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ENERGY AND ENVIRONMENTAL SYNERGY: COOPERATIVE STRATEGIES FOR THE EURO-MEDITERRANEAN TRANSITION

Roberto Saba
Anna Pireddu

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Centro Ricerche Economiche Nord Sud
(CRENoS)
Università di Cagliari
Università di Sassari

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www.crenos.unica.it
crenos@unica.it

CRENoS – Cagliari
Via San Giorgio 12, I-09124 Cagliari, Italia
tel. +39-070-6756397

CRENoS - Sassari
Via MURONI 25, I-07100 Sassari, Italia
tel. +39-079-213511

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Energy and Environmental Synergy: Cooperative Strategies for the Euro-Mediterranean Transition

Roberto Saba
CRENoS

Anna Pireddu
CRENoS

Abstract

The European decarbonisation pathway, initiated by the Green Deal and reinforced by RePowerEU and the 'Fit for 55' package, emphasizes the critical role of sustainable energy transition for both the EU and the Mediterranean region. This shift requires rapid adoption of renewable energy, phasing out fossil fuels, and developing green hydrogen and Power to X technologies. Consequently, expanding and advancing electricity infrastructures, such as grids and storage systems, is essential to manage increased electrification and distributed energy production and consumption.

Italy faces significant delays in connecting projects to the national grid, highlighting the need for urgent infrastructural improvements. Investments by TERNA and ENEL aim to enhance grid integration within Italy and between European and Mediterranean transmission systems. Benefits of transnational energy integration include delaying new fossil-fuelled power plants, reducing reserve capacity needs, lowering system costs, and enhancing energy sharing, reliability, and competition.

The EU's strategic pursuit of energy integration is underscored by geopolitical tensions emphasizing the importance of cross-border energy flows and diversified electricity suppliers. The Joint Communication for a 'Renewed Partnership with the Southern Neighbourhood' focuses on low-carbon energy transition, renewable energy, and clean hydrogen. The Mediterranean region's abundant solar and wind resources present significant cooperation opportunities in clean energy, particularly hydrogen production.

Key projects like the ELMED-TUNITA and regional initiatives such as the Eight Country Interconnection Project facilitate energy sharing and stability. Italy's potential as an energy hub in the Euro-Mediterranean network is evident, primarily focusing on electricity and renewable energy sources. Sardinia plays a crucial role with ambitious targets for renewable energy to support the energy transition.

Future energy cooperation between Europe and the Mediterranean will depend on harmonizing legal frameworks, sharing climate goals, and increasing financial resources. Ensuring a 'just' transition, based on equity and solidarity, is essential for sustainable development and balanced growth in the Mediterranean.

Keywords: Decarbonization, Renewable energy, Energy transition, Grid integration, Power to X technologies
Energy interconnection, Transnational cooperation, Mediterranean region.
Jel classification:

Introduction

In the European decarbonisation pathway initiated with the Green Deal, and then further strengthened with RePowerEU and the 'Fit for 55' package, the sustainable energy transition has taken on a central role not only for the European Union, but for the entire Mediterranean basin, hand in hand with a substantial change in the prevailing energy paradigm until 2019. The rapid spread of renewables, by their very nature distributed and non-programmable, the gradual abandonment of fossil fuels, starting with coal, the development of green hydrogen and, more generally, of Power to X technologies, forcefully poses the need for an equally rapid expansion and technological development of electricity infrastructures (grids and storage).

Increasingly, energy infrastructures are the focal point in ensuring the decarbonisation of energy systems, enabling the transition away from fossil fuels to be accelerated.

The new energy paradigm involves the increasing electrification of demand and the fragmentation and distribution of production and consumption centres. This calls for grids that are able to handle seasonal or daily variations, that allow overproduction problems to be resolved by regulating supply and demand, and that favour a better distribution of the energy produced to the areas/points where it is most lacking, while keeping the system balanced and secure.

The major delays, for example, in the connection of projects to the Italian national grid (especially in medium and low voltage) are related to inadequate transmission infrastructure and its level of integration. The ten-year investments planned by TERNA and ENEL go precisely in the direction of fostering ever greater integration of electricity grids in our country and between these and the rest of the European and Mediterranean transmission systems.

Benefits of the Euro-Mediterranean energy network/ Why does Europe have an interest in energy integration with the Mediterranean countries?

By moving from the national to the transnational and transregional level, the problem is further amplified, as territorial cohesion linked to the development of a European and Mediterranean network is the basis for maximising the economic, geopolitical and social benefits of the energy transition, favouring a reduction in costs and ensuring greater security of supply.

Interconnecting the electricity grids of different countries has a number of significant advantages. Chief among them is the possibility of delaying or even avoiding the construction of new fossil-fuelled power plants. This can be achieved by sharing energy through interconnected networks, without compromising the safety and reliability of the system. In addition, interconnection reduces the need for reserve capacity to handle variations in energy demand, thus helping to reduce overall system operating costs. In addition, it allows new power plants to be built in the most cost-effective locations and promotes an overall reduction in environmental pollution. This process has become one of the strategic nodes of EU policies over the years.

Already in 2015, the European Commission with its Communication[1] set out the measures needed to reach the target of 10 % electricity interconnection by 2020, announced by the European Council in 2014. In other words, each member country was required to install energy cables that would allow at least 10 % of the electricity produced to be transported to neighbouring EU countries in order to ensure:

- "*security of supply: improving reliability, increasing service quality and reducing supply interruptions and productivity losses;*
- *lower prices on the internal market: through increased competition and efficiency as well as better and more cost-efficient use of resources;*
- *sustainable development and decarbonisation of the energy mix: enabling the integration of increasing levels of variable renewable energies into the energy grid in a more secure and cost-efficient manner.*"

As we know, this process has accelerated over the years and the war in Ukraine has made cross-border energy flows between European countries even more strategic. Electricity grid operators in the Baltic States have signed an agreement to synchronise with the EU continental grid by February 2025, with the joint withdrawal from contracts with Russian and Belarusian operators scheduled for the summer of 2024. This step is similar to that taken by Ukraine and Moldova, which synchronised their electricity grids with that of continental Europe to ensure the stability of the electricity system during the Russian-Ukrainian conflict. The European Commission emphasised the strategic importance of this synchronisation to diversify electricity suppliers and strengthen energy autonomy.

Cooperation opportunities

On the trans-Mediterranean front, the Joint Communication for a 'Renewed Partnership with the Southern Neighbourhood: A New Agenda for the Mediterranean'[2] states that we must prepare for '*long-term scenarios in which new forms of low-carbon energy gradually replace fossil fuels. To this end, the Commission will propose to partner countries comprehensive initiatives promoting climate-neutral, low-carbon and renewable energy, building on the core elements of the European Green Deal, such as the hydrogen strategy. Promoting investments in energy efficiency and renewable energy and a new focus on clean hydrogen production, including through appropriate regulatory and financial incentives, and regional integration of electricity markets and networks will be priorities*'.

The document points out that '*the Mediterranean region hosts some of the best solar and wind resources in the world, offering unparalleled opportunities for cooperation in clean energy, with hydrogen production as a new strategic priority*'. Therefore, '*future cooperation will have to be adapted to the different endowments and needs of the partners and focus on certain priority objectives: i) massive deployment of renewable*

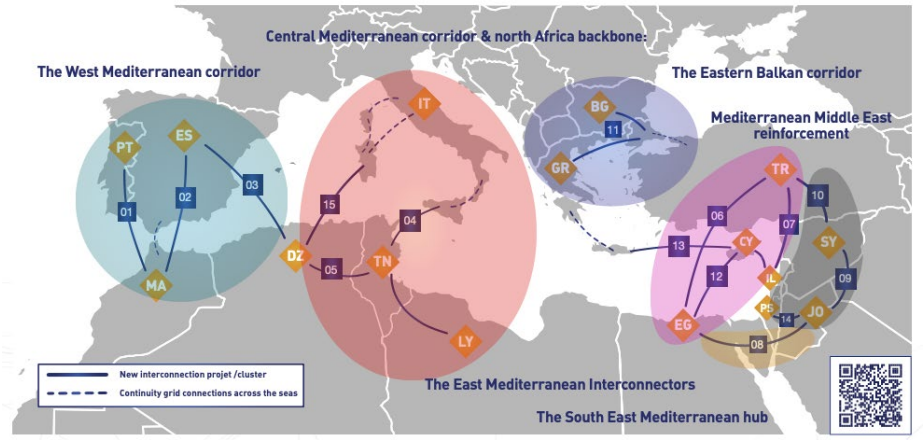
[1] **Communication from the Commission to the European Parliament and the Council**, *Reaching the 10 % electricity interconnection target - A European electricity grid ready for 2020*, COM(2015) 82 final of 25 February 2015

[2] **Joint Communication from the European Commission and the High Representative of the Union for Foreign Affairs and Security Policy to the European Parliament**, the **Council, the European Economic and Social Committee and the Committee of the Regions**, *Renewed partnership with the Southern Neighbourhood: a new agenda for the Mediterranean*, JOIN(2021) 2 Final of 9/02/2021

energy and clean hydrogen production, contributing to the aspiration of achieving an electrolyser capacity of at least 40 gigawatts in the EU neighbourhood by 2030; ii) stronger interconnection of electricity systems [...]'.

In particular, the Joint Communication expressly refers to the '2020 Mediterranean Electricity Interconnection Master Plan', which identified 15 potential interconnection projects[3].

Figure 1 Central Mediterranean Corridor and North African Ridge



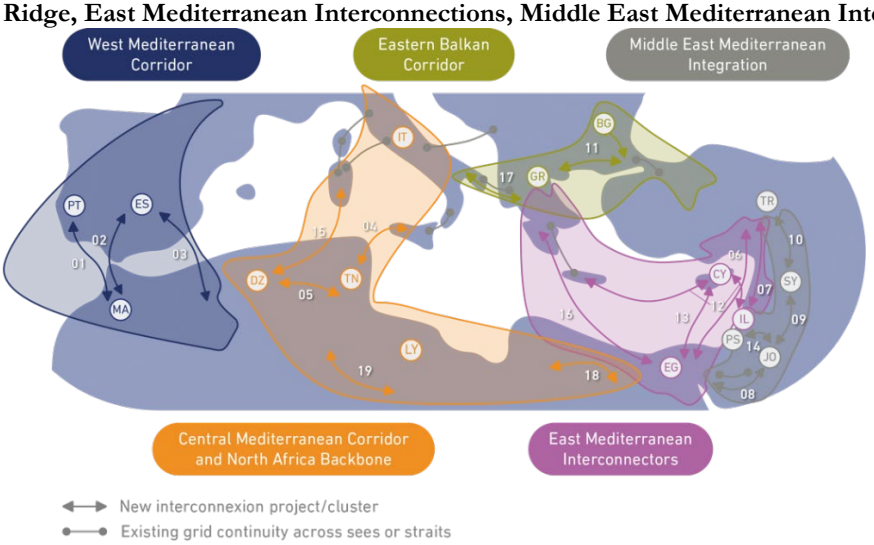
Source: MED-TSO, Mediterranean Masterplan 2020

The subsequent Master Plan updated to 2022[4] includes the evaluation of 19 interconnection projects, promoted by Mediterranean Transmission System Operators (TSOs) from 16 different countries and 5 different corridors, and illustrates the network development perspectives until 2030.

[3] **Mediterranean Transmission System Operators (MED-TSO)**, *The Mediterranean Master Plan 2020*, January 2021

[4] **Med-TSO**, *Masterplan of Mediterranean Interconnection 2022 Edition*, 2022

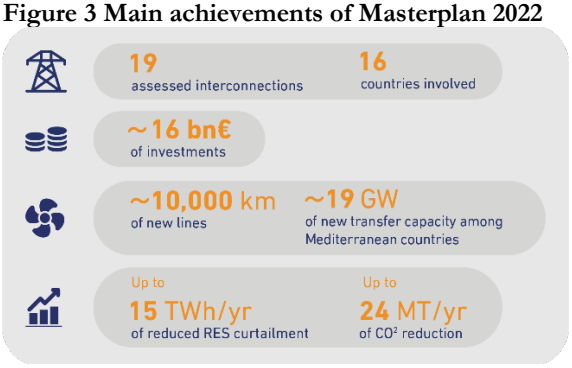
Figure 2 West Mediterranean Corridor, Central Mediterranean Corridor and North African Ridge, East Mediterranean Interconnections, Middle East Mediterranean Integration



Source: MED-TSO, Masterplan of Mediterranean Interconnections, 2022 Edition

The Master Plan envisages investments of around 16 billion euro and the construction of 10,000 km of new lines, for a total new transfer capacity between the Mediterranean countries involved of 19 GW.

Figure 3 Main achievements of Masterplan 2022



Source: MED-TSO, Masterplan of Mediterranean Interconnections, 2022 Edition

Moreover, the scheduled new connections are part of a network integration process that, although still far from being fully realised, already sees a number of interconnected areas. The connection between Algeria and Tunisia dates back to 1952 and in 1979 the same was done between Morocco and Algeria. In spite of some issues that limited the success of these projects, this contributed to the establishment of other larger-scale projects that now encompass the entire region.

The Eight Country Interconnection Project EIJLLPST concerns the interconnection of the electricity grids of Egypt, Iraq, Jordan, Libya, Lebanon, Palestine, Syria and Turkey (this network includes the connection to Kuwait).

The Maghreb Countries Interconnection Project, grouped in COMELEC, concerns the connection Libya, Tunisia, Algeria Morocco.

Morocco in turn is connected to Spain via submarine cables and the two countries exchange electricity on the basis of bilateral trade agreements. Until 2016, the connections were mainly used to export energy from Spain to Morocco in order to meet part of the demand on the Moroccan grid and stabilise it. However, in recent years and as a result of Morocco's large investments in renewable energy plants (wind and solar), the connection is now mainly used to export energy from the Moroccan grid to the Spanish grid. A further expansion, together with a second cable with a capacity of 1 GW between Morocco and Portugal, is expected to come into operation by 2026.

The Gulf Cooperation (GCC) Power Grid Interconnection project connects the grids of Kuwait, Saudi Arabia, Bahrain, Qatar, UAE and Oman.

The Egypt-Saudi Arabia interconnection project, for which a contract worth $1.8 billion was signed in 2021, is expected to bring numerous economic and political benefits to both countries.

Firstly, Egypt, which has often faced power outages, especially in coastal areas on the Red Sea, sees the project as an opportunity to improve the reliability and stability of its national grid. Joint management of energy capacity would make it possible to balance electrical loads, thereby optimising the distribution of energy to both the public and private sectors. Faced with this challenge, Cairo has announced plans to upgrade electricity lines not only with countries in the region, such as Jordan, Sudan and Libya, but also with some European countries, including Greece and Cyprus.

For Saudi Arabia, the memorandum of understanding signed with Egypt is part of the Vision 2030 executive programme, an economic and social development plan that aims, among other objectives, to boost the non-oil energy sector. Saudi Arabia has the ambition to create the largest electricity grid in the MENA region through energy interconnection projects. This would allow Riyadh to become a regional centre for electricity supply, thus contributing to the realisation of Saudi ambitions in the context of Vision 2030. At the same time, the country sees energy interconnection projects as a way to consolidate its position in the Red Sea, nurturing new ambitions in an increasingly relevant geostrategic context in global dynamics.

The Arab Fund for Economic and Social Development (Arab Fund) plays an important role in supporting and financing integration processes not only in Arab countries but also in some African countries such as the Mauritania - Senegal - Mali interconnection. Within this framework, there are two projects that would involve Italy, and Sicily and Sardinia in particular.

The first, and most advanced, is the ELMED-TUNITA project involving the construction of an electricity cable between Italy and Tunisia, developed by TERNA and the Tunisian company STEG. The project, which should be completed by 2028, has the full support of the governments of Italy, Tunisia, France, and Germany, as well as the European Commission, which has included the interconnection in the list of Projects of Common Interest (PCI) and recently awarded Terna and STEG a Connecting Europe Facility (CEF) grant of €307 million.

Figure 4 MMP 2022 - Project No. 4: Italy Tunisia (IT-TN)

Source: MED-TSO, Masterplan of Mediterranean Interconnections, 2022 Edition

The second would consist of a new interconnection between Algeria (Cheffia) and Italy (Cagliari Sud) through an HVDC submarine cable. The HVDC interconnection will have a capacity of 1000 MW and a total length of about 350 km.

Figure 5 MMP 2022 - Project No. 15: Algeria - Italy (DZ-IT)

Source: MED-TSO, Masterplan of Mediterranean Interconnections, 2022 Edition

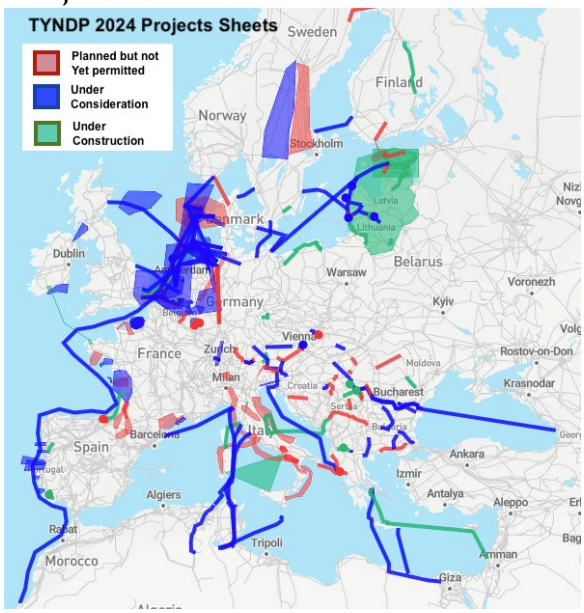
This project is "*an exploratory study proposed by Sonelgaz that is not currently linked to any official planning activity by the TSOs involved. In fact, this project is not included in any of the respective National Development Plans of Sonelgaz and Terna*"[5] .

This scenario is confirmed in the draft list of electricity infrastructure projects[6] to be evaluated in the next edition of the Ten-Year Network Development Plan (TYNDP). The list is the result of a two-year process, which began with the development of scenarios of the European electricity system as it might look in 2030 and 2040 by the European Network of Transmission System Operators for Gas (ENTSOG) and the European Network of Transmission System Operators for Electricity (ENTSO-E).

[5] **Med-TSO**, *Masterplan of Mediterranean Interconnection* 2022 *Edition*, 2022, pg.50

[6] **ENTSOE,** *176 pan-European electricity transmission projects and 33 storage projects will be assessed in TYNDP 2024*, 4/03/2024 https://www.entsoe.eu/news/2024/03/04/176-pan-european-electricity-transmission-projects-and-33-storage-projects-will-be-assessed-in-tyndp-2024/

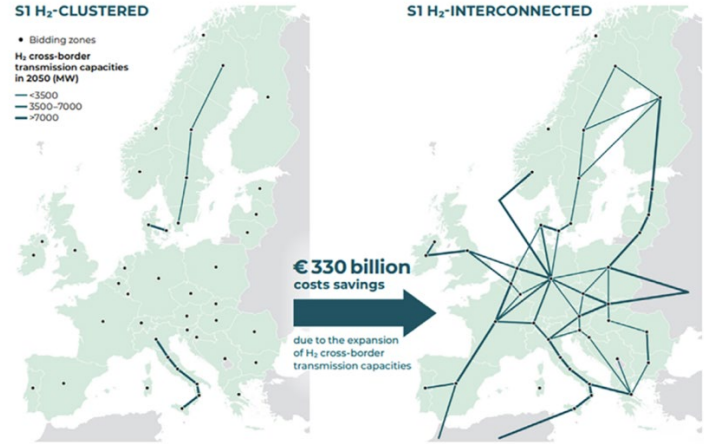
Figure 6 TYNDP 2024 Project Sheets



Source: https://tyndp2024.entsoe.eu/projects-map

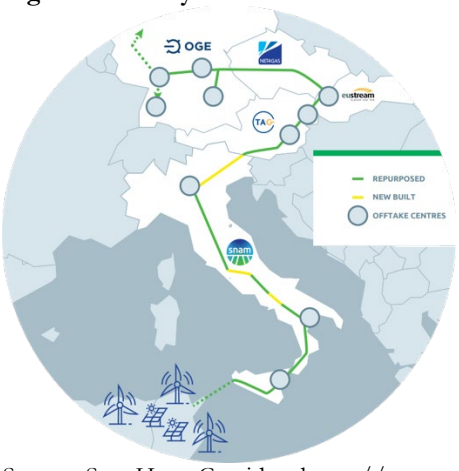
In the same perspective, it is also worth to mention the 'European Hydrogen Backbone' (EHB), the initiative to create an integrated pan-European hydrogen network by 2030. The 20 November 2023 report highlights a series of 40 real projects managed by the Transmission System Operators (TSO) members of the EHB, representing 31 500 kilometres of hydrogen pipelines scheduled to be in operation by 2030.

Figure 7 A comparison of the cluster approach and the interconnected hydrogen network approach in scenario S1



Source: European Hydrogen Backbone, Implementation Roadmap - Cross Border Projects and Costs Update, November 2023

Figure 8 SunsHyneCorridor



Source: SunsHyne Corridor, https://www.sunshynecorridor.eu

In this context, the study sponsored by the European Commission, DG Energy, METIS 3 Study S4. *Europe's energy infrastructure configurations : a 2030-2050 Outlook*[7] aims to shed light on the evolution of the trans-European energy infrastructure during the transition period 2030-2050, including the electricity grid, hydrogen networks (including the conversion of natural gas networks) and LNG terminals. The development of these energy networks is analysed according to two energy demand projection scenarios: a) ELEC+ scenario, in which the system relies mainly on electricity, and b) H2+ scenario, in which hydrogen plays a more significant role. The main findings of the study are summarised below.

Expansion of the hydrogen grid emerges as a more economical solution than building new electricity transmission lines. Consequently, optimum cost-effectiveness is achieved by producing hydrogen through electrolysis in Member States with high-efficiency renewable energy sources, rather than transporting it to remote locations for electrolysis.

The period leading up to 2040 is characterised by an exponential increase in transmission capacity requirements, driven by the rapid penetration of renewable energy resources and growing electricity demand. In contrast, the need for additional cross-border electricity transmission capacity decreases significantly after 2040.

In 2050, a 17% reduction in the volume of cross-border electricity trade is expected compared to 2040 levels. The main drivers of this trend are, firstly, the more even distribution of installed renewable energy capacities among Member States and, secondly, the greater contribution of flexible assets (e.g. electric vehicles and heat pumps) to meet system flexibility needs in 2050.

The EU hydrogen strategy requires a significant expansion of infrastructure to meet demand. The study estimates that about 25 GW of additional hydrogen pipeline capacity will be needed annually from 2030 to 2040, increasing to 40 GW annually in the following decade, from 2040 to 2050. The transition from natural gas to hydrogen in the EU energy landscape

[7] **METIS 3 Study S4** *Europe's energy infrastructure configurations : a 2030-2050 Outlook,* European Union, January 2024

will be facilitated by the strategic conversion of existing gas pipelines. About 30% of the additional hydrogen pipeline capacity needed between 2030 and 2040 and 15% between 2040 and 2050 is expected to come from these converted pipelines. This change is a response to the expected 70% decrease in demand for natural gas in the two decades from 2030 to 2050.

Most of the converted hydrogen transport pipelines are identified among those connecting Norway to EU Member States located further south (Germany, the Netherlands, Belgium, the UK), as Norway is expected to go from being a major gas exporter in 2030 to a major hydrogen exporter in 2050. It has been found to be economically advantageous to produce hydrogen close to areas with high renewable energy yields (e.g. Spain, France, Denmark) and transport it to areas with high hydrogen demand (e.g. Germany, Poland) via pipelines instead of building electrolysers closer to H2 demand locations. Consequently, the scenario predicts a higher investment in hydrogen pipelines than in electric transmission lines, especially beyond 2040. This is mainly due to the relative cost difference between investments in hydrogen pipelines and electricity transmission lines.

Hydrogen imports from the Maghreb, particularly Morocco, in 2040 would require the corridor linking the Iberian Peninsula to France and Germany to be expanded to supply hydrogen to European consumers further north. On the other hand, if hydrogen imports from the Maghreb were to be limited for security of supply reasons, part of the hydrogen production would have to shift to northern Europe (Denmark and the Baltic States), necessitating additional investments to extend the interconnections between these northern European countries and Member States such as Germany and Poland.

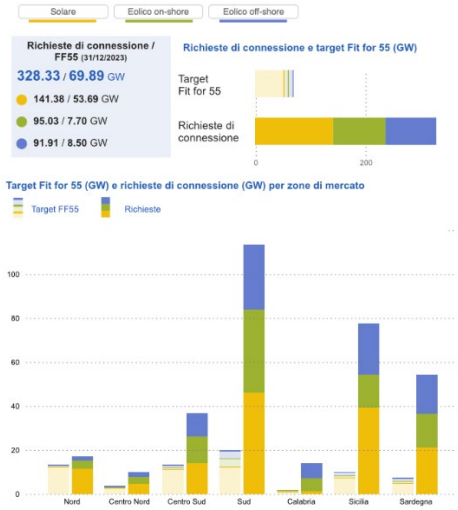
While the analysis in this study offers valuable insights into new infrastructure requirements from a cost optimisation perspective, it must be emphasised that it adopts a supranational planning perspective, which contrasts with the reality in which most planning decisions are still made at the Member State level. Nevertheless, it provides valuable insights into the creation of a common vision of Europe's energy infrastructure.

The role of Italy

In the outlook provided, the role Italy could play as an energy hub of the Euro-Mediterranean energy network is evident, but not focused on gas, as is emerging from the debate on the so-called 'Mattei Plan', but rather on electricity and RES. As far as hydrogen is concerned, "*the use of pipelines for transport [...] is still to be verified. Indeed, at present only small quantities of hydrogen can be 'blended' (blending) and it is unlikely that current gas requirements will match future hydrogen volumes. It is also very likely that the electrolysers required for hydrogen production will be distributed within a radically different logistics system from the current gas system*'[8] . It is clear from TERNA data that the pursuit of the 'Fit for 55%' targets to 2030, with an increase in Renewable Energy Systems (RES) capacity estimated at around 70 GW against connection requests of 328 GW (December 2023 data), requires major investments in the transmission grid and interconnections with Europe and the Mediterranean.

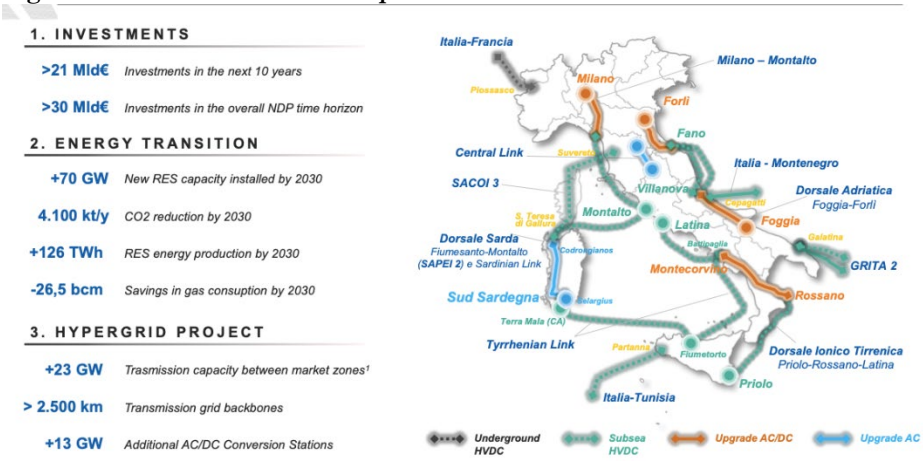
[8] **ECCO - The Italian Climate Change Think Tank**, *Italy, a renewable energy hub*, 1/02/2023

Figure 9 Objectives of the policy scenario with respect to connection applications



Source: TERNA, E-Connextion the map of renewable connections, https://www.terna.it/it/sistema-elettrico/rete/econnextion

Figure 10 Italian National Development Plan 2023-2032



Source: Enrico Maria Carlini, Head of Power System Planning and Permitting, TERNA, Wind Offshore Integration, 9Th Energy Infrastructure Forum, Copenhagen, 13 June 2023

Indeed, it should not be forgotten that the decarbonisation of Italy and Europe as a whole cannot be achieved without a similar process at the level of the entire Mediterranean region. The scenario of the progressive electrification of final energy consumption, the rapid growth of wind and solar energy, should in fact lead to a reduction in demand for gas and oil imports as early as 2030[9] , which will impact the countries of the North African region despite the expected increase in energy consumption estimated for this area. These, on the other hand,

[9] **International Energy Agency (IEA)**, *World Energy Outlook*, October 2023

with their high potential for solar and wind energy, could evolve by developing production from renewables and becoming a platform for electricity production and exchange, contributing on the one hand to the regional transition, with a view to sustainability, and on the other hand, fostering a better balance of energy distribution in the area.

The International Energy Agency (IEA) in its latest World Energy Outlook points out that '*Clean electrification, efficiency improvements and the shift to lower or zero carbon fuels are important levers available to emerging and developing economies to achieve their national energy and climate goals. Preparing for the achievement of these targets, including net zero emission targets, has significant implications for the future. [...] In sub-Saharan Africa, meeting several national energy and climate targets means that 85 % of new power generation facilities by 2030 will be based on renewable energy.*" Hence the IEA's warning that '*Especially in the current times of tension, governments must find ways to safeguard cooperation on energy and climate, including by adopting a rules-based system for international trade and encouraging innovation and technology transfer. Without cooperation, the possibility of limiting the global temperature increase to 1.5 °C will be lost. The prospect of security of energy supply will also appear risky if we lose the advantages of interconnected, well-functioning energy markets to overcome sudden shocks*'.

The role of Sardinia

As can easily be seen from the reported figures on the potential development of the European and Mediterranean transmission grid, the role of Sardinia in the context of the Euro-Mediterranean energy transition will be closely tied to two factors:

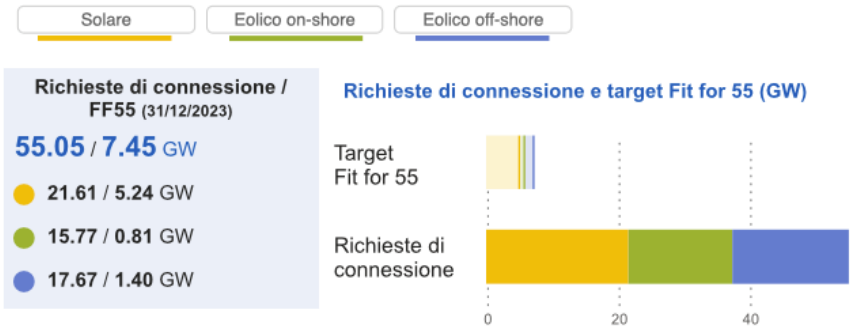
1. Development of the transmission grid;
2. Contribution to the national and European energy transition as a whole.

With respect to the first point, the construction of the Tyrrhenian Link and the renovation/upgrading of SACOI 3, envisaged in the National Integrated Energy and Climate Plan (NIPEC), is already underway. These, together with the development of new electricity storage capacity, both *utility-scale* and distributed, will help improve European market integration and interconnection with the national grid to safely manage the growth of non-programmable renewable generation and ensure greater regulation capacity, accompanying the *phase-out* from coal (now assumed for 2028).

With regard to the second point, based on the Fit for 55% targets drawn up by TERNA, Sardinia should have a target of 7.45 GW (5.24 GW from solar, 0.81 GW from onshore wind and 1.40 GW from offshore wind) against connection requests of 55.05 GW (17% on a national basis) as of 31/12/2023[10] .

[10] **Terna**, *Econnextion: the map of renewable connections*, https://www.terna.it/it/sistema-elettrico/rete/econnextion

Figure 11 RES Connection Requests vs Fit for 55 Targets for Sardinia



Source: TERNA, E-connextion the map of renewable connections, https://www.terna.it/it/sistema-elettrico/rete/econnextion

It is within this range that Sardinia's (current and potential) role should be defined in the context of the energy transition, not only national and European, but Mediterranean. Even if it is not discussed in detail in this document, it could be said that we are at a crossroads: choose to 'settle' or decide to become an energy hub and pursue common goals. And it is within the framework of these 'common objectives', in their extension, that economic and social benefits should also be ensured, stemming precisely from our region's contribution to cohesion at national and Euro-Mediterranean level.

Over and above the strong criticism of a regional energy transition that has undoubtedly been pursued in recent years in a somewhat confused way, to say the least, it is clear that becoming an energy hub requires a different level of planning and inter-institutional collaboration. This should be able to develop projects in which not only the technical element is considered, but also and above all consistency with regional, national and supranational development strategies, and with the impacts (environmental, economic and social) that these initiatives are intended to have.

On the other hand, it is clear that the evolutionary scenario briefly described for the Mediterranean region and for Europe as a whole places Sardinia, whose energy production already exceeds regional demand, in a favourable position to become a renewable platform for electricity production and trade.

Conclusions and future prospects

The framework shortly described provides a clear perspective for enhanced energy cooperation between Europe and the countries of the North African and Middle Eastern Mediterranean area. This is certainly bound to translate into greater investment, more intense technological exchanges and strengthened multilateral collaboration (the Mattei Plan seems to

be heading in this direction, albeit with lights and shadows).[11] Future prospects will certainly be influenced by a number of factors[12] such as:

- harmonisation and removal of legal and regulatory barriers between states and areas;
- the sharing of climate and operational targets in order to avoid distortions that could result from the offshoring of fossil fuel production to North Africa
- the increase of financial resources for cooperation and the effective activation and finalisation of existing financial instruments.

But one point remains inescapable: the green transition, and in particular the energy transition, must be '*just*', based on principles of equity and sharing.

The then European Commissioner Frans Timmermans, at the presentation of the '*Just Transition Mechanism*', spoke of the need to '*show solidarity with the regions most affected [by the change] in Europe, including the coal regions, to ensure that the Green gets the full support of all and can become a* reality'[13] . This is even more so for the Mediterranean countries, which are called upon to contribute to the energy transition that must be fair, shared and guarantee balanced growth prospects. "*Ensuring that the colonial wrongs of the past are not repeated will be crucial if the global energy transition is to be truly just for all people and* countries"[14] .

[11] **Openpolis**, *Light and Dark of Italian Cooperation, 4. Cooperation with Africa and the Mattei Plan*, 15/02/2024 https://www.openpolis.it/esercizi/la-cooperazione-con-lafrica-e-il-piano-mattei/

[12] **Cassetti G. - Annunziata F.**, *Integrated electricity grids in the Mediterranean? A bridge for energy cooperation between Europe and North Africa*, ECCO - The Italian Climate Change Think Tank, 4/12/2023 https://eccoclimate.org/integrated-electricity-grids-in-the-mediterranean-a-bridge-for-energy-cooperation-between-europe-and-north-africa/

[13] **European Commission**, *The Mechanism for a Just Transition: Leaving No One Behind*, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_it

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