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### **A Mediterranean electricity co-operation strategy. Vision and rationale.** *(Preliminary Version)*

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#### *Abstract*

Energy markets, and electricity markets in particular, are increasingly interconnected and interrelated, both physically and institutionally. Like a spider's web, transmission networks develop almost everywhere across Europe responding to the EU's need to guarantee unconstrained exchange of energy flows. The network development clearly reflects the regulatory, economic and legal convergence that has occurred among most of the EU countries in the last decades. The outlook is somewhat more complex when we enlarge the scale of our analysis. The Mediterranean region is composed of countries that show a significant variety in their level and path of economic growth rate and other economic fundamentals. This diversity is also mirrored by the energy landscape of the region. In the region key hydrocarbon suppliers, transit countries from other regions to the EU and net energy importing countries coexist. Consequently, energy policy in the Mediterranean area is characterised by a composite set of technical, economic and geo-political factors that contribute to determine a multifaceted scenario. This poses the problem of how European countries should deal with non-EC neighbours. We explore the regulatory challenges related to the development of a Euro-Mediterranean electricity area and identify three pillars upon which it should be built and organised in the coming years. The first pillar is the foundation a legislative and regulatory convergence based on the "energy corridor" specific approach; the second is the expansion of network infrastructures in the area; finally, the third pillar is represented by the establishment of an "energy free trade area" in the Mediterranean region based on Renewable Energy Sources.

*Keyword:* regional integration, energy markets, EU external energy policy

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## 1. Introduction

The Mediterranean region is characterised by the presence of important hydrocarbon producers and energy abundant countries (such as Algeria, Libya, Syria and Egypt<sup>2</sup>). This would suggest, according to the classical International trade theory approach (Helpman & Krugman, 1985), that we should expect significant volumes of energy exchanged between energy-rich countries in the Southern and Eastern rim of the Mediterranean basin and the industrialised demand hubs of the North.

However, we observe persistent inconsistency between this theoretical prediction and the empirical evidence, the volume of energy traded is significantly lower than the level that theoretical model predict. This is all the more so when it comes to electricity trade. Along with the differences in factors endowment that, over the years, would have certainly justified the development of the infrastructure and would have been consistent with the forecast of a significant energy exchange volume between the two shores of the Mediterranean Sea, there are a number of other features that are crucial in explaining the determinants of energy trade.

After two decades of regulatory practice it is now clear that institutional diversity and the existing legal and regulatory frameworks play a fundamental role in explaining the volumes of energy exchange between countries. Notwithstanding the recent progress towards global economic and financial integration, national borders in the Mediterranean area still show a significant and depressing effect on electricity trade. This is even more evident in the South-South route (direction), where physical connection is already in place, but where the rate of utilisation of the existing capacity is extremely low (refer to *table 1*). North-South interconnection is even more limited and barely consists of the Spain-Morocco interconnection.

Currently the electricity exchange within North African countries and Eastern-Mediterranean countries is scarce. This is not only due to the inadequate capacity of the interconnection (that is anyway underutilised) or constraints inside the countries. The limited use of interconnections, where they exist, mostly depends on the lack of commercial agreements that hinders larger energy flows (Med-EMIP report, 2010, page 64). Interconnectors are mainly used for mutual aid, and often remuneration is in-kind. Therefore most countries in the region have to rely on their domestic generation (which is not necessarily an efficient arrangement).

When we look at the economic fundamentals that characterises electricity generation, we see that energy trade occurs in a thick legal and regulatory framework that largely depend on the micro-technical characteristics of the commodity traded. Indeed energy markets are characterised by: i) large variations in demand over the course of the year; ii) the need to balance physically the supply and demand at every point of the network; iii) limited-storability (in particular for electric power); iv) inability to control energy flows to most individual consumers; v) limited use of real time pricing by retail consumers.

The considerable level of coordination between subsequent stages of the energy supply chain has produced almost everywhere In the last century two main variants:

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<sup>2</sup> Eurostat (2010), Pocketbook on Euro-Mediterranean statistics.

- A vertically integrated public monopoly; or
- Different local monopolies for the distribution-retailing phase for small customers and a national firm in the production-transportation phase, integrated by a long-term contractual relationship.

Both options have been widely adopted in most countries belonging to the Mediterranean region and are still in place in the countries belonging to the south rim of the Mediterranean basin. In Europe this paradigm has been questioned in the 1990s with the promotion of the single EU market. The starting point was the opening up of the transportation network to TPA – ‘third party access’. This first step aimed to promote the wholesale market, breaking up the exclusive right of supply for the owner of the net<sup>3</sup>. Twenty years after EU27 have produced a fairly integrated internal electricity market that currently trade cross border around 7% of the total gross consumption<sup>4</sup> especially in continental Europe. This radical shift towards a competitive approach hinges upon a model that foresees the separation of the energy supply chain in different stages with the establishment of competition where possible (production/generation, wholesale and retail market and related services) and regulation where necessary (typically transmission and distribution networks). This market paradigm is crucially based on the consideration that the creation of a functioning competitive market is possible, and most importantly desirable, from a welfare perspective.

However, this market model (based on liberalisation of potentially competitive markets) has not been universally adopted. Actually, the contrary is true. Apart from several experiences in Europe, where a variety of different regulatory approaches has emerged over the last decades (forming the so-called Regulatory Patchwork) and North America and Australia, the so-called "neo-realist approach" (Escrignano, 2010) is widespread in other countries and regions. According to this approach, the relationships between consumers and producers are defined through bi-lateral long-term contracts, and national systems are interconnected with point to point connections, most of the times only for mere network security reasons. Typically, in this systems "national champions", traditionally supported by governments, dominate the national markets, in which there is only a narrow, or no role, for competition. In the Mediterranean region these two paradigms coexist. Energy cooperation in the area today needs to be formulated according to a model that conjugate those different approaches in a stable framework.

To respond to these compound needs Mediterranean countries are developing a common regulatory and legal framework. To date 20 states, being Member of the Association of the Mediterranean Regulators for Electricity and Gas (Medreg) are building a shared view on the regulatory framework for the area, coupled with a

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<sup>3</sup> The introduction of the directive 90/547/CEE introduced the possibility of free transit between producers and wholesale traders of electric energy.

<sup>4</sup>Total cross-border monthly physical flows/gross consumption, Market Observatory For Energy Volume 3, Issue 4: October 2010 – December 2010

progressive move towards integration of the energy markets<sup>5</sup>. Peculiar feature of this process is the voluntary nature of this regional cooperation.

Medreg is a forum for exchange of know-how and expertise in the field of energy regulation for the benefit of its members and promotes the overall welfare of the Euro-mediterranean area. Acknowledging the diverse historical background of the Mediterranean region, energy regulators have a central role to play in promoting a “bottom-up” process for harmonization of energy markets and legislations. The same accounts for progressive market integration in the Euro-Mediterranean region<sup>6</sup>. In front of these strategic energy challenges, Medreg’s duty is to constitute a strong institutional basis to address economic, social and cultural development, as well as the need to conciliate a rising energy demand with sustainable development conditions.

The regulatory framework within Medreg countries is not imposed. It is discussed and evaluated in the light of potential mutual gains and possible (prospective) complementarities between diverse countries (exporting vs importing countries) and regulatory frameworks (liberalised market vs. vertically integrated monopolistically organised one). Within this forum the existing regulatory institutions and rules within members’ countries are analysed in an attempt to highlight possible harmonisation strategies and roadmaps for convergence.

Private actors (as Medreg) have begun to play an increasingly important role in regulatory policy-making. While most of these policy arrangements follow a “top-down” logic, there is also an increasing number of “bottom up” modes of inclusion of private actors. These modes are characterized by the emergence of voluntary self-regulation of individual firms or industry sectors that are recognized and integrated into policy-making and/or formal law at a later stage. In addition, more inclusive approaches, such as multi-stakeholder initiatives, have become more common in public policy making, adding a participatory spin to the classic top down logic.

In particular in the North African regions (Maghreb and Mashreq), where the power systems are generally smaller and scarcely interconnected, participation in the evolving Euro Mediterranean market is a driving rationale for the restructuring of the sector. The relatively small size of the domestic market is a major constraining factor for the entry of international investors into the sector, together with the incomplete reforms and the low level of government commitment to the issues that investors perceived as priority when planning investment in developing countries<sup>7</sup>. In general,

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<sup>5</sup> Medreg was founded in 2006 with the primary aim of elaborating proposals for the development, harmonization and integration of Mediterranean energy markets and of promoting the exchange of know-how and expertise in the field of energy regulation. In November 2007, in the occasion of its fourth General Assembly held in Rome, Medreg was turned into a permanent Association. The Constitutive Act was signed by the following countries: Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Malta, Montenegro, Morocco, Palestinian Authority, Portugal, Slovenia, Spain, Tunisia and Turkey.

<sup>6</sup> The essential role of Energy Regulators has been acknowledged by Euro Med Energy Ministers on 17 December 2007 in Limassol, in order to implement the Priority Action Plan agreed for 2008-2013:

1. to guarantee greater harmonization of the energy markets and legislations and to seek progressive market integration in the Euro-Mediterranean region;
2. to foster sustainable development in the energy sector and;
3. to develop initiatives of common interest in key areas such as infrastructure extension, investment financing, research and development.

<sup>7</sup> Lamech, R., Saeed, K., (2003), What International Investors Look For When Investing In Developing Countries, Energy and Mining Board Discussion Paper, The World Bank Group.

reform in the region has been slow. But the exporting potential of the area has raised the EC and potential investors' interest.

Historically, concerns over security of supply, coupled with the significant transaction costs related to the technical difficulties connected with the considerable level of coordination required between subsequent stages of the electricity supply chain, dictated the shape of the power system that currently sees most Mediterranean countries being self-sufficient in electricity. When we look at electricity dependency in the Euro-Mediterranean area, we can see that almost no electricity is imported to or exported from the EU. Only Finland (with 13% net import of domestic demand from Russia), Italy (17% from France), The Netherlands (15% from various countries) and Morocco (10% from Spain) rely heavily on continuous electricity imports (Eurostat, 2010; International Energy Agency, 2010).

But this situation is varying rapidly. Regional integration in the Mediterranean area occurs in markets that are changing quickly under the confluence of globalization and growing links between national economies and major regional players (typically EU members states). The adoption of the European Union climate and energy package and the stricter emission obligation targets (also known as the triple twenty targets<sup>8</sup>), and the growing competition to access secure and affordable energy sources and fuels from developing countries is likely to increase the integration between electricity markets in the area. The current power systems in Europe, North Africa and Middle East region are very different in most respects due to the large differences in economic development and the abundance of oil and gas in North Africa and the Middle East (that dictates the generation portfolio), but nevertheless they are expected to show significant convergence in terms of electricity demand in the future. Actually their variance constitute an important added value when it comes to system risk minimisation. In this framework two forces appear to represent the driving rationale in shaping the sector evolution: climate change and energy security.

Despite these emerging circumstances, Mediterranean integration, so far, is unimpressive in the formal international institutions that students of integration normally have in mind. Compared to the developments and the market potential observed when analysing the integration of Euro-Mediterranean energy markets, the relative weakness of formal political institutions is very notable. The Mediterranean Area, or any of its sub regions, lacks equivalents to the panoply of European-wide institutions, foremost the European Union. In the establishment of formal institutions Mediterranean regionalism during the last decades has experienced a series of false starts. Recently in joint communication to the European parliament, the council, the European economic and social committee and the committee of the regions<sup>9</sup> has reinforced the need to enhancing cooperation with neighboring countries with the aim to establishing a complementary "EU-Southern Mediterranean Energy Community".

Renewable energy sources (RES) are at the core of this harmonisation process, for various reasons. They are abundant in the area (the Mediterranean Solar Plan alone

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<sup>8</sup> The triple twenties refer to, respectively: a reduction of greenhouse gas by at least 20% by 2020; a reduction of energy consumption by 20% by 2020; and finally, an increase in the production of renewables up to a portion of 20% of total production by 2020 (EU Climate and energy package available here [http://ec.europa.eu/clima/policies/package/index\\_en.htm](http://ec.europa.eu/clima/policies/package/index_en.htm))

<sup>9</sup> "A new response to a changing Neighbourhood" COM(2011) 303.

planned to deliver 20GW of new renewable electricity capacity by 2020 across Mediterranean countries<sup>10</sup>) and provide a sustainable solution in the long run. RES also respond to the more stringent environmental policies that European countries are adopting, together in the framework of the stricter emission obligation targets included in the “Green package”.

In order to deploy secure renewable electricity and to provide a reliable market integration in the area three main actions will guarantee the backbone of the future Euro-Mediterranean energy area: a) Gradual regulatory and legislative convergence based on a “Corridor approach”; b) the expansion of the electricity network in the area and c) the establishment of a energy free trade area in the Mediterranean basin.

The establishment of a Mediterranean specific electricity paradigm will be the result of an evolutionary process from the conventional Euro-Mediterranean Partnership (EMP) and European Neighbourhood Policy (ENP) approach that failed to achieve “convergence of interests between European [and South-Mediterranean] consumers and producers and transit countries” (emphasis added, Darbouche, 2011). Those past initiative were plagued by an uncooperative approach by the EU<sup>11</sup>, based on the mere reproduction of the *aquis communautaire* on a larger scale with the accompanying thick normative and regulatory dimension. Most South Mediterranean Countries (SMCs) were sceptical on the market-oriented approach proposed by the EU about energy relations, especially when based on a narrow concept of strategic energy relations, mostly based on EU security of supply needs.

The evolutionary process involves the convergence of legal and regulatory framework between the two shores of the Mediterranean basin, together with a better physical and institutional integration. All these does not entail a giant leap frog in terms of policy and technological arrangements, but requires that some fundamental pillars are posed in order to develop a sustainable electricity exchange in the Mediterranean area. These three main pillars will be the necessary conditions to sustain the establishment of a electricity market in the Euro-Mediterranean area. Let’s illustrate the main characteristics of the three fundamental actions that constitute the required pre-condition for the Euro-Mediterranean electricity area to exist:

## **2. Corridor approach toward market convergence.**

Energy market, and electricity market in particular, are still largely dominated by national champions that determine the characteristics of the electricity system, with their own set of preferences. Large market players are normally able to influence the set of policy options locally available and to make them country (or sub-regional) specific. In addition electricity market tended to be closed system (in order to ensure self sufficiency)<sup>12</sup>, but the increase interdependence of the national electricity systems (due to the RES penetration and thanks to the reduced reliance on indigenous fuel for

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<sup>10</sup> European Commission , Euro-Mediterranean Partnership, 2011.

<sup>11</sup> ENP was launched in March 2003 and was established to build a wider energy community (European Commission, 2003).

<sup>12</sup> This is not the case , for instance for other energy market, such as gas and oil market, that are regional or larger.

generation requirements) requires stricter integration between adjacent and interconnected systems.

Adjacent countries, physically interconnected and endowed with complementary electricity system (in terms of portfolio mix and load profile) tend to develop a regulatory framework that maximizes some sort of joint welfare (or profit) function (Chao & Peck, 1996) and that drives many countries to coalesce in clusters, “Corridor”.

Energy corridors arrangements are different from simple point to point connection, because the transit of energy from one system to another requires that the physical interconnection and the institutional and regulatory framework in the area interested are able to sustain and favour the necessary exchange across its borders. It also imply that the energy system interested manage to integrate, harmonizing rules and managing (without disruption) the physical and legislative constraints that stricter integration requires.

Whereas the peculiarity of the Mediterranean region impede that a region-wide arrangement is reached in the short to medium run, and in fact also in EU a variety of different regulatory approaches has emerged over the last decades (with the emergence of a regional approach), clusters of countries with complementary electricity market and convergent interest normally manage to emerge, even in complex institutional environment as in the Euro-Mediterranean area, and normally group together supply hubs with demand centre.

The corridor approach allows for taking into consideration convergence within specific corridor while introducing flexibility to take into consideration country and region specific preferences.

Currently three main electricity corridor are emerging in the Mediterranean region in the North-South direction, but they require significant reinforcement of the corresponding south-south interconnection in order to sustain the significant flow that will be determined along the main directions.

The three corridor are the West corridor (Morocco-EU trough Spain), Central Corridor (Maghreb-EU trough Italy) and the East corridor (Middle East-EU trough Turkey). The existence of energy corridor alone, while allowing for a sub-regional harmonisation of the regulatory framework, does not guarantee in itself the creation, in the long run, of a regional energy market. The process of generating consistent and mutually compatible systems is largely devote to the implementation of the 3<sup>rd</sup> pillar, the creation of the Mediterranean energy free trade area, that requires that neither institutional arrangement is mutually exclusive.

### **3. Network Expansion.**

The Mediterranean power systems are split into various sub-system: the continental European grid<sup>13</sup>, the three western North African grids, that are synchronous with the continental European grid, whereas the Libyan and Egyptian grids are synchronous with Jordan, Lebanon and Syria. The Turkish grid is now connected and synchronised with continental Europe trough South East Europe, all those blocks comprise a number of different national or regional market and control areas. Interconnection

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<sup>13</sup> The world largest synchronous working grid, that covers the entire continental Europe with a total consumption of 2600TWh/a (UCTE, 2008).

capacity is rather small, even inside EU, and congestion is a problem at most national borders, a problem that is exacerbated by the regional expansion of intermittent renewable power. Power grids, along with generation portfolios, have been constructed from a national perspective. Therefore there was no urgent need for interconnections in the past and only few were built. Over time the benefit of stronger interconnections, in terms of efficient sharing of control capacities and imports during capacity shortages, became apparent and reinforced interconnection are becoming a priority. However interconnection are not strong enough to unify the continental European markets, not to mention the even more fragmented situation in the rest of the Mediterranean basin. Limited interconnection cause market distortion and physical problems. Increasing cross border trade coupled with very strong growth in wind and Concentrated Solar Power (CSP) in geographically limited area, cause local overload and system instability. Negative prices in some national markets have raised the necessity of increased grid interconnections.

A pan-European cross-Mediterranean Super Grid is key in enabling the efficient deployment of the growing wind generation in the north and CSP and PV in the south<sup>14</sup>. It will also require a reinforcement of the existing HVAC grid in the area and the wide introduction of smart technologies and smart grids. In particular all artificial bottleneck, for example limited cross border trade caused by national or legislative borders need to be removed.

It is well known that RES power cannot be installed close to demand hubs but must be located where it is more efficient to generate it. This means that a geographical specialisation of RES generation will prevail in the long run, with large wind generation areas located in the north, hydropower generation plants in the mountain areas in continental Europe and CSP and photovoltaic generation located in the south part of the Euro-Mediterranean region and North Africa in particular. This implies that better interconnection between those remote areas, and with the meshed network around them, will be needed to secure adequate RES generation to be dispatched.

A reinforced Super Grid will serve two primary functions: it will transport renewable energy from production sites in North Africa and Peripheral regions in Europe to load centres and to evacuate electricity away from areas with momentary excess supply to areas with momentary excess demand.

Euro-Mediterranean countries have strong incentives to improve the network interconnection, and this is true for various reasons. Firstly because it will lower the dependency of power sector from imported fuels<sup>15</sup> allowing also for a greater diversification of the countries from which imports stem; secondly the very nature of RES generation that, differently from oil and gas (to a lesser extent), cannot be stocked from exporters countries to profit from increased prices and more favourable market condition at a later stage. Cutting electricity supply (to exercise market power over importers) will lead to substantial foregone profits that the exporter will suffer, and that cannot be recouped in subsequent timeframes. Therefore neighbouring

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<sup>14</sup> Mediterranean countries are currently expanding the diffusion of RES in electricity system. Motivations for this policy are probably different between EU and non EU countries. The former aims at reducing their carbon footprint together with their (fuel)import dependency and the latter, and in particular the gas and oil exporting countries, intend to reduce the domestic fuel consumption in order to free valuable resources for external markets.

<sup>15</sup> Whereas most countries are self sufficient in relation to electricity supply, almost all European and most of the Mediterranean countries are dependent on imported fuels for their power generation. In 2008 EU 27 countries import over 60% of its energy (IEA, 2010).

countries that trade substantial renewable power are tied very strongly to each other and tend to have aligned concerns over security of supply (SoS).

On the other hand better interconnection, especially with the presence of significant share of RES generation transferred across countries, requires the increase of the geographic scale of network operation (at least at sub-regional level), the effective promotion of system integration at corridor level, and a significant improvement in the institutional capacity. In particular this latter aspect will prove to be key when large amount of electricity is exchanged, because the coordination between systems will be fundamental to secure the delivery of electricity power at each point of the network. Therefore the promotion of sub-regional (Corridor) system integration, in presence of significant RES generation, requires stronger and better harmonised interconnections.

The problem has been acknowledged by some, and in particular from the European Commission that, in order to stimulate the coordinated construction and more efficient use of new interconnectors, as well as to increase the cooperation and coordination between Transmission System Operators (TSOs) has established in 2009 two new institutions<sup>16</sup>: ACER, that will oversee the development of common standards and approaches for cross-border trades, and ENTSO-E that aims to promote the reliable operation and optimal management of the European transmission system. A similar positive step in this direction is the creation of an analogous dedicated body that will oversee the development of cross-country interconnections in the Mediterranean region (METSO)<sup>17</sup>.

#### **4. Establish a Energy free trade area in the Mediterranean region.**

The vision of an interconnected pan-European and cross-Mediterranean grid, based on a “Corridor” approach and relying mostly (but not exclusively) on renewable generation, would enable electricity production at the best sites for each technology, regardless of national or regional borders and distances to the central European load centres. This provision both increases the efficiency of the system and reduces the intermittency problems.

Normative convergence together with physical infrastructure within different (geographical and source) energy corridor surely entails some sub-regional dynamics along a particular corridor. However, at a regional level, it may imply the fragmentation of the Euro-Mediterranean energy space, at least in the short run.

In order to avoid the risk of another uncooperative set-up and the proposal of a top down imposition and extension of the *aquis communautaire* to a larger region, that has proven to be ineffective and scarcely attractive for the SMCs, the Euro-Mediterranean energy space will be based on the establishment of an “Energy free trade area”, to be set up through a process based on a mandatory sets of minimum requirements rather than on best practices. Regional institutions involved in the regulatory process, such as Medreg and METSO, have to identify the minimum

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<sup>16</sup> Third package was firstly proposed at the Commission's Energy Policy for Europe, (COM(2007)1 final).

<sup>17</sup> Refer to the Medreg press release, Florence, 10 June 2011, available here:[http://www.medreg-regulators.org/portal/page/portal/MEDREG\\_HOME/ADMIN/Documents/Documents\\_News/20110610\\_MEDREG\\_PR.pdf](http://www.medreg-regulators.org/portal/page/portal/MEDREG_HOME/ADMIN/Documents/Documents_News/20110610_MEDREG_PR.pdf)

requirement in areas of action such as: Market structure, Regional TSO Engagement, Institutional Capacity, Governance structure, Legal and regulatory Framework.

These are obviously major challenges to be addressed and need the simultaneous action of a plurality of players, such as national and regional regulatory authorities, governmental bodies, TSOs, investment and financial institutions.

Without denying the complexity of this task, it is important to understand here what needs to be the approach for creating a regional free trade area rather than describing the final outcome of this effort.

The binding constraint in this process is the voluntary convergence towards the minimum set of measures. They must ensure compatibility with the existing set-up and the institutional framework of neighbouring countries. The process will necessarily require gradual and stepwise evolution toward a regional market, and will see different level of engagement in different sub-regions. The main driver will be to align the interests of the consumers and producers in the northern and in the southern basins of the Mediterranean Sea.

The “Energy free trade area” will be based on an intervention that must guarantee longevity of energy policy, transparency, Co-development and Regional view.

The lifespan is a key attribute of government policy. In order to require and propose a long-lasting transformation of the industry, the new policy should have a long-term lifespan. Those policies should be proposed by government and policy-makers in an open and transparent way, with plans that are communicated to investors and to the industry in a clear and timely manner. In developing the legislation supporting the various schemes it is vital that there is a dialogue between governments and interested parties, since the success and effectiveness of the policies proposed will be directly related to how much input there has been from the market that ultimately is expected to use them. This clearly includes consumers. Finally a regional view requires that a region wide goal is shared and incorporate into individual countries action plans.

The final aim for the creation of a regional free trade area is to provide a legal and regulatory framework that would allow each state of the region to trade energy with its immediate neighbour. This minimal step is not yet in place everywhere. As explained earlier self sufficiency and network isolation is the rule, rather than the exception in many non-EU countries in the region.

An obvious example (and model) is the European Coal and Steel Community established in the aftermath of the treaty of Paris in 1951 and creating a common market for Coal and Steel between the signing countries . The ECSC was the first supranational institution where the decision-making process takes place in a multi-national environment for a sector specific policy area.

## **5. Conclusions**

The European Commission (EC) has promoted over time an approach that proposed to extend the EU’s energy *aquis communautaire* to its neighbouring countries (European Commission, 2006), and has often highlighted the importance of creating strategic energy partnership with producing and transit countries, which should be based on the EU’s energy regulations and policies (European Commission, 2007).

The EU external energy policy has been traditionally based on a “Europeanization” strategy of exporting EU regulations to non-EU states and in particular to partner countries. Although this approach, from an EU perspective, can be desirable, and represents a means to modernise partner countries energy sectors and secure energy supplies, it is not always easy or possible, for at least two separate factors.

The first obvious reason is that the progress of the internal European energy market is making slow progress. In fact, currently there is no single model yet and no single energy market. European countries preferences over energy policy and existing regulatory and legislative tools are very disperse. The level and the structure of tariffs and taxation of energy products, as well as of energy prices, differ widely across Europe.

Secondly, the introduction of the third energy package will add considerable variability to the existing situation through the different levels of unbundling models applicable in each MS.

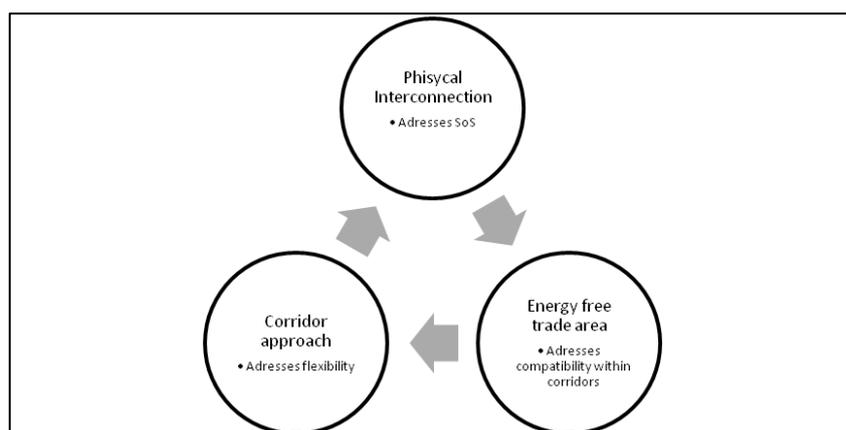
Currently, in this diverse scenario there is anyway a strong unifying energy policy across MS: the imposition of climate change policies. The 20-20-20 target has been able to drive most MS energy policies toward the development of renewable energy sources.

Taking into account the substantial changes that this provision is imposing to EU MS and to its neighbouring countries we analyse the pillars upon which the Mediterranean Electricity paradigm should be based. They are: the development of a corridor approach towards convergence, a capillary network expansion in the region and the creation of an energy free trade area in the Mediterranean basin.

These three main action points will enable the region to adopt a flexible approach towards regulatory convergence through the application of a corridor approach to market convergence. They will also address Security of Supply issues by developing an integrated network, based (but not limited) on the exchange of RES generation. Finally, the establishment of a Mediterranean energy free trade area will guarantee that compatibility between the different corridors is ensured, allowing different countries to converge although at a differentiated speed.

The tools to deliver these main goals are several and depend on various factors: on the governance and the legal and regulatory frameworks in place in each market, on the integration and on the level of diffusion of renewable generation at present and in the coming years, besides the financial instruments and risk mitigation mechanisms that each system will be able to implement. The factor influencing the development of the Mediterranean electricity sector are several but, we believe, they are crucially based on the three pillar we have indicated. These three pillars are integrated policy goals, they mutually reinforce and sustain each other. The adoption of only a subset of these provisions might lead to an unstable system or to a highly fragmented electricity market. Neither is desirable.

The integration of the Euro-Mediterranean energy market will face significant challenges in the coming years. The adoption of unifying approach developed according to a bottom-up process will enable the energy potential of the area to be effectively deployed, avoiding the unilateral policies that have repeatedly failed to deliver the necessary progress toward the development of an integrated Mediterranean energy community.



**Table 1** - Average load factor \*

Rate of utilization of the cross-border lines (percentage referred to the Net Transfer Capacity\*hour)

	2008	2007	2006	2005	2004
<b>Syria-Jordan</b>	0,70%	0,50%	2,40%	27,50%	4,30%
<b>Jordan-Syria</b>	8,00%	5,20%	0,00%	0,00%	0,00%
<b>Syria-Lebanon</b>	32,90%	53,40%	41,60%	20,10%	8,20%
<b>Syria-Lebanon</b>	29,90%	52,70%	53,30%	26,10%	12,80%
<b>Jordan-West B.</b>	90,20%	80,50%			
<b>Egypt-Gaza</b>	90,00%	82,60%	19,50%		
<b>Turkey-Syria</b>	4,40%	31,40%	4,30%		
<b>Libya-Egypt</b>	4,70%				
<b>Egypt-Libya</b>	7,90%				
<b>Jordan-Egypt*</b>	0,90%	1,00%	0,50%	0,10%	0,10%
<b>Egypt-Jordan*</b>	18,80%	12,00%	17,00%	24,20%	29,50%
<b>Algeria-Tunisia</b>	7,80%	7,00%	8,10%	7,90%	5,40%
<b>Tunisia-Algeria</b>	9,10%	8,20%	8,60%	9,00%	5,60%
<b>Morocco-Algeria</b>	10,20%	9,50%	10,40%	8,10%	9,30%
<b>Algeria-Morocco</b>	11,10%	9,10%	9,70%	8,20%	6,20%
<b>Morocco -Spain</b>	0,30%	0,40%	0,50%	1,50%	0,20%
<b>Spain-Morocco</b>	74,20%	61,50%	35,70%	23,90%	44,50%

Source: MED-EMIP - Medring Update, Final Draft April 2010 (pag.70)

\* The ratio between the yearly energy exchanged (MWh) and the Maximum Capacity (NTC value multiplied by the number of hours in a year) for the existing interconnections.

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