Mediterranean Forum on Energy Regulation

REGULATION & INVESTMENTS: SOLUTIONS FOR THE MEDITERRANEAN REGION

MEDREG PAPERS n. 2

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### LIST OF ACRONYMS

<table>
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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ACER</td>
<td>Agency for the Cooperation of Energy Regulators</td>
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<tr>
<td>BASREC</td>
<td>Baltic Sea Region Energy Cooperation</td>
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<tr>
<td>Bcm</td>
<td>Billion Cubic Meters</td>
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<td>BEMIP</td>
<td>Baltic Energy Market Interconnection Plan</td>
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<td>Bln</td>
<td>Billions</td>
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<td>CEER</td>
<td>Council of European Energy Regulators</td>
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<td>DSOs</td>
<td>Distribution System Operator</td>
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<td>E&amp;F</td>
<td>Endowments &amp; Foundations</td>
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<td>EBRD</td>
<td>European Bank for Reconstruction and Development</td>
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<td>EC</td>
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<td>ECRB</td>
<td>Energy Community Regulatory Board</td>
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<td>European Investment Bank</td>
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<td>EMEA</td>
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<td>EnC</td>
<td>Energy Community</td>
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<td>ENTSO-E</td>
<td>European Network of Transmission System Operators for Electricity</td>
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<td>ETS</td>
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### LIST OF MEDREG MEMBERS

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<td>CREG</td>
<td>Electricity and Gas Regulation Commission</td>
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<td>Egyptian Electric Utility and Consumer Protection Regulatory Agency</td>
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<td>ME</td>
<td>Ministry of Electricity &amp; Renewable Energy of Libya</td>
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<td>Malta</td>
<td>MRA</td>
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<td>Montenegro</td>
<td>REGAGEN</td>
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<td>Morocco</td>
<td>MEMEE</td>
<td>Ministry of Energy and Mines, Water and the Environment</td>
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<td>Slovenia</td>
<td>AGEN-RS</td>
<td>Energy Agency of the Republic of Slovenia</td>
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<td>National Commission on Markets and Competition</td>
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<td>Tunisia</td>
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<tr>
<td>Turkey</td>
<td>EMRA</td>
<td>Energy Market Regulatory Authority</td>
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The relation between energy and investments

Mediterranean countries are facing unprecedented challenges in the energy sector, which affect the whole region. Energy regulation is key to tackle these challenges and foster socio-economic development by providing favourable conditions for infrastructure investments, improving security of supply and protecting consumers.

MEDREG, the Association of Mediterranean energy regulators, held the first edition of its Forum dedicated to “Regulation & Investments: Solutions for the Mediterranean Region” on 26 November 2014 in Barcelona (Spain).

MEDREG gathered a high-level Scientific Committee to design the programme of the Forum and advise on the selection of speakers. The Scientific Committee reviewed the contributions presented to the Forum, ensuring the overall coherence of the contents delivered during the event.

The Forum has been the occasion to assess the current state of thinking on the relationship between energy regulation and investments, identify the main challenges and risks and see how they should be addressed both at regional and sub-regional level. The event led to concrete and practical proposals for energy regulation in the Mediterranean, which are summarized in this booklet.
Why a Forum?

This Forum represented the occasion to engage the main stakeholders of the energy sector in a comprehensive discussion on the present and future of the Mediterranean energy markets, towards the creation of a Euro-Mediterranean energy community. MEDREG believes that regional actors need to take a pragmatic approach, starting with energy regulators. This is why it conceived this Forum not as a place to discuss among peers but as an opportunity to give voice to the stakeholders that are impacted by regulatory decisions. This is the only way regulators can ensure that our work will benefit final consumers.

MEDREG believes this is a time of profound change in the countries that surround our Mare Nostrum. In the Southern countries technological advancements have made renewable energy sources an increasingly developed and sustainable option. In the Eastern Mediterranean gas discoveries are likely to strongly impact energy exchanges and cooperation patterns. As for the European Union, it is working hard to complete its internal energy market and Energy Community countries decided to follow the same path.

Those changes, among others, create new infrastructure needs. For this reason, we decided to dedicate the first edition of this MEDREG Forum to the fundamental, and yet complex, relation between regulation and investments. A stable and transparent regulatory framework, offering long-term visibility, is considered key to trigger investments ensuring clear rules for cross-border cost allocation and attractive rate of return.

As the only association representing public regulatory authorities responsible for the electricity and gas sectors of 21 Euro-Mediterranean countries, MEDREG will continue working to strengthen the role of independent regulators in all Mediterranean countries, improving national legal and regulatory frameworks, and developing regional guidelines of good practices.

The combined effort of regulators, constantly dialoguing with their regional partners, should allow various national approaches to converge and become increasingly compatible in order to allow for smooth cross border exchanges, efficient market opening, and regional integration.

Michel Thiollière
Former MEDREG President and CRE Commissioner
“Mediterranean energy community”: Where do we stand?

Having a Mediterranean energy community would make sense. But the process by which such a community could come is not yet clarified. If we start from the existing European institutions as they are, we are amazed by the diversity and fragmentation of tool boxes that the European Union uses to deal with its trading neighborhood. The “European Economic Area” shares all the EU internal market except agriculture and fisheries. The “Energy Community” shares only the internal energy market. The “Energy Charter” is a full international treaty but does not share the internal energy market. The “Neighborhood Policy” has a Mediterranean energy aim but still an unconvincing or incoherent outcome. And “of course” - from an EU institutional point of view- other Africans countries can only enter the “Africa-EU Energy Partnership”.

We would like to advocate that this existing institutional frame does not deliver the set of flexible tools we need to start building a significant Mediterranean energy community. What we need is rather the opposite: to learn from the doing in a typical “bottom up” approach. This approach would actually be made of several co-existing layers in which an energy community could pick the good practices to make the process work. It means that EU should first assess the existing with: the technical cooperation as with the Mediterranean power ring; the R&D cooperation with technology transfers or implants; the foreign financing of local investment; the trade rules for new projects such as the electrical bridge between Tunisia and Sicily (Italy); the unilateral vs. bilateral market opening as for Morocco and Spain; the agreements for hosting foreign investments in generation; ending with the interconnection building rules and interconnection access rules.

Only this humble “bottom up” approach could reveal us the likely blocks we might use to start building a self-growing Mediterranean energy community.
Natural gas in the Mediterranean region: Reserves, production, trade, interconnections and security of supply

The exploitation of newly discovered natural gas resources in the South Mediterranean and robust growth in gas-based electricity generation pushed the share of natural gas in the Mediterranean energy balance from 15% in 1990 to 28% in 2009.

Natural gas markets in the South Mediterranean are increasing more rapidly than those of the North. In fact, in the South Mediterranean natural gas consumption has experienced the strongest growth of all energy sources. This increase in gas demand stems from strong gas demand in the South coupled with attractive prices and easy accessibility. Natural gas demand is expected to account for approximately 28% of the energy mix in 2030.

Currently the Mediterranean region as a whole is a net importer of natural gas. The South West is a net exporter largely due to production in Algeria, Libya and Egypt. But those exports are outweighed by imports from countries in the North and South East regions. The outlook to 2030 foresees that the Mediterranean region will remain a net gas importer. Export and import infrastructure facilities, from pipelines to liquefied natural gas plants and terminals should, therefore, significantly expand. Algeria, Egypt and Libya will remain net gas exporters by 2030 and Israel will join the group in the next decade. Taken together, their total gas exports potential will increase from 80 bcm in 2000 to 140-190 bcm by 2030.

On the basis of all the above forecasts it can be affirmed that the Mediterranean gas industry is facing important internal and external challenges. These mainly result from the unstable political situation affecting some key producers, the fragmented nature of the markets, the high volatility of energy prices and the uncertainty surrounding the future investments needed to develop further upstream activities and to build new interconnections.

The future of renewable energy in the Mediterranean: Translating potential into reality

In Southern and Eastern Mediterranean countries (SEMCs) solar and wind energy continues to cover less than 1% of the electricity generation mix: a figure that strongly collides with the region’s abundant solar and wind resources. SEMCs are endowed with a huge solar and wind energy potential and the exploitation of this potential could bring various benefits to the region, such as meeting the rising energy/electricity demand at a lower cost, freeing up additional export volumes of oil and gas in energy exporting countries, reducing energy bills in energy importing countries, creating new jobs, alleviating energy poverty and enhancing environmental quality.

Notwithstanding all the efforts to promote renewable energy carried out over the last decade both at the regional level and at the European level (e.g. Desertec, Mediterranean Solar Plan, etc.), SEMCs continue to lag far behind most other regions in the world in terms of solar and wind energy deployment. The reason of this paradox relates to the key barriers to the development of renewable energy in the region: the extensive use of energy subsidies and the lack of adequate electricity infrastructures, energy regulatory frameworks and financing mechanisms. Taking into account this situation, it seems that a new joint action of MED-TSO, MEDREG, key European financial institutions such as EIB and EBRD, and selected institutional investors (sovereign wealth funds, pension funds, etc.) is urgently needed to speed-up the development of renewable energy in the region. Such action might be framed into the newly established “Euro-Mediterranean Platform on Regional Electricity Markets”, with the aim of becoming the new catalyst for the development of renewable energy in SEMCs on the basis of an inclusive, pragmatic and bottom-up approach.

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REGULATION & INVESTMENTS: SOLUTIONS FOR THE MEDITERRANEAN REGION

The South East Europe (SEE) electricity markets constitute an important electricity reform experiment for the whole world. This is because these countries have been given a clear reform model to follow (from the European Union). Following this model, the main role of the SEE Energy Community is to extend the EU internal energy market to the SEE. Through its electricity reform, the EU has assigned a crucial role to the regulators in facilitating infrastructure investments. Thus, the SEE will be a test of the transferability of the EU reform model within the EU itself, as well as the transferability to developing countries in Africa and Asia. Cross border cooperation and harmonization of rules have been recognized as the crucial element of this policy. The electricity sector highly depends on the model adopted for infrastructure investments. A failure to generate and design and appropriate regulatory asset base and adequate revenue requirements to capital costs could result in underinvestment or overinvestment and lead to risks concerning grid reliability. In order to prevent such failures, the SEE EC and the Energy Community Regulatory Board (ECRB) have investigated and widely discussed possible regulatory instruments for promoting new investments in the past several years. The regional approach is a central pillar of this policy and can ensure that the harmonization of regulatory regimes is concretely implemented through time.

A roadmap for a Mediterranean Energy Community: Convergence towards differentiation

The EU first talked about a Mediterranean Energy Community (MEC) in the aftermath of the Arab Spring. The March 2011 communication “A partnership for democracy and shared prosperity” included the possibility to extend the Energy Community Treaty (ECT) to Mediterranean Southern Partners (MPCs), or at least building on the ECT experience. The idea was to advance Euro-Mediterranean energy integration as a driver for MPCs’ development, with the final goal to contribute to shared prosperity, the hallmark of Euro-Mediterranean relations since the 1995 Barcelona Conference.

In its original formulation it was presented as another example of outward Europeanization in the field of energy, with MPCs having to almost passively adopt the energy-related acquis communautaire. Energy convergence was simply understood as downloading EU energy norms. Several doubts arouse regarding the design of a functioning MEC, which should be built on the following three characteristics.

First, any roadmap for a MEC should address preferences such as fighting energy poverty and promoting energy development, optimising the contribution of local energy resources to economic (and industrial) development, technical cooperation and technological transfers, as well as access to EU markets. Shared prosperity is a political final goal that should inspire every step and prevail over exclusively technical approaches.

Second, this MEC asks for differentiation at two levels: from other EU’s external energy initiatives (ECT, Energy Charter, Mediterranean Solar Plan) and by country and sector. The MEC should consider countries’ specificities and asymmetries: asking for full reciprocity in countries heavily depending on hydrocarbon exports is extremely asymmetrical, because for MPCs producers the oil and gas sector is key for its economy and its social fabric. Non-producing countries can advance faster in this domain.

Finally, to be credible the MEC should be coupled with - or even preceded by - clear signals from the EU of practicing what it is preaching. Effectively promoting energy integration abroad requires first achieving it at home. How can the EU be credible in pursuing a Mediterranean energy ring when it cannot build interconnections inside what we now call an Energy Union?
Regulation is not the best way to tackle the challenges of energy in the Mediterranean, except for all the others

The regulators’ perspective in answering the question in the title requires four more questions: why, who, how and where. First question: “why” an independent regulator in energy? We should never give our role for granted. The answer is positive if we consider the function of regulators not an exercise of powers, but a delivery of services. If we consider our “independence” not as a status, but a way to deliver this service, a way which we have to deserve, being accountable every day.

Our service, our regulation, should be not only “long”, “loud” and “legal”, but also “selective”, able to choose among different investments or incentives, driven by ex-ante impact analysis and public consultations.

Nevertheless, in several issues the single regulator is inadequate: regulatory cooperation is very important, too. Very costly, but worthy. The problems we are facing in the Mediterranean are too vast to be solved within each national border: the subsidiarity principle encourages us to build an energy community in our Region.

Second question: “who” should build this community, together with regulators? Regulators catalyze the other fundamental actors of the scenario, firstly the consumers, “empowering” them to act in a more mature way in the energy market, which sometimes is not fully developed. Furthermore, regulators should open a dialogue with Governments, Parliaments, Financial Institutions, TSOs, Market Operators.

Third question: “how” can we build a roadmap for an energy community? The “Europeanisation” of the Mediterranean Region is not a solution. A bottom-up approach, instead, is a good solution. And it’s the one we’ve chosen in MEDREG, which is also a community of people.

Fourth question: “where” are we going? MEDREG has a clear vision, well described in its 2020-2030 Strategy, defining the goals and the role of regulators in a Mediterranean Energy community and identifying the two tools to achieve it: capacity building (i.e. sharing competencies and experiences) and institution building, where regulators can provide valuable support to boost people’s and institutions’ activities in the Mediterranean energy scenario.

Regulatory challenges in the Mediterranean

Most countries of the Eastern and Southern Mediterranean face enormous challenges brought out mainly by the rapidly rising electrical demand and gas consumption. This is caused by the subsidized prices for these commodities which encourage unnecessary consumption, waste and shortages of resources and investments. Subsidies have become entrenched in most of these countries and are now difficult to phase out.

Phasing out subsidies, ensuring the charging of fair prices that reflect the real cost of electricity and energy products (opportunity-price) and improving efficient utilization have become imperative to attain the growth goals of these countries. Considering the high population growth and high unemployment rates, as well as the needs of the poor and social equity of these countries, the challenge is great. The implementation of such vision falls on the shoulders of capable, determined and visionary national regulators, whose role is to:

- Gradually phase out subsidies;
- Protect the welfare of the low income groups, so that they will not be deprived of essential services, provided at a price they can afford to pay;
- Assist in improving the productivity of the electricity/energy sector discouraging waste and introducing energy efficient practices and technologies;
- Provide clear rules that can boost investors’ confidence and encourage the exploration of resources (particularly natural gas);
- Acting fairly between the parties, consumers, investors and producers.

Such tasks necessitate that the role of the regulator is well defined by the state, which should provide the regulator with the clout to play its role. In the present political realities of the Eastern and Southern Mediterranean countries this is easier said than done, but even a modest start is now overdue.
Assessing the EU pressure for future Mediterranean Energy Markets: results from a perception survey

The paper analyse the main results of a perception survey addressed to energy experts coming from the Mediterranean Region. The survey is aimed at assessing the way energy rule promotion is taking place in the Mediterranean region. Therefore we explore three sources of pressures to foster rule change and transition: hierarchical approach (top-down), network and bottom-up. When we look at top down pressure the result confirm that respondents consider direct bi-lateral actions from the EU as most effective. Comparing EU and network role, the survey shows a great degree of complementarity.

Our results, while confirming the remarkable EU role in rule changes in the region, register a larger and growing impact of International Standards (other than EU). This is also in line with the significant role that emerging superpowers are now playing in the larger markets in the region (Egypt and Algeria). MEDREG role and visibility, is steadily increasing since 2011, and is the larger when compared with other energy networks in the Mediterranean. However, the Association still fails to play an effective role in terms of rules promotion. In particular MEDREG is considered to be particularly effective when promoting knowledge sharing and as a platform to disseminate know-how.

The results confirm that the Euro Mediterranean region is still characterised by a fragmented scenario, where domestic actors play a leading role in promoting rule adoption and institutional change. In this framework, vertically integrated utilities and national champions, can exercise a significant veto power and are able to halt or slow down the process for the creation of an integrated Regional market. The aforementioned trends and dynamics represents features well known in the regulatory and governance literature and can be reconciled with the effect of the so called “European Regulatory space”. In particular the existence of regional regulatory networks, can be appropriately explained and described with the concept of orchestration. According to this new approach, the entire EU external energy policy can be reassessed, taking into consideration that orchestration focus is not necessarily finalised in formal structures (as for the Energy Community), but can also take place through soft and informal elements (such as MEDREG).

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**TABLE 2**

How to face the challenge of market-based regulation?

**PARTICIPANTS**

Chair

Maria Vagliasindi

Speakers

Alessandro Rubino

Pantelis Capros

Pedro Mejía

Riku Huttunen

External Discussant

Natàlia Càldés Gómez

MEDREG Discussant

Fazil Senel
Analysis of future MENA–EU common strategy in the energy sector

The MENA region has a great potential of renewables which is sufficient both to cover local needs and to help the EU achieving at lower costs the Energy Roadmap targets about decarbonisation, efficiency and renewables.

The EU has sufficient accumulation of knowledge and investment capital, as well as appropriate market-based instruments, to develop common exploitation of renewables towards achieving great mutual benefits.

Three kinds of obstacles currently hamper exploiting the untapped potential:

a) Lack of linkage infrastructure;
b) Lack of common market and regulatory framework;
c) Persistence of fossil fuel subsidies in a large part of the MENA region.

Multiple non-market barriers and market failures, including coordination failures, persist at present. They can be overcome only in the framework of a holistic (system-wide) agreement with common long-term aspirations. In these conditions, significant escalation of EU ETS prices after 2020 is likely. Two alternative cooperation strategies are possible: firstly a strategy essentially based on centralized actions involving large-scale investments in specific options enabling emission reduction; large scale exploitation of renewables in centralized installations with mainly exportation orientation and concentration on a restrained geographical area thus offering the best cost-effective prospects for electricity exports; secondly an alternative strategy employing decentralized means regarding the exploitation of renewables, the removal of current market and pricing distortions that inhibit rational decision-making of energy suppliers and consumers and the establishment of incentives and norms for energy savings affecting all energy consumers.

The two scenarios differ in technology mix and present different performance in terms of impacts on consumers and resilience against uncertainties. The scenarios also require different regulatory and investment promoting frameworks to succeed. Both scenarios share large infrastructure investment in interconnection and a sharing of common markets.

Benefits from market coupling in terms of social welfare

In February 2011, the Heads of State and Government agreed that “the internal market should be completed by 2014 so as to allow gas and electricity to flow freely.” The European Council thereby reinforced the political support for an effective integration process, providing a specific date and accelerating the implementation of the so-called “Third Package.” Within this context, and according to the cross-regional roadmaps set up by the Agency for the Cooperation of Energy Regulators (ACER), NRAs and the European Commission, power exchanges have been working with the support of all the European stakeholders on the day-ahead market coupling across the EU.

On 13 May 2014 South-Western (SWE) and North-Western Europe (NWE) day-ahead markets were successfully coupled. As a result, the SWE and the NWE projects, stretching from Portugal to Finland, now operate under a common day-ahead power price calculation using the Price Coupling of Regions (PCR) solution.

With the achievement of full coupling of SWE-NWE day-ahead markets, cross-border capacity of all interconnectors within and between the following NWE and SWE countries is now optimally allocated in the day-ahead timeframe: Belgium, Denmark, Estonia, Finland, France, Germany/Austria, Great Britain, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland (via the SwePol Link), Portugal, Spain and Sweden. Following the NWE-SWE full coupling, further extensions of the market coupling with the PCR solution are envisaged. The combined day-ahead markets of the NWE and SWE projects account for about 2,400 TWh of yearly consumption.

Day-ahead market coupling is bringing significant benefits for end-consumers derived from a more efficient use of the power system and cross-border infrastructures as a consequence of a stronger coordination between energy markets. The benefits deriving from this key milestone towards the building of the Internal Energy Market are substantial and will provide European with economic gains. This regional cooperation in the EU should now be expanded to future integration projects in the Mediterranean basin.
How to face the challenge of market-based regulation

Energy regulators’ effort in trying to foster regional cooperation is of paramount importance for both shores of the Mediterranean but it is indeed not an easy task. When designing sound regulation, energy regulators must consider a great number of actors – governments, private sector, financial institutions, TSOs, civil society, etc. – each one with specific concerns and often conflicting interests. They also have to account for the impact of the proposed measures for the various actors at play, often cope with geopolitical instability and uncertainty, manage short and long-term time frames, consider the various political agendas involved and sector interlinks and account for the externalities in the energy market. It is for this reason that the list of attributes that Dr. Pérez-Arriaga proposed for “regulation” may be further enlarged. Besides being “loud, long and legal”, regulation must also be “smart, fair, inclusive, attractive and engaging”.

Energy regulators’ endeavour is daunting but there are reasons to be optimistic about it. There is evidence about regulations that have resulted in successful regional energy cooperation leading to multiple benefits. Such experiences should be used to advocate in favour of regional cooperation among the various actors involved. In this regard, the four speakers of this Table have tackled the challenges and benefits of energy cooperation from various angles using different methodological approaches. On the one side, as explained by Mr. Mejia and Mr. Huttunen, the European market coupling experience as well the development of the Baltic Sea energy market show the welfare benefits and, most importantly, the feasibility of such cooperation. At the same time, Prof. Capros’ modelling of the energy system shows that, in contrast to the current fragmented approach, a future MENA-EU common strategy could lead to cost savings as well as other welfare benefits for the affected population. Finally, through a perception survey, Dr. Rubino’s work showed that there are various complementary ways in which energy rule promotion can take place.

Northern Perspective: Developing Markets round the Baltic Sea

The idea of this contribution is to give an outsider’s view on issues relevant to the regulation of Mediterranean energy markets. Electricity and gas markets surrounding the Baltic Sea make an interesting comparison. The economic and political environments are naturally different, but many features are also common to Mediterranean and Baltic markets: sea dividing and linking markets, remarkable gas and oil producers in the region, economies in different stages of development as well as strong EU presence and interests.

The economic integration of the Baltic Sea region has been a step-by-step process. The collapse of the Soviet Union and the enlargement of the EU meant a new phase in energy cooperation. With Russia, it still typically takes the form of bilateral relations and trade. The geopolitical dimension is important and the EU strives to speak with one voice. The room for genuine multilateral cooperation is smaller, the Baltic Sea Region Energy Cooperation (BASREC) being a rare example.

The Nordic electricity market has been the prime example of liberalized international power markets. The Baltic States are now also integrated to the wholesale market, but remain physically part of the synchronized Russian (Soviet) grid.

Regarding gas, Russia dominates the supply but there are many infrastructure projects – pipelines and LNG terminals – with the aim to enable alternative import sources. Besides intensified competition, security of supply is the main motivation for large investment projects in EU Member States (e.g., BEMIP initiative). The EU grants remarkable subsidies to these new infrastructure projects.

The lessons learned from the Baltic Sea energy markets can be summarized as follows: integrating energy markets requires huge investments. Stability and predictability are necessary in order to realize them. Regulation should be clear and focused. Subsidies might be necessary to get large infrastructure investments launched. However, operating aid is highly distorting and the aim should be to develop energy only markets.
Interconnected networks is what the region needs

Speakers of Table III were asked a very clear yet difficult question: where to find the money to build grids and support generation projects? New, more efficient, better interconnected networks as well as new generation projects are badly needed to match the rising energy demand from the growing population of MENA region, which is expected to grow from 280 millions in 2010 to a figure in the range of 390 – 425 million inhabitants in 2050.

This phenomenon, coupled with rising urbanization and the consequent change in consumer behaviours, will double energy demand in the next twenty years. Sustaining consumption levels such as these requires in turn a significant change in the generation mix towards the development of renewable energy generation capacity.

Infrastructure and generation projects are therefore a precondition for a sustainable social and economic development of the Mediterranean area. The size of the investment needed to tackle these challenges is estimated in the range of hundreds of billion euros (over €700bln), largely beyond the capacity of public finances of MENA countries. Governments should therefore incentivize the participation of private sector, resorting to an articulated toolbox comprising: international and bilateral agreements to foster cross border exchanges; better and harmonised regulations; phasing out of the current production and consumption subsidy schemes and, last but not least, improvement of the overall quality of institutions. The papers presented in this section articulate around these issues and offer a thorough analysis of the state of the art as well as of the challenges that lie ahead.
Power market structure and renewable energy deployment: Experience from the MENA region

In almost all countries of the MENA region power sectors are still characterised by a high degree of vertical integration and state control. However, several countries have undertaken reforms in order to open up their power market to private sector involvement, particularly in relation to RE-sourced electricity generation.

Among the ones that are leading this process we can name Jordan, Algeria, Egypt and Abu Dhabi. Since 2003, Jordan has a fully unbundled power sector characterised by ownership separation of generation, transmission and distribution. Algeria, Egypt and Abu Dhabi have taken first steps towards unbundling and are now characterised by legal separation in which generation, transmission and distribution are handled by different subsidiaries under a single holding company.

While private participation in transmission and distribution is not widespread, most MENA countries allow for some sort of private participation in power generation activities. While the majority of MENA countries allow for private participation through utility supply, very few countries authorise RE power generation for third party sales or export. Another form of private participation is RE electricity generation for self-consumption, also called auto-production. In order to encourage large scale auto-production, the regulatory framework should allow for RE generating companies to feed any potential electricity surplus to the grid either for net metering or for sales at a preferential price. Egypt, Jordan and Tunisia allow for private auto-production of RE with the possibility of feeding excess electricity to the grid under net metering schemes.

Current power market structure and support schemes require governments in the region to be very active in stimulating private sector participation. In order to reach RE targets under current structures and schemes, it is crucial that governments increase the amount of tenders for PPAs and make sure to streamline these processes to become more certain and swift.

Financing energy generation projects: The case of renewable energies in Southern Mediterranean countries

Southern Mediterranean countries are experiencing important increases in their electricity demand. Depending on the country, the average demand growth per year ranges between 5% and 8% in the last five years. In addition, major countries show a quick growth of the peak load demand because of the large diffusion of the air conditioning use, consequent to the improvement of life standard of households and to the decrease of the air conditioners prices. For this reason, these countries are facing large challenges to meet galloping demand regarding the following major aspects:

- Provide the electricity sector with the required quantity of fuel to meet the necessary production;
- Ensure investments to build the additional electrical capacity that allows to meet the increasing peak load;
- All Southern-Mediterranean countries have announced ambitious targets in terms of RES generation capacities, with the scope to reduce their dependency on fossil fuels.

To reach these targets, necessary investments are estimated to exceed 110 billion euros. This amount exceeds the capacity of public funding and requires developing new financing mechanisms to leverage private investment in a win-win scheme for the different stakeholders.

These mechanisms should include:
- Private concessions system based on power purchase prices settled through competitive bidding process;
- Independent Private Producers based on feed in tariffs;
- Self-generation systems, possibly coupled with a net metering approach.
Financing New Interconnections: What Regulatory Model?

A key element for market integration is the availability of sufficient, reliable, efficient, safe and well managed interconnection infrastructure. The levels of coordination through interconnections are closely related to the coordination in planning and operation among the national power systems, which includes:

- Coordination of power production: only operational savings are expected to be realized by this economic exchange of energy;
- Integrated planning: attained benefits come also from the optimization of new investments in generation planning;
- One common regional power market: it is possible to achieve benefits such as security of supply, cost reduction and efficiency improvements.

Technical aspects concern:

- Whether interconnected systems operate synchronously or asynchronously;
- What are the magnitude and direction of the anticipated power flows;
- What physical distance will be spanned by the interconnection;
- Technical and operating differences among the interconnected systems.

Economic and financial aspects concern:

- "Avoided costs" such as costs for purchase and/or production of fuels used in electricity generation and operating cost as well as capital costs of generation facilities;
- The income from power sales, with payments for power made in hard currencies.

Creating appropriate economic signals is necessary to provide incentives for investments that can actually be financed, also rewarding the ownership of assets. Interconnected countries must agree on the entity that will operate the power line and on how the governments will work with that entity to make sure that the power line operates smoothly. Agreements will also be needed to specify the rights of generators and power consumers to, and costs to be paid for, transmission access ("wheeling") services. Additionally, the entity responsible for maintaining the power line and right of way in each connected country shall be identified.

Investing in infrastructure: What financial markets want

Over the years financial markets have increased their importance in financing infrastructures, typically in electricity, gas and water as well as transport, motorways and airports. A number of setbacks and scandals hit the equity markets worldwide over the past 15 years, thus increasing the perception of risk. The lower bond yields at the same time are making returns from regulated assets more attractive on a relative as well as on an absolute basis.

There are $70Tn+ of funds managed by Institutional Investors (IIs) globally of which $25Tn just in the EMEA region. Out of this, almost a third is run by Pension Funds (PFs) and a bit more than half by Insurance Funds (IFs), the rest being split between Endowments & Foundations (E&Fs), Sovereign Wealth Funds (SWFs) and Family Offices (FOs). IIs invest in traditional asset classes like equity, fixed income or commodities.

From a country/regulator’s stand point, the role of IIs is relevant in that they provide the financing (either debt or equity) a country may need to develop the targeted infrastructures. It should be noted however that the interest of the country/regulator and IIs may not always be aligned. For example, the investment horizon of IIs is typically long term yet shorter than the duration of the asset they invest in. On a positive note though, IIs can bring the financing needed quickly, thus minimizing the time/risk of execution.

What IIs seek is stable returns and visibility of earnings and cashflow. To this end, it is advisable that regulatory periods are “long enough” (eg 4 years or more) that the regulatory bodies are independent (mainly from political interferences), that the returns allowed on regulated assets are attractive but not generous (otherwise they are perceived as unstable) and that tariffs are transparent, that is, based on published criteria (formulae) and that these are applied consistently over time.
Where to find the money to build grids and support generation projects?

As recognized by every international institution and actor alike, attracting investments requires:

- Stable political and economic system;
- Transparent, consistent and credible policies;
- Adapted institutional and legal framework;
- Satisfactory market regulatory framework based on competitive neutrality;
- Independent national regulatory authorities for energy system and market competition.

In this regard, regional cooperation between national regulatory authorities is essential, and the role of MEDREG is crucial to promote a clear, stable and harmonized legal and regulatory framework in the Mediterranean region.

Energy subsidies reforms are also essential to implement a favourable and pertinent framework for investments. There is a clear role for institutional actors to act as intermediary in the market and leverage additional funding while reducing transaction costs and capital risks. Regional cooperation would help to pool resources and mobilize private funding, and governments should ensure that there is no discrimination between actors regarding access to finance. Furthermore, it would be appropriate to strengthening domestic financial markets, increasing the range of financial products that are available, and de-risking policy schemes that bring down the interest rate on capital lending. The benefits of having access to both domestic and international capital markets can be substantial for electricity companies.

In developing policies and economic models, the global energy system should be considered. This includes the different components of generation, transmission, distribution and smart grids. Every element participates to the value chain and the risk management of the energy system. The Euro-Med Ministerial Conference held in December 2014 in Rome decided to launch three cooperative platforms on gas, electric, renewable and energy efficiency where every stakeholder will have an opportunity to participate for a bottom up approach of energy policies development and their implementation. OME is committed to contribute to the success of these initiatives.

The role of institutions to support investments

“Where to find the money to build grids and support generation projects?” was one of the main questions addressed at the first Mediterranean Forum on Energy Regulation organised by MEDREG on 26 November 2014 in Barcelona. The answer certainly implies the mobilisation of the private sector. But long-term, capital-intensive and high-risk investments require regulatory stability, legal certainty and transparency.

In that sense, the importance of MEDREG and Med-TSO must be noted at the regulatory and operational level. Both MEDREG and Med-TSO are reminiscent of the rather successful stories of the CEER and ENTSO-E. However, it would be a mistake to conclude that all EU arrangements have to apply systematically to the Mediterranean countries. The idea of a Mediterranean Energy Community cannot lead to the immediate and automatic implementation of the ‘acquis communautaire’ by all countries of the Middle East and North Africa. Instead, a lighter approach, more respectful of national differences, is recommended.

In fact, it must be noted that the EU and its member states embrace the basic principle of the rule of law at the international level, as it results from their commitment to the Energy Charter Treaty. The ECT, composed of 54 signatories and more than 60 observers, is a multilateral legal framework for international energy cooperation in the areas of investment protection, cross-border trade and transit. In order to raise the importance of the rule of law in the energy sector in an increasingly interdependent, global energy sector, a new International Energy Charter is to be signed in The Hague in May 2015. This political declaration will generate a common understanding of the energy sector. All Mediterranean countries are encouraged to adopt the International Energy Charter as an opportunity, but also as a test of their political intention to create a Euro-Mediterranean level playing field.
Creating an integrated Mediterranean Energy Market is an objective of common interest to all Mediterranean countries and in all sub-regions. This market will allow enhancing energy security by providing south Mediterranean countries of new capacity installed and new interconnections.

The investments required to fulfill the market integration will benefit both shores of the Mediterranean region and all their citizens by reducing energy prices and assuring that the lights will stay on. Another positive implication of market integration is that will help the decarbonisation of the whole region allowing a better integration of the renewable energy.

The steps needed in order to accomplish the aim of creating an Integrated Mediterranean Energy Market were clearly explained during the Forum. They can be summarized as follows:

1. Implementing an ambitious program of network infrastructure, both within countries, with a special emphasis on those who are in the southern Mediterranean, as well as at cross-border and transcontinental level. Interconnections are essential for achieving integration.

2. Increasing the installed capacity in the Southern Mediterranean and ensuring supply and quality. Power generation through renewable energy sources is a great opportunity to address current problems and to supply electric power as an exportable good.

3. Implementing financial facilities. The high volume of investment needed means it is unviable if it does not have the support of European institutions, international organizations and private backing.

4. Creating the conditions for the setting up of a Mediterranean Energy Community involves the harmonization of regulatory and legal frameworks. A common market oriented approach spurs the process to achieve this.
A partnership for a common future

Med-TSO, MEDREG and the EC signed a Cooperation Agreement in Rome on 18 November 2014, whereby the EC recognizes the role of Med-TSO and MEDREG as “long term institutional partners” for Euro-Mediterranean relationship in the energy sector, “to continue promoting the modernization and strengthening of physical infrastructure, as well as the elaboration and adoption in the short term of a set of common technical and economic rules for facilitating the investments for grid development, the operation of the interconnected network and the trade of electricity.”

Med-TSO is currently engaged in providing a common set of rules for a Mediterranean Power System and Transmission Grid Codes; planning and developing the Euro-Mediterranean electricity reference grid through the coordinated development of interconnections; and promoting the development of a Mediterranean Electricity System through international electricity exchanges.

MEDREG and Med-TSO have started their cooperation activities, which constitute of regular meetings for information exchange and activities of common interest that should allow to fine-tune the respective priorities, especially concerning the promoting network investments in international interconnections.

The MedSEA Initiative

RES4MED (Renewable Energy Solutions for the Mediterranean) aims at building a dialogue with other Mediterranean initiatives, adding value to their lessons learned and represents a meeting point to compare strategies, discuss project outcomes, and connect experiences and knowledge in the Mediterranean area. RES4MED intends to play the role of a “network of networks”, while offering its members expertise, knowledge and experience.

In May 2014, RES4MED and RCREEE signed a Memorandum of Understanding to mutually reinforce their strategies and goals for the Mediterranean and Middle Eastern countries. Building on this relationship and taking into account the new energy context, RCREEE and RES4MED initiated the Mediterranean Sustainable Energy Alliance (MedSEA), bringing together representatives from both shores of the Mediterranean to build a shared sustainable energy future.

MedSEA builds on the work of earlier Euro-Mediterranean initiatives, such as MSP, Dii-Desertec, and MedGrid, which have succeeded in building awareness on sustainable energy deployment and contributed to the launch of ambitious sustainable energy programs in the Southern and Eastern Mediterranean Countries (SEMCs). However, unlike those initiatives, MedSEA focuses on acceleration of sustainable energy systems deployment, including renewable energy (RE), energy efficiency (EE), and distributed generation.

The MedSEA’s strategy calls for combining trans-Mediterranean technology transfer with systematic stakeholder engagement to design bottom-up, participatory RE and EE solutions customized to national and local contexts within the SEMCs. The expected impact of MedSEA will be in supporting the scaling-up of markets for new technologies, increase local investments, enterprise and skills development, resulting in new jobs for the region and a reduction of CO2 emission and climate change.
The value of enhanced cooperation

In a context in which energy security and climate change will be increasingly present at the top of the international, national and regional agendas, the benefits of the deployment of Renewable Energies and Energy Efficiency measures in the Mediterranean region, both for net importer and exporter countries.

Among the main benefits for net importer countries there are the diversification of energy sources and its positive impacts in reducing the risks of disruption. Among the benefits for net exporter countries it is possible to mention the reduction of the dependency on oil economy and the increase of export revenues.

It should be underlined the important nature and added value of enhancing cooperation in the Mediterranean region, namely the reduction of investment costs and the opportunity for Southern countries to play a more active role in the above-mentioned new economic paradigm. The elements on the ground that allow and activate such so essential cooperation in the region are mainly the geographical proximity, the existing complementarities among Mediterranean rims, the common challenges to be faced and the economic inter-dependencies.
MEDREG Forum:
a place for exchanging ideas

The first edition of the MEDREG Forum enabled our Association to hear out opinions of researchers and practitioners on the main issues that make it difficult to invest in the Mediterranean energy sector. The Forum provided very interesting ideas for the plans of activities of MEDREG Working Groups and our member had the chance to know better and evaluate the opinions of regional stakeholders.

Unsurprisingly, the absence of an harmonized regulatory framework has been repeatedly mentioned as one of the main causes for the lack of investments in the region. Regulators have a crucial role in giving credibility and temporal certitude to international public and private investors. Speakers have also underlined the relevance of supporting investments in new energy saving technologies and the correct integration of renewable energy sources in the grids.

Within the framework of its competences, MEDREG continues to promote convergence of best regulatory practices both across the region and at sub-regional level (Maghreb, Mashreq and the Balkans). During the next years, the Association has the objective of starting a process to reinforce its interactions with TSOs, DSOs, and national Ministries in charge of the energy sector. The objective is to create a permanent platform of dialogue among the different actors that are in charge of reinforcing energy infrastructures in the region.

MEDREG will continue to regularly organize Fora in order to discuss subjects of particular interest for the Association and obtain the opinion and contribution of interested partners. I would like to thank this year’s participants, and particularly the Scientific Committee, for their excellent work.

We look forward to the next Forum,

Hafez El-Salmawy
MEDREG President