IAI PAPERS 22 | 11 - MAY 2022

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Istituto Affari Internazionali

Eastern Mediterranean Energy Resources between Energy Security and Energy Transition: A Regional Perspective

by Pier Paolo Raimondi

ABSTRACT

Since 2009, Eastern Mediterranean energy resources have attracted growing interests because of its vast energy reserves. These energy resources could generate several benefits for the region and beyond. Indeed, they could contribute to improve interconnectivity among countries, which is instrumental to the achievement of energy security, growth and development as well as decarbonisation. To achieve these positive results, countries needs to address and overcome some challenges, such as lack of infrastructure, economic constraints and interstate rivalry. The area could contribute to EU diversification plans as European countries seek to wean themselves off Russian gas. At the same time, it is crucial to broaden the approach to regional energy resources, starting to include also renewables and potentially hydrogen.

keywords

Eastern Mediterranean | Energy | Natural gas | Pipelines | Egypt | Israel | Cyprus | Italy | European Union

Eastern Mediterranean Energy Resources between Energy Security and Energy Transition: A Regional Perspective

by Pier Paolo Raimondi*

Introduction

The Eastern Mediterranean has become a global energy hotspot following numerous discoveries of offshore gas fields over the past decade. The trend started with the discovery of the Tamar field offshore Israel in 2009 and its productivity since 2013. Since then, other reserves have been found in Israel and Cyprus.[1] A major development occurred in 2015, with the discovery of the Zohr gas field offshore Egypt – the largest ever in the Mediterranean[2] – and in 2019 with the commencement of production of Israeli gas from the Leviathan field. These resources[3] were welcomed as a breakthrough for the region and beyond, potentially transforming the Eastern Mediterranean into a gas export hub.[4]

Hopes were further stimulated by assessments of other potential reserves in the area. In 2010, the US Geological Survey (USGS) estimated the presence of nearly 9,800 billion cubic metres (bcm) of technically recoverable gas and over 3.4 billion barrels of oil resources in the region.[5] While in 2021, the USGS estimates were lower

[1] Tamar 280 bcm discovered in 2009; Leviathan 620 bcm in 2010; Aphrodite 140 bcm in 2011; Tanin 31 bcm in 2012; Karish 54 bcm in 2013; Calypso 200 bcm in 2018; Glaucus 147–227 bcm in 2019.

[2] Zohr 850 bcm.

[3] Total estimated capacity is 2,322–2,402 bcm.

[4] Simone Tagliapietra, Energy: A Shaping Factor for Regional Stability in the Eastern Mediterranean?, Brussels, European Parliament, June 2017, https://www.europarl.europa.eu/thinktank/en/document/EXPO_STU(2017)578044; Dario Speranza and Daniela De Lorenzo, "Toward A New Mediterranean Gas Hub?", in Manfred Hafner and Simone Tagliapietra (eds), *The European Gas Markets. Challenges and Opportunities*, Cham, Palgrave Macmillan, 2017, p. 303-313.

[5] Observatoire Méditerranéen de l'Energie (OME), *Mediterranean Energy Perspectives 2018*, 2018.

* Pier Paolo Raimondi is Research Fellow of the Energy, Climate and Resources Programme at the Istituto Affari Internazionali (IAI) and PhD Candidate at the Università Cattolica del Sacro Cuore, Milan.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

(879 million barrels of oil resources and nearly 8,100 bcm of conventional gas in the region), they are still large enough to make the East Mediterranean a favourable area for energy field development.[6]

These energy resources can improve interconnectivity, which is instrumental to the achievement of energy security, growth and development as well as decarbonisation. However, in order to unleash this potential, several challenges need to be overcome. These include a lack of infrastructure, economic constraints and interstate rivalry. Natural gas in the area could be given newfound and greater political support by the EU as Europe will struggle to wean itself off Russian gas in the aftermath of Russia's war in Ukraine.

Eastern Mediterranean countries (Cyprus, Egypt, Greece, Israel, Lebanon, Jordan, Syria and Turkey) pursue different objectives. These countries all have growing energy demand, which needs to be satisfied to foster economic development. Some have low energy self-sufficiency and rely on imports. Moreover, all Mediterranean countries share the perception of climate change as a pressing challenge. Even though the Mediterranean region was responsible for 6 per cent of the world's CO_2 emission in 2018 (a relatively low share compared with other regions), it is currently warming 20 per cent faster than the rest of the globe.[7] The region is one of those most affected by the negative impacts of climate change, including wildfires, rise of sea levels, water scarcity, food insecurity and hotter temperatures. In 2021, several countries experienced major extreme events: in Sicily, for example, the hottest temperature on record was registered in August 2021 only a few months after a rare Mediterranean hurricane.[8] Such events are expected to increase in frequency. According to some estimates, by 2040 over 250 million people in the Mediterranean are destined to become "water-poor".[9] Almost all countries in the region have made emissions reduction pledges – although the highest reduction targets are conditional on receiving financial aid and technical assistance.

To address these challenges, countries could benefit from a variety of energy solutions located in the region in order to decarbonise their energy mix and cut emissions. They could take advantage of the local abundant natural gas resources in order to immediately reduce their carbon footprint by replacing more polluting energy sources – currently still present in some of national energy mixes. In addition, they clearly also benefit from their renewable energy potential, especially solar and wind. Most have steadily set ambitious climate and energy targets, aimed

[6] Christopher J. Schenk et al., "Assessment of Undiscovered Conventional Oil and Gas Resources in the Eastern Mediterranean Area, 2020", in *USGS Fact Sheets*, July 2021, https://doi.org/10.3133/fs20213032.

[7] OME, *Mediterranean Energy Perspectives 2021*, 2021.

[8] "Italy May Have Registered Europe's Hottest Temperature on Record", in *BBC News*, 12 August 2021, https://www.bbc.com/news/world-europe-58130893; Lorenzo Tondo, "Southern Italy Braced for Rare Mediterranean Hurricane", in *The Guardian*, 27 October 2021, https://www.theguardian.com/p/jcndh.

[9] OME, *Mediterranean Energy Perspectives 2021*, cit.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

at increasing the share of renewable energy sources (RES) and reducing their dependence on fossil fuels. Through the development of RES, these countries could adapt and adjust to the ongoing major transformations in the global energy markets prompted by the political commitment towards decarbonisation in the fight against climate change.

1. Historical and current overview of the East Mediterranean energy landscape

South East Mediterranean (SEM) countries differ[10] in terms of economics, population and availability of natural resources and infrastructure. These differences are reflected in the size and composition of national energy mixes (Table 1, Figure 1). Some countries have a more diversified energy mix, while others are more reliant on single sources. The SEM countries rely largely on hydrocarbons, whereas coal has a greater role in South East Europe (SEE).[11]

Table 1 | Total energy supply in 2019, Mtoe

Country	Total
Cyprus	2.26
Egypt	96.16
Greece	22.07
Israel	21.69
Lebanon	8.63
Jordan	9.23
Syria	9.27
Turkey	146.5
Croatia	8.58
Albania	2.33
Bosnia and Herzegovina	7.21
Kosovo	2.67
North Macedonia	2.8
Moldova	4
Montenegro	1.09
Serbia	15.29
Italy	148.97

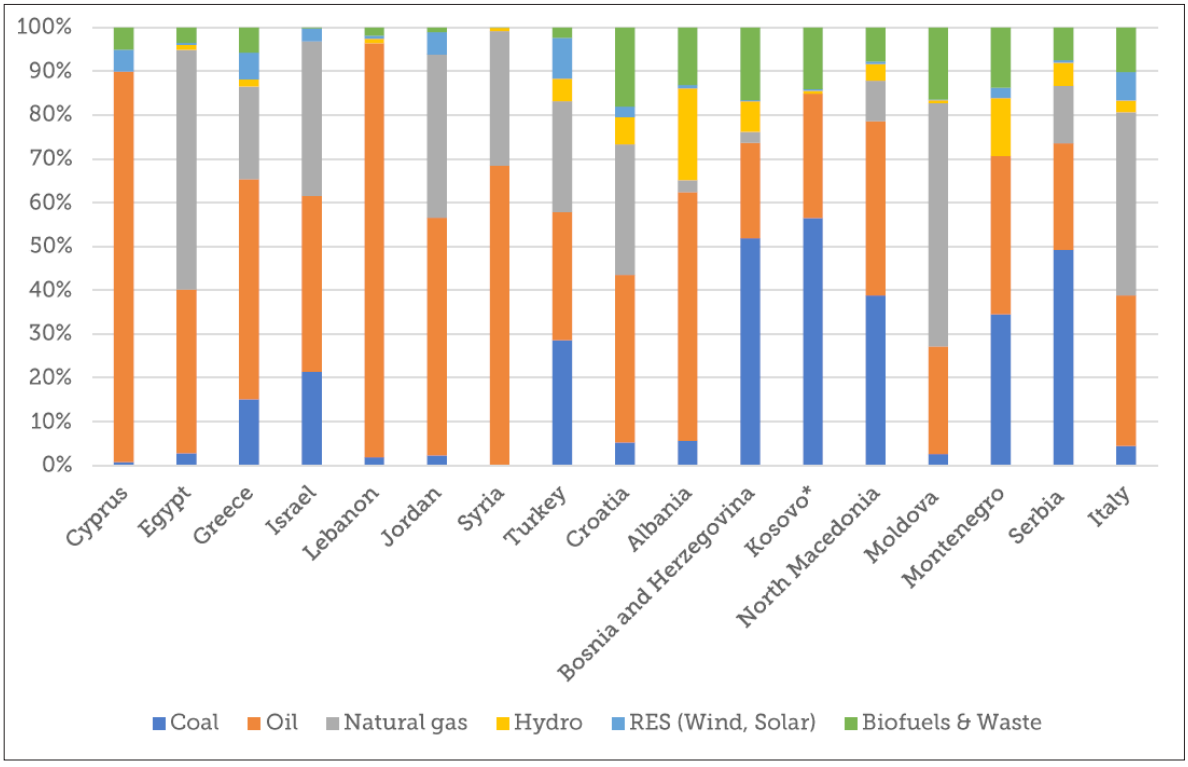
Source: Author's elaboration on IEA data.

[10] In this analysis, the Eastern Mediterranean is composed by: Cyprus, Egypt, Greece, Israel, Lebanon, Jordan, Syria, Turkey.

[11] SEE comprises: Greece, Croatia, Albania, Bosnia and Herzegovina, Kosovo, North Macedonia, Moldova, Montenegro, Serbia.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Figure 1 | Total energy supply by fuel, 2019



Source: Author's elaboration on IEA data.

Significant differences also concern power generation (Table 2, Figure 2). On the northern shore, higher shares of RES-based generation are present compared to the southern shore. SEM countries hold vast renewable energy potential, especially solar and wind. The majority of these countries have set renewable energy targets, yet they have only recently started to deploy renewables and at a slow pace.[12] Fossil fuel subsidies, regulatory barriers and limited financial resources are major barriers to RES deployment. Nonetheless, the majority of countries in the region have also set renewable energy targets, including those countries that are hydrocarbon producers[13] (Table 3). Israel and Jordan have expanded their renewable energy sources with new ambitious targets. Some countries (i.e., Egypt and Jordan) have taken steps to tackle barriers that hinder renewable energy in these countries, such as fossil fuel subsidies, which contribute to negative fiscal consequences and wasteful energy consumption.

[12] Luca Franza, "Greening the Mediterranean: Pathways for Sustainable Energy and Climate Cooperation", in Andrea Dessì, Daniele Fattibene and Flavia Fusco (eds), *Climate Change and Sustainability: Mediterranean Perspectives*, Rome, Nuova Cultura, 2021, p. 113-135, https://www.iai.it/en/node/13843.

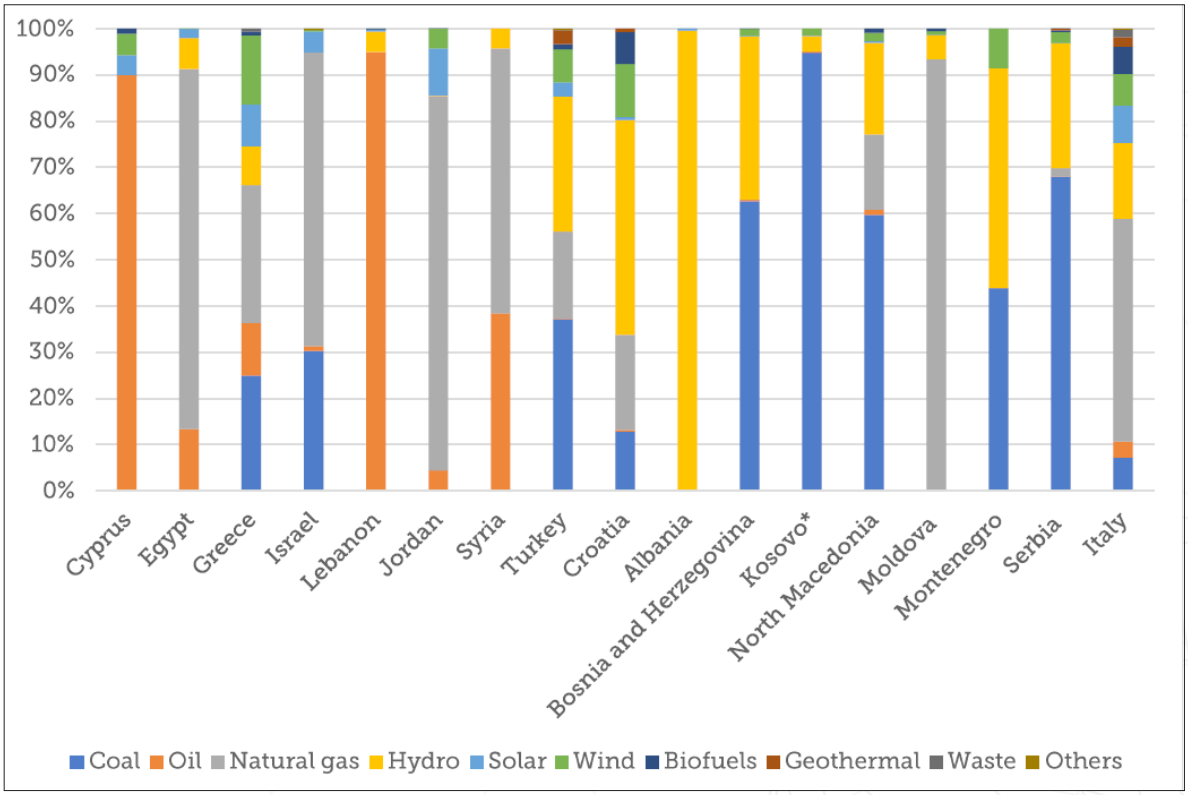
[13] Egypt plans to produce 42 per cent of its power mix from RES by 2035.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Table 2 | Power generation in 2019, GWh

Country	Total
Cyprus	5,142
Egypt	192,955
Greece	48,627
Israel	72,504
Lebanon	21,568
Jordan	20,493
Syria	17,586
Turkey	303,898
Croatia	12,759
Albania	5,206
Bosnia and Herzegovina	17,493
Kosovo	6,351
North Macedonia	5,870
Moldova	5,699
Montenegro	3,431
Serbia	37,738
Italy	293,854

Figure 2 | Power generation by fuel, 2019



IAI PAPERS 22 | 11 - MAY 2022
ISSN 2610-9603 | ISBN 978-88-9368-249-7

Table 3 | Renewable energy targets in selected countries

Country	National RES target
Cyprus	23% in gross final energy consumption by 2030
Egypt	42% in power mix in 2035
Greece	35% in final energy consumption in 2030
Israel	30% in total electricity generation by 2030
Lebanon	30% in electricity and power demand by 2030
Jordan	31% in power mix by 2030
Turkey	38.8% in power generation by 2023
Croatia	36.4% in gross final consumption of energy in 2030
Albania	54.4% in final consumption in 2030
Bosnia and Herzegovina	40% in final energy consumption in 2020
North Macedonia	66% in gross electricity production by 2030
Moldova	17% in final energy consumption in 2020
Montenegro	33% in final energy consumption in 2020
Serbia	50% in final energy consumption in 2040
Italy	30% in final energy consumption in 2030

Source: Author's elaboration on IEA data.

The role of natural gas has grown in importance in the SEM, SEE and Italy over the last three decades. Indeed, total natural gas consumption has increased from 121.4 bcm in 1990 to 235.6 bcm in 2019, driven by demographic growth and industrialisation. In the SEM, natural gas consumption in the power sector tripled between 2000 and 2010. In Italy and SEE, demand for natural gas for electricity generation has been dampened by competition from cheap coal alongside the EU's growing climate goals.[14] Nonetheless, natural gas growth has been instrumental for replacing more polluting energy sources (i.e., coal and oil), which are still relevant in the region. For example, Israel managed to reduce its carbon intensity from 0.318 kg of CO_2 per 2015 US dollars of GDP in 2004 to 0.186 in 2018[15] by replacing coal and oil with its domestic gas production.

At the national level, there are three large gas markets in the region: Italy (74.3 bcm in 2019), Egypt (62.3 bcm in 2019) and Turkey (44.8 bcm in 2019). While Italy and Turkey are large gas importers, Egypt relies on domestic production. However, due to declining production and challenges to exploration activities, Egypt became a gas importer between 2015 and 2019. Following the discoveries in the area, Egypt has returned to being a net energy exporter. It has stopped using

[14] OME, *Mediterranean Energy Perspectives 2021*, cit.

[15] World Bank Data, *CO_2 Emissions (kg per 2015 US$ of GDP) - Israel*, https://data.worldbank.org/indicator/EN.ATM.CO2E.KD.GD?locations=IL.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

two Floating Storage Regasification Units (FSRUs) and cancelled the third planned FSRU. Moreover, Egypt resumed pipeline gas exports to Jordan in October 2018 and liquefied natural gas (LNG) exports from the Idku plant in January 2019.

Since 2000, Jordan has increasingly relied on natural gas imports – especially from Egypt and more recently Israel. Over the period 2011–15, Jordan's gas consumption declined as consequence of declining gas production in Egypt. Thanks to its offshore discovery, Israel has been able to develop its gas market over the last decade, prioritising the domestic market.[16] By contrast, Lebanon has not developed any gas market due to several factors. A lack of access to gas supplies (no proven gas reserves and limited options to import gas) has been the main constraint to a more active role of natural gas in the country. Lebanon imported quite modest gas volumes only for a very limited exception, during the period 2009–10.

SEE remains peripheral to the EU gas market, due to the lack of a capillary gas network, which contributes to higher consumption for more polluting energy sources, and a high reliance on Russian imports for around 40 years, with the sole exception of Romania. Part of the region has also been a corridor for Russian gas to Turkey for over 30 years, yet it received very limited gas volumes. SEE markets can be divided into three groups: the only relatively large market (Romania with about 11 bcm); several countries (Bulgaria, Greece, Croatia, Serbia) with 3–4 bcm markets; and one small (Slovenia) and a number of very small markets or no market at all.[17]

These discrepancies in the energy sector reflect differences in terms of infrastructural connectivity between the two shores. Italy and Turkey have established long-lasting relations and direct links with gas producers via pipeline: Italy[18] with Algeria and Libya[19] with a combined capacity of 52 bcm; and Turkey[20] with Russia, Azerbaijan and Iran with a combined capacity of 48.75 bcm. In 2019, these two countries imported 54.1 bcm and 31.3 bcm by pipeline, respectively. They have also relied on LNG imports thanks to regasification terminals.[21] In 2019, Italy imported 13.5 bcm and Turkey 12.9 bcm via LNG. Another country has a quite well developed gas infrastructure in terms of both pipelines and LNG terminals: Greece.

[16] National consumption from BP, *Statistical Review of World Energy 2020*, June 2020, https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2020-full-report.pdf.

[17] Dario Speranza and Daniela De Lorenzo, "Toward A New Mediterranean Gas Hub?", cit.

[18] Julian Bowden, "SE Europe Gas Markets: Towards Integration", in *OIES Papers*, No. NG150 (October 2019), https://doi.org/10.26889/9781784671488.

[19] Italy imports natural gas also from Russia, which is the largest supplier with 20.7 bcm, and northern producers such as the Netherlands for 1.2 bcm and Norway for 2.7 bcm via pipeline. In December 2020, Azeri gas finally reached Italy through the last section of the Southern Gas Corridor, the TAP pipeline. TAP has a total capacity of 10 bcm, delivering 8 bcm/year into Italy, 1 bcm/y to Greece and 1 bcm/y to Bulgaria.

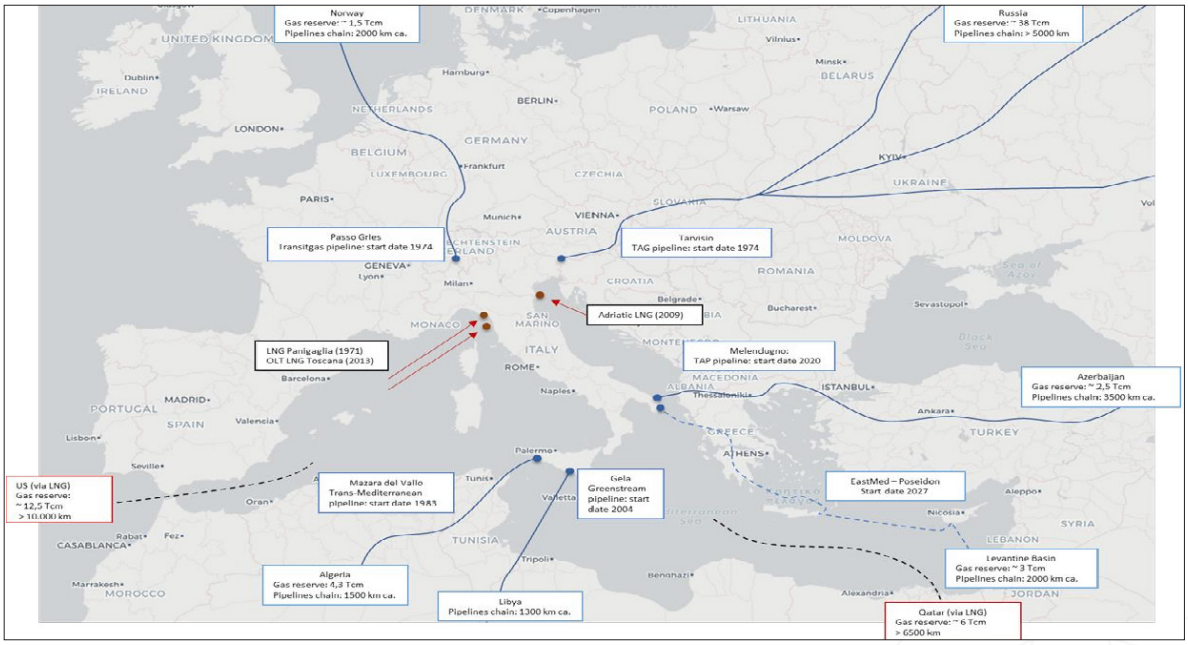
[20] Enrico Mattei pipeline connects Algeria to Italy via Tunisia and Greenstream pipeline links directly Libya to Italy.

[21] In 2019, 34 per cent of natural gas imports came from the Russian Federation, followed by Azerbaijan with 21 per cent and the Islamic Republic of Iran with 17 per cent.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

In the country, there are three entry points for a total technical capacity of 9.7 bcm per year (two via pipeline and one via LNG): two at the north and north-eastern borders connecting Greece with the Bulgaria and Turkish gas networks,[22] while the third entry point is located in southern Greece linked to the LNG terminal. Indeed, the country has imported LNG since 1999 thanks to the Revithoussa terminal, with a 5.1 million tonnes per annum (Mtpa) regasification capacity. The country is working on developing an FSRU, the Alexandroupolis LNG terminal, with a capacity of 5.5 bcm/y.

Figure 3 | Main gas import routes and distances for Italy



By contrast, the SEM is characterised by low energy interconnectivity. The Arab Gas Pipeline (AGP) and the East Mediterranean Gas pipeline (EMG) are the only two gas pipelines in the SEM. The AGP connects Egypt to Jordan, Syria and Lebanon with a total capacity of 10 bcm. Egyptian gas started flowing to Jordan in 2003, to Syria in 2008 and to Lebanon in 2009. However, the infrastructure has been idle since 2011 due to unrest in Egypt. The section to Jordan returned to operations in 2019. The EMG was originally built to transport Egyptian gas from El-Arish to Ashkelon, Israel, with a total capacity of 7 bcm. It became operational in 2008, but in 2012 Egypt decided to halt its gas flows to Israel due to political reasons (public hostility to exports towards Israel during the Arab Spring) and lower production. It now ships Israel's gas to Egypt.

[22] Turkey has four terminals for a total regasification capacity of 25.1 Mtpa, while Italy has three terminals for a total regasification capacity of 10.9 Mtpa.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Regarding the LNG infrastructure, Egypt owns the only two LNG export terminals in the region: the Idku and Damietta plants with a combined capacity of 12.2 Mtpa.[23] Among LNG importers, other countries had to rely on FSRUs, such as Jordan[24] and, more recently, Croatia after the commissioning of FSRU LNG Croatia in January 2021 that has a technical capacity of 1.9 Mtpa. In July 2020, Cyprus started the construction of its FSRU terminal with a total capacity of 0.6 Mtpa at the Vasilikos port thanks to the financial support of the European Bank for Reconstruction and Development, the EU CEF Programme and the European Investment Bank. The project is scheduled to start in 2023.[25]

Countries have discussed a wide range of export options[26] taking into consideration both pipelines and the LNG infrastructure. Among them, two are the most plausible despite some issues: using Egypt's existing LNG infrastructure and the EastMed pipeline which would connect fields in the East Mediterranean directly to the EU.

Egypt could export gas through its LNG terminals, which are currently underutilised. At the present stage, this option would be the least expensive. For the producing countries, this solution would provide flexibility to meet different demand patterns, but for European consumers it would not guarantee security of supply as LNG follows market dynamics. On the other side, the EastMed pipeline consists of a 10 bcm pipeline for a total cost of around 6 billion euro linking Israel, Cyprus, Greece and Italy (via the Poseidon pipeline). The EU has backed the project since 2013, when it listed the pipeline as an EU Project of Common Interest (PCI). Eastmed-Poseidon is one of the most mature infrastructures in the area. Its feasibility studies were started in 2014 and completed in 2017, ensuring the project's technical and economic feasibility. In four years from its final investment decision (FID) (expected by the end of 2022), the pipeline would directly connect the sources already in production to the European final market through a new route of supply in a timeframe that is aligned with the additional development of the East Mediterranean sources.

Some regional countries (i.e., Israel, Cyprus, Greece) have supported the project as it would allow the region to be connected with Europe with an infrastructure that in the medium term will contribute to European energy security, and in the long term to the development of the renewables potential of the area thanks to its hydrogen readiness. The Israeli government agreed with European countries

[23] The two pipeline entry points have a total capacity of 5.3 bcm per year. The Greek-Turkish interconnector at Kipi brings gas mainly from the Middle East and the Caspian region into Greece. The interconnector with Bulgaria allows for gas flows from the Russian Federation via Romania, Republic of Moldova and Ukraine. The interconnector with Bulgaria has been able to operate a reverse flow of 0.3 bcm per year since May 2014, thereby enhancing the security of supply.

[24] Idku has a total capacity of 7.2 Mtpa (equal to 11.48 bcm/y) and Damietta of 5 Mtpa (equal to 7.56 bcm/y).

[25] Aqaba FSRU terminal for a total regasification capacity of 3.8 Mtpa.

[26] GIIGNL, *Annual Report 2022*, May 2022, https://giignl.org/?p=9028.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

on construction of the EastMed pipeline in 2020.[27] In March 2021, IGI Poseidon[28] signed a new agreement with Israel Natural Gas Lines on the EastMed pipeline aimed to connect the project to the Israeli gas transmission system and facilitate the flow of gas from the East Mediterranean area to Europe via Cyprus.[29]

2. Positive spillovers in the midst of climate and energy transition: Regional stability, energy security, interconnectivity and decarbonisation options

Energy is one of the most powerful factors in shaping countries' socioeconomic features and it can foster political and economic cooperation among countries but also rivalry and competition. Eastern Mediterranean resources are no exception and might be instrumental in achieving several energy, climate and strategic goals in the region.[30]

2.1 The political dividends of interconnectivity

The discovery of gas reserves presented potentially the opportunity for stronger economic integration, regional cooperation and political stability. The notion of "economic peace"[31] has long informed diplomacy in the East Mediterranean.[32] However, some entrenched political issues are still to be overcome.

Producing countries could collect revenues from export to invest in their economies, while transit countries – in the case of pipeline transport – could benefit from transit fees either in cash or in kind (gas). Moreover, Eastern Mediterranean gas could contribute to countries' economic wealth and development. For example, thanks to the production from the Zohr field, Egypt managed to partially solve some of its major challenges in the energy sector: offsetting the decrease in hydrocarbon production, satisfying its increasing energy demand and overcoming its chronic electricity shortages. By contrast, Lebanon, which has not developed any offshore resources, experiences frequent blackouts, which deeply undermine the work of

[27] Israel–Jordan and Israel–Gaza pipelines; Israel–Cyprus–Greece pipeline (known as "EastMed" pipeline); Israel–Turkey pipeline; LNG plant at Vasilikos; (F)LNG plants in Israel; Israel–Cyprus pipelines to Egypt's existing LNG plants and Israel–Cyprus–Greece electricity interconnector.

[28] "Israel Approves Pipeline Deal to Sell Gas to Europe", in *Reuters*, 19 July 2020, https://reut.rs/2Ww5eHS.

[29] The joint venture between Greek DEPA and Italian Edison.

[30] Enerdata, "New Agreement Signed on the Eastmed Gas Pipeline (Israel-Cyprus-Greece-Italy)", in *Daily Energy News*, 10 March 2021, https://www.enerdata.net/publications/daily-energy-news/new-agreement-signed-eastmed-gas-pipeline-israel-cyprus-greece-italy.html.

[31] According to which shared economic benefits could mitigate conflict.

[32] Tareq Baconi, "A Flammable Peace: Why Gas Deals Won't End Conflict in the Middle East", in *ECFR Policy Briefs*, 21 December 2017, https://ecfr.eu/?p=3994.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

critical infrastructure (e.g., hospitals) and curtail economic development.[33]

Economic and energy relations could consolidate and expand political cooperation, forging alliances among countries. So far, these resources have already stimulated cooperation among Egypt, Israel, Jordan, Greece and Cyprus. These countries have resumed energy trade and undertaken new forms of cooperation through memoranda of understanding (MoUs) and intergovernmental agreements related to the development of regional energy and water cooperation as well as security cooperation.

Egypt managed to restart its pipeline gas exports to Jordan in October 2018, while Israel commenced gas exports to Jordan in 2020.[34] In the same year, Israel started to export natural gas to Egypt through the EMG pipeline (by reversing its flow).[35] Moreover, some countries have also started to expand their cooperation beyond the hydrocarbon sector taking into consideration cooperation in electricity and green energy. In 2021, Egypt, Cyprus and Greece signed on linking their power grids,[36] highlighting closer and broader relations.

Cooperation is instrumental for countries to exploit and monetise their energy resources. Without it, they would not be able to reduce investment risk to energy projects in the region. Countries are called on to set the stable conditions required for attracting investments and conducting exploration activities.[37]

Egypt, Israel and Cyprus would benefit from a coordinated energy policy because of the proximity of some of the major gas fields.[38] This could allow a coordinated development of the fields and creation of the economies of scale needed to put in place a competitive regional gas export infrastructure.

Several regional countries Egypt, Israel, Cyprus, Jordan, the Palestinian National Authority, Greece and Italy – came together to establish the East Mediterranean Gas Forum (EMGF) in 2019. In 2020 the EMGF became the first international organisation in the region, bringing together gas producers, consumers and transit countries into one entity in order to improve energy policy coordination

[33] Martin Chulov, "Lebanon Hit by Electricity Outage Expected to Last Several Days", in *The Guardian*, 9 October 2021, https://www.theguardian.com/p/j7xbe.

[34] Following the 2016 agreement for the sale of 45 bcm of gas over a period of 15 years.

[35] Following the 2019 agreement for the sale of 85 bcm of gas between 2020 and 2034.

[36] "Egypt, Greece and Cyprus Link Their Power Grids", in *ANSAmed*, 21 October 2021, https://www.ansamed.info/ansamed/en/news/sections/energy/2021/10/21/egypt-greece-and-cyprus-link-their-power-grids_32173ed4-34de-49c1-ba4e-4976dff256e3.html.

[37] Egypt's authorities were unable to carry out exploration activities, contributing to the decline of gas by 31 per cent between 2011 and 2016 in a time of political evolution in the aftermath of the Arab Spring.

[38] Simone Tagliapietra, "Energy: A Shaping Factor for Regional Stability in the Eastern Mediterranean?", cit.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

in the region.[39] Nonetheless, members of the EMGF have not yet reached a final agreement on export options.

2.2 Benefits for energy security

East Mediterranean gas export could strengthen interconnectivity, hence improving energy security beyond the East Mediterranean, notably in SEE and the EU. Eastern Mediterranean gas could be beneficial for Cyprus. Until now Cyprus has been condemned to energy isolation, as one of the few remaining EU member states still isolated from European energy networks. This condition causes also negative economic and social consequences, with constantly rising electricity prices leaving some of the population in energy poverty. According to an EU-wide survey, 21 per cent of Cyprus's population said that they were unable to keep their home adequately warm in 2020.[40]

Through the expansion and construction of infrastructure, Cyprus could improve its energy self-sufficiency as well as integrating with the European electricity and gas market. For these reasons, the EU ensured its financial support to a project, Cyprus Gas2EU, aimed at removing bottlenecks in Cyprus to end isolation and allow for the transmission of gas from the Eastern Mediterranean region.[41] The projects, which consist of an FSRU terminal and the EastMed pipeline, were labelled under the PCI list.

Another region that would benefit from higher interconnectivity is certainly SEE, which has long suffered from a low level of infrastructural connectivity that poses serious security issues. Low interconnectivity and lack of diversified and competitive gas supply are the main causes for market illiquidity, which reverberates on prices for consumers in a region particularly hit by energy poverty. Greece, Bulgaria or the Western Balkans' overdependence on Russian gas imports[42] exacerbates their vulnerability to a potential disruption of Russian supplies.[43]

[39] The EMGF will serve as a platform "to foster cooperation and initiate a structured and systematic policy dialogue on natural gas, potentially leading to the development of a sustainable regional gas market". See more: "Cairo Declaration Establishing the East Mediterranean Gas Forum", in *Cyprus Press and Information Office*, 15 January 2019, https://www.pio.gov.cy/en/press-releases-article.html?id=5590.

[40] Eurostat, *8% of EU Population Unable to Keep Home Adequately Warm*, 5 November 2021, https://europa.eu/!P8HCqK.

[41] European Commission website: *CyprusGas2EU*, https://ec.europa.eu/inea/en/node/12075.

[42] Julian Bowden, "SE Europe Gas Markets: Towards Integration", cit.

[43] European Commission, *The Short Term Resilience of the European Gas System. Preparedness for a Possible Disruption of Supplies from the East During the Fall and Winter of 2014/2015* (COM/2014/654), 16 October 2014, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52014DC0654.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

In 2005, the EU created the Energy Community,[44] which aims to create a stable regulatory and market framework capable of attracting investment in power generation and networks, enhancing security of supply and creating an integrated pan-European energy market. Ten years later, in response to the Russian-Ukrainian conflict, the EU launched the Central and Southern Eastern Europe energy connectivity (CESEC)[45] initiative to address this issue. The strategy envisaged the construction of new energy infrastructures (i.e., pipelines and LNG) and an increase in the capacity of the existing gas transmission network to strengthen interconnectivity and security. For example, the CESEC initiative included as a leading project the Interconnector Greece-Bulgaria, which connects Greece to Bulgaria with a designed initial capacity of 3 bcm/y and contributes to the diversification of the Vertical Corridor in the Balkans.

SEE interconnectivity consists of two dimensions – the software of market and transportation rules and regulations and the hardware of pipelines. There have been some major developments on the software side as the Third Energy Package requirements have been rolled out, but progress has been modest on the hardware side.[46] Indeed, natural gas markets remain largely fragmented even though numerous interconnector projects have been promoted over the past decades.[47] Moreover, adequate supply will be needed to fill the interconnector projects in order to improve energy security and liquidity in the region.

Eastern Mediterranean energy resources might represent an opportunity to strengthen security of supply for the EU. Today, the EU imports around 87 per cent of the oil and 74 per cent of the natural gas it consumes. The biggest energy security concerns have traditionally been related to natural gas, notably vis-à-vis Russia, which supplies around 35 per cent of EU gas imports mainly via pipeline. Gas trade relies heavily on the availability of transport infrastructure, the control of which yields power. Despite being a stable supplier, Russia's gas has notably been at the heart of energy and political tensions with the EU and transit countries (i.e., Ukraine).[48] In 2021, high gas prices in Europe raised questions also on the role and responsibilities of Russia, which shifted its approach towards European gas markets. This critical situation overlapped with other acute political crises in the Eastern Europe (i.e., Belarus and especially now Russia's war in Ukraine), resulting

[44] It brings together the EU and eight contracting partners from the SEE and Black Sea region. The SEE and Black Sea region comprises: Albania, Bosnia and Herzegovina, Kosovo*, Moldova, Montenegro, North Macedonia, Serbia and Ukraine (*this designation is without prejudice to positions on status, and is in line with UNSCR 1244(1999) and the ICJ Opinion on the Kosovo declaration of independence). The six non-EU SEE countries (Albania, Bosnia and Herzegovina, Kosovo*, Montenegro, North Macedonia, Serbia) are all contracting parties.

[45] CESEC works to accelerate the integration of Central Eastern and South Eastern European gas and electricity markets.

[46] Julian Bowden, "SE Europe Gas Markets: Towards Integration", cit.

[47] Such as TurkStream, TAP, Interconnector Greece-Bulgaria and LNG terminals. TAP is the Trans Adriatic pipeline, with an initial capacity of 10 bcm/y.

[48] Especially after the two gas crises (2006 and 2009) and the outbreak of Crimea conflict (2014).

ISSN 2610-9603 | ISBN 978-88-9368-249-7

in further tension and accentuating Europe's overdependence on Russian gas imports.

Eastern Mediterranean energy resources were originally met with enthusiasm in Europe as Brussels was dealing with deteriorating energy relations with its main gas supplier, Russia, and political instability was spreading in the Mediterranean in the wake of the 2011 Arab Spring. These resources fit with the "energy security" pillar of the Energy Union strategy. As the Commission highlighted, "The East Mediterranean is also a promising source of gas supply for the European Union. This increases the diversification opportunities and reduces import dependency on a single supplier, a key objective of the Energy Union."[49] Hence, the EastMed pipeline has been enlisted in the EU PCI list since 2013 and reconfirmed in the fifth EU PCI list at the end of 2021.

Yet, without a stable connection infrastructure, these resources have improved energy security and self-sufficiency only of the producing countries. Egypt was able to re-emerge as exporter after importing gas for almost a five years (2014–19). Israel has been able to reduce coal imports – traditionally imported for energy security reasons – and replace them with gas from its offshore fields. While coal consumption in Israel declined from 11.2 million tonnes of coal equivalent (Mtce) in 2004 to 5.8 Mtce in 2020, Israel's natural gas consumption grew from 1.1 bcm to 11.3 bcm over the same period.[50]

2.3 Environmental benefits

East Mediterranean natural resources could also contribute to emissions reduction switching from more polluting sources (i.e., coal and oil) to gas. Natural gas, in certain contexts and for certain timeframes, may represent a quick and easy option to reduce emissions – since a coal-based power generation has twice as high CO_2 emissions for each kWh produced. Moreover, natural gas can be instrumental to decarbonise some hard-to-abate sectors (e.g., heavy and maritime transport). In addition, the Mediterranean gas thanks to its proximity to European markets, especially through a pipeline solution, would maximise the energy efficiency of the supply.

Other countries, like Cyprus and Lebanon, could benefit from higher gas consumption, from both an economic and an environmental perspective. These two countries rely heavily on oil imports,[51] making them vulnerable to oil price volatility, and have a high carbon intensity (0.309 kg of CO_2 per 2015 US dollars of GDP for Cyprus and 0.552 kg of CO_2 per 2015 US dollars of GDP for Lebanon in

[49] European Commission, *Second Report on the State of the Energy Union* (COM/2017/053), 1 February 2017, p. 9, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52017DC0053.

[50] BP, *Statistical Review of World Energy 2021*, June 2021, https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html.

[51] Oil accounts for 90 per cent and 95 per cent of the national electricity generation, respectively.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

2018).[52]

Similar results could be achieved in SEE, especially in those countries where coal still plays an important role. Some SEE countries have announced coal phase-out plans, which may induce countries to consume more gas in the short and medium term. Greece, a traditional coal-reliant country, advanced the coal end date from 2028 to 2023. Bulgaria planned to phase out coal[53] by 2040, albeit the debate over the final date is still going on.[54] Romania announced that by 2032 it will exit coal, a commodity whose role has declined since 1990 in parallel with an increase in natural gas and nuclear power.[55] Nonetheless, coal phase-out plans have been delayed in other EU member states in Central and South East Europe and Energy Community member countries mainly due to socioeconomic reasons. However, countries that have announced a plan for phasing out coal and that lack nuclear capacity are expected to increase their gas demand as natural gas is a dispatchable energy source vital to back up non-dispatchable renewables.

The region could emerge as an important player in the low-carbon energy system. Thanks to its significant renewable potential, countries could address climate commitments and rising energy demand while positioning themselves in the upcoming RES markets. In North Africa and the Eastern Mediterranean, renewable energy production costs have already decreased substantially, becoming competitive. In addition, these countries can benefit from their lower population density as they have more available land for the deployment of RES compared to Europe. They could also become important players in decarbonisation while benefitting from an economic perspective.

Besides its well-known solar potential, the Mediterranean Sea has high potential for offshore wind energy (mostly floating), alongside good potential for wave energy and localised potential for tidal energy.[56] Also in this case, cooperation and coordination could enable the creation of economies of scales and enhance energy and political relations. For example, Israel and Jordan signed a declaration of intent for a water-for-energy deal in November 2021.[57] Under the agreement, Jordan will build 600 megawatts of solar generating capacity which would be exported to

[52] World Bank Data, *CO_2 Emissions (kg per 2015 US$ of GDP) - Lebanon, Cyprus*, https://data.worldbank.org/indicator/EN.ATM.CO2E.KD.GD?locations=LB-CY.

[53] Coal is responsible for 34 per cent of Bulgaria's electricity.

[54] 2038 or 2040. See more in "Bulgaria's Recovery Plan Aims at 2040 Coal Exit: PM", in *EURACTIV*, 15 October 2021, https://www.euractiv.com/?p=1660328.

[55] Bogdan Neagu and Kira Taylor, "Romania Commits to Phase Out Coal by 2032", in *EURACTIV*, 4 June 2021, https://www.euractiv.com/?p=1612893.

[56] European Commission, *An EU Strategy to Harness the Potential of Offshore Renewable Energy for a Climate Neutral Future* (COM/2020/741), 19 November 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020DC0741.

[57] "Israel, Jordan to Partner in Water-for-Energy Deal", in *Reuters*, 22 November 2021, https://www.reuters.com/business/energy/israel-jordan-partner-water-for-energy-deal-israeli-ministry-says-2021-11-22.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Israel in exchange for water produced from a new coastal desalination facility. In the long term, these countries could also consider producing and exporting cost-competitive blue and green hydrogen given the growing interest for this carrier especially in Europe.[58] Natural gas infrastructure could be repurposed to transport hydrogen once sufficient available volumes of this clean gas become available. This should ease concerns about carbon lock-in risks.

3. Opportunities and challenges for further regional connectivity

Eastern Mediterranean gas could expand its role as the SEM is expected to witness a strong growth of energy consumption driven by demographic and economic expansion. A 2 per cent yearly increase in the average gas demand over the next three decades is anticipated to reach nearly 110 Mtoe by 2050.[59] Such demand growth will be primarily driven by power generation, which is set to increase by about 30 per cent by 2050. At the national level, Egypt is expected to become the largest gas consumer in the region by 2050 as its population is anticipated to expand by a further 50 million people over the same period.[60] Thus, gas resources will be crucial to support fast-growing energy demand and replace more polluting sources in the energy mix.

Concerning potential export, Eastern Mediterranean gas faces both opportunities and challenges. Europe is the closest market for East Mediterranean gas and the EastMed pipeline would guarantee direct access to this market. Between now and 2030 the EU might still require large and potentially growing volumes of imports due to both supply and demand factors.

Indeed, Europe faces a rapidly declining domestic production in the northwest. Due to social concerns over seismic activities, Europe's largest gas field, the Groningen field, will be closed by mid-2022,[61] reducing further domestic production. Meanwhile, certain European climate policies (i.e., phasing out of coal and nuclear) may contribute to higher gas demand at least in the short and

[58] 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; Ioannis N. Grigoriadis and Constantine Levoyannis, "Winds of Change in the Eastern Mediterranean: Between Hydrocarbons and Renewable Energy Geopolitics", in *ELIAMEP Policy Papers*, No. 80 (September 2021), https://www.eliamep.gr/en/?p=41022.

[59] OME, *Mediterranean Energy Perspectives 2021*, cit.

[60] UN Department of Economic and Social Affairs (UNDESA), *World Population Prospects 2019*, 2019, https://population.un.org/wpp/Publications.

[61] The production quota for the upcoming gas year (October 2021–September 2023) is just 3.9 bcm (well below its most recent output peak of 54 bcm in 2013). Under current plans, the majority of Groningen production will halt in mid-2022, but parts of the field will be kept open as a "back-up" gas source with full closure likely between mid-2025 and mid-2028. Under current plans, a "minimum" flow is expected to continue from the field – seen at 1.3 bcm October 2021–September 2023.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

medium term. Thus, Europe's import requirements could very well increase for the near future, particularly considering appetite for diversification from Russian gas and Ukraine transit issues.[62] Under this scenario, Eastern Mediterranean gas could provide adequate supply to the EU while enhancing energy security for SEE countries.

3.1 Challenges to further development of Eastern Mediterranean resources

Some challenges (i.e., economic, (geo)political and climate) have slowed the ambition of Eastern Mediterranean countries to fully develop their gas reserves through extra-regional exports.

Economic and policy challenges. Despite the great potential, the current production level would have to increase to justify significant export projects. SEM countries could aggregate their production base to create economies of scale and adequate export volumes. Eastern Mediterranean gas needs to be able to compete with more established gas exporters (i.e., Russia for pipeline and Qatar and the US for LNG). Over the 2015–20 period, low gas prices and a supply glut in Europe made Eastern Mediterranean gas less commercially attractive than it once was. The situation has drastically changed in 2021–22, with unprecedented high gas prices and Russia's war in Ukraine (see next section). Lastly, the increasingly stringent European climate targets have generated uncertainty over the future gas demand in the continent. The European Green Deal seeks to reduce the consumption and imports of fossil fuels while increasing the share of renewables and electrification to become climate-neutral by 2050. The European Commission expects the volume of fossil fuel imports to the EU to fall by 27 per cent between 2015 and 2030 (with natural gas down by 13–19 per cent) depending on the scenario.[63] At the same time, the European Commission included natural gas in the Taxonomy, confirming the role of gas in the transition and increasing uncertainty over future gas demand. Thus, questions abound about the viability of infrastructure projects which typically have a multiyear lifetime and require substantial investment. New projects may lose political support due to the risk of creating a carbon lock-in or investor support due to the risk of stranding assets. Moreover, the EU has increasingly addressed the issue of fugitive methane (CH_4) emissions, which may negatively impact the political consensus on gas and potentially undermine future imports, also from the East Mediterranean area. For example, the EU launched the Global Methane Pledge alongside the US and over a hundred other countries. They committed to a collective goal of reducing global methane emissions by at least 30 per cent by 2030 from 2020 levels[64] to keep the target of limiting global warming to1.5°C within

[62] International Energy Agency (IEA), *Gas 2020*, Paris, IEA, June 2020, https://www.iea.org/reports/gas-2020.

[63] Compared to coal (down by 71–77 per cent) and oil (down by 23–25 per cent).

[64] European Commission, *Stepping Up Europe's 2030 Climate Ambition: Investing in a Climate-Neutral Future for the Benefit of Our People* (SWD/2020/176), 17 September 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020SC0176.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

reach. International political commitments and technological developments are expected to significantly contribute to reducing methane emissions along the entire value chain.

Geopolitical challenges. A number of factors have contributed to increased geopolitical tensions and competition over the past years. The key conflicts in the region include the unresolved status of Cyprus, maritime boundary disputes and different interpretations over the role of islands in the delimitation of maritime zones in international treaties such as the UN Convention on the Law of the Sea (UNCLOS). The US' relative disengagement from the Mediterranean has further caused the rise of new assertive players in the area (i.e., Gulf monarchies, Turkey, Egypt, China and Russia), exacerbating rivalries. While they are a key driver for regional tensions, East Mediterranean energy resources are not the object of regional competition, however. Tensions are not strictly related to resources,[65] but access to and exploitation to the latter have exacerbated pre-existing regional clashes and served as a catalyst for certain regional realignments (e.g., between Egypt, Greece and Israel). Nonetheless, new (geo)political developments, such as the relative appeasement between Turkey and Gulf countries as well as Egypt,[66] may contribute to easing some (geo)political tensions, providing new opportunities.

3.2 Opportunities for the development of Eastern Mediterranean resources

Opportunities arising in the rapidly changing energy security picture. Energy security has climbed again to the top of Europe's political agenda in 2021–22, especially after the beginning of Russia's war against Ukraine. Since then, European policymakers have become aware that energy security cannot be separated from Europe's security and autonomy. Over the past decade, new developments in the gas markets have partially reduced the perception of security risks. An important factor was more interconnected internal European markets. Further, the development of large-scale global LNG trade has generated the transformation of the gas market into a more globally interconnected one. That has stimulated a general belief that LNG, in particular from the US, could reduce EU dependence on Russian gas imports.

In 2021–22 European policymakers have been facing a worsening and challenging landscape due to the spike in energy prices, which highlights the European gas market's exposure to external events, and the Ukrainian war, which has heightened European energy vulnerability and dependence on Russia. Today, gas prices are

[65] European Commission, *Launch by United States, the European Union, and Partners of the Global Methane Pledge to Keep 1.5C Within Reach*, 2 November 2021, https://ec.europa.eu/commission/presscorner/detail/en/statement_21_5766.

[66] Nikos Tsafos, "Getting East Med Energy Right", in *CSIS Commentaries*, 26 October 2020, https://www.csis.org/node/58642; Zenonas Tziarras, "Energy and Sovereignty in the New Geopolitics of the Eastern Mediterranean", in *OIES Forum*, No. 126 (February 2021), p. 58-61, https://www.oxfordenergy.org/?p=43398.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

set by global markets,[67] making the EU vulnerable to market developments in Asia. Moreover, Europe plays the role of global balancing market between producers and their Asian customers, providing a space for eliminating global supply and demand imbalances. Moreover, since the beginning of the Russian war in Ukraine, the energy paradigm has drastically changed: prior to the war, the reduction of Europe's overdependence on Russia gas was related to the European Green Deal, whereas now it is a strategic need. This compels the Europeans to find alternative routes and sources for their gas imports besides ramping up imports from non-Russian producers.

In 2021, the EU imported around 140 bcm of gas by pipeline and around 15 bcm of LNG from Russia for a total of 155 bcm, equal to around 45 per cent of EU gas imports and almost 40 per cent of its total gas consumption. The European Commission seeks to cut Europe's dependence on Russian gas thanks to its REPowerEU strategy, based on two pillars: reducing overdependency by diversifying gas supplies and increasing green solutions to reduce the use of fossil fuels.[68] Under REPowerEU, the EU forecasts to replace Russian gas by two-thirds by the end of 2022, mainly through LNG (50 bcm), non-Russian pipelines (10 bcm), a ramp-up of RES (20 bcm) and energy savings in buildings (14 bcm). High gas prices induce also switching gas-to-coal, which could potentially replace another 30 bcm of Russian gas, while in the longer term the EU seeks to phase out its dependence on fossil fuels from Russia before 2030.

Higher LNG imports are the cornerstone of European diversification strategy. Yet, a plan to increase and diversify LNG imports faces several challenges, ranging from infrastructure bottlenecks to market and political considerations. Notwithstanding the availability of some major LNG exporters to help the EU (i.e., the US-EU agreement for ensuring an additional 15 bcm of LNG in 2022), additional LNG imports will require significant investment in the infrastructure to receive and move the molecules around the continent (e.g., regasification terminals, interconnections within the EU). Moreover, the LNG market is expected to remain tight until around the mid-2020s. Lastly, in 2021 Russia[69] accounted for 20 per cent of Europe's total LNG imports, meaning that the EU will need to replace also these volumes, further tightening the market. Therefore, higher LNG imports in Europe would mean higher competition with Asian countries (currently the largest LNG importers) and developing countries, on both existing and future volumes. This is likely to place upward pressure on EU wholesale gas prices, and sustain them

[67] Andrew Wilks, "Turkey Realigning Ties with Egypt and Gulf Rivals", in *Al Jazeera*, 6 September 2021, https://aje.io/r8uz29.

[68] European Commission, *Speech by President von der Leyen at the European Parliament Plenary on the Preparation of the European Council Meeting of 21-22 October 2021*, Strasbourg, 20 October 2021, https://ec.europa.eu/commission/presscorner/detail/en/speech_21_5381.

[69] 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.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

at a high level for the next several years[70] while putting pressure on developing countries.[71]

In 2021 it was clear that exporters can quickly divert gas volumes depending on demand and price dynamics thanks to LNG and spot prices. These market logics and dynamics affect also Egypt's LNG exports. It is pivotal for the EU to pursue a more proactive strategy in the procurement of energy. While planning for and implementing a deep and rapid decarbonisation, the EU will need to ponder what options to support in terms of diversification of supply and energy security.

Strong political will to cut overdependence on Russia and higher gas prices could prompt new exploration and production activities, which could result in further and diversified gas supply to Europe. In this context, Europe needs to address the issue of long-term contracts, which may regain some new appeal from a security perspective, and investing in infrastructures that would guarantee adequate and secure energy supply.

Opportunities from the EU regulatory framework. All this raises questions about the role of gas in the EU's energy mix and energy transition. Electricity is expected to meet 53 per cent of EU total final energy demand by 2050 in a scenario aligned with the climate neutrality goal.[72] However, there are limits to how quickly and extensively electrification can occur. As countries increasingly rely on intermittent renewable sources (i.e., solar and wind), gas will continue to provide energy security by flexibly covering intermediate and peak load[73] and especially in the case of countries with large seasonal variations in power demand.[74] Moreover, molecules can be transported more easily and cost efficiently than electrons.[75]

Nonetheless, the availability of funding for new projects to ensure adequate supply beyond 2030 will depend on gas being acknowledged as a key transition fuel. On this issue, the revision of the EU Sustainable Finance Initiative and the TEN-E regulation are set to shape the future of the energy sector and gas demand

[70] Russia has become also a relevant player in the LNG trade, responsible for 8 per cent (29.6 Mt) of global LNG export in 2021.

[71] 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.

[72] European Commission, *A Clean Planet for All. A European Strategic Long-Term Vision for a Prosperous, Modern, Competitive and Climate Neutral Economy* (COM/2018/773), 28 November 2018, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52018DC0773.

[73] Giacomo Luciani, "The Role of Natural Gas: A Transitional Source of Energy?", in Carlo Secchi and Alessandro Gili (eds), *The Global Quest for Sustainability. The Role of Green Infrastructure in a Post-Pandemic World*, Milan, Ledizioni, July 2021, p. 80-92, https://www.ispionline.it/sites/default/files/pubblicazioni/ispi_report_infrastructure_2021.pdf.

[74] IEA, *Statement on Recent Developments in Natural Gas and Electricity Markets*, 21 September 2021, https://www.iea.org/news/statement-on-recent-developments-in-natural-gas-and-electricity-markets.

[75] Luca Franza, *Clean Molecules across the Mediterranean*, cit.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

for the upcoming decades. Natural gas was included in the EU Taxonomy at the end of 2021. The European Commission included in the Complementary Climate Delegated Act certain gas (and nuclear) activities in the "transitional" category of activities. The Commission stated that gas needs to contribute to the transition to climate neutrality and to the transition from coal to renewables. New gas-based power plants will need to fall below the technology-neutral 100g CO_2/kWh life-cycle emission threshold or 270g in a transitional phase to 2030 together with other stringent criteria.[76] Recognition of the role of gas as a transitional fuel would leave some room for it especially in those countries that are heavily reliant on coal (i.e., SEE), which could also contribute to tackling China's growing investments in coal-fired power plants in the area.[77]

Recently, there have been signs of openness regarding gas infrastructure. European Commissioner Frans Timmermans affirmed that Europe will need to invest in gas infrastructure as an intermediary stage even though European acceptance of such infrastructure will be subject to strict conditions.[78] Thus, gas infrastructure will have to be capable of transporting low-carbon energy to be in line with climate targets. In order to avoid the lock-in risk of new gas infrastructure and the associated emissions, there must be a credible plan to use this infrastructure to transition to low-carbon gases. The EU included the EastMed pipeline in its fifth list of PCIs.[79] Moreover, in December 2021 the European Parliament and Council reached a provisional political agreement on the revision of the TEN-E regulation and new rules for cross-border energy projects, accepting the EastMed project despite their agreement to end support for new fossil fuel projects.[80] Moreover, the revisited TEN-E regulation envisages derogations for projects that integrate Malta and Cyprus into the trans-European gas network. The new TEN-E prescribes also that these projects shall ensure in the future the ability to access new energy markets, including hydrogen, in line with the EU climate objectives. Moreover, these projects will need to demonstrate, in a roadmap and a timeline, how the asset could become a dedicated hydrogen asset by 2036 if market conditions allow. Supporting the production of hydrogen in the area could represent an important tool for the EU to boost regional cooperation in line with climate targets and the European Green Deal.

[76] European Commission, *Questions and Answers on the EU Taxonomy Complementary Climate Delegated Act Covering Certain Nuclear and Gas Activities*, 2 February 2022, https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_712; Frédéric Simon, "Canfin MEP: 'Here Is My Proposal to Find the Right Compromise on Gas and Nuclear in the Taxonomy'", in *EURACTIV*, 9 November 2021, https://www.euractiv.com/?p=1671192.

[77] CEE Bankwatch Network, "Chinese-Financed Coal Projects in Southeast Europe", in *Bankwatch Briefings*, 8 April 2019, https://bankwatch.org/publication/chinese-coal-in-southeast-europe.

[78] John Ainger and Ewa Krukowska, "EU's Climate Chief Signals Natural Gas Will Be Included in Green Transition", in *Bloomberg*, 11 November 2021, https://www.bloomberg.com/news/articles/2021-11-11/eu-s-climate-chief-signals-gas-will-be-included-in-transition.

[79] Elena Sánchez Nicolás, "EU Commission Readies to Back €13bn Gas Mega-projects", in *EUobserver*, 11 November 2021, https://euobserver.com/climate/153491.

[80] Council of the European Union, *TEN-E: Council and Parliament Reached Provisional Agreement on New Rules for Cross-Border Projects*, 22 December 2021, https://europa.eu/!9pmqnK.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Conclusions

The Eastern Mediterranean energy resources could provide valuable options in both the short and the long term. It is crucial to broaden the approach to regional energy resources, starting to include also renewables and potentially hydrogen.

These resources will be particularly beneficial for the Eastern Mediterranean until additional gas volumes come online to justify significant export volumes. Developing these resources would allow countries to achieve multiple goals (i.e., energy security, reducing emissions, cooperation), yet countries will need to address the expansion of infrastructure interconnectivity and development of a more coordinated energy policy.

Yet, the Mediterranean region is a crucial stage for the EU's international ambitions. This area, more than others, represents a natural locus for Brussels to solidify its geopolitical presence and promote its climate ambitions.

1) *Diversify gas supplies, while accelerating a deep energy transition*: Energy policy needs to balance the three components of the energy trilemma: security (uninterrupted supply of energy); competitiveness (affordability of energy prices); sustainability (addressing climate and environmental consequences). The current crisis stresses the need to continue addressing energy security issues within the energy transition. Countries face a dilemma about energy investments that are in line with their climate targets. The political need to reduce EU overdependence on Russian gas forces European policymakers to find alternative routes and sources. While LNG is a crucial component, the current tightness of the market and infrastructural bottlenecks may delay the achievement of REPowerEU objectives. Especially concerning is competition in the LNG markets, and other traditional gas suppliers (i.e., Algeria and Libya) face serious challenges that could reduce their availability to export in the future. In this sense, the Eastern Mediterranean gas could be instrumental to guarantee a certain level of energy security in the EU in the medium term, managing the transition period while enhancing energy security and diversification of supply through pipelines and LNG.

2) *Revisit contractual approach on gas and infrastructure*: As a result of the current energy crisis, countries and companies may be keen to consider a wider use of long-term contracts as they can be instrumental to shield European consumers from future price volatility. Moreover, these contracts were the cornerstone of the gas industry, providing the necessary stability that underpinned large-scale investments along the entire supply chain. While preserving its Internal Energy Market, the EU may favour them especially for creating new infrastructure and markets, such as decarbonised gases, bearing in mind that molecules can be transported more easily and cost efficiently than electrons.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

3) *Mobilising financing resources for decarbonisation*: The EU needs to encourage the pursuit of decarbonisation within and beyond its borders. From an external perspective, the EU should prioritise actions in its neighbourhood. This could be achieved in several cases in the short-term through natural gas, but this approach would require a credible plan to use this infrastructure to transition to low-carbon gases. At the same time, the EU needs to assist Mediterranean countries to develop other low-carbon solutions. One crucial issue is the growing investment gap between north and south shore. The investment gap to achieve the 2030 renewable energy targets in the southern Mediterranean amounts to 16 billion US dollars a year, about 30 per cent more than the investment that was flowing into the region before the COVID-19 crisis.[81] The EU expressed its commitment to increase support for sustainable finance via the Neighbourhood, Development and International Cooperation Instrument (NDICI). The overall assistance for the neighbourhood has increased by 25 per cent, from 17 billion euro (2014–20) to 22 billion for the period 2021–27. Over the previous period (2014–20) the EU energy funding in the southern Mediterranean was already devoted mostly to renewable energy and energy efficiency, with 15 per cent of funding aimed at gas infrastructure.[82] The EU should also use its financial institutions and development investment banks (i.e., European Investment Bank and European Bank for Reconstruction and Development) to invest in the energy transformation of the Eastern Mediterranean countries. The EU's new Agenda for the Mediterranean clarified that the European Fund for Sustainable Development Plus (EFSD+) under the NDICI will be the most important instrument of EU cooperation with neighbours in the Mediterranean basin. All these instruments create opportunities to mobilise substantial economic resources in favour of energy and climate cooperation in the Mediterranean.[83]

The EU needs to address emissions reduction in SEE otherwise there is a serious risk that this could become one of the major GHG producers on the continent unless it transforms its coal-reliant energy mix into a lower-carbon energy system.

4) *Go for bilateral cooperation rather than regional cooperation*: Traditionally, energy cooperation between the two shores has been developed bilaterally and independently from the EU framework. Single member states were responsible for establishing and developing energy ties with Mediterranean energy producers.[84] The EU should avoid a regional approach for its climate-energy cooperation in the area due to political and technical issues as well as high heterogeneity. The EU can enhance its presence, pursuing an inclusive and coordinated policy, aimed at fostering economic growth and development in a low-carbon context. This could

[81] IEA, "Clean Energy Transitions in North Africa", in *IEA Country Reports*, October 2020, https://www.iea.org/reports/clean-energy-transitions-in-north-africa.

[82] Anna Herranz-Surrallés, "The Green Transition: A New and Shared Paradigm in the EU Partnership with the Southern Neighbourhood?", in *IEMed Mediterranean Yearbook 2021*, p. 24-31, https://www.iemed.org/?p=63713.

[83] Luca Franza, "Greening the Mediterranean", cit.

[84] Simone Tagliapietra and Georg Zachmann, "Energy across the Mediterranean: A Call for Realism", in *Bruegel Policy Briefs*, No. 2016/3 (April 2016), https://www.bruegel.org/?p=14028.

ISSN 2610-9603 | ISBN 978-88-9368-249-7

contribute to preventing competition and conflicts in its neighbourhood. In this context, Italy could enhance its role in the region due to its multiple interests and presence in the area.

Updated 24 May 2022

ISSN 2610-9603 | ISBN 978-88-9368-249-7

References

John Ainger and Ewa Krukowska, "EU's Climate Chief Signals Natural Gas Will Be Included in Green Transition", in *Bloomberg*, 11 November 2021, https://www.bloomberg.com/news/articles/2021-11-11/eu-s-climate-chief-signals-gas-will-be-included-in-transition

Tareq Baconi, "A Flammable Peace: Why Gas Deals Won't End Conflict in the Middle East", in *ECFR Policy Briefs*, 21 December 2017, https://ecfr.eu/?p=3994

Julian Bowden, "SE Europe Gas Markets: Towards Integration", in *OIES Papers*, No. NG150 (October 2019), https://doi.org/10.26889/9781784671488

BP, *Statistical Review of World Energy 2020*, June 2020, https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2020-full-report.pdf

BP, *Statistical Review of World Energy 2021*, June 2021, https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html

CEE Bankwatch Network, "Chinese-Financed Coal Projects in Southeast Europe", in *Bankwatch Briefings*, 8 April 2019, https://bankwatch.org/publication/chinese-coal-in-southeast-europe

Martin Chulov, "Lebanon Hit by Electricity Outage Expected to Last Several Days", in *The Guardian*, 9 October 2021, https://www.theguardian.com/p/j7xbe

Council of the European Union, *TEN-E: Council and Parliament Reached Provisional Agreement on New Rules for Cross-Border Projects*, 22 December 2021, https://europa.eu/!9pmqnK

European Commission, *A Clean Planet for All. A European Strategic Long-Term Vision for a Prosperous, Modern, Competitive and Climate Neutral Economy* (COM/2018/773), 28 November 2018, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52018DC0773

European Commission, *An EU Strategy to Harness the Potential of Offshore Renewable Energy for a Climate Neutral Future* (COM/2020/741), 19 November 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020DC0741

European Commission, *Launch by United States, the European Union, and Partners of the Global Methane Pledge to Keep 1.5C Within Reach*, 2 November 2021, https://ec.europa.eu/commission/presscorner/detail/en/statement_21_5766

ISSN 2610-9603 | ISBN 978-88-9368-249-7

European Commission, *Questions and Answers on the EU Taxonomy Complementary Climate Delegated Act Covering Certain Nuclear and Gas Activities*, 2 February 2022, https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_712

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

European Commission, *Second Report on the State of the Energy Union* (COM/2017/053), 1 February 2017, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52017DC0053

European Commission, *The Short Term Resilience of the European Gas System. Preparedness for a Possible Disruption of Supplies from the East During the Fall and Winter of 2014/2015* (COM/2014/654), 16 October 2014, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52014DC0654

European Commission, *Speech by President von der Leyen at the European Parliament Plenary on the Preparation of the European Council Meeting of 21-22 October 2021*, Strasbourg, 20 October 2021, https://ec.europa.eu/commission/presscorner/detail/en/speech_21_5381

European Commission, *Stepping Up Europe's 2030 Climate Ambition: Investing in a Climate-Neutral Future for the Benefit of Our People* (SWD/2020/176), 17 September 2020, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020SC0176

Eurostat, *8% of EU Population Unable to Keep Home Adequately Warm*, 5 November 2021, https://europa.eu/!P8HCqK

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

Luca Franza, "Greening the Mediterranean: Pathways for Sustainable Energy and Climate Cooperation", in Andrea Dessì, Daniele Fattibene and Flavia Fusco (eds), *Climate Change and Sustainability: Mediterranean Perspectives*, Rome, Nuova Cultura, 2021, p. 113-135, https://www.iai.it/en/node/13843

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

GIIGNL, *Annual Report 2022*, May 2022, https://giignl.org/?p=9028

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Ioannis N. Grigoriadis and Constantine Levoyannis, "Winds of Change in the Eastern Mediterranean: Between Hydrocarbons and Renewable Energy Geopolitics", in *ELIAMEP Policy Papers*, No. 80 (September 2021), https://www.eliamep.gr/en/?p=41022

Anna Herranz-Surrallés, "The Green Transition: A New and Shared Paradigm in the EU Partnership with the Southern Neighbourhood?", in *IEMed Mediterranean Yearbook 2021*, p. 24-31, https://www.iemed.org/?p=63713

International Energy Agency (IEA), "Clean Energy Transitions in North Africa", in *IEA Country Reports*, October 2020, https://www.iea.org/reports/clean-energy-transitions-in-north-africa

IEA, *Gas 2020*, Paris, IEA, June 2020, https://www.iea.org/reports/gas-2020

IEA, *Statement on Recent Developments in Natural Gas and Electricity Markets*, 21 September 2021, https://www.iea.org/news/statement-on-recent-developments-in-natural-gas-and-electricity-markets

Giacomo Luciani, "The Role of Natural Gas: A Transitional Source of Energy?", in Carlo Secchi and Alessandro Gili (eds), *The Global Quest for Sustainability. The Role of Green Infrastructure in a Post-Pandemic World*, Milan, Ledizioni, July 2021, p. 80-92, https://www.ispionline.it/sites/default/files/pubblicazioni/ispi_report_infrastructure_2021.pdf

Bogdan Neagu and Kira Taylor, "Romania Commits to Phase Out Coal by 2032", in *EURACTIV*, 4 June 2021, https://www.euractiv.com/?p=1612893

Observatoire Méditerranéen de l'Energie (OME), *Mediterranean Energy Perspectives 2018*, 2018

OME, *Mediterranean Energy Perspectives 2021*, 2021

Elena Sánchez Nicolás, "EU Commission Readies to Back €13bn Gas Mega-projects", in *EUobserver*, 11 November 2021, https://euobserver.com/climate/153491

Christopher J. Schenk et al., "Assessment of Undiscovered Conventional Oil and Gas Resources in the Eastern Mediterranean Area, 2020", in *USGS Fact Sheets*, July 2021, https://doi.org/10.3133/fs20213032

Frédéric Simon, "Canfin MEP: 'Here Is My Proposal to Find the Right Compromise on Gas and Nuclear in the Taxonomy'", in *EURACTIV*, 9 November 2021, https://www.euractiv.com/?p=1671192

Dario Speranza and Daniela De Lorenzo, "Toward A New Mediterranean Gas Hub?", in Manfred Hafner and Simone Tagliapietra (eds), *The European Gas Markets. Challenges and Opportunities*, Cham, Palgrave Macmillan, 2017, p. 303-313

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Simone Tagliapietra, *Energy: A Shaping Factor for Regional Stability in the Eastern Mediterranean?*, Brussels, European Parliament, June 2017, https://www.europarl.europa.eu/thinktank/en/document/EXPO_STU(2017)578044

Simone Tagliapietra and Georg Zachmann, "Energy across the Mediterranean: A Call for Realism", in *Bruegel Policy Briefs*, No. 2016/3 (April 2016), https://www.bruegel.org/?p=14028

Lorenzo Tondo, "Southern Italy Braced for Rare Mediterranean Hurricane", in *The Guardian*, 27 October 2021, https://www.theguardian.com/p/jcndh

Nikos Tsafos, "Getting East Med Energy Right", in *CSIS Commentaries*, 26 October 2020, https://www.csis.org/node/58642

Zenonas Tziarras, "Energy and Sovereignty in the New Geopolitics of the Eastern Mediterranean", in *OIES Forum*, No. 126 (February 2021), p. 58-61, https://www.oxfordenergy.org/?p=43398

UN Department of Economic and Social Affairs (UNDESA), *World Population Prospects 2019*, 2019, https://population.un.org/wpp/Publications

Andrew Wilks, "Turkey Realigning Ties with Egypt and Gulf Rivals", in *Al Jazeera*, 6 September 2021, https://aje.io/r8uz29

ISSN 2610-9603 | ISBN 978-88-9368-249-7

Istituto Affari Internazionali (IAI)
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. IAI publishes an English-language quarterly (*The International Spectator*), an online webzine (*AffarInternazionali*), three book series (*Global Politics and Security*, *Quaderni IAI* and *IAI Research Studies*) and some papers' series related to IAI research projects (*Documenti IAI*, *IAI Papers*, etc.).

Via dei Montecatini, 17 - I-00186 Rome, Italy
T +39 06 6976831
iai@iai.it
www.iai.it

Latest IAI PAPERS

Director: Riccardo Alcaro (r.alcaro@iai.it)

22 | 11 Pier Paolo Raimondi, *Eastern Mediterranean Energy Resources between Energy Security and Energy Transition: A Regional Perspective*

22 | 10 Marcello Di Filippo, *The EU's Engagement with Latin America: The Case of Colombia*

22 | 09 Leo Goretti, *The Sporting Sanctions against Russia: Debunking the Myth of Sport's Neutrality*

22 | 08 Bernardo Venturi, *The EU's Diplomatic Engagement in the Sahel*

22 | 07 Massimo Deandreis, Alessandro Panaro and Olimpia Ferrara, *Maritime Scenario in the Mediterranean: Analysis of the Competitiveness and Investments of the Major Logistics Players*

22 | 06 Fabrizio Coticchia and Andrea Ruggeri, *An International Peacekeeper. The Evolution of Italian Foreign and Defence Policy*

22 | 05 Daniele Fattibene and Alice Fill, *Putting Development at the Centre of G20 Policy Agenda: Lessons for the T20*

22 | 04 Luca Raineri, *Drought, Desertification and Displacement: Re-Politicising the Climate-Conflict Nexus in the Sahel*

22 | 03 Vladimir Medović, *The Potential and Limits of the European Union as a Mediator in the Dialogue Between Serbia and Kosovo**

22 | 02 Leopoldo Nuti, *An Overview of US-Italian Relations: The Legacy of the Past*

ISSN 2610-9603 | ISBN 978-88-9368-249-7