



Energy Transition in the Eastern Mediterranean: Turning the East Mediterranean Gas Forum (EMGF) into a Regional Opportunity

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- Summary**
- This paper advocates a holistic approach transcending traditional energy security concepts, including a shift towards renewables, establishing regional energy markets, and focusing on cooperation rather than competition for long-term sustainability and socioeconomic development.
 - The Eastern Mediterranean, identified as a hotspot of climate change is characterized by unsustainable energy practices, driven by high energy demand, low efficiency, and reliance on fossil fuels, which contributes to environmental and economic challenges.
 - There is a need for the Eastern Mediterranean to transition to green energy, as a solution to energy problems and climate change risks.
 - The European Union can play a key role in supporting this transition, aligning with the goals set on the European Green Deal and fostering cooperation with and among the Mediterranean states.
 - The potential role of the East Mediterranean Gas Forum in regional energy cooperation is crucial. Expanding its scope beyond natural gas to renewable energy should emerge as a key priority.

Introduction

The climate crisis has accentuated critical global problems relating to key aspects of human security: food, health, and weather; these problems are even more severe for those living in the developing world. Extreme weather is one of the risks of greatest concern, as are environmental policy failures. Extreme weather events, along with our greater awareness of the risks climate change entails and greater interest in collective policy responses, have brought about a significant change in the world's infrastructure requirements. Growing concerns about the environment, the concept of transitioning from a linear to a circular economy and falling costs have brought renewables into the energy politics spotlight. Fossil fuel consumption has been the main driver of climate change, with an increasing number of countries seeking alternatives.

The Mediterranean has already been identified as a climate change hotspot. Hafner and Tagliapietra (2013) characterized the current energy situation as combining rapid growth in energy demand with low energy efficiency and low domestic energy prices due to consumption subsidies and argued that—given the considerable pressure which having to increase investment in new energy facilities while funding costly energy subsidies has put countries under—the current energy situation in the Eastern Mediterranean is not sustainable. A transition to green energy could help fix the region's energy problems and address several socio-economic problems.

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A change in how we understand the concept of “energy security” will also be necessary. Traditionally, the concept was focused on supply security, which led to states adopting assertive and non-cooperative approaches which ultimately hindered efforts to address global environmental problems. Collective action is necessary to tackle global warming and climate change, so countries should switch to fostering cooperative solutions, focusing on interdependencies and collective goods. A redefinition of the concept which would allow economies to flourish in a cooperative international energy landscape is thus a prerequisite for the transition to greener economies. However, there are still barriers and new factors that bring us back to traditional approaches to energy security—Russia's invasion of Ukraine and the Gaza war, for example.

This paper focuses on the Eastern Mediterranean region's need to transition to green energy. Switching to renewable energy sources, especially solar and wind, is essential given the region's unsustainable energy practices and the challenges posed by climate change. A holistic strategy is promoted which includes cooperation, market integration and extending the ambit of the East Mediterranean Gas Forum (EMGF) to include projects related to renewable energy. The European Union can be a major force in bringing this shift about and in the achievement of the ambitious goals laid down in the European Green Deal. Doing so would foster socioeconomic growth, environmental sustainability and energy security.

A Snapshot of Green Energy in the Mediterranean

Recent years have witnessed a remarkable surge in renewable energy in the Eastern Mediterranean. The emergence of unconventional resources, a decline in the demand for natural gas imports, a rise in the use of renewable energy sources, low gas prices, and a decline in the amount of capital invested in energy infrastructure globally have altered the structure of the energy markets (Pulhan et al., 2020). The anticipated effects of climate and environmental change necessitate an expedited energy transition in the countries of

the Eastern Mediterranean to enable secure, sustainable and inclusive development (Drobinski et al., 2020).

Drawing on Hafner et al. (2012), we can note the general outlook for renewable energy in the Eastern Mediterranean. With roughly 2,650 to 3,600 hours of sunshine per year, the MED-11 region, in particular, has enormous renewable energy potential, especially in solar and wind power. The solar radiation in the Sahara Desert is estimated at 3,200 kWh/m²/year, which falls to 1,300 kWh/m²/year on the coast. In contrast to Spain and Greece, where the average annual wind speed would allow wind farms to operate on average for 1,900 hours per year, Egypt offers one of the highest mean wind speeds in the world, at 11 m/s. This would make it possible for a wind farm to operate in some areas for 3,900 hours a year. The significant increases in wind power outputs in Egypt, Morocco, Turkey and Tunisia in particular, are a major factor in the steady increase in installed renewable energy capacity since 2000, with an average growth rate of over 42 percent.

According to Drobinski et al. (2020), energy demand is projected to increase through to 2040. While fossil fuels are expected to remain the main source of energy until that date, renewables are set to become the second most used energy source and will triple in size by 2042. Crude oil's contribution remained constant at 17 EJ between 1995 and 2016, but coal consumption has gradually decreased from 4.1 to 3.7 EJ over the same period. Natural gas primary energy consumption increased from 6 EJ in 1995 to 12 EJ in 2016, while the contribution of nuclear and renewable energy sources increased from 7 to 10 EJ in the same period. Increased energy consumption was also noted, rising from 26 EJ in 1980 to 34 EJ in 1995, then increasing to 43 EJ in 2016. It is also noted that a substantial gap between energy supply and demand is anticipated, particularly in the case of Sustainable Energy Management Companies (SEMCs). The energy sector should therefore undergo restructuring, with an emphasis on integrating renewable energy more rapidly. Considering the fundamentals, the region has enormous potential for green energy which, if utilized correctly, could facilitate socioeconomic development in these countries.

As Stergiou notes (2023), the decline in the cost of renewable energy will make the transition to a greener economy easier. Due to the sharp decline in cost, renewable energy now accounts for a significantly larger percentage of the world's energy mix. Over the past ten years, the cost of solar and wind power has decreased by up to 90 percent. More significantly still, in 80 percent of the world, the cost of electricity generated from solar and wind power is less than that of electricity produced by fossil fuels and is still falling. In 2019, the demand for electricity produced by fossil fuels fell by 1 percent, while 75 percent of new electricity investment was in renewable energy. Coal generator utilization rates fell to 53 percent.

The main obstacle to the production of and trade in renewable energy in the Mediterranean is the absence of a regional market. This is mostly the result of energy price differentials and subsidies, which limit the growth of the electrical supply system; due to the rigidities this imposes, investment in new infrastructure is distorted and may be hindered, existing infrastructure is not used to its full potential, and the development of renewable energy is delayed (Hafner and Tagliapietra, 2013). Additionally, the absence of cooperation between countries, the lack of domestic and cross-border transmission networks and technical coordination in the region are all drawbacks preventing the emergence of regional electricity systems, because they deter investments at the expense of social welfare (Allal and Urbani, 2016).

In view of the above, establishing a regional energy market could make things significantly easier for the parties involved in the process. Harmonizing energy policies, lifting barriers

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to trade, and making new financial instruments for capital available would all help significantly. Fostering an inclusive business environment could both serve SEMCs and respect the state's individual energy security concerns. Littoral states can implement policy reforms that support the energy transition process and renewable energies, while they can also improve their governance. This would contribute positively to the overall socioeconomic situation and enhance the energy security of the countries in the region. A remapping of the Eastern Mediterranean based on energy transition would strengthen the region's political stability, while also bringing long-term economic and environmental benefits (Moritz et al., 2022).

The European Union and Mediterranean Cooperation for Greener Economies

Linking the EU Green Deal initiative to the Mediterranean States would lower the cost of decarbonizing EU economies, thanks to the region's tremendous potential for renewable energy.

It has been noted that the decarbonization of the electricity industry is one of the most significant economic shifts in Europe (Pineda, 2021). According to the European Green Deal, by 2050, Europe's energy and transportation should be carbon neutral. The Deal also includes a target for 2030, which includes a net 55 percent reduction from 1990 levels. These pledges call for a radical transformation in the continent's economy. The Deal also includes leaving no one behind, whether they be geographical regions or citizens. The threat of a "multi-speed Europe" applies to the EU Green Deal, as well. Although all EU member-states have committed to achieving climate neutrality by 2050, each state's journey will be unique, with some having to endure more hardship than others (Levoyannis, 2021). Researchers suggest there is more to the European Green Deal than just another green growth initiative, and that it enhances the European economic model and deepens the economic and monetary union and the single market (Bongardt and Torres, 2021). Linking the EU Green Deal initiative to the Mediterranean States would lower the cost of decarbonizing EU economies, thanks to the region's tremendous potential for renewable energy. Moreover, it is doubtful that the EU would be able to meet the demand for greener energy from their own sources, so importing electricity generated from renewable sources could help meet the bloc's climate change goals; this makes the EU's electricity market's connectivity to the nations and regions around it into a significant factor. (Moritz et al., 2022). The region is well-suited to the operation of solar panels and other renewable plants, and their installation is less likely to provoke push-back from the local population. For example, the Sahara Desert is an excellent location in which to generate solar power and has been cited as having the capacity to meet European demand for carbon-free electricity (Drobinski et al., 2020). The European Union is in a better position than it was a few years ago. However, if it wants to shape the future of this vital neighbouring region, it will need to keep its policies and practices up to date with the changing circumstances in the Mediterranean, both implementing more significant changes and doing so with less delay (Pierini, 2017). Overall, given adequate cooperation and initiatives, the region has immense potential when it comes to helping the EU achieve its decarbonization targets while simultaneously meeting their energy needs.

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The green energy potential of the Mediterranean region can provide the EU's new emerging green economy with substantially help. Greater connectivity can contribute substantially to the EU achieving the targets set by the European Green Deal. Other initiatives are in place to increase "North-South" and "South-South" integration and stability. These include the Union for the Mediterranean (UfM), a very ambitious project whose overarching goals, as explained by Florensa (2021), are to establish a region of shared growth, cross-cultural communication, mutual understanding, peace and stability in the Mediterranean. The UfM has resulted in Euro-Mediterranean relations being

promoted at a political level; however, the need for much greater involvement by all parties, especially the EU, is clear, and the goals must be realistic and coherent to avoid future frustration (Florensa, 2021). Additional economic and social benefits arising from the development of renewable energy projects in SEMCs are mentioned, such as the creation of local jobs, the prevention of excessive migration to Europe, the enhancement of Euro-Mediterranean cooperation in socioeconomic areas, the freeing up of natural gas for additional exports to Europe, the facilitation of "South-South" cooperation within the SEMCs, and the export of renewable energy to Europe (Hafner and Tagliapietra, 2013).

Market integration and enhanced cooperation on renewable energy are in the interest of all parties involved and should be emphasized through proper policy implementation. Political collaboration will be necessary to establish greater dialogue and overarching stability; limiting the discussion to security matters could discourage and/or hinder the process of market integration. Sustainable energy development in the SEMCs and comprehensive adherence to the EU Green Deal, while including a Mediterranean dimension based on interdependence, human security, and socioeconomic development, are crucial.

Dynamics of the East Mediterranean Gas Forum (EMGF)

The Eastern Mediterranean is a region prone to conflict: the Arab-Israeli conflict, the Palestinian problem, the Cyprus issue, Greek-Turkish disputes, and the civil wars in Syria and Libya are just some examples. Things have become even more volatile still since the 7 October 2023 Hamas attack and the Israeli retributions that have followed.

The Eastern Mediterranean Gas Forum (EMGF), launched in January 2019, is a regional organization that aims to increase cooperation in the field of natural gas by increasing efforts to monetize regional gas reserves. The Forum currently has eight full members (Italy, Israel, Palestine, Jordan, Greece, Cyprus, Egypt, France) and three permanent observers: the EU, US, and the World Bank Group. It has significant potential for growth and the route to membership has been left open for all states in the Eastern Mediterranean. Recent discoveries of natural gas in the region played a crucial role in the establishment of the organization; these finds gave rise to significant opportunities along with serious challenges ranging from energy security to disputes over maritime borders and political tensions (Reich and Klotsman, 2023). Being opposed to the Forum, Turkey has decided to compete with it by implementing its "Blue Homeland" doctrine, which has escalated tensions across the region. However, despite the friction, environmental problems are of concern to every Eastern Mediterranean state. In 2021, both Greece and Turkey were confronted with extreme impacts of climate change in the form of extreme heatwaves and wildfires. It is clear that the climate risks are interconnected throughout the region, which is particularly vulnerable, and include rising sea levels, drought, wildfires, biodiversity loss, diseases, threats to food production and alterations in water cycles (Stergiou, 2023). Operating in a region ravaged by ongoing wars, geopolitical competition and climate change, the EMGF can play a critical role by providing a peaceful forum to foster cooperation and, potentially, including renewable energy as a means of fighting climate change. In so doing, it will simultaneously promote socioeconomic development, which the region lacks other pathways to. However, to do this effectively, the Forum needs to expand its area of influence and broaden its horizons. A strict focus on gas-related matters could prove counterproductive and detract from the EMGF's role as a significant actor in the region.

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New gas discoveries in the Eastern Mediterranean have pushed the countries to define their EEZs more assertively. However, the delimitation of maritime zones is no easy task. It is also worth mentioning that any political dispute in the region poses a serious threat to the EMGF. Another solution proposed by Reich and Klotsman (2023) for strengthening political cooperation in the region is to create a regionally-binding energy treaty, especially since the absence of a dispute settlement mechanism and binding obligations has been identified as limiting the Forum's effectiveness. A treaty could help increase the EMGF's effectiveness and include provisions on protecting the marine environment and the free transit of energy resources, thereby protecting infrastructure, increasing investor confidence, and boosting economic growth in the region.

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Including Renewable Energy in the EMGF

According to Moritz et al (2020), the promotion of renewable energy is now on the agenda for the EMGF summits. Establishing regional markets, rather than focusing exclusively on national markets, is beneficial for connectivity and cooperation, which is urgently needed in the field of renewable energies. The EMGF was founded to develop regional cooperation in natural gas, and not to explore the development of renewable energy. However, given the enormous renewable energy potential at hand, it is crucial that the EMGF expand its focus to include renewable energy agendas. This could help the Forum gain in prestige and legitimacy, while allowing it to stay relevant into the long term, given the world's ever-changing energy landscape (Reich and Klotsman, 2023). Including renewable energy on the agenda would be beneficial in many ways. It would reduce the region's dependency on gas by diversifying its energy supply, as well as enhancing its member countries' energy security. It can also attract opportunities for international cooperation, resulting in more incoming investment from different parts of the world while simultaneously promoting both better cooperation between partner regions and socioeconomic development in the Eastern Mediterranean. Increasing the proportion of renewables in the energy mix of the region, which is in the front line when it comes to the impacts of climate change, will also bring benefits in the form of environmental sustainability.

Conclusion

Facing, as it does, various obstacles and shortcomings relating to energy security, climate change, and geopolitical tensions, the Eastern Mediterranean region would benefit significantly from the shift to green energy. Given the evolving energy landscape, the East Mediterranean Gas Forum (EMGF), which was founded with a focus on natural gas, should now modify its agenda to include renewable energy in order to ensure its long-term relevance and effectiveness. In addition to improving the region's energy security, this expansion would support socioeconomic growth and environmental sustainability.

The European Union can play an integral role in contributing to the green energy transition in the Eastern Mediterranean. The ambitious targets set by the European Green Deal align with the green energy goals in place in most of the world; if genuine efforts are made to meet these targets, they can provide a basis and an opportunity for increased cooperation between the EU and the Mediterranean states. Increased connectivity, the integration of energy markets, and improved relations would significantly benefit both regions in terms of environmental sustainability, stability, and energy security; they could even prepare the

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way for future opportunities by replacing competition with cooperation based on mutual benefits.

Although the EMGF suffers from ongoing regional disputes, it has vast potential to become a significant regional powerhouse for energy cooperation. To achieve this, the inclusion of renewable energy in the Forum is a must. Solving maritime disputes, addressing the energy security of states such as Palestine, and expanding the organization to include Eastern Mediterranean states that are not yet members on the basis of international law are all essential if the Forum's full potential is to be unlocked.

In today's rapidly-evolving energy landscape, the Eastern Mediterranean countries need a holistic approach that transcends traditional energy security concepts. The shift towards renewables, establishing regional energy markets, and enhanced political cooperation are all crucial elements of such an approach. The potential benefits extend beyond energy to encompass environmental sustainability, economic growth and improved international relations. As the region navigates these challenges and opportunities, it is imperative to acknowledge the interconnectedness of energy, the environment, and geopolitics. A progressive approach incorporating renewable energy, fostering cooperation, and addressing underlying political tensions is essential if the Eastern Mediterranean it to secure a sustainable and prosperous future.

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