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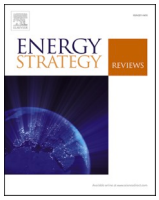

White knight or partner of choice? The Ukraine war and the role of the Middle East in the energy security of Europe

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A R T I C L E I N F O

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The Ukraine war has forced Europe to redefine its energy security policies towards more diversification and less reliance on Russian energy. As an energy-rich and relatively close region, the Middle East can play a potentially important role in Europe's future energy security. However, a short-term and static view on the Middle East's readiness as Europe's energy partner conceals the dynamic nature of Europe's external policy towards this region. Closer energy cooperation with the Middle East requires a holistic approach and informed strategies that consider the realities and perspectives of energy-exporting countries. This paper provides an analysis of the role of the Middle East in Europe's energy security by considering political economic factors such as capacity, domestic reforms, and long-term supply reliability. Using a perspective based on international political economy, long-term strategies for energy cooperation between the Middle East and Europe are highlighted. Integration with North Africa's energy markets and infrastructure can deliver energy supplies and foster energy transition in Europe and the Middle East. Oil diplomacy with Gulf countries is necessary for price stability and the compensation of oil supplies for Europe. Finally, there are opportunities for European countries to strengthen energy trade partnerships (particularly with Qatar) and thus become more involved in the interstate competition for the abundant gas supplies of the Middle East. Europe's energy rapprochement with the Middle East solicits a re-examination of EU external energy policies in order to achieve more long-term and mutually beneficial energy cooperation.

1. Introduction

Russia's invasion of Ukraine marked a new era in international relations, and a major shift in the understanding of European energy security. It has accentuated the perils of the high energy dependence of European Union (EU) countries on Russian gas and oil. These perils included the support for an aggressive regime and the geopolitical instrumentalization of oil and gas supplies as a weapon of war. EU dependence on energy has increased in the years prior to Russia's invasion (popularly known as the Ukraine war), with the EU importing 57.5% of its energy in 2020 and the share of Russian gas in EU gas imports reaching 41% in the third quarter of 2021 [1]. While energy prices in Europe had increased considerably before the Ukraine war, new policies of sanctions, import bans, and re-orientation of supply resulted in more price increases and across-the-board ramifications for energy supply, energy transition policies, and emissions reduction targets [1–3].

The ability of the European Union to adequately react to the energy impacts of the Ukraine war is determined by a complex set of factors, some of which are beyond its control. Initially, the EU has laid out several emergency measures to ensure the flow of energy supply at affordable cost, while not jeopardizing economic growth or union-wide energy transition goals. These measures aimed to reduce energy imports from Russia through supply diversification, minimum gas storage requirements, increasing energy efficiency, the acceleration of renewable energy, and increased production from low-emission energies such as nuclear energy [4,5]. However, ambitions to maintain or accelerate the energy transition as a result of the Ukraine war were doubtful since they are oriented towards the long-run and therefore not sufficient to enhance national energy security [6]. Moreover, energy-exporting countries were faced with insufficient capacity to replace Russian output for EU countries [5]. At the same time, the economic repercussions of the Ukraine crisis were wide-ranging from economic downturn and food price spikes to transport bottlenecks and fiscal difficulties [3,7–9]. While Europe sought to adopt flexible policies, reducing dependence and improving energy security in Europe represented a medium-to long-term venture [7].

The role of Middle East in diversifying the European energy mix has

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come to the forefront of debates in the wake of the Ukraine war. Energy-exporting Middle Eastern countries have reiterated the lack of capacity to compensate for Russian imports in the short term [10,11]. However, one can expect a redefined role for the Middle East in European energy strategies, whether by stabilizing energy prices or as a prominent energy supplier. In this paper, the future role of the Middle East is analyzed using an international political economy perspective on the ability of selected Middle Eastern countries to play this role. The aim is to examine the EU foreign energy policy with regard to the role of Middle Eastern countries. Using a framework anchored in International Political Economy (IPE), the paper assesses the role of the Middle East as energy suppliers of choice for the EU (including non-carbon energy sources) considering not just their resource endowment but also other domestic factors including environmental, demographic, political, and energy-transition related ones. The paper first contextualizes the Ukraine war within energy security literature, and later provides an analysis framework for examining the role of the Middle East in Europe's foreign energy policy. It later provides energy strategy directions for engaging with the Middle East and discusses these strategies within the political-economic context of the region and its cooperation with the EU. Finally, the paper discusses future implications. A more nuanced view of the role of the Middle East attests to the need for more long-term strategies concerning energy cooperation between the EU and the Middle East.

2. EU energy security and the Middle East: towards a multi-dimensional, long-term view

2.1. Study background

The 2022 Ukraine war has led to a shift in European energy policies away from Russia and towards increased supply diversification. Recent studies have re-emphasized the role of diversification policies, including reshaping external energy security, forging new supply partnerships, and investing more in decarbonization and renewables [12,13]. However, this is not the first time the EU had to reconsider its energy security over Russia–Ukraine relations. The 2006 Russian–Ukrainian gas crisis forced European policymakers to pay more attention to energy security, although this concept remained elusive and hard to build consensus around [14]. While Europe sought to strengthen energy partnerships with other regions such as the Middle East, stability and predictability in the energy markets were important guiding principles for European energy policies [15]. The 2009 Russia–Ukraine gas dispute was another warning signal for the EU about the centrality of Russia–Ukraine relations to European energy policies. There have been numerous voices and plans advocating the end of Russian energy leverage [16,17], but the EU has largely failed to establish coherent policies on European energy security and foreign energy strategies [18]. The 2014 Ukraine war and the Russian annexation of Crimea gave the impetus for investing in renewables and energy efficiency in order to decrease the EU's energy dependence [19]. Furthermore, energy-related considerations such as energy price disputes and the availability of energy deposits and pipelines in Ukraine were important considerations behind this war [20,21]. Europe considered gas diversification from sellers in Asia and the USA, but this was difficult due to tight gas markets and higher costs [22]. After decades of dependence on Russian energy, gas energy security in the EU has not changed, and indeed gas supply security has worsened [23].

The 2022 Ukraine war has proved a game-changer for energy security in Europe with an oil embargo adopted by the EU, and long-term plans announced for reducing Russian gas exports to the EU. The EU has also announced more long-term steps to decrease energy reliance on Russia such as the launch of the REPowerEU plan in May 2022 aimed at diversifying its suppliers, adding new suppliers and boosting the energy transition through energy saving and renewables. Besides, the EU energy platform was launched in April 2022 to pool demand, coordinate infrastructure and negotiate energy deals (e.g., through pooling demands for deals with LNG suppliers). Besides, the EU's Hydrogen Strategy of 2020 is supporting industry to move to carbon-free hydrogen, including through imports of green hydrogen from neighboring regions such as Ukraine or North Africa. Therefore, Europe's interest in reshaping its energy supply is due to increase the importance of regions such as the Middle East as a key supplier of gas, oil or hydrogen for Europe. This paper defines an extended version of the Middle East including all the Arab states of the Arabian Peninsula and North Africa, plus Israel and Iran. This definition corresponds to the term "Middle East and North Africa" (MENA) used in other studies [24], while this paper uses the terms Middle East and MENA interchangeably to refer to this set of countries in the analysis.

Europe's need to decrease its energy reliance on Russia was reflected in the EU countries' high reliance rates on Russia as shown in Table 1 (and the full table with data description in Annex A). It is important to note that, in some countries, the actual reliance situation might have been higher than the indicated ratios of imports to domestic consumption, e.g. in Austria where gas is imported through third countries. Countries closer to Russia in the Baltic and the north or the southeast of Europe were highly reliant on Russian energy. This was also the case of the three major EU economies of Germany, France, and Italy. Although these data in Table 1 indicate some reliance on Russia ahead of the Ukraine war, this paper will show that this does mean inevitable dependence. Moreover, Europe has moved away from such a reliance and there are many opportunities to strengthen its energy independence through energy cooperation with other regions.

2.2. Justification and contextualization within energy security literature

Academic literature on Europe's energy security has examined limitations and prospects of its energy foreign policy but with little focus on political-economic realities and the perspective of exporting countries. Using a perspective anchored in international political economy (IPE), this paper analyzes the EU's foreign energy policy towards the Middle East through outlining energy strategies related to state- and market-based interactions between the EU and the Middle East. As this section argues, using an IPE-perspective in analyzing Europe's foreign policy better shows future limitations and opportunities while contributing to a growing number of publications on energy relations with the Middle East.

Studies on Europe's energy foreign policy have largely focused on the relationships with Russia, and the implications of the turbulent Ukraine-Russian relations, e.g. Refs. [16,17,19,21]. These studies have largely used a European perspective on energy security and external energy relations. The salient issues in such energy security studies related to Russia are concerning the need of Europe to diversify its energy imports and to strengthen its energy foreign policies. However, the EU's aim of energy diversification did not materialize, since Russia become locked in the European energy markets, and energy developments in other regions were not adequately considered [26]. Ultimately, the gas supply dependence of Europe worsened in the last decades [23].

Traditional energy security studies have criticized limitations of Europe's foreign energy policies due to internal and external factors. For example, Herranz-Surrals [27] mentioned the lack of institutional development and the inability of the EU to export its energy market rules as reasons for the underperformance of the EU's foreign energy policy. Other reasons are related to the lack of common direction for the EU security strategies of energy supply and inadequate investments in dialogues with producing countries [28]. Other studies have focused on the EU's own energy diplomacy; e.g., with the US or other suppliers such as Qatar or Australia [29].

Studies on the EU's foreign energy policies from a non-European perspective have largely focused on standalone political or economic limitations, e.g. political instability in the Middle East [15], or higher

Table 1
Value of oil and gas imports from Russia for selected European countries, and reliance ratios on Russian imports (% of domestic consumption), 2016–2020.

Indicator and Countries[a,b]	Crude oil (billion $)	Non- crude Oil (billion $)	Reliance ratio Oil (%)	Total petroleum gas	Natural gas	Reliance ratio Natural Gas (%)	Reliance ratio Coal (%)	Total reliance ratio (%)
Belgium	0.89	8.03	72.47%	0.97	NA	11.71%	29.42%	32.52%
Bulgaria	8.35	1.08	85.37%	2.93	2.71	89.37%	8.10%	35.21%
Croatia	0.6 (16–19)	0.36	15.95%	0.01	NA	0.00%	72.98%	9.65%
Czechia	7.47	0.02	41.53%	7.47	7.42	97.71%	1.36%	25.63%
Denmark	1.05	2.93	21.85%	NA	NA	0.00%	84.58%	14.47%
Estonia	0.06	2.49	−462.19%a	0.56	0.50	90.65%	0.54%	12.94%
Finland	20.23	3.26	153.88%	0.42	NA	92.51%	37.76%	46.85%
France	15.30	14.33	10.99%	NA	NA	21.69%	25.68%	7.42%
Germany	56.75	19.78	33.37%	NA	NA	59.66%	18.02%	29.45%
Greece	4.18	9.65	65.97%	2.90	2.88	51.29%	5.68%	41.94%
Hungary	8.58	1.15	61.00%	5.24	5.04	84.34%	5.73%	44.53%
Italy	13.91	7.37	19.53%	31.42	31.41	42.48%	38.11%	25.61%
Latvia	NA	0.32	19.12%	1.65	1.33	96.77%	99.84%	30.00%
Lithuania	12.97	0.83	254.52%	1.27	1.19	52.43%	80.66%	111.22%
Netherlands	42.26	13.94	130.58%	NA	NA	30.74%	40.67%	65.32%
Poland	34.24	5.92	75.76%	3.10	NA	52.44%	12.87%	34.62%
Portugal	3.99 (17–19)	1.09	27.22%	0.13 (18–20)	NA	2.57%	3.13%	12.25%
Romania	6.47	2.90	41.13%	1.40	1.37	9.98%	7.39%	15.65%
Slovakia	10.21	0.03	149.92%	8.19	8.03	96.50%	26.60%	60.62%
Sweden	10.80	3.11	69.81%	0.68	NA	2.83%	16.29%	15.15%

See Annex A.1 for the full tables and more information on the calculations.

[a] Numbers indicated for each country equal the total value (in billion USD) of imported commodity from Russia for the years 2016–2020 or as otherwise specified in (). Import value data calculated using trade data from the UN Comtrade Database (https://comtrade.un.org/data/). NA = (reliable) data not available.

[b] Reliance ratios calculate the ratio of Russian imports to domestic fuel consumption (of the specified fuel or the total domestic consumption). Since some imported but not consumed (e.g. stocked, or re-exported), some values exceed domestic consumption. Estonia's negative value due to statistical processing of oil shale liquefaction processes. Data source: Calculated from International Energy Agency [25].

costs and tight markets in Asia or the USA [22]. Besides, energy security studies on the EU's long-standing interests in closer energy relations with the Middle East have focused on issues related to power politics, production capacity and cost issues [30,31]. However, in order to provide a more holistic assessment of Europe's energy foreign policy towards the Middle East, there is a need for nuanced analyses advancing the perspective of this region. Using an IPE-perspective can help provide such inside views on the realities and preparedness of the Middle Eastern countries.

Examining the political-economic reality of individual countries can offer a more nuanced view of energy security implications than quantitative approaches based on modeling external energy relations. IPE-based approaches focus on issues such as markets, trade, diplomacy and non-state actors [32,33] (see Section 3.2.2 for the IPE framework). They are valuable for understanding the views of energy-exporting countries since they incorporate the role of national actors, interests and state-specific factors, and therefore showing the complexity of energy politics as a politically contested domain [34]. They have also highlighted the role of a set of actors or emerging powers in energy security, or within the context of the energy transitions. For example, Power et al. [35] explained the involvement of emerging global powers in Africa within the context of the energy transitions in the Southern Africa. In the same line, Jakob et al. [36] explained how actors can shape policies towards coal use in emerging Asian powers.

The advantages of increased engagement with the Middle East have been reiterated in several studies; e.g., long-standing trade relations, proximity, new discoveries, etc. As will also be argued in this paper, a closer market-based integration with some Middle Eastern countries could help the EU achieve a more "holistic diversification"; i.e., by tackling the expansion of renewables, or by energy efficiency [37]. By complementing energy security studies through the perspective of exporting countries, this paper will show how considering political-economic factors in the Middle East can aid in understanding the role of this region in the EU's energy security in the short and long terms. In order to strengthen European energy security through closer energy relations with the Middle East, this paper will outline broad energy strategies anchored in both liberal and realist political economic concepts.

3. Methodological framework

3.1. Outline and data

3.1.1. Study outline

The overall approach of this paper in assessing the role of the Middle East in the EU's energy security is to highlight the complexity of this role from the IPE perspective in the short and long terms. It shows that the role of the Middle East as an important supplier of European energy in the wake of the Ukraine war goes beyond traditional energies (oil and gas) and extends to issues related to the integration of markets and infrastructure, clean electricity, and new energy types such as hydrogen production. First, the paper has illustrated the EU's need for diversifying energy supplies and the relevance of the Middle East for this goal. Later, it will examine the perspective of Middle Eastern energy-exporting countries by initially analyzing their preparedness using selected political-economic indicators in 14 countries (Section 3.2.1). The assumption is that Middle Eastern countries need to exhibit favorable indicators in these areas in order to effectively and reliably contribute to the long-term energy security of Europe: i.e., a security understood to be based on its ability to achieve stable supplies of different energy types (oil, gas, electricity or hydrogen) at reasonable cost. This initial step shows *status quo* of sub-optimal preparedness of the Middle East to become an emergency energy supplier for Europe. It therefore illustrates the limits of indicator-based assessments of the Middle East's readiness, and lays the groundwork for a more nuanced IPE-based analysis.

In the second step, the paper utilizes an IPE-based framework (Section 3.2.2.) in order to outline long-term strategies for European foreign energy policy with the Middle East. The qualitative analysis (Section 4) highlights the importance of focusing efforts towards long-term and realistic goals related to energy market integration in the Mediterranean region, oil diplomacy with Gulf countries, and securing of more liquefied natural gas (LNG) supplies through trade partnerships with Qatar. The paper focuses on outlining IPE aspects related to the role of markets, state-based diplomacy, international organizations, energy actors, and long-term partnerships. It later presents synthesized recommendations for the EU's foreign energy policy that emphasize the importance of a multi-track approach based on a realistic understanding of cooperation

legacies, infrastructure plans, capacities, and geopolitical uncertainties.

3.1.2. Data description and calculation

The paper's analysis is largely qualitative, although some quantitative data were used in the initial problem analysis, namely indicators data on the reliance of Europe on Russia, and on political-economic aspects of the energy sectors of on Middle Eastern countries (sources and calculations for which are described in detail in Annex A). Specifically, political-economic data relate to assessing the preparedness of the Middle East as a short-term energy supplier for Europe (Section 3.2.1). Countries included in this assessment and the qualitative analysis in Section 4 need to exhibit i) significant energy reserves and a past record of consistent oil and/or gas exports, or ii) a strong potential as producers of clean electricity or other energy types for Europe. For this reason, some Maghreb countries (Tunisia, Morocco) were included in the analysis despite having sparse fossil fuels reserves. Some countries with limited exports or reserves in the regional comparison (e.g., Egypt, Israel and Bahrain) were also partly included in the analysis to illustrate the potential of expanding the highlighted strategies for EU energy security. Country-level data for the indicators were largely retrieved and processed directly from the sources indicated in Annex 1, while certain data for some countries, particularly those with low levels of fossil fuel reserves or unclear energy policy targets, were lacking. To reduce uncertainty in using indicator values, certain additional measures were taken such as giving preference to data on proven reserves. The qualitative analysis (Section 4) also relies on the recent academic literature, media reports, and reports from international organizations or think tanks. In addition, extra qualitative data describing infrastructure development were included in the analysis of example strategies (Section 4) to show the actual transition towards diverting energy production capacity (whether of fossil fuels or other energies) towards export.

3.2. Analysis framework

3.2.1. The Middle East as an energy "white knight": an initial indicator-based assessment

In order to examine the perspective of the Middle East region on its future role in the energy security of Europe, it is important to first appreciate its political-economic reality and its readiness. Table 2 looks at the readiness of Middle Eastern countries in four indicator categories. Firstly, on production capacity, there are some significant oil reserves and production capacity in both the Gulf region (particularly Saudi Arabia, Iran, Iraq, the UAE and Kuwait) and North Africa (particularly Libya). For Algeria and Egypt, considering the large country sizes, historical oil production (in the last 10 years) and current reserves can be considered limited. As for gas reserves and production, significant reserves exist in Qatar and Iran, while only a few Middle Eastern countries have consistent recent LNG exports, with Qatar leading the way. Following the Ukraine war, Qatar has declared the unfeasibility of replacing Russia gas exports in the short term while it works on major LNG expansion projects [38]. The UAE has been building LNG export facilities with the intent to supply European customers [39]. Oman's continuity of LNG exports is unsure since related projects are relatively new [40]. In North Africa, Egypt has recently sent LNG shipments to Europe, but the amounts are quite modest [41]. Due to technical constraints (e.g., pipeline capacities), Algeria's ability to increase natural gas flow to Europe is limited [42], while its LNG exports have been decreasing lately (see Table 2). In June 2022, Egypt, Israel and the European Union have signed an agreement to facilitate the export of Israel's natural gas through the LNG infrastructure in Egypt.

The next two categories on domestic demands and energy sector performance summarize the ability of Middle Eastern countries to divert energy resources for export to Europe. Growing domestic demands can hinder the ability of Middle Eastern countries to export (additional) energy. Countries with large populations such as Algeria, Egypt, Iran and Saudi Arabia show concerning rates of increases in energy consumption overall (mainly due to population growth), and per capita (indicating a lack of energy use efficiency). In fact, these large energy footprints represent some of the main reasons behind the ongoing energy transition in the Gulf; e.g., through phasing out of energy subsidies, introduction of renewables, or energy efficiency measures [46–48]. To react to and compensate for rising demands, it is important to have a well-functioning energy sector (hence the energy security index) for fulfilling different domestic demands as well as export-related ones. Middle Eastern countries need also to mitigate these demands through their own energy transitions. A successful energy transition can free up export capacities, the amount of which depends on the success of such a transition. Recent studies shows that major countries such as Saudi Arabia have become markedly engaged with energy transition [49,50]. The UAE have invested heavily in alternative energies to enable them to export gas [39], while nuclear energy – now installed in the UAE – is being considered by some Arab countries for different geopolitical and energy transition reasons [51]. In a comparative view, Algeria (a country with rising demands and limited reserves) seems to lag behind Gulf countries (particularly Saudi and Emirati ambitions on renewables) in terms of the timeline for the energy transition. Moreover, as will be discussed later, there is an important potential for renewable energy production in the Middle East, with several countries adopting ambitious production goals for renewables – particularly in Israel, Saudi Arabia, and Maghreb countries (Morocco, Tunisia and Algeria).

Finally, political reliability is assessed in terms of any state fragility risks and energy-related trade legacies with Europe. Gulf countries stand out as politically stable with good past trade volumes, particularly Qatar, Saudi Arabia, Kuwait, and the UAE. Energy-related trade with Iran and Iraq has also been significant, but geopolitical instability seems to hinder larger volumes, particularly considering the high reserves of the two countries. While energy-related trade with North African has been significant in recent years, Algeria seems to be a favorite partner due to its moderate stability and comparatively higher production capacities – particularly in gas products.

Overall, this initial analysis provided a static view on the readiness of the Middle East showing several short-term limitations such as capacity constraints, domestic demands, energy sector performance and political reliability. It illustrates the need to acknowledge different political-economic realities of the individual Middle Eastern countries and their potential role in Europe's foreign energy policy, including national requirements for improving domestic energy sectors and energy transitions. However, this does not preclude energy cooperation with the Middle East as many of the highlighted constraints are changing and can be improved through a strategic and long-term engagement with the Middle East. As this paper will argue, there is a need for a more dynamic understanding of the role of the Middle East in Europe's energy security through acknowledging energy cooperation processes that take time to be realized. Using the IPE-perspective, the section will argue that more realistic energy cooperation strategies are those based on long-term engagement in the spheres of energy market integration, energy diplomacy, and energy partnerships.

3.2.2. Towards IPE-based energy strategies: an analytical framework

The analysis of the readiness of the Middle East to export energy to Europe shows some short-term restrictions in several countries with regard to current capacities, the ability to divert resources or geopolitical dependability. Therefore, the current efforts to engage with the Middle East with a view to decreasing Europe's energy reliance on Russia must take into account both the changed reality and the heterogeneity of the Middle East. Such an engagement must be oriented towards the long term, as many Middle Eastern countries face a range of demographic, environmental, and economic difficulties, thus undermining their ability to supply Europe. Therefore, the perspective of Middle Eastern energy-exporting countries needs to be considered through a more dynamic view that considers ongoing effort to engage within the region on multifaceted energy cooperation, including on non-

Table 2
Key indicators for assessing the readiness of Middle Eastern countries.

Indicators	Algeria	Libya	Egypt	Bahrain	Kuwait	Iran	Iraq	Israel	Morocco	Oman	Qatar	Saudi Arabia	Tunisia	UAE
Fossil Fuel Production capacity														
Oil reserves at end of 2020 in thousand million barrels[1]	1.5	48.4	3.1	0.124	101.5	157.8	145	NA	NA	5.4	25.2	297.5	0.4	97.8
Natural gas reserves at the end of 2020 in trillion cubic meters[1]	2.3	1.4	2.1	0.1	1.7	32.1	3.5	0.6	NA	0.7	24.7	6.0	NA	5.9
Oil production, average 2011–2020 in thousand barrels daily (growth per annum 2009–19)[1]	1526 (-1.8%)	826 (−2.8%)	688 (−1.1%)	194 in 2020	3027 (1.7%)	3996 (−2.3%)	3866 (6.9%)	NA	NA	954 (1.8%)	1904 (2.8%)	11,704 (2.0%)	61 (−7.4%)	3731(3.6%)
LNG exports, average 2011–2020 in billion cubic meters (growth rate 2009–2019)[1]	15.7 (−2.5%)	NA	3.05 (−10%)	NA	NA	NA	NA	NA	NA	11.7 (1.7%)	104.8 (7.4%)	NA	NA	7.8 (−0.2%)
Favorable domestic demands														
Primary energy consumption in exajoules in 2019 (growth rate 2009–2019)[1]	2.5 (4.5%)	NA	3.85 (2.3%)	NA	1.67 (3.1%)	11.97 (3.4%)	2.2 (4.9%)	1.13 (1.9%)	0.94 (4.1%)	1.39 (6.7%)	1.93 (6.4%)	10.68 (1.9%)	NA	4.55 (3.2%)
Primary energy consumption per capita in gigajoules in 2019 (average growth rate 2009–2019) [a]	58 (2.4%)	NA	38.5 (0.1%)	NA	396.6 (−1.0%)	144.4 (2.1%)	55.9 (1.7%)	132.5 (0.2%)	25.9 (2.8%)	279.5 (1.0%)	679.7 (0.9%)	311.7 (1.0%)	NA	466 (−9.3%)
Population size in millions (2020); (average population growth rate 2001–2020) [b]	43.8 (1.7%)	6.87 (1.2%)	102 (2%)	1.7 (4.7%)	4.27 (3.7%)	84 (1.2%)	40.2 (2.7%)	9.2 (1.9)	36.9 (1.24%)	5.11 (4.1%)	2.88 (7.9%)	34.8 (2.6%)	11.8 (0.98%)	9.89 (5.8%)
Energy sector performance														
Energy transition index rank (of 115 countries) [c]	79	NA	76	108	102	99	NA	28	66	74	53	81	88	64
Energy security rank (of 229 countries) [d]	100	156	59	88	116	98	135	44	60	75	39	94	72	66
Photovoltaic potential: Average practical potential (PVOUT Level 1, kWh/kWp/day), long-term (PV equivalent area (% of total area), long-term)[e]	4.92 (1.35%)	6.13 (0.003%)	5.25 (0.081%)	4.87 (20%)	4.82 (2%)	4.92 (0.087%)	4.68 (0.073%)	5.08 (1.463%)	5.01 (0.041%)	5.17 (0.045%)	4.92 (1.775%)	5.16 (0.069%)	4.74 (0.068%)	5.0 (0.732%)
Share of renewables in final energy	0.2%	NA	2.4%	NA	0.1%	0.8%	0.4%	4.5%	7.5%	NA	NA	0.02%	1.6%	0.7%

(*continued on next page*)

Table 2 (*continued*)

Indicators	Algeria	Libya	Egypt	Bahrain	Kuwait	Iran	Iraq	Israel	Morocco	Oman	Qatar	Saudi Arabia	Tunisia	UAE
consumption in 2019 [f]														
Clean energy target[g]	27% of electricity by 2030	NA	42% of electricity by 2035	250 MW by 2025 (achieved)	15% of generation by 2030	4 GW by 2021 (not achieved)	2.24 GW by 2025	40% of power mix by 2030	52% of total power capacity by 2030	20% of electricity by 2027	20% of generation by 2030	50% of electricity by 2030	35% of generation by 2030	50% of generation by 2050
Political dependability														
State fragility index, 2022 rank (179 ranks) (1st rank means most fragile country)[h]	77	21	42	100	130	39	23	146	85	136	147	95	93	152
Mineral imports from top 10 EU economies 2016–2020 (in billion USD) [i]	84.3	55.1	10.5	2.6	14.4	19.3	45.5	1.02	0.4	0.7	24.7	85.9	2.76	16.4

Abbreviation: NA = data not available; UAE: United Arab Emirates.
[a]BP Annual Statistical Review 2021 [43].
[b]World Bank Databank.
[c]World Economic Forum.
[d]Azzuni and Breyer [44].
[e]World Bank Solar Photovoltaic Potential by Country [45].
[f]International Energy Agency.
[g]National renewable energy strategies.
[h]Fund for Peace.
[i]UN Comtrade. See Annex A.2 for details on the indicator data and calculations.
Sources as follows

carbon energy resources. The Middle East itself is going through an important transition involving population growth and other domestic demands along with mounting environmental and economic risks.

In order to offer a qualitative and more nuanced analysis of Europe's future energy strategies towards the Middle East, this paper borrows from energy security perspectives anchored in IPE. Such perspectives often use a mixed approach focusing on the interplay of states, power and the state as well as non-state actors [32]. Applications of IPE in energy research build on international relations theories emphasizing i) the role of energy diplomacy and state competition in energy policies (realism); ii) energy cooperation through markets, international organizations, or non-state actors (liberalism and neo-liberalism); and iii) concepts of energy values or state identity (historical structuralism and critical theories) [33]. This paper focuses on analyzing three energy strategies based on the theoretical IPE approaches described in Proskuryakova [32] and in Hancock and Vivoda [33] in order to analyze the future role of the Middle East in Europe's energy security.

Table 3 describes these strategies based on the IPA-approach and the analyzed issues in the next section, i.e. concrete examples or interactions illustrating each energy strategy. First, the energy strategy based on the integration of markets and integration reconfirms both liberalist and neo-liberalist approaches of IPE with regard to cooperation with the Middle East which involves international organizations and non-state actors. Here, using exemplary issues in energy cooperation with North Africa, the paper shows that energy cooperation among and beyond states should build energy cooperation institutions towards the long run. Second, energy diplomacy is anchored in realist approaches of IPE emphasizing state-based competition and cooperation to secure energy resources. As it has become more evident during the 2022 Ukraine war, Europe's was more engaged with energy diplomacy particularly with the Gulf. However, this cooperation need to consider domestic factors related to cooperation legacies or diversification policies of Gulf states. Third, the strategy of trade partnership is based on a liberal approach that focuses on market transactions, contracts and the engagement of energy companies. Here, Qatar stands out as an exemplary case to illustrate the scope of such a partnership based on industrial contacts and long-term interests. Altogether, these strategies illustrate the importance of the utilization of a mixture of strategic tools in engaging with the Middle East within the EU's foreign energy policy.

4. Results: the Middle East as an energy partner of choice for Europe?

4.1. Emergent energy strategy directions

4.1.1. Market- and infrastructure-based integration with North Africa

The interest in closer cooperation with the Mediterranean can be framed within the context of the ongoing energy transition in Europe, and the energy market dynamics shaping a new understanding of the EU energy security. To highlight this (neo)liberal notion about markets and infrastructure, the three Maghreb countries (Algeria, Tunisia and Morocco) represent ample cases for a closer energy integration with Europe.

In regard to Algeria, it can play an important role for gas supplies to Europe due to its earlier-described capacity, and the availability of infrastructure for transport. Gas is an important interim energy source for achieving carbon reductions or efficiency targets in Europe, and gas deliveries from North Africa are increasingly important [52,53]. Fig. 1 shows the existing and planned energy infrastructure connecting North Africa and Europe. Algeria is already connected to Europe through the TransMed and Medgaz pipelines and ships LNG to Europe through two terminals. Important benefits may also accrue from connections through Algeria; e.g., a conceived project called the Trans-Saharan Gas Pipeline (NIGAL pipeline) to link Europe to the energy-rich region of Nigeria, with a memorandum of understanding (MoU) for its implementation having been signed in July 2022. Furthermore, Algeria can benefit from future grid connections with Europe for the transference of clean electricity. As indicated in Table 2, all the Maghreb states have a strong potential for photovoltaic (PV) energy production; e.g., the PV equivalent area (% of total area) of all three countries is below 0.1% in comparison to around 3% for Germany or ca. 1% for France or Italy. (See Table 2 and Annex A). Strong infrastructure connections are also vital for the import of green hydrogen from North Africa as a part of the EU's ambition to reach 50% renewable electricity and 50% green hydrogen by 2050 [54]. Algeria has an important potential for green hydrogen production for export and for stimulating local economies [55], while existing pipelines – most of which run through Algeria – can be used and expanded for hydrogen transport [56].

For Morocco and Tunisia, similar benefits are related to hydrogen and electricity, with Morocco emerging as a hub for transporting electricity (two existing grid connections) and transferring gas (e.g., the MEG pipeline and the 25 billion USD Nigeria–Morocco Gas Pipeline Project (NMGP) enforced through the MoU between the Nigeria and Morocco in October 2022 (Fig. 1). In comparison, Morocco exhibits more ambitious and clear renewables targets, higher current capacity, and more political stability than Tunisia (Table 2), thus enabling it to divert capacity towards exports. The GALSI (*Gasdotto Algeria Sardegna Italia*) pipeline's integration with energy infrastructure in the Mediterranean region through integrated grids and by using jointly funded transmission lines and renewables projects (e.g., solar projects in North Africa) can accelerate Europe's energy transition [57,58]. Alongside efforts led by the EU (e.g., through the EU Hydrogen Strategy), project-based cooperation has been advanced through national European actors. For example, German actors have been actively seeking new hydrogen projects in North Africa, and the German donors are supporting Tunisia to develop its National Hydrogen Strategy. In May 2023, German, Austrian and Italian ministers agreed to develop a European hydrogen corridor which should run from Tunisia to Italy alongside the gas transit.

Arguably, the enhancement of market-based energy cooperation with Arab states in North Africa can be strengthened in the wake of the Ukraine war. The grid connection to Europe through Tunisia has also not been commissioned despite its importance for a clean electricity market and the integration with Europe. In fact, the Middle Eastern region itself has made important advances in the integration of grids, and interconnections with Europe can yield important benefits for energy transition in the Middle East and in Europe [57,58]. Recent examples include the connection of the electricity grids of Egypt and Saudi Arabia

Table 3
Analyzed energy strategies using an IPE-perspective.

Energy strategy	Description	Underlined IPE approach	Analyzed issues and examples
Market- and infrastructure-integration	Cooperation based on markets, and integrated infrastructure with participation of state and non-state actors and institutions	Liberalism and neoliberalism (focusing on the role of multilateral organizations)	Energy infrastructure and market integration between North Africa and Europe; Mediterranean energy institutions; sustainable energy transition in North Africa
Energy diplomacy	Diplomacy as means of state competition for energy security	Realism and neorealism (focusing on power politics)	Energy power relationships with the Gulf; oil price diplomacy; international competition for Gulf energy
Trade partnership	Cooperation on energy trade among states with the involvement of state and private energy companies	Liberalism	LNG trade with Qatar; role of contracts, investments and energy companies

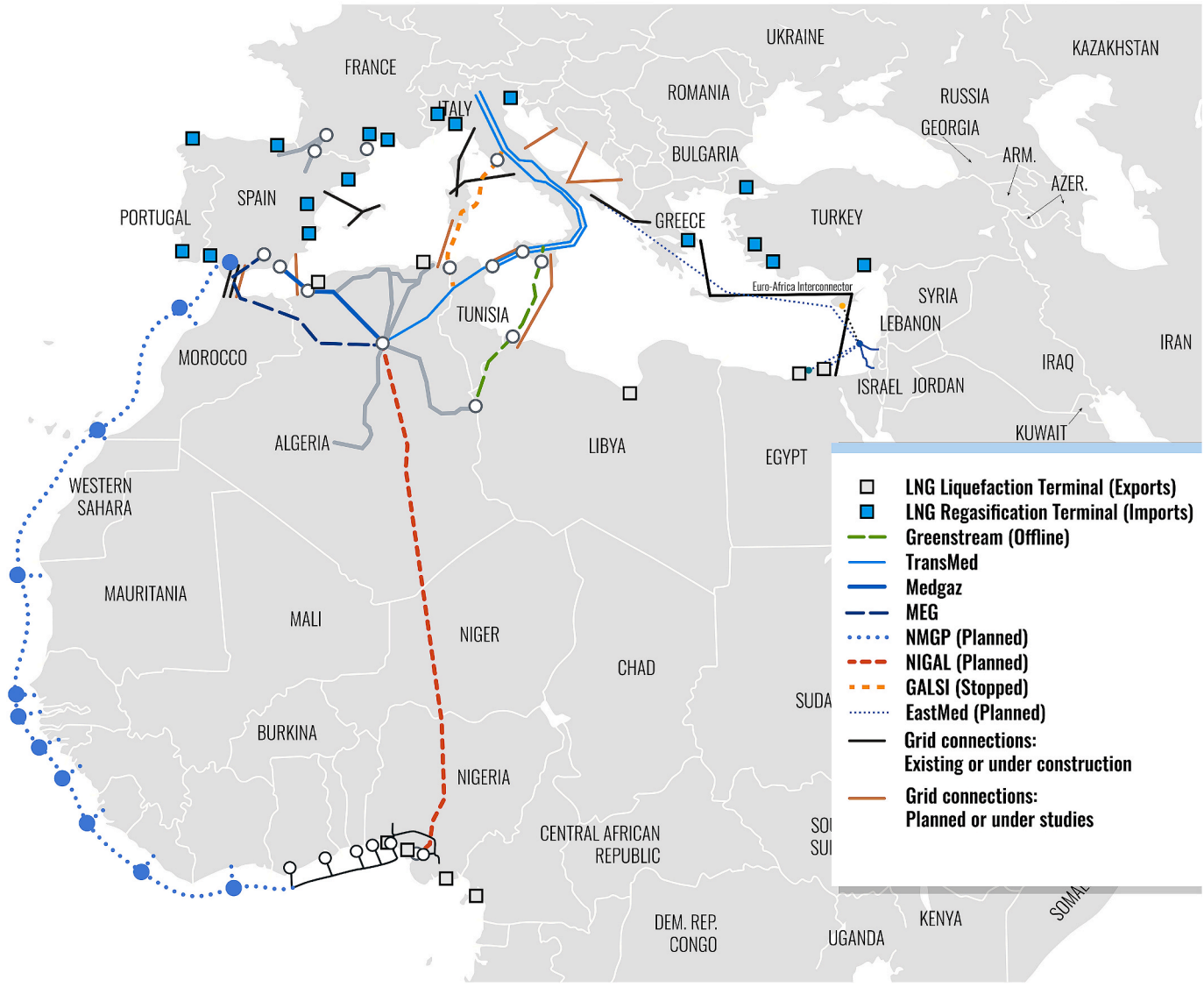

Fig. 1. Energy infrastructure development between Europe and North Africa.

in 2021, and the Mediterranean interconnector projects among Greece, Cyprus and Egypt to be finalized in 2025. In the East Mediterranean sea, projects such as the EastMed pipeline can deliver important energy security benefits for Europe if completed [59]. Overall, North African countries – particularly the Maghreb states – have important potential for both gas (Algeria), clean electricity, and hydrogen exports, and can thus play a greater role in Europe's quest for energy security and clean energy [60,61].

Following a neoliberal approach of IPE, not only market can drive energy collaboration, but also institutions and non-state actors. Energy cooperation legacies between Europe and the North African countries of the Mediterranean are relatively well established with the multilateral institutions supporting these initiatives (see Table 4). Political initiatives such as the Euro-Mediterranean Partnership (EMP) of 1995, the European Neighborhood Policy (ENP) of 2003–present, and the Union for the Mediterranean (UfM) of 2008–present have cemented energy-related cooperation and given it an institutional framework, as shown in Table 4. Europe established the Energy Community of South Europe in 2005 (now simply called the Energy Community) to harmonize energy markets among the EU and countries in Southeast Europe. It has been a long-time ambition that the Energy Community will improve energy interconnections with vital energy regions in the Caspian region, the Middle East, and Central Asia [62]. There was strong opposition to extending such harmonization efforts or to expanding the Energy Union to North Africa due to concerns about the political fragmentation and unsustainable economic models of the region [63,64].

A (neo)liberal energy cooperation with North Africa needs also to be scrutinized against a range of criteria include the dominance of European interests, geopolitical limitations and local impacts. On the one hand, a closer energy cooperation and integration with North Africa (particularly the Maghreb region) might have a stabilizing impact on the development of energy infrastructure and markets in this region. In fact, projects and actions of these institutions towards the Euro–Mediterranean energy cooperation have depended on consumers' and producers' choices and the parameters of the energy transition in Europe [65]. The inability to significantly advance the Mediterranean Solar Plan of 2011, established through the UfM, or with the implementation of the DII or MedGrid projects can be linked to cost and investment considerations as well as geopolitical issues related to European policies. The failure to strongly advance Euro-Mediterranean energy cooperation was often influenced by the Russia–Ukraine gas disruptions and the "political salience" of import dependence on Russia [66]. In this sense, future energy cooperation with North Africa should be oriented towards the long term and shielded from changing European preferences. This can be

Table 4
Major energy-related cooperation legacies between North African and Europe.

Major initiatives/ projects for integration of energy markets/ infrastructure with North Africa	Type	Description	Timeline and status
European Neighborhood Policy (ENP)	Political initiative (Policy)	A main foreign policy instruments of the EU to offer free trade and assistance to neighboring countries in exchange for commitment to certain reforms. The ENP builds on previous policies such as the Euro–Mediterranean Partnership established in 1995.	Conceived in 2003, updated with more funds in 2011; all North African countries (except for Libya) have Free Trade Agreements (FTAs) with the EU, with common action plans.
Union for the Mediterranean (UfM)	Political initiative (Organization)	A multilateral organization to complement the ENP, which includes all 27 EU states along with 15 Mediterranean partners, including all North African countries. The Union seeks common action through projects, and integration among member states, with energy and climate change as one of the focus areas.	Established in 2008; several small projects implemented within the UfM. In 2008, the Mediterranean Solar Plan (MSP) announced to help Mediterranean countries produce solar energy and circulate it within the Euro-Mediterranean region. The MSP serves as a political umbrella for industrial projects such as DII or MedGrid.
DESERTEC and DII	Large-scale project	DESERTEC was established in 2003 as foundation to promote the production of renewable energy in areas with high potential (e.g., desert in North Africa) and to transport it through high-voltage transmission to consumption sites. Desertec Industrial Initiative (DII) is a consortium of companies interested in developing renewables in North Africa for export to Europe.	DESERTEC continues to promote energy cooperation DII failed to advance due to cost and transport constraints, but revived in 2020 with an alternative aim on green hydrogen.
MedGrid	Large-scale project	Consortium established in 2010 among several European industrial partners focusing on grid integration between Europe and the Mediterranean region.	Signed a MoU with DII in 2011 towards studying and promoting the interconnected electrical grid. Multilateral grid integration projects continue beyond MedGrid; e.g., the Mediterranean interconnector between Greece, Cyprus and Egypt to be established by 2025.

done through projects that focus on local developmental impacts, and do not harm local sustainability targets – e.g. domestic requirements for employment or sustainable land and water use [56]. On the other hand, there are examples of geopolitical limitations that should be addressed ahead of energy cooperation, e.g. in the Eastern Mediterranean region. The discovery of new energy reserves in this region increased the European interest in the region, but also increased political rivalry and conflicts among riparian countries [67]. Such geopolitical conflicts decreased the long-term attractiveness of the Eastern Mediterranean region for European energy security [68,69]. However, Europe has recently shown increased interested in energy cooperation in the region, e.g. through promoting green hydrogen projects in Egypt (the EU-Egypt Renewable Hydrogen Partnership announced in November 2022) or singing the tripartite agreement of June 2022 with Israel and Egypt to export gas to Europe.

4.1.2. *Oil diplomacy with the Gulf*

This paper has already highlighted how Europe's reliance on Russian oil imports is less extensive than its gas reliance. Nevertheless, in some European countries, significant oil dependence ratios could be overserved. However, there are two factors to consider in this regard. First, in contrast to natural gas as an increasing or stable energy source needed for storage, among other uses, all energy transition scenarios in Europe results in a sharp decrease in dirty fossils such as oil or coal [70]. Secondly, oil features less in European external policy on energy security since it is abundant and can be traded and transported easily [71].

Following a realist approach to energy security, the Ukraine war has increased the relevance of energy diplomacy within Europe's energy foreign policy. European oil diplomacy with the Middle East, particularly with Saudi Arabia, has gained more significance in light of the importance of this region as a potential supplier and, importantly, for energy price stability. Saudi Arabia has been a major player in terms of oil price stability by managing production levels through the Organization of the Petroleum Exporting Countries (OPEC). Up until the Ukraine war, the quadrupling of oil prices after the 1973 oil embargo by Gulf countries led by Saudi Arabia represented one of the two most influential crises for redefining European energy security, alongside the 2009 halting of Russian gas supplies through Ukraine [71]. In fact, the EU–GCC energy relationship has also focused on containing price volatility and ensuring the stability of the highly complex oil and natural gas markets. Realizing that price shocks are more likely or more threatening than physical shortages, Europe has for decades advocated through multilateral platforms (e.g., the G20) market-based and contractual solutions such as creating long-term price mechanisms or price bands, and encouraging more free trade of oil in the Gulf [72].

In the wake of the Ukraine crisis and the ensuing oil price hikes, examples of a realist energy diplomacy through state-based competition for energy security could be witnessed. Several (unsuccessful) diplomatic attempts were carried out to convince Saudi Arabia of intervening

to lower oil prices; e.g. Biden's visit to Saudi Arabia in July 2022, and several visits by European leaders in the same year. These visits came after the EU produced a joint statement on in May 2022 called "A strategic partnership with the Gulf" which included cooperation issues related to security or sustainability transition. However, in August 2022, OPEC+ (a grouping of OPEC members plus other countries including Russia) decided to cut production, thus angering Western governments suffering from domestic price inflations. In November 2022, the EU's High Representative Joseph Borrell visited the UAE and reiterated that energy relations and diplomacy with the Gulf are more important than ever. Upon imposing the price cap on Russian oil by the EU in late 2022, stabilizing energy markets through energy diplomacy with the Gulf has gained even more importance. After the oil price has stabilized a bit in early 2023 (at around 80USD per barrel), OPEC's price cuts in April and June 2023 reaffirm energy diplomacy considerations as Saudi Arabia is pursuing a "non-aligned diplomatic strategy" by showing independence from the interests of Western powers [73].

European countries have also considered energy-transition partnerships with Gulf countries. In the last two decades, and particularly after the 2009 Russia–Ukraine crisis, interests in the Gulf as a source for Europe's energy diversification grew, although its role as a major new supplier for Europe was hindered by geopolitical instability (except for the imports of Gulf LNG, which increased) [74,75]. However, there have been important restrictions such as the "weaponization" of oil by Saudi Arabia in any potential conflict regarding the Kingdom's human rights policies (such a scenario being judged as "doubtful"), or the impacts of geopolitical tensions between Iran and the West regarding oil supplies [71]. Still, Gulf countries such as Saudi Arabia have been regarded within EU external policy as major potential energy suppliers. With regard to oil, this paper has highlighted the relatively comfortable position of Gulf countries to supply oil in terms of reserves and political stability (particularly in the GCC states). For example, the oil of the GCC countries has been less exploited than in other countries (according to the production-to-reserves ratio), although Europe has preferred closer energy sources such as the Mediterranean region [76]. At the same time, in engaging with the Gulf, domestic political-economic factors could facilitate more energy cooperation. The ongoing energy transition in Saudi Arabia will free up capacity for fossil fuel exports, including the production of hydrogen for exports [49]. There are several hydrogen projects in Saudi Arabia (and other GCC states), and the Kingdom exported the world's first blue ammonia shipment in 2020 to Japan. In this context, a major expansion of green hydrogen production requires significant investments [77], but the increased revenues due to high oil prices in the wake of the Ukraine war can deliver these revenues.

4.1.3. LNG long-term relationships

A liberal approach to energy cooperation with the Middle East includes energy trade with the involvement of the private sector. This is explicitly reflected in Europe's ambitious and costly (ca. 210 billion euro announced in May 2022) REPowerEU plan to reduce the reliance on Russia, including through supply diversification [78]. Here, Qatar is arguably the best-positioned country in the long term for accommodating some of Europe's LNG demands. The importance of a Qatar–Europe partnership on LNG can be illustrated critically through three arguments: i) the favorable economics of Qatari LNG; ii) positive LNG production legacies in recent decades; and iii) the promising market and contractual dynamics in the coming years.

Firstly, Qatar holds significant gas reserves, which largely reside in the worlds' largest gas field by far, the 51 trillion cubic meter field of South Pars/North Dome, shared between Qatar and Iran. The ability to produce from one site only, and the nature of this gas field as a "natural gas condensate field" (i.e., able to produce both raw natural gas and natural gas liquid), constitute a cost advantage for Qatari production. Meza et al. [79] detailed some strengths of LNG production in Qatar, including the size of the reserves, the production costs, years of experience, location, and inter-company cooperation. For example, LNG unitary production costs in Qatar range between 1.70 and 1.88 (USD/MMBTU), lower than the USA (2.25–3.5) or Australia (6.01–12.41), while only Iran (once it builds up its LNG infrastructure) could compete with Qatari LNG costs [79]. Moreover4.2, Qatar is relatively stable geopolitically, with good trade legacies with the EU. Due to its centrality in the LNG markets, its considerable soft power, and its role as mediator, Qatar can be an important partner for Europe [80]. In the medium to long term, Qatar's production capacity and stability can give it the edge over other places currently being discussed with untapped potential for LNG; e.g., countries in the West African region [78].

Secondly, liberal energy trade means also partnering with energy companies in order to secure beneficial contracts and investments for Europe. Starting in the late 1990s, Qatar has developed strong LNG export capacities and partnerships with International Oil Companies (IOC). Already, in the first decade of this century, Qatar's LNG capacity grew to be an important player in the LNG markets and to be considered as a potential supplier for Europe [81]. By 2011, Qatar had reached a liquefaction capacity of ca. 77 MTPA (now the worlds' second largest, after Australia), and halted any LNG increase until 2017, afterwards announcing a planned expansion of up to 126 MTPA by 2027 [79]. Qatar's LNG capacity comes from 14 liquefaction trains, with new large-scale trains being announced, while LNG assets are shared with IOCs (most importantly ExxonMobil), thus positioning Qatar and its partner IOCs well to expand production [38]. Thirdly and finally, with the new LNG expansion and some long-term contracts concluding in the upcoming years, there are opportunities for Europe to secure more LNG contracts from Qatar. Raimondi [82] explains the contractual deals and expansion projects of Qatar, indicating that by the end of this decade, ca. 60% of Qatar's export portfolio could remain uncontracted. (Currently, Europe's share of Qatar's exports is ca. 25%). This study by Raimondi (2022) also shows short-term difficulties with stratifying Europe's gas needs through Qatar, but starting from 2024/25, new LNG volumes through ongoing expansion projects and Qatar's liquefaction projects overseas (e.g., the Golden Pass LNG project with ExxonMobil in Texas) can allow Europe to benefit from fresh LNG contracts with Qatar. Similarly, Ackermann [38] sees a "window of opportunity" for Europe to engage in long-term contracts with Qatar before other buyers secure them in a competitive markets for long-term LNG supplies. In fact, Qatari LNG shipments have remained attractive for Asian buyers despite the increase in competition [79,83]. At the same time, Qatar Petroleum (now Qatar Energy) has been the EU's largest seaborne supplier despite ongoing problems with the destination clauses (prohibiting resale of shipments) of its long-term LNG contract [84]. These clauses (undermining the EU's internal energy market), together with the longevity of contracts, might pose (solvable) challenges for new deals since they work against the promise of a speedy energy transition in Europe.

4.2. Discussion and implications

4.2.1. Comparative discussion

The Ukraine war has resulted in significant shifts in the EU's foreign energy policies including an increased interest in energy cooperation with the Middle East. This paper has initially shown the limits of a static preparedness assessment due to the mixed indicator results with regard to issues such as capacity, diversion potential or dependability. Such an indicator-based assessment favors comparatively stable countries with large reserves and diversion potential for exports (e.g. Algeria, Saudi Arabia, Qatar). However, without a nuanced political-economic analysis, the dynamic and long-term nature of energy cooperation with the Middle East can be underestimated, especially with countries such as Morocco and Tunisia, or with regard to alternative energies and energy transition topics. Therefore, this paper introduced an IPE-based framework to explore three important energy cooperation strategies between Europe and the Middle East.

First, with regard to the integration of markets and infrastructure, this notion is particularly valid for the studied cases in North Africa. The

Ukraine war may foster an already existing trend of integration among European energy markets and with the neighboring markets. Market integration among European countries has been a key priority for Europe, particularly with the rise of renewables and the need to integrate the different-generation systems into a multi-level electricity system [85]. Clean hydrogen production is another element of the EU energy transition that favors collaboration with North Africa using markets and integrated infrastructure. Hydrogen imports represent an important focus of the EU Hydrogen Strategy, thus increasing the relevance of the North African region. At the same time, energy cooperation and integration with neighboring regions such as the Mediterranean have stalled slightly despite their relevance for energy transition targets [57]. It is important that key obstacles to increased integration among energy supply infrastructure and grid systems are addressed, including the existing geopolitical tensions such as those in the Eastern Mediterranean region and the financing of infrastructural projects. Furthermore, in accordance with the institutional approach of neoliberal IPE ideas, international organization related to Mediterranean energy cooperation can play an important role in strengthening and focusing outcomes. At the same time, given the lack of a common direction for the EU's foreign energy policy as a historical limitation [28], the role of member states remains important in establishing partnership with North Africa, e.g. Germany's increased interests in hydrogen projects.

Second, energy diplomacy has become more important for Europe's engagement with the Middle East, particularly after the EU's engagement towards an embargo on Russian oil (price cap of 60USD per barrel of Russian crude announced in December 2022) and a diversification of energy suppliers. EU states have become more engaged in energy diplomacy with key suppliers such as Algeria, Qatar, and importantly, Saudi Arabia. This diplomacy aims at influencing oil prices or gauging the interest and capacity to export more energy. On the one hand, these efforts partly failed; e.g., in significantly lowering oil prices, leading to talks of retaliation of re-examination of political relations with Saudi Arabia. This development, together with Russia's apparent use of gas supplies for pressuring Europe, are reminders of a realist approach to current interstate energy relations. On the other hand, engagement with the Middle East to secure more exports to the EU confirm the importance of cooperation. Considering the important reserves and capacities in the Middle East, and therefore the ability to influence energy markets, one can expect a stronger engagement of European via energy diplomacy, particularly with the Gulf region.

Third, there are current efforts to establish long-term partnership by involving the private sector in developing connected infrastructure and enhancing energy trade, particularly with regard to LNG. LNG trade can be the catalyst for strong and long-term engagement and partnerships between European and Middle Eastern countries, particularly with Qatar. The LNG supply from the Middle East (or from other regions at the right price) suits both the long-term energy diversification and energy transition plans of Europe. In fact, the EU's has started to solicit bids for jointly buying gas shipments through the EU Energy Platform by the summer of 2023. At the same time, national European states might still be the main actors in shaping Europe's energy security and its supply mix. While, historically, the UK and southern European countries (e.g., Spain, France and Italy) have been the main LNG importers [86], regasification facilities are being built or rented across Europe. For example, Germany has adopted a plan in the aftermath of the Ukraine war to build its floating LNG complex in record time and to rent terminals in an effort to phase out Russian gas imports by 2024 [87]. LNG import sources vary in the short term, including from the Mediterranean countries [41], while more supply contracts from the Gulf are expected in the long term [38,82]. The Gulf, and particularly Qatar, offers a strategic option due to considerations of capacity and stability as well as cooperation legacies with IOCs. In fact, finding reliable parties for energy cooperation has hindered cooperation with the Middle East in the past. For example, some analysis has suggested closer energy partnerships with Iraq or Iran [53], which have been suffering from regional geopolitical tensions since the start of this century.

4.2.2. Implications

In the wake of the Ukraine war, European energy policies will have consequences for foreign policy and energy partnerships with other regions, especially neighboring energy-rich regions such as the Middle East. EU–Middle East relations are expected to be focused on more long-term energy cooperation. In the following, some critical directions are highlighted that arise from the context of increased energy-based engagement with the Middle East.

- *The Ukraine war as trigger for* rapprochement: The Middle East, alongside other areas such as the Caspian region, has always been seen as a strong alternative for Europe's energy diversification (particularly gas) [53,86]. However, the Middle East has been neglected by Europe for convenience (since Russian gas is cheaper) or due to geopolitical risks. Europe's interest in energy from the Middle East has not been pronounced in recent decades due to classic political economic arguments. Europe has compared the Middle East to Russia or the Caspian Sea region, and concluded that there are obstacles to increased supply from the Middle East and a comparatively unfavorable investment climate [28]. For Europe, the challenges of any dependence on the Middle East for its energy security can arise from the perception of Middle Eastern states as being "patrimonial" rentier states with "corrupt" sovereign wealth funds and increasing influence from Asian powers [88]. For these reasons, Europe might have neglected the Middle East, particularly the Gulf [80], while North Africa has exhibited more forms of energy-related cooperation within the context of the larger Mediterranean cooperation. The Ukraine war has made oil and gas diplomacy with the Middle East a European concern, as indicated by recent (late 2022) high-level diplomatic visits to the region to discuss energy supply and prices. This war has also trigged a renewed interest in overcoming past obstacles to the integration of markets and infrastructure, and in strengthening cooperative institutional mechanisms.
- *Increased regional energy competition for the Middle East:* With the increased interest in the Middle East, interstate competition for the energy resources of the region will increase. However, the outcomes of any power play between global and regional actors for Middle Eastern energy are difficult to predict and require further analysis. For example, with LNG demand shifting from Asia to Europe [89], it is difficult to predict the reaction of Asian actors, which have strong partnerships with energy suppliers such as Qatar. For Russia, any pivoting of the Middle East towards European energy supply may be convenient, since it has been aiming to squeeze Middle Eastern countries out of the Asian markets [90]. Turkey will also need to reevaluate its energy policies, since it needs to balance its domestic energy needs with external expectations as a key transit and energy hub as well as with its relatively tense relations with its Middle Eastern neighbors [91,92].
- *Re-examining of EU energy policies:* As is evident from the renewed interested in energy cooperation with the Middle East, the Ukraine war will lead to a reconsidering of the EU's foreign policy and its common position regarding external relations. Europe has also sought to reconcile different energy security perceptions. Eastern countries of the EU have sought to prioritize energy security concerns such as diversification of supply (e.g., gas) and decreasing the cost and dependence on Russia, while western European countries have pushed for climate change and renewables as business opportunities [93]. The Ukraine war can arguably bring these two groups together, since lowering dependence on Russian energy is now an utmost and common priority, while market integration is a key vehicle towards achieving it. The ongoing energy integration in Europe through the Energy Community or other policies can be expected to receive a significant boost from the Ukraine war.

- *Pluralization of actors:* With the increased interest in the energy issues in the Middle East countries, more actors are emerging from Europe to promote energy trade or mutual cooperation. In fact, there are many lessons to learn and collaboration potentials to utilize, using the ongoing energy transition in Europe as a model for the Middle East [94]. For example, EU–GCC energy collaboration has gotten well underway in recent years [95]. It covers many topics such as renewable energies, energy efficiency, and low-carbon technologies (e.g., for the energy industry through carbon capture and sequestration (CCS)), and it can be strengthened in the future. This trend of increased reliance on the LNG trade may mean more engagement of the European gas industry with the Middle East, since such industries tend to quickly react and engage with policy changes and emergent energy security discourses [96]. Furthermore, it can redefine bilateral relationships of some Middle Eastern countries at a time when the Middle East itself is trying to redefine and reinterpret its energy security concepts in the aftermath of the Arab Spring turmoil, growing demands, and discoveries of new gas reserves [97].
- *Equal footing:* With the inclusion of more issues for energy cooperation beyond fossil fuels, e.g., the issues of clean electricity and hydrogen, it is important to address and further study local impacts on Middle Eastern countries. Any energy integration with North Africa should be on an equal footing, and it should be scrutinized against any social impacts on the underdeveloped markets of North Africa. For example, the export of hydrogen to Europe comes at the important cost of landscape change and social impacts such as land rights and water requirements in the exporting countries [56,98].

5. Conclusions and outlook

The Ukraine war is a game changer for energy security of Europe, which is being forced to adopt wide-ranging measures to decrease its high dependence on Russian energy. One of these measures is supply diversification through increased imports of oil and gas – particularly liquefied gas, due to lack of pipeline infrastructure – from other regions; e.g., from the Middle East due to the availability of its large reserves. This article has used a perspective anchored in international political economy to show that the EU's cooperation with the Middle East should go beyond fossil fuel imports. In the short term, limited additional supplies are expected from the Middle East due to capacity constraints, while the future role of the Middle East in the European energy security requires a multi-dimensional and long-term scrutiny. The EU's portfolio of energy strategies concerning the Middle East should also emphasize non-carbon resources such as clean electricity and hydrogen production which enlarge the potential of the Middle East as a relevant energy partner. It should also be scrutinized against political-economic considerations such as rising domestic demands, energy-related reforms and regional resource competition that may hinder a long-term orientation towards some Middle Eastern countries. While this paper has shown that there are limitations in place – particularly in the short term, there are also viable cooperation options with the highlighted countries such as Maghreb states, Saudi Arabia or Qatar.

The Middle East will not be a willing "white knight" who can compensate shortfalls upon demand. Such a proposition overemphasizes factors related to reserves and production. Only a few countries in the Middle East have significant LNG export capacities, and only a few shipments (e.g., from Egypt or the UAE) could be secured in the wake of the Ukraine war. In the long term, however, Middle Eastern countries might not be able to free up enough export capacities if their large and rising domestic demands are not satisfied. For Middle Eastern countries to maintain export capacities (whether to Europe or to Asia), it is necessary to increase energy efficiency, pursue renewables, and improve the performance of the domestic energy sector. These measures will also be directly linked to their diversion capacity, i.e. the future ability to free up enough fossil fuels for export. The EU can support Middle Eastern countries in harnessing this capacity, e.g. through sustainable investments in renewables and closer integration of energy markets and infrastructure. Europe has already established important energy cooperation legacies with the region, e.g. through Mediterranean-wide energy cooperation institutions, or EU-GCC cooperation platforms. European policymakers have neglected the Middle East as a significant energy supplier due to convenience (low energy costs from Russia) and geopolitical instability. However, there are pockets of stability in the Gulf or North Africa with recently stable energy trade and cooperation legacies with Europe.

This paper has shown the importance of both realist and liberal energy strategies in dealing with the politically heterogeneous but energy-rich region of the Middle East. While more detailed case analyses are needed, this regional analysis shows that energy cooperation with the Middle East should be oriented towards the long term. Energy integration with neighboring states in North Africa has been fostered by European foreign policy in the past couple of decades, mostly using neoliberal approaches based on markets, infrastructure and institutions. Cooperation with Mediterranean countries on energy issues has been seen in the context of an accelerated energy transition in Europe, including the EU's need for clean electricity and green hydrogen. Although some projects did not materialize (mainly due to cost considerations) and the discovery of energy reserves in the Eastern Mediterranean did not lead to more cooperation with Europe, there is clear signs of renewed commitment to more cooperation with North Africa. This integration can include more infrastructure for (liquefied) gas, clean electricity and hydrogen production, with countries such as Algeria and Morocco exhibiting favorable conditions for energy cooperation. Importantly, Middle Eastern countries themselves have become more interested in integrated grids and connected supply infrastructure as a part of their own energy transition. Future studies can examine how different European actors from the public, private and civil societal sectors are increasingly involved in energy cooperation with the Middle East, and thus co-determining the outcomes of the energy transitions in both regions.

With regard to Gulf countries, this paper has shown the importance of energy diplomacy based on realistic expectations with regard to energy price stability and also more trade engagement with the Gulf countries, particularly LNG-trade with Qatar. While Europe has neglected the region due to lower dependence rates on oil and the abundance of oil suppliers, the Gulf could be important for achieving Europe's plans in the wake of the Ukraine war and for mitigating the impacts of economic sanctions and energy embargos. Europe can also be an important partner with the Gulf during its energy transition, which represents a key reform for maintaining the ability of Gulf countries to export energy. While this paper provided a much needed assessment of the potential future role of the Middle East in Europe's energy security, it is still limited by its regional scope and the focus on energy relations between the EU and the Middle East. The Ukraine war can also change foreign energy relations and trade agreements of the Middle East with other regions. This broader aspect is worthwhile examining in future studies. While Europe's increased competition with other powers for Middle Eastern gas may have negative implications for the geopolitics of the region, the optimistic notion is that a mutually beneficial energy cooperation between the EU and the Middle East is feasible and now more urgent than ever.

Credit author statement

All work in this paper is done by a single author.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.esr.2023.101116.

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