor*, cit.

103 Valentina Romano, "EU Signs 'Strategic Partnership' with Kazakhstan on Green Hydrogen, Raw Materials", in *Euractiv*, 8 November 2022, https://www.euractiv.com/?p=1835773.

104 "Kazakhstan and EU to Build Hub for Green Hydrogen Production and Distribution", in *The Astana Times*, 27 October 2022, https://astanatimes.com/?p=61419.

105 European Commission, *COP27: EU and Egypt Step Up Cooperation on the Clean Energy Transition*, 16

already holding 100 MW of electrolysing capacity[106] – dedicated solely to the development of renewable hydrogen. Along the same lines, during the Sharm-el-Sheikh conference President von der Leyen also signed a Memorandum of Understanding on raw materials and renewable hydrogen with President of Namibia Hage Geingob,[107] thereby further promoting the EU's involvement in the African continent, which holds the largest potential for renewable hydrogen worldwide – IEA's estimate is 2,715 Exajoule (EJ), compared to 960 EJ for Asia and 1,314 for North America.[108]

The EU is looking strongly towards Africa for its hydrogen imports, particularly North Africa.[109] The region was indeed explicitly mentioned in the EU's 2020 hydrogen strategy,[110] while hydrogen has been a central element of the Africa-EU partnership between the EU and the African Union (AU) since 2020[111] and was one of the main topics of discussion during the last EU-AU summit in February 2022.[112] Germany, one of the member states more interested in developing hydrogen, has signed individual agreements with several African countries, particularly Morocco, Namibia and South Africa. The Italian Eni has also recently struck a major deal with Algeria, which includes the development of hydrogen in the country.[113] The continent itself is trying to rapidly advance in the sector: on 18 May 2022, six African countries launched the Africa Green Hydrogen Global Assembly for this purpose, on the same day the EU published REPowerEU.[114]

November 2022, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_6925.

106 IRENA, *Geopolitics of the Energy Transformation. The Hydrogen Factor*, cit.

107 European Commission, *COP27: European Union Concludes a Strategic Partnership with Namibia on Sustainable Raw Materials and Renewable Hydrogen*, 8 November 2022, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_6683.

108 Potential refers to technical potential for producing green hydrogen under 1.5 US dollars/kg by 2050. See IRENA, *Geopolitics of the Energy Transformation. The Hydrogen Factor*, cit.

109 Luca Franza, *Clean Molecules across the Mediterranean. The Potential for North African Hydrogen Imports into Italy and the EU*, Rome, IAI, April 2021, https://www.iai.it/en/node/13116.

110 European Commission, *A Hydrogen Strategy for a Climate-Neutral Europe* (COM/2020/301), 8 July 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020DC0301.

111 Swetha RaviKumar Bhagwat and Maria Olczak, "Green Hydrogen: Bridging the Energy Transition in Africa and Europe", in *FSR Research Reports*, September 2020, https://hdl.handle.net/1814/68677.

112 Eleonora Moro, "A Hydrogen Strategy for a Balanced EU-Africa Partnership", in *Euractiv*, 18 February 2022, https://www.euractiv.com/?p=1714511.

113 Eni, *New Agreement Reached by Sonatrach and Eni to Accelerate the Development of Gas Projects and Decarbonization via Green Hydrogen*, 26 May 2022, https://www.eni.com/en-IT/media/press-release/2022/05/new-agreement-eni-sonatrach-gas-development-green-hydrogen-draghi-tebboune.html.

114 James Kneebone and Andris Piebalgs, "Redrawing the EU's Energy Relations: Getting It Right with

There are several reasons why Africa and especially North Africa are key with regard to hydrogen for the EU: namely, the geographical position of North African countries, their still untapped renewable potential, the already existing infrastructures and relations for natural gas trade with Europe and the strategies several countries have developed or are developing for hydrogen (Morocco and Algeria in particular). Yet, many challenges remain.

Firstly, renewable electricity generation is needed to produce zero-carbon hydrogen – the so called "green hydrogen". In Africa the potential for renewable generation is considerable, but it has to be significantly scaled up to make economic sense. Countries that are relatively behind in their energy transition pathway, such as Algeria, could employ new renewable generation capacity to decarbonise their energy system and meet growing internal demand. Others that still need to provide full access to power to their population, such as Namibia or Mozambique, could employ new renewable generation to reach this objective. Nevertheless, in most cases it would be complicated to achieve a growth rate for new renewable generation that can satisfy both domestic needs and import demands from Europe. Moreover, countries with fossil fuel infrastructures could also be wary of reconverting even part of it for a new technology that is not fully consolidated, especially if taking into account the mistrust many African countries have towards Europe.[115] The risk is to replicate the failure of the DESERTEC project, launched by a German-led consortium in 2009 and aimed at building renewable generation in North Africa to supply electricity to Europe. The project collapsed in 2014 for a number of reasons, of which political instability in the region was only one. The leading causes were technical factors, as well the scepticism of many North African governments towards a project only designed to satisfy Europe's energy needs – a fact which earned DESERTEC a long-lasting neo-colonialist reputation.

The EU will however also face other issues. While some pipelines can be upgraded or repurposed for hydrogen, promising yet distant countries, such as Chile or Australia, will require the construction of new infrastructures to

African Renewable Hydrogen", in *FSR Policy Briefs*, No. 2022/50 (September 2022), https://hdl.handle.net/1814/74890.

115 Andrew Ferrand, "Against the Flow: Europe's Role in Kickstarting Algeria's Green Transition", in *ECFR Policy Briefs*, October 2022, https://ecfr.eu/?p=96902.

allow imports. This will not only demand significant investments in ports and ships, but also the definition of international standards for shipping. Despite the Commission's strong focus on the resource, developments are still at an early stage and there are several options on the table for seabound imports, depending on price- and technology-related factors still awaiting agreement at the European and global level.[116] Not by chance, one of the elements in the REPowerEU plan is indeed the development of an EU "Regulatory Power"[117] on hydrogen, to develop standards and certification schemes, as well as a global European hydrogen facility, for the launch of a worldwide hydrogen market.

Competition with other countries that are already established in the sector could represent another challenge. China today consumes 24 Mt of hydrogen per year and has included the resource as one of the "six industries of the future" in its current Five-Year Plan.[118] The US has similarly delivered relevant policies on hydrogen, such as the Hydrogen EarthShot initiative (aimed at reducing the resource cost) and has dedicated a budget of 9.5 billion dollars under the Infrastructure Investment and Jobs Act.[119] So far the two are not explicitly planning on importing hydrogen, but they could interfere in the EU's plan of directing the global development of this resource. Other countries, such as Korea, could become a direct competitor for the EU's supply of hydrogen.

Finally, one of the key issues will be the consolidation of these efforts from a security of supply perspective, while remaining coherent with the ambitious EU plans for decarbonisation. Most of the hydrogen available at the moment is indeed grey, while the share of green hydrogen that will be available in the future is unclear, especially in Africa, where only seven out of the IEA's 604 low-carbon hydrogen projects are being built. In addition, it is still not certain how the EU itself will define "green hydrogen", since rules are still being debated and it is not clear how they will in turn influence the external component of the EU strategy.[120]

116 Rafael Ortiz Cebolla, Francesco Dolci and Eveline Weidner Ronnefeld, "Assessment of Hydrogen Delivery Options. Feasibility of Transport of Green Hydrogen within Europe", in *JRC Technical Reports*, 2022, https://data.europa.eu/doi/10.2760/869085.

117 European Commission, *Factsheet on REPowerEU Actions*, cit.

118 IRENA, *Geopolitics of the Energy Transformation. The Hydrogen Factor*, cit.

119 US Congress, *H.R.2684 – Infrastructure Investment and Jobs Act*, 15 November 2021, https://www.congress.gov/bill/117th-congress/house-bill/3684.

120 Nikolaus J. Kurmayer, "Leak: Long-awaited EU Rules on Renewable Hydrogen Expected 15 Dec", in

2.2 Renewables and raw materials

The switch to renewable energies could prove to be a key element to reduce the role of Russian fossil fuels within the European energy system. The power generation construction time for sources such as solar photovoltaics (PV) can be as little as half compared to fossil fuels generation[121] and can thus represent a valid source also for medium-term diversification. However, the main risk is to move from dependence on gas and oil, towards other commodities and other players – China in particular. The significant target for solar power proposed by REPowerEU plan (320 GW by 2025 and 600 GW by 2030[122]), as well as the increased focus on other renewable resources, will indeed require an equally significant expansion of imports of critical raw materials, refined products, components and final products (above all solar panels). Dependence from this kind of imports can cause different security risks compared to reliance on fossil fuels: an interruption or, more likely, a significant reduction in the supply of the materials or final products needed will not block the functioning of the energy system, but it would slow down the transition and increase its costs (to the advantage of non-EU players).

Critical raw materials have been under the eye of the Commission for quite some time given their key importance for the energy transition: silicon is needed for solar panels, rare earth elements for wind turbine magnets, cobalt and lithium for batteries. All these elements will face growing demand as a consequence of the energy transition – 90 per cent increase for lithium, 60–70 per cent for nickel and cobalt in the next two decades[123] – and prices have already spiked, with lithium rising 400 per cent between 2021 and 2022.[124] If the EU will not adequately invest in the sector, bottlenecks in supply chains may become a

Euractiv, 2 December 2022, https://www.euractiv.com/?p=1849236.

121 IEA, "Average Power Generation Construction Time (Capacity Weighted), 2010-2018", in *IEA Charts*, last updated 26 October 2022, https://www.iea.org/data-and-statistics/charts/average-power-generation-construction-time-capacity-weighted-2010-2018.

122 European Commission, *REPowerEU Plan*, cit.

123 IEA, "The Role of Critical Minerals in Clean Energy Transitions", in *World Energy Outlook Special Reports*, last updated March 2022, https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions.

124 Oliver Noyan, "How the EU Plans to Win the Global Race for Critical Raw Materials", in *Euractiv*, 16 November 2022, https://www.euractiv.com/?p=1840339.

permanent feature. An additional vulnerability is also the spatial concentration of critical raw materials: the biggest supplier countries to the EU number only 18, with 15 of these located outside the Union and also including Russia.

The EU has already done some work on the topic. Since the 2011 Communication "Tackling the Challenges in Commodity Markets and on Raw Materials"[125] it periodically updates a list of critical raw materials, where criticality is defined by composite indicators of supply risk and economic importance. The document was designed to provide a solid knowledge base to limit price volatility and speculation on trading of such resources but has since expanded[126] (the EU published the fourth list in 2020[127]) and integrated with other topics, particularly circular economy.[128] The EU also launched a European raw materials alliance through the 2020 Communication on Critical Raw Materials[129] to gather private and public players in its diversification efforts.

REPowerEU calls for accelerating the work on the topic. A Critical Raw Materials Act is expected by the first quarter of 2023.[130] The legislation was announced during the September 2022 State of the Union speech by President von der Leyen, citing explicitly the threat represented by external dependency on critical raw materials.[131] Action by the Commission will likely focus first on a series of strategic partnerships and agreements with other suppliers, as in the case of those already signed with Chile and Mexico, and the ones being negotiated with Australia and India. Most of the already recalled agreements signed during COP27 indeed not only focus on hydrogen, but also and perhaps

125 European Commission, *Tackling the Challenges in Commodity Markets and on Raw Materials* (COM/2011/25), 2 February 2011, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0025.

126 European Commission website: *Critical Raw Materials*, https://europa.eu/!4CJgnP.

127 European Commission, *Critical Raw Materials Resilience: Charting a Path towards Greater Security and Sustainability* (COM/2020/474), 3 September 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020DC0474.

128 Magnus Gislev et al., *Report on Critical Raw Materials and the Circular Economy*, Luxembourg, Publications Office of the European Union, 2018, https://data.europa.eu/doi/10.2873/167813.

129 European Commission, *Critical Raw Materials Resilience*, cit.

130 "The EU's Critical Raw Materials Act", in *Euractiv*, 15 November 2022, https://www.euractiv.com/?p=1821710.

131 "We have to avoid falling into the same dependency as with oil and gas". See European Commission, *2022 State of the Union Address by President von der Leyen*, 14 September 2022, https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_22_5493.

mostly on critical raw materials – as in the Strategic Partnership with Namibia[132] and with Kazakhstan[133] (the latter also dealing with batteries). The recent strategic partnership with Ukraine on raw materials was also likely influenced by REPowerEU; the agreement will lead to the digitalisation of geodata in the country, to ease access to prospectors and investors.[134] The EU will also try to establish within Europe at least some of the critical raw materials supply chains, which is currently largely dominated by China. Beijing has relevant resources in this sense, but has also secured a significant share of concessions in several African countries – this is for instance the case of cobalt in Congo, which holds two thirds of global production of this resource, key for batteries.[135]

Moving part of the supply chain to Europe is likely going to be the hardest task: at the moment the EU imports 19 of the 30 critical raw materials the Union identified in its last list,[136] mainly from China – in the case of magnesium this value reaches 93 per cent.[137] Boosting mining capacity in Europe will be a lengthy process due to authorisation procedures (even if the Act will try to speed them up) and social acceptability because of the landscape and environmental impact of operations. It is not clear to what extent domestic resources will be able to cover the growing EU needs. Diversification efforts should not be limited to the upstream, but should extend to the entire value chain: the EU will have to move refining capacity within the Union as well, as it currently has virtually no processing plants for roughly two thirds of critical raw materials.[138] In the case of rare earth materials the situation is even worse, with almost the entirety of processing being based in China.[139] Although the

132 European Commission, *COP27: European Union Concludes a Strategic Partnership with Namibia*, cit.
133 European Commission, *COP27: European Union Concludes a Strategic Partnership with Kazakhstan on Raw Materials, Batteries and Renewable Hydrogen*, 7 November 2022, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_6585.
134 European Commission, *EU - Ukraine Strategic Partnership on Raw Materials: The European Bank of Reconstruction and Development Will Support Digitalisation of Geological Data in Ukraine*, 17 November 2022, https://europa.eu/!fdPQ9T.
135 Dionne Searcey, Michael Forsythe and Eric Lipton, "A Power Struggle over Cobalt Rattles the Clean Energy Transition", in *The New York Times*, 20 November 2021, https://www.nytimes.com/2021/11/20/world/china-congo-cobalt.html.
136 European Commission, *Critical Raw Materials Resilience*, cit.
137 Oliver Noyan, "How the EU Plans to Win the Global Race for Critical Raw Materials", cit.
138 European Commission, *Critical Raw Materials Resilience*, cit.
139 Systemiq, *Critical Raw Materials for the Energy Transition in the EU: How Circular Economy Approaches Can Increase Supply Security for Critical Raw Materials. Summary Presentation*, October 2022, https://www.systemiq.earth/?p=7665.

process may be expensive, this is however one of the parts of the supply chain that the EU is more likely to bring home in the short to medium term, while raw materials could be secured by trade partnerships and (to some extent) by the recycling component also expected in the upcoming Act.

Recycling will indeed be relevant to reduce the amount of imports, also considering the significant pollution of refining and the construction time required for processing factories. At the time of writing, it is still not clear how REPowerEU will translate this focus on recycling into practice – so far it was only named a few times in the Communication and in Commissioner Breton's blog post on the Critical Raw Materials Act.[140] However, action in this sense will likely follow the guidelines described in the 2018 "Report on Critical Raw Materials and the Circular Economy"[141] and the latest Circular Economy Action Plan.[142] In this sense, research and innovation will also be key, both to improve the circularity of the sector (the focus of several Horizon2020 and LIFE projects, such as CHROMIC[143] and CRM Recovery) and to reduce the use of these materials (as in the case of ongoing research aimed at producing cobalt-free batteries).[144]

The import of green energy products will also represent an issue. While wind turbines will play a limited role, the question will revolve around solar panels: already in 2021 the EU imported 9.8 billion euro in solar panels[145] (compared to 0.6 in wind turbines), but this value has increased exponentially in 2022, reaching more than 15 billion in the January to August period alone[146] (while the situation has not changed much for wind turbines). REPowerEU will likely increase such imports, boosting reliance on China; the country represented

140 European Commission, *Critical Raw Materials Act: Securing the New Gas & Oil at the Heart of Our Economy I Blog of Commissioner Thierry Breton*, 14 September 2022, https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5523.

141 Magnus Gislev et al., *Report on Critical Raw Materials and the Circular Economy*, cit.

142 European Commission, *A New Circular Economy Action Plan for a Cleaner and More Competitive Europe* (COM/2020/98), 11 March 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020DC0098.

143 CHROMIC project website: http://www.chromic.eu.

144 Marija Maisch, "The Mobility rEVolution: Zero-Cobalt Cathode for Highly Stable Lithium-Ion Batteries", in *PV Magazine*, 27 September 2022, https://www.pv-magazine.com/2022/09/27/the-mobility-revolution-zero-cobalt-cathode-for-highly-stable-lithium-ion-batteries.

145 Eurostat, *EU Green Energy Product Imports: €13.8 Billion*, 28 November 2022, https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20221128-1.

146 Mary Hui, "Europe Is Replacing Energy Dependence on Russia with Solar Reliance on China", in *Quartz*, 22 September 2022, https://qz.com/1849566759.

89 per cent of solar panel imports in 2021[147] and dominates the global manufacturing of the product, with more of 80 per cent ownership of all stages of solar panel production.[148] Such a dependence represents a threat for the EU, considering also that Beijing has weaponised this commodity in the past (as in the case of the Lithuania boycott by China in 2021[149]). REPowerEU has addressed the issue since the first Communication in March, when Commissioner Simson said that the EU will do "whatever it takes" to bring solar manufacturing back to Europe.[150] The May REPowerEU plan published a Solar Energy Strategy[151] which included a Solar PV Industry Alliance meant to focus on the issue of domestic manufacturing. The alliance was kickstarted in October 2022 and aims at developing 25 GW of solar manufacturing capacity by 2025.[152] At the time of writing, the alliance is still at an early stage, but it will likely bring together industrial players, the research sector and other actors, based on the model of the Battery and the Hydrogen Alliances. This could boost efforts of some European players already involved in EU production, as in the case of Italy's Enel and its upcoming Sicilian factory (which also received extensive EU funding).[153]

Conclusion

Achieving the ambitious targets of REPowerEU and harmonising them with EU's climate goals will be a challenging task, that will require redefining the EU's external policy while carefully avoiding the risk of hardwiring new dependency

147 Eurostat, *International Trade in Products Related to Green Energy*, October 2022, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_trade_in_products_related_to_green_energy.

148 IEA, "Solar PV Global Supply Chains", in *IEA Special Reports*, July 2022, https://www.iea.org/reports/solar-pv-global-supply-chains.

149 John O'Donnell and Andrius Sytas, "Exclusive: Lithuania Braces for China-led Corporate Boycott", in Reuters, 9 December 2021, https://www.reuters.com/world/china/exclusive-lithuania-braces-china-led-corporate-boycott-2021-12-09.

150 Kate Abnett, "EU Will Do 'Whatever It Takes' to Rebuild Solar Energy Manufacturing in Europe", in *Reuters*, 31 March 2021, https://www.reuters.com/business/sustainable-business/eu-will-do-whatever-it-takes-bring-solar-energy-manufacturing-back-europe-2022-03-31.

151 European Commission, *EU Solar Energy Strategy*, cit.

152 European Commission, *Commission Kicks off Work on a European Solar Photovoltaic Industry Alliance*, 11 October 2022, https://commission.europa.eu/node/27608_en.

153 Angelo Amante and Francesca Landini, "Enel Turns to Sicily to Take on China's Solar Dominance", in *Reuters*, 5 December 2022, https://www.reuters.com/business/energy/enel-turns-sicily-take-chinas-solar-dominance-2022-12-05.

patterns in its climate neutral future.

Since the adoption of REPowerEU, both the Commission and member states have taken significant steps towards the objective of cutting dependence on Russian fossil fuels well before 2030 – addressing primarily the pressing short-term supply needs by engaging with new and existing suppliers.

After a year since the outbreak of the war in Ukraine, it is possible to evaluate the initial trajectory of these efforts. In the first EU Commission communication presenting the outline of REPowerEU, an intermediate goal to cut gas imports from Russia by two-thirds (101.5 bcm) by the end of 2022 was proposed.[154] Even though this intermediate goal was excluded from the final version of the plan, it can be used as a benchmark. According to the latest EU Commission figures, in the period from January to November 2022 total gas imports from Russia decreased by 64 bcm year-on-year, thus significantly falling short of the objective.[155] Looking to the medium term, prospects for maintaining the necessary reduction rates could be even more challenging, especially concerning the supply side in 2023 and 2024. Overall, analysis shows that reaching the 2030 objective of REPowerEU will depend strongly on the effective and timely implementation of demand-side measures, at least for what concerns gas.[156]

Despite the significant progress made, the path ahead is still arduous. In particular, preparing for winter 2023 will be challenging as the drastic reduction of Russian supplies will make filling storage much harder than in 2022 and competition with other buyers will be stronger, while prices may also be higher. The foundations laid by the EU and its member states over the past year for a new architecture of external energy relations will be pivotal to guarantee energy security, alongside intra-EU solidarity, decarbonisation efforts and demand-side measures.

154 European Commission, *REPowerEU: Joint European Action for More Affordable, Secure and Sustainable Energy*, 8 March 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511.
155 European Commission, *New Reports Highlight 3rd Quarter Impact of Gas Supply Cuts*, 13 January 2023, https://energy.ec.europa.eu/node/5014_en.
156 Mike Fulwood et al., "The EU Plan to Reduce Russian Gas Imports by Two-Thirds by the End of 2022: Practical Realities and Implications", in *OIES Energy Insights*, No. 110 (March 2022), https://www.oxfordenergy.org/?p=44696.

In parallel, the implementation of REPowerEU will need to take into account the longer term, aligning energy security needs with the EU objective to achieve climate neutrality. It won't be an easy task for the Commission to avoid funding potential stranded assets and to calibrate investments in extra-EU partners considering not only immediate shortages but also future energy demand – calculations that are complicated not only by the war, but also by the post-pandemic recovery and the uncertainty over the energy transition itself. Nevertheless, the REPowerEU plan can represent an opportunity for the EU to tackle some structural issues that could hamper the realisation of the vision outlined in the Green Deal.

First and foremost, the Commission should improve coordination among actions taken by individual member states, which dominated diversification efforts in 2022, if not take the lead itself. More generally, the EU should pick up the thread of energy diplomacy, which was largely abandoned in the transition from Juncker's Energy Union to von der Leyen's Green Deal. The Commission should find a new space for security of supply within the latter, without losing the unique climate and environmental vision that has been developed since the launch of the Green Deal in 2019.

As a product designed within the broader Green Deal vision, in the REPowerEU plan decarbonisation plays a key role. As repeated on several occasions by Commissioner Thierry Breton and by von der Leyen,[157] the main objective will be to make the transition part of the solution rather than part of the problem, by avoiding the creation of new dependencies. However, there are also other aspects that will need to be addressed. Namely, the urgency of the crisis will require to accelerate the transition, while working with technologies and resources whose commercial maturity, technological development and regulatory readiness is still low – at least in some cases (hydrogen in particular). Therefore, the transition process, after being perhaps too slow for the EU's climate and environmental ambitions in the past years, could now face the risk of becoming too quick for Europe's political and industrial capabilities. To pursue this fast-paced transition, the Commission will likely have to abandon

157 European Commission, *2022 State of the Union Address by President von der Leyen*, cit.; European Commission, *Critical Raw Materials Act*, cit.

the "one topic at a time" approach that dominated the Energy Union and was partially translated into the Green Deal, in favour of a systematic change involving at the same time domestic and external elements – for instance, by securing the supply of critical materials from key partners, while building processing capacity inside the EU. Facing the consequences of the war in Ukraine while fast-tracking the energy transition will be a complex task. Yet, it could be the chance for the EU to accelerate its transition efforts and reach goals that, although firmly stated and supported by its member states, could have been missed in a business-as-usual situation.

A Changing Energy Diplomacy: The External Dimension of the REPowerEU Plan

The global energy market disruption and energy security crisis caused by Russia's invasion of Ukraine triggered a quick response by the European Commission through the REPowerEU plan launched in May 2022. The plan aims at rapidly reducing the EU's dependence on Russian energy imports through diversification of suppliers, reduction of energy demand and an acceleration of Europe's energy transition. The implementation of the plan will redraw the EU external strategy, altering long-lasting energy and political relations and reshaping the global energy market, flows and routes. These new relations present both opportunities and challenges for the EU. While the overall aim of REPowerEU is to strengthen the EU's energy security and reduce its dependence on a single supplier, both diversification and decarbonisation strategies will often still be associated with the risk of creating strong new dependency patterns with unstable or problematic partners. Therefore, carefully assessing the external implications of the REPowerEU plan is critical to avoid reproducing dynamics similar to those that led to the current energy crisis in the climate neutral future that the EU is striving to achieve.

The Istituto Affari Internazionali (IAI) is a private, independent non-profit think tank, founded in 1965 on the initiative of Altiero Spinelli. IAI seeks to promote awareness of international politics and to contribute to the advancement of European integration and multilateral cooperation. Its focus embraces topics of strategic relevance such as European integration, security and defence, international economics and global governance, energy, climate and Italian foreign policy; as well as the dynamics of cooperation and conflict in key geographical regions such as the Mediterranean and Middle East, Asia, Eurasia, Africa and the Americas.

ISBN 978-88-9368-285-5

Istituto Affari Internazionali (IAI)
Via dei Montecatini, 17 - Rome - T. +39 066976831
iai@iai.it - www.iai.it