The current energy situation in Southern and Eastern Mediterranean countries is characterised by a rapid increase of energy demand, low energy efficiency and low domestic energy prices due to universal energy subsidies. In short, the current energy situation does not appear sustainable and poses several risks to the prospects of socio-economic development of the region. The Fondazione Eni Enrico Mattei and Bruegel organized on 31 May - 1 June, 2016 an high-level and close-door brainstorming workshop to analyse this situation: the 'Euro-Mediterranean Energy Talks'. This FEEM Press summarizes the key results of this initiative, which not only looked at the current situation but also moved investigated how to formulate a new Euro-Mediterranean energy cooperation scheme to enhance the sustainability of the regional energy system.

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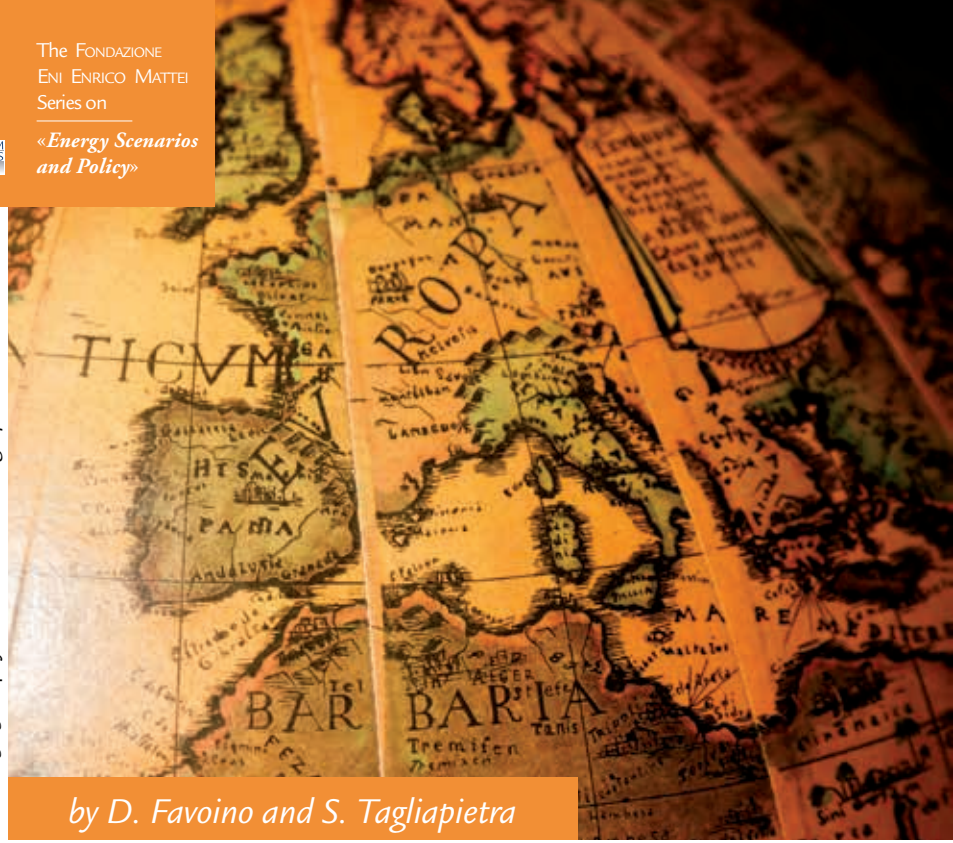

by D. Favoino and S. Tagliapietra

Bruegel-FEEM Euro-Mediterranean Energy Talks

Highlights

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The **Fondazione Eni Enrico Mattei (FEEM)** Series on

«*Energy Scenarios and Policy*»

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Foreword

The *Energy Scenarios and Policy* FEEM Press series publishes the output of the *Energy and Scenarios and Policy* (ESP) research programme of Fondazione Eni Enrico Mattei. The ESP programme aims to carry out interdisciplinary, scientifically sound, prospective and policy-oriented applied research, targeted at political and business decision makers.

This aim is achieved through an integrated quantitative and qualitative analysis of energy scenarios and policies. This innovative and interdisciplinary approach puts together the major factors driving the change in global energy dynamics (i.e. technology, economy, geopolitics and sociological aspects).

The ESP programme applies this methodology to a wide range of issues (energy demand and supply, infrastructures, financing, market analyses, socio-economic impacts of energy policies) that are explored from economic, geopolitical and institutional perspectives.

The **Fondazione Eni Enrico Mattei (FEEM)** is a research institution and a think tank, whose mission is to foster, through studies, research, scientific dissemination, information and training, a better understanding of sustainable development, and to improve the quality of decision-making in public and private spheres. FEEM pursues its mission by promoting excellence, scientific rigor, the value of ideas and innovation in all its activities in collaboration with numerous partners that form an increasingly wide international network.

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About the Bruegel-FEEM Euro-Mediterranean Energy Talks

In addition to geopolitical instability, countries located along the Southern and Eastern shore of the Mediterranean face a range of pressing socio-economic challenges, including solving the problems of poverty and high levels of structural unemployment, in a context of fast demographic growth. Access to energy is essential to enable socio-economic development. The current energy situation in Southern and Eastern Mediterranean countries is characterised by a rapid increase of energy demand, low energy efficiency and low domestic energy prices due to universal energy subsidies. In short, the current energy situation does not appear sustainable and poses several risks to the prospects of socio-economic development of the region.

With this event, Bruegel and the Fondazione Eni Enrico Mattei (FEEM) aimed to investigate how the EU could formulate a new cooperation with Southern and Eastern Mediterranean countries to enhance the sustainability of the regional energy systems. In particular, this exercise was carried out with the specific aim to provide a set of policy recommendations to EU policy makers currently involved in this area, both within the new Energy Union framework and the new European Neighbourhood Policy.

The closed-door brainstorming workshop was held under the Chatham House Rule and was composed of a group of 30 stakeholders representative of both the Northern and South-Eastern shore of the Mediterranean, and also representatives of the various institutions dealing with regional energy issues (energy companies, national institutions, international institutions, financial institutions). The event took place at Bruegel premises in Brussels, on 31 May - 1 June 2016.

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Introduction

Energy plays a key role in the cooperation between the European Union (EU) and the Southern and Eastern Mediterranean countries, being the latter endowed with strategic resources like gas and oil and the former in need of solving the issue of energy security. These policies constitute only a part of neighbourhood policies adopted by the EU, which have been too much Eurocentric in the past and mainly based on regional cooperation rather than bilateral. Therefore, this calls for a new approach to deal with our neighbours on the Southern and Eastern shores of the Mediterranean Sea, based on the understanding of the challenges for cooperation, the needs and priorities of countries involved and taking into account the synergies of EU and Mediterranean countries altogether. Obstacles to cooperation are represented by the terrorist threat, the migration pressure and by the number of hidden and open conflicts in the region. In this framework, the closed-door workshop organised by Bruegel and the Fondazione Eni Enrico Mattei (FEEM) elaborated policy recommendations to build a more stable cooperation between the two regions.

From a general point of view, dialogue is needed between the parties for a common understanding of issues: the approaches and priorities of EU and Mediterranean countries are different, and the partnership should not involve the export of an EU model of policy-making to the Southern and Eastern shores of the Mediterranean Sea. Moreover, pragmatism, rather than ideological approaches, would work better in building the cooperation.

As far as natural gas is concerned, the complementarity

between the two shores of the Mediterranean is clear and represents, since decades, the key element of regional energy cooperation. The EU continues to have a great interest in cooperating on natural gas with Southern and Eastern Mediterranean countries, particularly considering the re-invigorated quest for supply diversification in the framework of the Energy Union. However, this cooperation might be put at risk by the difficulties of Mediterranean gas producers to sustain production and exports in the future. Algeria faces difficulties to export gas due to stagnant production levels, which are the result of both management issues of the hydrocarbons sector and strongly increasing domestic demand also due to the persistence of universal energy subsidies. Libya faces difficulties to export gas due to the ongoing civil war. Egypt even turned from exporter to importer due to the same problems of Algeria, just much more acerbated. In this framework, countries like Algeria and Egypt should cooperate with EU institutions and companies in the reform of the governance of their gas markets, in order to re-attract the investments required to ensure future production and export levels through the existing and well-established infrastructure. As far as the Eastern Mediterranean case is concerned, the recent discovery of the Zohr gas field in offshore Egypt can reshape the geoeconomics and geopolitics of regional gas, paving the way for the creation of an Eastern Mediterranean energy hub able to combine the gas resources of Egypt, Israel, Cyprus and potentially Lebanon for the regional use but also for the export to Europe. The EU should support such development, by providing political support to resolve the regional geopolitical tensions currently preventing this potential cooperation.

As far as renewable energy and energy efficiency are concerned, the two shores of the Mediterranean also present strong complementarities. Investment in sustainable energy solutions in Southern and Eastern Mediterranean countries are already occurring, but much larger flows are needed in order to

sustain the strongly increasing regional energy demand. While Southern and Eastern Mediterranean countries present huge renewable energy and energy efficiency potentials, the EU has a great endowment of capital and leads the path in terms of renewable energy and energy efficiency technologies. Greater European investments in the Southern and Eastern Mediterranean sustainable energy field would then represent a win-win solution for both sides. However, obstacles for European energy companies' investments in renewables and energy efficiency solutions in the Mediterranean region are the regulatory and the financing frameworks. To overcome these barriers, the EU could export skills and knowledge to Southern and Eastern Mediterranean countries to improve technology capabilities and human capital in the private sector, and set commitment devices for firms in order to attract foreign investments. Moreover, the EU might support the scale up of private investments in the region through its public finance institutions. Long-term public investors such as the European Investment Bank, the European Bank for Reconstruction and Development, Germany's Kreditanstalt für Wiederaufbau, Italy's Cassa Depositi e Prestiti and France's Caisse des Dépôts et Consignations, are already financing renewable energy projects in the region. However, the actions of institutions are not coordinated, and they avoid taking risks and fail to use their leverage to make the energy sector overall more attractive to investors. So the impact of their investments is essentially limited to the financing of pilot projects. The EU at its highest level should take the political decision to coordinate the North African activities of these public long-term investors, to enable economies of scale and stronger leverage.

Last but not least, a crucial – interdisciplinary – policy recommendation should be outlined: regional cooperation could develop only in presence of enhanced trust between countries on the two shores of the Mediterranean. And this trust can only be built by taking into account diversities and peculiarities of each country.

1. The Mediterranean Geopolitical and Macroeconomic Outlook

The Southern and Eastern Mediterranean represents a subset of the wide Middle East and North Africa (MENA) region, which is bordered by the Moroccan shores on the Atlantic Ocean to the West and Iran to the East, and includes the countries located in the Arabic peninsula. The MENA region has a GDP equal to the one of Germany, but is growing three times faster than Germany itself. This parallelism outlines the importance of the MENA markets for Europe. The region is characterized by huge diversities in terms of history, culture and social dynamics, which are fully reflected in the economies of the countries. The general cliché regarding the region is its poorness, which is proven to be an incorrect claim in light of the diversity of wealth conditions among countries in the region.

However, three generalisations regarding the MENA region are not completely wrong:

(i) Since 2012, a massive deterioration in the economic performance of all countries has taken place, bringing current account deficits, high levels of inflation and issues in the labor market;
(ii) The drivers of the worsening in economic performance are mostly identifiable with political dynamics: wars, terrorism and internal conflicts have affected also the most stable economies of the region;
(iii) The longer the oil price stays low, the more it will bring the transformation of the economies and the implementation

of reforms to boost the performance, having this commodity a key role for countries in the MENA region.

The changing role of the United States (US) in the geopolitical outlook of the region is having huge consequences, with local powers becoming stronger, being Iran, Israel and Saudi Arabia suited examples, and external actors like Russia and Turkey gaining more weight. This has also led to the rise of Daesh, opening the doors to flows of refugees towards Europe and spreading terror worldwide. As the global economy goes towards consolidation, a geopolitical vacuum of this type makes it difficult for the MENA region to hope in the occurrence of political and economic stabilization common to all the countries, which would more likely have a diversified future rather than a common path to follow. Of course, the region is responsible for its own problems, but it is also true that it is the scenario of many dynamics between external countries and that powerful exogenous shocks affected the region in the past eight years. Despite the huge diversity in characteristics of countries in the MENA region, an homogenous challenge can be identified: building the incomplete road towards integration in the global economy, by solving issues with fiscal policies, achieving flexibility of exchange rates, learning how to manage expectations.

Focusing on the Mediterranean region, differences between countries are still huge, with net importers of oil having a better economic performance than net exporters and being the Western side more cooperative with European countries, while Eastern Mediterranean countries are highly unlikely to cooperate between themselves and are marked by political conflicts and wars. Even in the more prosperous Western side of the region, there is an unsolved frozen conflict between Algeria and Morocco, and a civil war in Libya, which are all factors hindering cooperation between countries in the region. International Monetary Fund (IMF) programs are currently helping some countries in the region, and Morocco, with a 3.5% growth in gross domestic

product (GDP) and flowing foreign direct investments (FDIs) is an example. The country managed to reform its subsidy system and it is recovering from the large fiscal deficits which affected the economy since the beginning of the Arab spring.

Moreover, it is possible to note a larger number of similarities of this area with European countries. First, the history unifies the two regions, as the Mediterranean Sea had been the centre of the civilized world for centuries. Second, Europe and Mediterranean countries share low growth prospects, which imply similarities in the agenda for structural reforms.

However, also three big differences emerge:

(i) Despite the small difference in population size, economic performance and outcomes of the two regions are different;
(ii) Institutions in Southern Mediterranean countries are not very similar to European institutions, leading to a large difference in income levels as well;
(iii) The European area is characterized by a high degree of regional integration from a political and economic point of view, while the same cannot be said for the Mena region, and not even for the smaller Southern Mediterranean area.

For these reasons, a dialogue region-to-region is unlikely to be implemented easily, and for European countries it is more fruitful to proceed with bilateral cooperation and deal with countries in which progress is easier to achieve. It is also true that the EU has not given enough attention to the cooperation with Mediterranean countries, and neighbouring policies are at a dead point. The Eurocentric attitude towards neighbouring policies, a general shyness of EU institutions in building a dialogue with the Mediterranean region as a whole together with the incapability of Europe to gain a role of leadership in the current geopolitical scenario to fill the vacuum left by the US, are

the main catalysers of a non-existing cooperation between the two regions, with bilateral agreements between countries being the only real form of relationship between the two shores of the Mediterranean Sea.

Hence, how can progress be made in building the Euro-Mediterranean cooperation? Indeed, leaders on both sides should look at common areas of interest, namely migration policies and energy policies. However, it is important to point out that things are currently changing, with French, Italian and Spanish leaders in the EU trying to change the approach towards the Southern neighbours and calling for a re-focus on the Euro-Mediterranean cooperation. There is a big potential for energy cooperation in the region, which could also help to bring political stability in the area if correctly carried out. A number of European companies are active in the Northern African gas markets as well, and the infrastructure for gas transportation, even if not fully exploited, is the result of investments in the region and bilateral cooperation, for example between Italy and Algeria. The discovery of new natural gas sources in Egypt, Lebanon and Israel is also an interesting development, as it increases the potential for cooperation, in particular in light of the EU's quest for gas supply diversification. In order to increase FDI flows and the presence of European firms in the Mediterranean region, improving trust towards the institutions is crucial, and this can be done by increasing transparency, improving the regulatory framework and setting anti-corruption laws.

2. The Euro-Mediterranean Natural Gas Cooperation

The MENA region, holding about 50% of proved natural gas reserves in the world, constitutes the richest region in terms of endowment of the commodity worldwide. In the Mediterranean region itself, two are the key countries to be considered when discussing natural gas markets: Algeria and Egypt.

Algerian gas exports: a declining business?

Natural gas production in Algeria is currently stagnating, while domestic demand is strongly increasing. The result of this equation, which is of course unfavourable to gas exports, casts doubts about the emergence of a potential "Egypt syndrome" in the country's gas industry. Strong policy responses are needed to improve Algeria's gas export outlook. Until recently, the government has only focused on the supply side, with a poor outcome: the 2013 amendments of the hydrocarbon law failed to meet expectations, while the shale gas initiative has been blocked by anti-fracking protests. Possible solutions are identifiable in a demand policy response, which is on the government agenda, and in an ambitious renewables program, which however continues to lack effective and transparent policy tools.

On the demand side, gas consumption has been growing at 5.2% rate per year since 2004, and price and subsidies reforms that the government is likely to adopt soon are too late to change the trend in the medium term and relent the consumption. Therefore, in order to face the issue Sonatrach should focus

investments on the upstream level of the production chain, including the declining mature fields in its scope. However, the shrinking of financial resources and an uncertain investment climate pose challenges to Sonatrach's projects.

A big issue for gas producers is represented by the indexing of the gas price in long-term contracts on the price of oil: because of the declining oil price over time since 2014, gas producers take much more risk, and in the long run there would be no funds to make further investments in exploration and production, especially in countries in which production cost is high, being Algeria part of the chorus. Indeed, in the long run the gas price will increase because of a decrease in supply, and the enabling of market mechanisms is the most appropriate way to fight the non-market dynamics affecting the natural gas price.

In this difficult environment, the EU can play a role, especially in light of its interests in decarbonisation and diversification of supply. A stronger commitment by EU institutions and an improvement in Algerian government policies could lead to win-win partnerships in natural gas, helping Algeria to improve the infrastructure, already existing but not used at full capacity, and enhancing investments on energy efficiency and renewables.

Egypt and the latest developments in the Eastern Mediterranean

In recent years the Eastern Mediterranean has been a hot topic in international gas markets. Interest in the area peaked when three large fields were discovered between 2009 and 2011: the Tamar and Leviathan fields off the shore of Israel and the Aphrodite field off the shore of Cyprus. The resources of these three fields are currently estimated at about 1000 bcm, compared to about 2800 bcm of gas resources in the EU's largest gas field. To exploit this potential, a number of export options where progressively discussed, from pipelines (to Turkey or Greece) to liquefied natural gas (LNG) plants (in Cyprus, Israel and Egypt). Analysts have expressed hopes that the new gas discoveries might

not only strengthen the energy cooperation in the area but also pave the way for a new era of economic and political stability in the region. However, the high initial expectations were largely muted over time. In Israel a long-lasting internal political debate on the management of the gas resources created a climate of uncertainty that contributed to the delay of key investment decisions. In Cyprus – where the gas discovery was welcomed as a godsend gift to relief the country from its financial troubles – the initial enthusiasm was cooled-down by successive downward revisions of the expected resources. These developments raised skepticism on the general idea that the Eastern Mediterranean might become a gas-exporting region.

All of a sudden, the initial expectations have been revived by the recent discovery of the large Zohr gas field in offshore Egypt. Considering its size, this discovery – the largest ever made in the Mediterranean Sea – might indeed completely change the regional gas outlook. If there is a certainty about Zohr, it is that its development will primarily serve the Egyptian domestic market. Due to a rapid decline in production the country has increasingly struggled to meet its domestic demand. As a result Egypt even started to import LNG in 2015 through two floating storage and regasification units (FSRU) leased for five years. Accordingly, Egypt's LNG exports dropped from a starting level of about 15 bcm/year in 2005 to almost zero in 2014, leaving the country's two LNG plants completely idle. With a potential 20 year-plateau production level of 20-30 bcm/year Zohr would thus be a major relief for Egypt's constrained gas market. Zohr could be the first of a new string of gas discoveries offshore Egypt. International oil and gas companies have already started to increase operations in the area, and if Zohr and other offshore fields reach their full potential in the 2020s, Egypt might by that time again become an LNG exporter.

However, the impact of Zohr could well go beyond Egypt's boundaries, due to its geographic location and infrastructure. Zohr is located only 90 kilometers (km) away from Aphrodite,

which in turn is only 7 km off from Leviathan. This proximity could allow a coordinated development of the fields and thus the creation of the economies of scale needed to put in place a competitive regional gas export infrastructure. Egypt already has in place a 19 bcm/year LNG export infrastructure in Idku and Damietta that currently sits idle. This would allow to export any volumes from Zohr and other domestic fields not used in the domestic market. Given the growing domestic demand in Egypt, it is fair to assume that some export capacity would be left for Israeli and Cypriot gas – if it could be brought to the Egyptian terminals. As both LNG plants can be expanded Israeli and Cypriot developers would have a flexible outlet. For Israel and Cyprus, cooperating with other players in the region is crucial. Building the export infrastructure and developing the fields is a circular problem: if there are political or commercial risks that no export infrastructure will be in place when the production starts, a lot of money will be lost. If the field underperforms compared to expectations, expensive export infrastructure (the Cypriot LNG Vasilikos project is estimated to cost USD 6 billion) will sit idle. Consequently, bringing together an underused and scalable export infrastructure with several promising fields could be the key to unlocking untapped regional potential. So, Egypt seems to hold the keys of the Eastern Mediterranean gas future. It could decide to proceed alone by exporting the gas volumes that will progressively become available on top of the domestic demand, or it might decide to proceed together with Israel and Cyprus, by creating a new Eastern Mediterranean gas hub based on its existing exporting infrastructure.

Creating a new Eastern Mediterranean gas hub would present benefits for all players involved, allowing Egypt to enhance its role in the region and secure revenue from a transit scheme, and Israel and Cyprus to fully exploit their gas reserves. It would also present an opportunity for Europe, where gas imports requirements will grow post 2020 due to declining domestic production and expiration of long term contracts with

Norway and Russia. Albeit commercially sound, the realization of a new Eastern Mediterranean gas hub will ultimately depend on foreign policy considerations and domestic politics in Israel and Egypt. Public opinion in both countries will be critical of tight-cooperation in such a strategic sector. For its part, the EU should support a regional cooperation scheme aimed at developing an Eastern Mediterranean gas hub, for both energy policy and foreign policy considerations. In terms of energy policy, this initiative could provide much-needed substance to the long-lasting EU gas supply diversification strategy. In terms of foreign policy, this initiative could allow international collaboration in an area that otherwise currently presents very few opportunities for cooperation.

Other issues concerning the Euro-Mediterranean gas cooperation

While discussing the Euro-Mediterranean gas cooperation prospects, three issues should be taken into account: the peculiar role of Turkey, the regulation of gas markets in Southern and Eastern Mediterranean countries and the role of a relevant external actor such as Russia.

Turkey is a peculiar actor in the Mediterranean gas landscape due to its strong demand for the commodity. The Turkish economy heavily depends on imported natural gas, and Russia is its first supplier. However, tensions between the two countries led Turkey to reduce from 98% to 50% its dependence on gas imports and change its energy mix by substituting the commodity with coal and renewables. In only two years, the usage of natural gas in power generation has reduced from 45% to 32%. Moreover, the contracts for gas supply from Russia will end between 2021 and 2025, and the Turkish government would be very reluctant to renew them. In this scenario, the Eastern Mediterranean gas resources could be a potential source of supply for Turkey in the future. However, several political issues represent obstacles

for such cooperation. Indeed, Turkey has not yet recognized the government of the Republic of Cyprus. Moreover, it is still uncertain the outlook of the effort of rapprochement between Turkey and Israel, essential for the kick-off of any gas project in the area.

The dominance of governments in the natural gas industry of Southern and Eastern Mediterranean countries has obviously an effect on the decisions of companies regarding exploration and extraction of the commodity. Moreover, it affects the involvement of foreign companies in the business. Reforms to the countries' regulations aimed at making it easier for international companies to access the markets and boost the investments in upstream, to improve the infrastructure and increase the exploration rate, would be a solution. The role of companies in building an effective cooperation is extremely important, since they would make the process more dynamic.

For what concerns the role of external actors in the cooperation between EU and Mediterranean countries, Russia has a non-negligible role, being Gazprom the biggest supplier of natural gas to Europe. The Euro-Mediterranean gas cooperation can be seen as a way for Europe to become more independent from Russia by diversifying its gas supply portfolio. Since Gazprom holds a big market share in the European gas market and is more efficient in production compared to current Northern African suppliers, it is able to set a lower price for the commodity. Investments to decrease the production cost of gas in Algeria and Egypt are therefore needed, and the EU should make a greater effort in such task.

3. The Euro-Mediterranean Sustainable Energy Cooperation

In light of the large increase in the demand for electricity, which is the key feature of Southern and Eastern Mediterranean energy markets, seeking for solutions to foster energy efficiency and switch from the use of fossil fuels to renewables in power generation has become a non-negligible task for these countries.

However, Southern and Eastern Mediterranean countries are generally characterized by limited financial capabilities for the creation of new generation capacity, being market fragmentation one of the major causes: the lack of efficient interoperability of power systems of these countries is a limit for the definition of proper financial instruments.

The vision of enormous flows of electricity from the South to the North of the Mediterranean Sea has proved to be not realistic. Instead, flexibility of electricity flows in the region should be highlighted. In some cases we might expect prevailing flows from North to South, while in other cases the flows might occur in the opposite direction.

Currently, for what concerns the exchanges of electricity, there is more mutual help than economic advantages coming from a market-based system. Demand is expected to increase by 2040, from 546 TWh to 1600 TWh in Southern and Eastern Mediterranean countries and from 1347 to 2000 TWh in EU countries (not so relevant, corresponding to less than 1% per year). There are only two interconnections regularly working, the Spain-Morocco link and the Turkey-Bulgaria-Greece link. Both of them involve EU countries, while no direct electricity exchange

between Southern and Eastern Mediterranean countries is observed except for two other interconnections: Libya-Tunisia, open for stability constraints characterizing Libya with a civil war ongoing, and Turkey-Syria, open only because of the war ongoing in Syria. The existing interconnection between Egypt and Libya is not exploited anymore, and was used in the past only for partial supply to Libyan networks.

The non-homogeneity in power systems represents an obstacle to cooperation between countries in the region. There is a wide variety of market development initiatives, but the increasing exchanges expected call for a higher level of cooperation, and, thus, homogeneity. However, there have been some attempts to increase the level of cooperation of regional the electricity markets, notably via the association of Mediterranean transmission system operators (Med-TSO) founded in 2012 with the objectives of studying the development of an integrated, secure and sustainable electricity transmission system in the region, and of promoting cross-border investments and sharing of technical rules for interoperability of power systems. Since 2015, Med-TSO is also developing the so-called 'Mediterranean Programme' in collaboration with EU Commission DG NEAR. The programme, active from 2015 to 2018, aims at capturing the benefits of interconnections from a technical, economic and environmental points of view, by defining the gap in terms of harmonization rules in these countries, which should be eliminated in order to facilitate the development of the grid. A 'one size-fits all' approach does not exist, since the Mediterranean region is composed by several non-homogenous areas. For the project to yield valuable results it is necessary to support the convergence of national interests with smaller sub-regional projects, which can serve as pilot projects: if one of them succeeds because a certain regulatory gap is identified and filled, then attractiveness of whole region for investors is likely to increase. A top-down approach is important but not mandatory: political commitment is required for projects to be made possible, but if the collaboration succeeds in breaking

the loop by developing some of the proposed projects, also the political commitment could improve over time.

The long-term objective of the 'Mediterranean Programme' is electricity markets integration in the Mediterranean. However, it should be noted that in the EU itself after 20 years since the start of the liberalization process, it is still difficult to see a truly integrated electricity market. Anyway, this objective has to guide the activities in the short-medium term but the objective is to focus in the medium term on specific projects that could help and be used as catalysts for the whole region. In this framework a zonal approach could deliver results. Potential zonal groups are identifiable as ENTSO-E area (Mediterranean EU countries, Balkans), Maghreb area (Morocco, Tunisia and Algeria) and EIJLLPST area (Eastern Med countries plus Turkey and Libya). The creation of an integrated market would result in an important market economy type benefit: if the market becomes larger, financing of activities and projects becomes smoother and easier because if the commodity, in this case electricity, can be brought from a country to another in an extended and integrated market, the regulatory system would benefit of a greater stability.

Apart from the Euro-Mediterranean cooperation in building an integrated electricity market, other areas in which collaboration is crucial are the ones of energy efficiency and renewable energy.

In Southern and Eastern Mediterranean countries, energy efficiency policies are fully justified because of the huge differentiation in energy sources available. Looking at the region, differences among countries emerge: while some are advanced, others just started to implement programs for energy efficiency.

As an overall trend, energy efficiency policy is based on 3 elements:

(i) Instruments and means, which constitute the basics, and are classifiable as institutional framework, regulatory framework and financial tools and incentives;
(ii) Programs and results;
(iii) Outlook, in terms of new objectives and action plans.

However, there are barriers preventing energy efficiency in the region. These barriers can be grouped into three categories:

(i) At the level of instruments and means: lack of a real political will, lack of proper institutional and regulatory frameworks and lack of incentives and appropriate financing mechanisms;
(ii) At the level of programs and results: slowness in the implementation of the programs and action plans, combined with lack of the regulatory application mainly for the control aspects and lack of monitoring and evaluation of programs;
(iii) At the level of the accompanying measures: lack of sufficient developed cooperation programs and lack of capacity-building programs.

In order to overcome these barriers, it is possible to identify several solutions to be implemented:

- At the level of instruments and means: i) The display of a proactive policy in this domain; ii) The strengthening of the institutional and regulatory framework; iii) The implementation of innovative & appropriate financing mechanisms; iv) The adoption of a transparent pricing policy with subsidies more targeted.
- At the level of the programs and results: i) A more dynamic process of implementation of the programs; ii) Ensuring the application of the existing regulations; iii) The reinforcement of the Monitoring and Evaluation of the programs.
- At the level of the accompanying measures: i) The implementation of training programs to reinforce the competencies; ii) The development of cooperation programs for technical assistance, capacity building and mobilization of financial resources; iii) The reinforcement of promotion and awareness actions.

The reinforcement of the Euro-Mediterranean energy cooperation is also a measure to be included in order to overcome barriers in energy efficiency and renewable energy domains. A good case study to show the importance of this cooperation is provided by the Maghreb area.

Energy intensity is very high in Libya and Algeria, and the average across the four Maghreb countries is equal to 0.33 tonnes oil equivalent (toe) per 1000 USD. This is not an indication of performance though. The Maghreb countries have a strategy for energy efficiency policy, but the implementation of policies makes the difference among them. For what concerns the institutional framework, the ANME and the APRUE are respectively in place in Tunisia and Algeria from 1985, both aimed at improving energy efficiency and renewables. In Morocco the CDER, an institutional framework for renewables, was adopted in 1982, and then transformed in ADEREE to integrate the objective of energy efficiency. Libya has adopted REOL, only concerned with renewables, but the objective is to set a new institutional framework and create a new energy efficiency institution. Moreover, Tunisia, Algeria and Morocco have a regulatory framework and a financial and incentive framework for the improvement of energy efficiency, while Libya does not. In terms of programs, we can measure the achievements based on what has been done by countries. Labelling appliances, thermoregulation and thermos-isolation of buildings, energy audits, public lightening and cogeneration are all examples of programs which are in place in some Maghreb countries, but not in all of them. As a consequence of differences in institutional framework and adopted programs, the outcome is also differentiated by country. Tunisia had reduction of 25% in energy intensity, in Algeria no results have been registered (not published yet), while improvements in Morocco are also a reality. According to the AFEX rankings (Arab Future Energy Index), which has utility, energy pricing, policy framework and institutional capacity as ranking criteria, Tunisia is the first

country of the whole MENA region, Morocco the third, Algeria the seventh. Libya stands far from the others, being the sixteenth out of seventeen countries in the index.

In terms of outlook, there are new action plans: Tunisia developed a plan for 2013-2020, which has the objective of reducing energy consumption by 3.5 mtoe, the 51% of which in the building sector. Algeria updated the ongoing program, supposed to run for the period 2011-2020, until 2030. Morocco adopted the National Strategy (2013-2030), while the NEEAP (National Energy Efficiency Action Plan) is in Libya's plans for the period 2014-2020.

In what follows, we focus on the experience, the achievements and the future steps of one of the best players in the region in terms of sustainable energy: Morocco. The 3 aspects of sustainability in the context of the Moroccan energy policy are ecological aspects, economic development and social and political background.

For what concerns the ecological aspects, in Morocco there is already clear target for renewables for 2030, communicated in the COP21 in Paris, consisting in 52% of capacity in renewables. What it is missing is a strategy, but assistance comes from abroad, and an example is GIZ, a German state-owned company. The task of GIZ, is to assist the ministry to create scenarios for developing a model in order to assess what is need for the achievement of this target. The role played by GIZ in Morocco is not limited to the current task for 2030: in the next conference of the parties, COP22, which will take place in Morocco, the country will take commitments for a 2050 target in renewables, and GIZ is going to assist the Moroccan government in this process.

For what concerns the economic development, the stable environment of Morocco is good for investments. KfW, the German state-owned bank for development, was very enthusiastic about clear commitments, good tenders and transparency in the process of building tenders. Hence, the bank decided to co-finance the CSP in the south of Morocco, a new type of solar

power plant. In general, in Morocco there is a certain tendency to focus on large projects: CSP, wind projects are examples. The government wants to learn from Europe but also avoid the mistakes made by European countries in the past. In Morocco conditions are much better for investments in renewables compared to Europe: more solar irradiation and more advanced technology in photovoltaic available with respect to when some EU countries were moving their first steps towards solar power generation. They are about to open the market for renewables: renewable producers are allowed to look for consumers that would take their production, therefore mainly arranging bilateral contracts of supply. This partial liberalization of the market leaves room for doubts about the conventional part of the renewable power production, but this market design issue will come up and faced by the Moroccan government in the future.

Finally, social and political aspects have to be considered, because when a market is brought to life, what the government would be expected to create is jobs. It is also having consumers being recognized in the market, and having a role in it, with their rights and powers.

Three crucial means for Morocco to be successful in its way towards energy efficiency are:

(i) Training of people in energy modelling and in energy regulation;
(ii) At the institutional level, learning how to work with different stakeholders, how to involve them in projects and decisions regarding energy efficiency;
(iii) Improving trust within the country and political institutions and in the relations between the country and other countries in the Mediterranean region and Europe.

What has to be mentioned, in addition, is the Moroccan experience with energy subsidies, in which renewables played an effective and relevant role. The reduction in energy subsidies brought an increase in energy prices in Morocco in the last

years. This could be an example to follow for other Southern and Eastern Mediterranean countries, which raised energy subsidies in the past, experiencing an increasing demand for energy. In Morocco, the subsidy system was mainly covering transportation, with price reductions for oil at the pump, directly for the consumer and largely affecting the transport sector. In 2012 it cost 6% of the GDP, becoming unsustainable for the country, as the budget deficit was largely growing. Domestic prices were fixed, and the public budget was used to cover the difference between the world price and the domestic price for oil. Because of the unsustainability of the subsidy system, the government decided to index the domestic price to the world price. Moreover, the Moroccan government decided to open the market for distribution at the pump to competition and allowed distributors to import oil from abroad and compete with the domestic oil refinery, which experienced bankruptcy and is now owned by foreign Swedish producers. There is still one product that is heavily subsidized: butane for cooking usage. This represents an issue that the government has to solve in the near future, since there is overconsumption because of distortions in the demand. In fact, this good is also used in rural areas as a source to pump water from wells. However, solar power is substituting butane in this use, being a more efficient technology. Hence, since solar and wind power are becoming more and more efficient, subsidies are no longer needed. As an advice for other Southern and Eastern Mediterranean countries which are facing the same issue of Morocco regarding subsidies, what would be needed for investments in renewables in order to get rid of subsidies is a more advanced financial sector and the use of financial tools, which helped a lot in the Moroccan experience.

4. Financing the Euro-Mediterranean Energy Cooperation

Ensuring the financing of energy projects in the region represents a vital step towards the enhancement of the regional energy system. What can be done to ensure it? For a stable investment environment, some prerequisites are needed. In the MENA region, the share of FDI in GDP has been falling since the global financial crisis of 2007-2008, after a sharp rise before that period. Economic theory and empirics both show how crucial investments are for economic growth. To facilitate investments, four conditions (the 4 C's) are needed: i) Confidence; ii) Connectivity; iii) Competence; iv) Cost.

These conditions are all needed to some extent in order to pave the way for investment. Confidence is a key dimension, which affects the decision to make investment in the region. High political and macroeconomic risks clearly penalize the attractiveness of the region. Connectivity, which means openness to the world, has improved extensively over the past 20-25 years as shown by trade agreements, bilateral investments, lowered tariffs, substantially increased trade ratios (over GDP), increased investments in transport infrastructure throughout the region. In the case of trade with the external environment, the region has performed quite well, while in the case of trade within the area, trade flows are still quite low. In a similar vein, diversification is quite weak, with some exceptions, but it has been improving lately. Competence, defined as the skills of the population, is also a key factor enabling investments, however it is still lacking

in the region. Despite an increase in educational investment and literacy level and women participation in the region, standardized scores such as PISA still show that the quality of education should be enhanced. The cost of doing business is also a crucial factor: fixed exchange rate regimes sometimes cause very serious problem of over-appreciation in the region and, also, lack of infrastructure, poorly working job market, low quality of regulatory environment and public services may be also source of a high cost of doing business. The World Bank provides a metric to measure this cost, the 'ease of doing business' index. Its standardized version (Distance to Frontier) provides a useful tool, which can be compared across countries and years. In this respect, countries in the MENA region have experienced mixed dynamics in the ranking, such as UAE which is on the top of the list (higher values of the index reflect more favourable environment for doing business) and has improved between 2011-2016 and Algeria which is in the last positions in the region and has experienced opposite dynamics over the same period.

Related to the confidence and cost conditions, good investment climate is crucial for investments; therefore there is the need to measure it in some way. As previously shown, to this end, policymakers and researchers can use the 'ease of doing business' index developed by the World Bank. However, a low correlation has been found between this measure and actual investment in each of the MENA countries. Nevertheless, by decomposing the index and considering only small businesses mostly outside the energy sector, the index correlates better with observed investment. This calls for new measures for the energy sector, which is predominantly composed of state domination and large scale projects of strategic nature. These new measures can be identified in perceptual indexes that combine three attributes: potential for investment, political, macroeconomic and financial risks at the country level and the enabling environment for investment. While the first two are analytically

approachable, the third one is more difficult to track. Indeed, the third element involves the regulatory framework and the state of the financial system (capital market vs. bank based system), which are difficult to measure quantitatively. One adopted solution to tackle the measurement issue is to conduct surveys among experts or agents working in the field (Delphi method). Collecting these three dimensions together produces an index, which can be relativized to a benchmark, ideal point, which represents the maximum value each attribute can achieve. Pairing this new index with actual investment, a stronger correlation can be found.

Investment climate and surrounding conditions are necessary elements for financing, the latter being the main obstacle for private actors to invest in the region. Demand for infrastructure from the region is huge and still increasing, but there is no financing available. Also, there exists a problem of timing: investments in the energy sector returns in the very long-run and therefore are very risky. Finally, high political, regulatory, macroeconomic and operational risks undermine confidence for investment, therefore some instruments should be provided as country risk insurance in additional to technical assistance for safer private involvement. Given this context, development banks can play a role in bearing these risks, by providing risk-mitigating tools to pave the ground for investment. Indeed their complementary role (to the market) is increasing given their ability in triggering mechanisms in order to make the market work more smoothly. Development banks indeed step in when the market is stuck and they should be able to make a step behind when commercial banks can provide by themselves resources to market agents. The public role of development banks is therefore gaining importance. Since the global financial crisis, several European initiatives were proposed in order to create a European fund such as Marguerite, the Club of Long-Term Investors, the European Fund for Strategic Investments (EFSI) and Inframed dedicated to finance transport, energy and urban infrastructure

in the Mediterranean region. Inframed, for example, managed to do so far up to twelve deals, mostly in renewables and mainly in Turkey. In the region, the European Bank for Reconstruction and Development (EBRD) and the World Bank are also active and they should continue to be active even more, especially given their bigger size compared to national counterparts, which allow them to bear more risks and potential losses. Moreover, also the European Investment Bank (EIB) could play a greater role in the area, on top of initiatives such as the Club of Long-Term Investors, the Facility Euro-Mediterranean Investment and Partnership (FEMIP) and the EFSI jointly with the European Investment Fund (EIF) and the European Commission. All these institutions should design a joint and coordinated effort, avoiding overlapping and redundant initiatives, in order to effectively and efficiently promote investment in the region, by sharing regulatory best practices and using also instruments such as credit enhancement tools, guarantee schemes, which have been gaining attention over the past years, single-country public grants and/or multi-country structural funds as provided, for example, by the EU. In particular, public funding should be based on metrics measuring the social and economic return of investment in energy projects in the region, which should suggest the amount of money to be granted in order to maintain the cash flow sustainable. This joint and coordinated approach should be as much depoliticized as possible, in order to isolate its success from potential adverse geopolitical events.

Conclusions and Policy Recommendations

The Euro-Mediterranean energy cooperation still has a long way to go, and in order to make steps forward stronger commitment has to be shown from both sides. During the Bruegel-FEEM Euro-Mediterranean Energy Talks policy recommendations for enhanced regional energy cooperation were also elaborated. These recommendations, hereby presented, should be read as suggestions for policy-makers rather than as prescriptions, being the outcome of a positive and constructive discussion.

First of all, both the European Commission and the institutions of Southern and Eastern Mediterranean countries should adopt a more pragmatic approach as far as regional energy cooperation is concerned. This firstly entails that concrete policies should be elaborated as a response to concrete barriers preventing the development of a solid and sustainable energy transition in the region.

In the task of building a better dialogue and making steps forward in the regional cooperation, the EU should not aim at exporting its economic and energy models, but rather focus its attention on how to deal with the different models present in the region.

The EU should accept that in several Southern and Eastern Mediterranean countries the scarce familiarity with the private sector continues to be an important characteristic, which calls for the implementation of training for people to change their business approach and to be more open to market dynamics.

Obviously, cooperation does not only have to involve

political institutions of the two areas, since financial institutions and companies play a major role in this framework. In order for companies to be more active in Southern and Eastern Mediterranean countries, country-risks should be reduced. In this field, public financial institutions like the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB) and national long-term investors such as Germany's Kreditanstalt für Wiederaufbau, Italy's Cassa Depositi e Prestiti and France's Caisse des Dépôts et Consignations, should act in a coordinated manner to use their leverage to make the energy sector overall more attractive to investors.

With regard to the role of international energy companies, they should bring local content to the region, which consists in the transfer of technologies and competences and the direct involvement of local citizens in their business activities. This local content should be realistic, transparent, rational and appropriate to each country.

As mentioned before, however, the cooperation between the two shores of the Mediterranean Sea is made difficult by the fact that the Southern and Eastern Mediterranean region is in reality an abstract entity, on which each country has its own peculiarities and economic features. Hence, the EU should be pragmatic and in addition to a regional approach should also include a bilateral approach.

In general, we can identify three components through which cooperation in the energy sector should be developed: i) Capacity building projects; ii) Transfer of technology and technical assistance; iii) Mobilization of public financial resources to leverage private sector investments in the region.

To conclude, it is necessary to outline that the key word for a healthy regional cooperation is trust. What the Southern and Eastern Mediterranean countries need is not pure help from the EU; they rather need to develop expertise to use their own energy (and particularly sustainable energy) resources. For this to happen, trust should be enhanced at least in the relationship

between the EU and the Southern and Eastern Mediterranean countries that present today the minimum prerequisites of political stability to allow solid energy cooperation, in the interest of both sides.

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