Insights on EU strategy for building partnerships in Mediterranean energy policy to meet decarbonization goals

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Abstract. With the approval of the RepowerEU plan, the European Union intends to build partnerships to produce mutually beneficial gains by aiming to promote renewable energy and cooperate on green technologies and innovation.
In addition to the increased supply of liquefied natural gas from the United States and Canada, it is necessary to intensify the southern gas transport corridor, formalize political agreements with gas suppliers such as Egypt and Israel to increase natural gas supplies, and boost the energy dialog with Algeria. Then, it is necessary to explore the export potential of sub-Saharan African countries. The shift to an economy less dependent on fossil energy offers significant opportunities beyond the issue of security and energy supply. Indeed, the new European decarbonization goals to rapidly advance the green transition pave the way for a new perspective in geostrategic cooperation in the Mediterranean. For the Mediterranean, geostrategic cooperation could combine economic development and renewable energy production. With this paper, we aim to estimate the energy potential of Mediterranean countries for renewable energy production to engage in more sustainable energy strategies, policies, and systems. We pay particular attention to infrastructural availability and plant capacity. We, therefore, intend to investigate possible synergies to combine energy and environmental policies in line with European climate policies.

Keywords: energy policy, renewables, energy cooperation, green deal

1 Introduction

Recently, European decarbonization goals have been significantly renewed, making a challenging climate change commitment that will lead the European continent to achieve climate neutrality goals by 2050, as stated in the 2050 strategy (Beccarello & Di Foggia, 2023). The transition to climate neutrality is an urgent challenge and an opportunity to build a more sustainable future. All parts of society and economic sectors will play a role in this challenge: we focus on the power sector and industry. The EU

can lead the way by investing in prominent technological solutions aligning action in key areas, including industrial policy, while ensuring social fairness.
This engagement requires a significant cooperative effort within which different geopolitical areas must cooperate and gain mutual benefits. The worsening of the energy crisis following the pandemic period has highlighted the European difficulties in managing the transition path to decarbonization goals in terms of the security of the supply of natural gas, which is the energy source with the lowest environmental impact among fossil fuels and is needed to govern the transition process.
This new energy scenario, unanticipated when the decarbonization goals were launched with the "Fit for 55" package, has clarified that the energy transition path to 2030 cannot be achieved unless decarbonization goals are rethought with energy security goals. However, geopolitical tensions and growing global energy demand are causing a new concept of energy security to emerge (Lambert et al., 2022). This is a broader concept in which the supply of the least environmentally impactful fossil energy source, natural gas, must be integrated with a concept of security extended to the availability and control of the technology chains that will enable the replacement of fossil sources in energy production.
European decarbonization goals can be realized if Europe can promote this technological change while ensuring the centrality of economic development and international cooperation goals.
The issue of industrial development in the area of new technologies for energy production is central both to the European continent and to accelerating the industrialization process of Mediterranean countries while avoiding risks of industrial relocation to other regions.

2 Background

The identification of a common development goal is crucial for geopolitical cooperation
(Kraemer-Mbula, Vaitsas, & Essegbey, 2018). Through inclusive models of peer-to-peer industrial development cooperation, it will be possible to promote the progressive accession of neighboring areas by sharing and promoting synergies on the level of research and innovation within developing an integrated market area of green technologies.
The RePowerEU measure also identifies two main directions among the measures to escape the deepening gas crisis: a strategy to further increase renewable production targets and energy efficiency targets for consumption processes and a strategy of geopolitical diversification of natural gas supply routes (Osička, & Černoch, 2022).
These lines of intervention, to be effective, must not be reduced to the role of emergency and temporary responses but can and must represent the start of a process of inclusive cooperation among all countries that share the objectives of environmental sustainability and can mutually seize the opportunities for economic development arising from a policy for the energy transition. The Mediterranean area presents all the strategic

elements to start a path of cooperation of the European continent with African and Middle Eastern countries that share the geopolitical perimeter.
Regarding natural gas availability, the Mediterranean area has a potential for natural gas availability that places the area eighth in deposits of proven natural gas reserves globally.
The Mediterranean area represents an even more important reservoir for the potential production of renewable sources and green hydrogen, a key energy vector for decarbonizing industrial processes, mainly green hydrogen. Natural gas and hydrogen represent the two basic energy factors for building an energy transition strategy (Mukelabai, Wijayantha, & Blanchard, 2022). In the short term, the availability of natural gas at competitive costs enables the resilience of industrial production in the countries that share the Mediterranean perimeter and could also ensure the affordability of one of the key factors for industrial reshoring of some energy-intensive production (gas and electricity). The analysis aims to assess the economic effects in terms of a development driver of an integrated area that contains the potential to ensure security and affordability with respect to gas. Moreover, contextually, it intends to consider how, on the cooperative level, this competitive advantage can trigger a cooperative pathway in terms of industrial development of new green technologies—in other words, identifying how the development of cooperation dictated by an emergency contingency can be transformed into an opportunity for cooperation and development and leadership in the control of strategic supply chains for producing renewable energy, hydrogen and energy conservation.

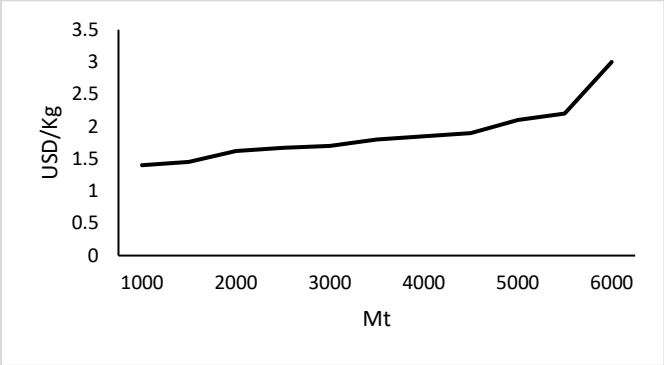
3 Expected results

With this article, we aim to explore the factors that have led to the relocation of production of key green economy technologies to the Far East in recent years to understand what the strategies and benefits of relocation may be.
These factors include the high cost of the energy component in European production costs, labor costs, availability of raw materials, and strong economies of scale in technologically advanced production. By comparing the determinants of these factors within a new potential market constituted by the Mediterranean basin, we believe that it is also possible to look at the important investment program promoted by the European Commission from a different perspective.
In this regard, it is important to guarantee the healthy functioning of the market by promoting fair competition in energy and environmental industries (Di Foggia & Beccarello, 2021). The analysis aims to verify the potential of the Mediterranean perimeter both in terms of energy costs resulting from shared exploitation of Mediterranean resources through an integrated optimization of resources. Of gas first of all but also of renewable energy production potential. Second, the analysis intends to verify whether the labor cost is still a hindering factor in initiating policies of reshoring the production of green technologies. From this perspective, integrated cooperation between the European and Mediterranean countries makes it possible to integrate a relevant and stable

demand in relation to EU decarbonization goals, substantial funds for R&D and competitive labor costs. These are all factors that could prove successful within an inclusive cooperation agreement based on the objectives of sustainability, energy security and affordability, and the development of production capacity with reference to strategic green economy supply chains.

According to the International Energy Agency, the hydrogen costs and supply from dedicated hybrid solar PV and onshore wind in Africa within 200 km of a serviceable coast are expected to grow significantly, as reported in Figure 1.

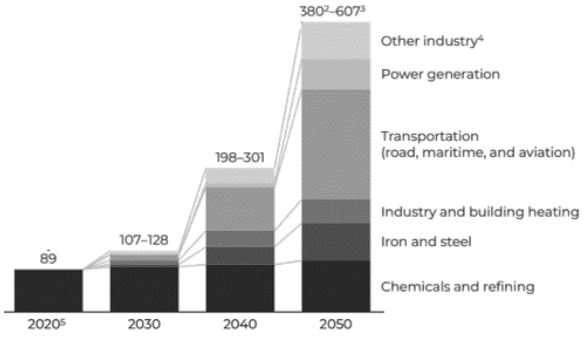
Figure 1. Hydrogen production potential and cost



Source: IEA (2022)

Building 1,230 GW of new photovoltaic installations could achieve an annual solar hydrogen production of approximately fifty million tons by 2035. In detail, the main investment opportunities in the Mediterranean are in three countries: Mauritania, Morocco, and Egypt. In this regard, Figure 2 provides insights into potential demand by sector.

Figure 2. Global hydrogen demand forecasts by sector (Mt of hydrogen equivalent)



Fonte: AGHA (2022).

According to a recent report (EIB, 2022), there are three requirements to enable the production of 50 million tons of green hydrogen in Africa by 2035. First, there needs to be planning, efficient national incentives to mobilize private sector investment. Second, market-based partnerships are needed to enable the purchase and demand for green hydrogen on a national and international scale and increase cooperation to design, finance, build, and operate green hydrogen production, storage, and distribution infrastructure. What mentioned above also seems plausible due to the number of projects currently in discussion or underway (Piebalgs, 2022). Clearly, for the benefits of such projects to happen, it is important to find the right enablers in terms of the ease of doing business and financial stability.

4 Conclusion

The European Union intends to build partnerships to produce energy that are mutually beneficial by aiming to pro-mote renewable energy and cooperate on green technologies and innovation. We underline the fact that it is necessary to intensify the southern gas transport corridor and enhance political agreements among Mediterranean countries. The shift to an economy less dependent on fossil energy offers significant opportunities beyond the issue of security and energy supply. Indeed, the new European decarbonization goals to rapidly advance the green transition pave the way for a new perspective in geostrategic cooperation in the Mediterranean. For the Mediterranean, geostrategic cooperation could combine economic development and renewable energy production. We provide an early-stage appraisal of the energy potential of Mediterranean countries for renewable energy production to engage in more sustainable energy strategies, policies, and systems and possible synergies to combine energy and environmental policies.

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