



Policy Paper

Thinking together for the future of the Mediterranean

EMEA Policy Papers present concise, policy-oriented analyses of topical issues in Euro-Mediterranean economic affairs, with the aim of interjecting the views of EMEA experts into the policy-making process in a timely fashion.

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A New Euro-Mediterranean Energy Roadmap for a Sustainable Energy Transition in the Region

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An urgent need for a sustainable energy transition in the southern and eastern Mediterranean

The Arab spring has opened a new era of challenges and opportunities for the Euro-Mediterranean area. A number of scenarios are foreseeable, such as a scenario of conflicts or one of reinforced cooperation between the two shores of the Mediterranean. In the current transition phase, southern and eastern Mediterranean countries (SEMCs)¹ urgently need to find a new path of strong and sustainable socio-economic development. Considering its macroeconomic and energy fundamentals, the region has great potential for triggering a new development process and the ongoing political changes could enhance such a new dynamic.

Today, SEMCs face a range of pressing socio-economic challenges, including solving the problems of poverty and high levels of structural unemployment, in the context of fast demographic growth. Energy is an essential commodity enabling socio-economic development. The current energy situation in the SEMCs is characterised by a rapid increase of energy demand, low energy efficiency and low domestic energy prices due to extensive and universal consumption subsidies.

¹ More specifically, SEMCs in this context refers to 11 countries: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Palestinian territories, Syria, Tunisia and Turkey.



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Thus, all countries are under strong pressure to increase investment in new energy facilities as well as finance costly energy subsidies. In short, the current energy situation does not appear sustainable and poses several risks to the prospects of socio-economic development of the region.

The patterns of energy supply and consumption in the SEMCs greatly affect the main macroeconomic parameters of the countries, including fiscal balances and poverty trends. The volatility of global prices for energy commodities and their relatively high levels in recent years constitute a burden on the finances of many net importing countries and their customers. The volatility also negatively affects energy-exporting countries.

Furthermore, rapid population growth, urbanisation and economic growth as well as a low degree of energy efficiency all add to rising energy demands, putting pressure on existing infrastructure and necessitating large new investments in electricity, oil and gas. A more sustainable energy development path requires reforms of the energy tariff and subsidy systems, increased efforts to introduce energy-efficiency measures and renewable energy sources.

Of the 11 SEMCs, only 3 (Algeria, Libya and Egypt) are net energy exporters. In these major hydrocarbon-exporting countries, hydrocarbon exports account for a dominant share of their exports and state budget revenues. Domestically, this systematically generates structural socio-economic and financial imbalances. Their rent-seeking strategies (with low labour intensity) are detrimental to economic growth, and lock economies and public budgets in dependence on a single sector and one commodity market, which is furthermore volatile.

The situation is worse for the majority of the SEMCs that have no (or limited) hydrocarbon resources with which to finance their socio-economic development.

The SEMCs are endowed with a huge potential for renewable energy as well as significant energy efficiency and demand-side management (DSM). Thanks to the ongoing technological and institutional changes, all SEMCs could make use of this huge potential. While in the past only the hydropower potential was exploited (mainly in Turkey, Egypt and Morocco), presently all



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countries are developing plans to enable them to also rely on other renewable sources, such as solar, wind and biomass. These sources can be developed for both domestic and export markets. Enhancing energy efficiency and DSM appear to be crucial prerequisites for renewable energy deployment, as they contribute to better control of demand and reduce energy bills. For these programmes to be successful, it is important to implement socio-economic reforms backed by solid strategies, improve governance, rationalise energy pricing structures and subsidy systems, combine energy-supply policies with strong energy-efficiency and DSM policies, and find new and original financing instruments to address both centralised and decentralised renewable energy development and energy-efficiency measures.

Considering the historical evidence, it could be expected that the Mediterranean oil and gas export sector will continue to develop without particular difficulties, as it is based on strong complementarities between the northern and southern Mediterranean: a capital- and technology-rich but energy-hungry north and a resource-rich but capital- and technology-poor south. A remaining larger challenge is the development of domestic energy projects in the SEMCs as well as south-south cooperation.

Among the domestic energy projects, those likely to find the highest obstacles to their development relate to renewable energy and energy efficiency, especially as long as energy prices are below market price levels.

The unsustainable heaviness of energy subsidies

In the SEMCs, energy prices are held artificially low for all customers for social (but mostly political) reasons. These universal energy-consumption subsidies act as strong disincentives to more rational and efficient use of energy and investment in the energy sector, including renewable energy. Moreover, energy subsidies pose heavy burdens for SEMC state budgets, especially since the oil price surge experienced over the last decade. As an example, in 2010 Egyptian energy subsidies accounted for 12% of GDP.

Such universal subsidies, which mostly benefit wealthy customers, generate imbalances, especially huge state deficits



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and debt. The reform of energy subsidies is not easy, but it is possible. In fact, several examples exist of best practices (e.g. Jordan gradually phased out universal price subsidies, replaced by individualised/targeted subsidies and Turkey's fuel prices are among the highest in Europe).

But there are many other reasons for the persistence of universal subsidies: renewable energy technologies have low energy intensity and often high up-front investment costs (although wind energy has already reached grid parity in some SEMCs, such as Morocco and Tunisia), requiring financial help that the local governments or all customers cannot always afford.

The design, enforcement and monitoring of national energy efficiency and renewable energy action plans are crucial policy instruments to reduce the energy burden and enhance renewable energy deployment.

Further prospects for cooperation (north-south and south-south) will emerge if the EU continues its policy to encourage the SEMCs towards the development of sustainable energy policies. This is true for the upstream, but also for the mid-stream and downstream energy sectors.

Huge potential for low-cost energy efficiency and demand-side management policies

As an overall trend, the level of energy efficiency in the SEMCs remains very low. Indeed, the energy intensity in the SEMCs is several times higher than in the EU. Without additional efforts for energy efficiency, the final energy consumption in the SEMCs will likely more than double by 2030.

Energy-efficiency measures are cost-effective if they do not need to compete with subsidised energy prices, but even when they are cost-competitive, the investment – though minor – often needs to be carried out at the household level. Yet households often lack the necessary information and advice as well as the initial capital needed for the investment. An effective policy agenda on energy efficiency and DSM needs to take into account the following issues:

- a) *Public finance.* Energy efficiency and DSM measures enable significant improvements in public finances in the SEMCs.



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- b) *Institutions.* Energy efficiency and DSM concern several sectors that depend on a number of institutions. At the national level, creating synergies among these various institutions will thus be particularly important. Specifically, dedicated agencies should be in place to implement the right technical choices – and the best financing tools – to enforce mandatory regulations. Such agencies should work at an inter-ministerial level, under the guidance of the energy ministry and the auspices of the finance ministry or the prime minister’s office.
- c) *Hierarchy.* Considering the financial constraints of energy efficiency and DSM, the timing and the hierarchy of the implementation measures matters greatly and thus should be developed within action plans that set implementation schedules and responsibilities. Policy priorities should first be placed on measures with high visibility, lower costs and high rates of return.
- d) *Domestic pricing.* A serious energy-efficiency and DSM agenda will need to deal with domestic pricing, including the elimination of universal subsidies. Indeed, energy pricing remains a key tool for modifying consumer behaviour towards more efficient use of energy.
- e) *Sectors.* Households, SMEs and the building sector should be the priority targets of an effective energy-efficiency and DSM policy. They represent a major share of energy consumption and they have substantial potential for energy efficiency gains at low cost. In particular, the introduction of eco-labelling and technical, mandatory, standard regulations on consumption for equipment and appliances concerning cooling, heating, lighting and industrial machinery have proven to be the most effective and durable at low (or even negative) costs. Supporting the purchase/installation of proven, small equipment based on renewable energy sources (solar water heaters and PV) by these sectors should also be at the top of the agenda.
- f) *Support from the EU.* The EU has great potential to support the development of energy-efficiency and DSM measures in the SEMCs. Technical assistance programmes could easily transfer best practices on energy efficiency, especially concerning standards and labelling. The financing of small-scale projects and implementation of domestic funds dedicated to supporting investment by households and SMEs in energy efficiency would



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also help the SEMCs to improve their energy efficiency. An example of this is already provided through the facilities of the

- g) European Bank for Reconstruction and Development in Bulgaria and Turkey (the Turkish Sustainable Energy Finance Facility and the Mid-size Sustainable Energy Financing Facility), now under study for several SEMCs.

Taking into consideration all these elements, the SEMCs should consider energy efficiency and DSM as an opportunity for economic development rather than a specific burden.

Unlocking the renewable energy potential in the SEMCs

The development of renewable energy projects in the SEMCs offers a wide variety of advantages:

- a) Renewable energy projects could initially be primarily devoted to diversifying the energy mix, still largely dominated by fossil fuels and thus contributing to satisfying the rapidly increasing domestic demand for energy. This would free up natural gas alternatively used in the domestic power generation sector for additional exports to Europe. Considering that an important but partly underutilised gas infrastructure connecting North Africa with Europe is already in place, this choice would involve an immediate, significant economic return for the SEMCs just because of the growth in the export value of gas stocks.
- b) Renewable energy projects, due to their intermittency (now well forecasted days ahead), require the reinforcement of grids (especially with the use of software for grid management and weather forecasts) to enable their integration into larger, interconnected electricity networks and markets, therefore further fostering the integration of the SEMCs.
- c) Part of the renewable electricity could also be exported to Europe via HVDC (high voltage direct current) electricity interconnections. This could allow the SEMCs' renewable electricity to take advantage of European feed-in tariffs. Such a scheme implies allowing the SEMCs to be eligible for EU feed-in tariffs, with the advantage for the EU of helping it to meet its decarbonisation targets at a lower overall cost.
- d) Renewable energy projects could develop significant new industry and service sectors (e.g. installers), leading to local job creation and manufacturing developments. By sharing manufacturing facilities and therefore exploiting larger



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economies of scale, south-south cooperation could be promoted. This is particularly important in a region that presently has a low level of intra-regional trade.

- e) The economic and industrial development consequent to the large-scale implementation of renewable energy projects in the SEMCs could have several positive spillovers for the EU, such as preventing migratory flows, creating new markets and securing the existing energy infrastructure in the Mediterranean.
- f) Renewable energy and energy-efficiency projects in the SEMCs could become a stimulus for enhanced Euro-Mediterranean cooperation in socio-economic areas, similar to the case of the European Coal and Steel Community, which sparked Europe's post-World War II integration.

It is important to avoid focusing solely on large-scale renewable energy projects, but also to firmly develop decentralised systems, such as solar water heaters and rural PV systems. These systems are cost-efficient, but nevertheless need to be promoted. Best practices already exist in some SEMCs, such as Israel, the Palestinian territories, Tunisia and Morocco.

Towards a new structure of regional and interconnected markets

The core challenge to the production and trade of renewable energy in the SEMCs is that the development of the electricity supply system is limited by the lack of a regional market, largely due to energy price gaps and subsidies. The rigidities that this imposes mean that existing infrastructure is not used optimally, investment in new infrastructure is distorted and probably hindered, and the development of renewable energy is delayed.

For renewable energy to contribute most effectively to the development of the SEMCs, it must be embedded in a functioning, regional electricity market that permits the exchange of power in substantial volumes, has no barriers to trade and is friendly to private investment. The exchange of energy is to the benefit of both buyer and seller: it enables both parties to balance portfolios of generating assets, it can alleviate some of the disadvantages of non-dispatchable and intermittent supplies, and it can permit joint ventures to share



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risks. Such a market does not yet exist across the SEMCs. There is neither the infrastructure nor the regulatory and legislative framework that would be necessary for a regional market to function correctly.

Indeed, electricity interconnection remains a key issue for energy cooperation in the region. It is of crucial importance to reinforce the national transmission lines in the SEMCs, which are often weak, as well as interconnections between these countries. Since the late 1990s, the two shores of the Mediterranean have been connected through a line across the Strait of Gibraltar; however, the electricity interconnection between the two shores needs to be further reinforced. Moreover, non-technical (commercial) distribution losses remain at very high levels (up to 40% in Lebanon and 20% in Algeria) at the expense of paying customers and distributors. In this sector, an increasing role will be played by the Mediterranean transmission system operators (Med-TSO).

Furthermore, another key problem of renewable energy development in the SEMCs is to ensure the financing of such projects. For this reason innovative financing methods are needed. At the same time, the SEMCs seem to be endowed with significant carbon market opportunities for investments in both energy efficiency and renewable energy.

How to finance the sustainable energy transition in SEMCs

The Clean Development Mechanism (CDM) is a potential source of additional revenue streams for investments in energy efficiency. In fact, the CDM is designed to assist developing countries in achieving sustainable development by allowing the entities among the Annex I Parties under the UN Framework Convention on Climate Change (UNFCCC) to participate in low-carbon projects and obtain certified emission reductions in return. Nonetheless, carbon financing through the CDM can only cover a small share of total investment (around 10%) and requires specific expertise.

To date, the SEMCs have not fully tapped into the vast potential for CDM projects, as several barriers to the development of CDM projects in the region persist: 1) the lack of capacity for operation and management, 2) the lack of regional coordination and 3) the lack of engagement of the private



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sector. Possible factors leading to a successful entry into this mechanism would be the capacity for data collection and management as well as experience in baseline setting and crediting. In this respect, the electricity generation sector is considered suitable for testing a nationally appropriate mitigation action (NAMA) or a sectoral mechanism.

The EU could negotiate bilateral sectoral agreements with its neighbouring countries as part of the Union for the Mediterranean (UfM). Both the EU and the non-EU country would benefit from engaging the private sector in a consultation process, as the latter has the data, technology and know-how that are essential to the implementation of a sectoral mechanism. Actually, the Mediterranean region offers an interesting test case for an integrated approach to carbon markets: there is an institutional set-up (the UfM), a financial facility (the Mediterranean Carbon Fund) and a region-wide initiative with substantial potential for energy-related emission reductions (the Mediterranean Solar Plan) that could fit into a new market-based mechanism. The outcomes of the Mediterranean Solar Plan could feed into not only the mid-term scenario-building process for the SEMCs across policy areas, but also the ongoing process of elaborating new market-based mechanisms at the UNFCCC and EU levels.

With regard to the need for new financing sources and instruments for the development of renewable energy projects in the SEMCs, the EU could also play an important role in facilitating investments by the Gulf Cooperation Council (GCC) in the SEMCs. Notably, a strong complementarity exists between these regions in the field of renewable energy. The wide availability of capital in the GCC, the great renewable energy potential of the SEMCs, with the possibility (considering their geographical proximity) to export some of it to Europe, and the institutional support of the EU could represent the three main pillars of a new 'triangle of growth'. Private and public investors (such as sovereign wealth funds) from the GCC are increasingly focusing their investments on the renewable energy sector, with the aim of transforming oil wealth into technological leadership in renewable energy. Some of the investment could be directed towards the SEMCs, whose potential for solar energy is among the highest in the world and which are already promoting several large-scale renewable



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energy projects. The EU should facilitate the implementation of this process by providing institutional support (in terms of both regulation and public finance) and technological know-how.

The urgent need for a Euro-Mediterranean Energy Roadmap

Efforts for more sustainable energy development in the SEMCs could represent the key element in an EU foreign energy policy towards the countries emerging from the Arab spring. This policy could provide important dividends to both the EU and the SEMCs, as far as energy security, sustainable development, economic growth and job creation are concerned. If the EU is committed to improving cooperation with the SEMCs, it is important not to be solely perceived as a hydrocarbon buyer, but also as a full-fledged partner, notably to foster regional cooperation as foreseen in the Euro-Mediterranean Partnership (EuroMed) action plan (2008–13) adopted by the energy ministers of the region in Limassol in 2007 and to be discussed and revised at the next ministerial meeting in Brussels in mid-2013. In the framework of the European Neighbourhood Policy, already a broad set of capacity building and technical assistance measures for regional energy projects in the southern Mediterranean (MEDSTAT, MED-ENEC, MED-EMIP and PWMSP) has contributed extensively to regional energy cooperation and provided support to national and regional efforts.

The recent Arab uprisings could provide the EU with the opportunity to play a more meaningful role in the region in the future. Efforts to assist the SEMCs in facilitating energy efficiency, DSM, renewable energy and energy interconnections could represent the main components of an EU foreign energy policy towards the region. To conclude, an integrated scheme of energy cooperation designed to function as a catalyst for reinforcing Euro-Mediterranean economic, political and social integration should rely on three main pillars:

- a) *a long-term strategy for domestic socio-economic development*, based on a robust institutional set-up and enhanced public governance, and including an oil revenue management and poverty reduction strategy with targeted support instead of universal consumption-price subsidies;



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- b) *an integrated energy and climate policy* elaborated as part of a global energy strategy covering energy security, energy access, regulatory reforms towards energy prices that are fully cost-reflective, energy efficiency and renewable energy action plans in synergy with climate policies (carbon financing); and
- regional energy cooperation* (intra-SEMCs and EU-SEMCs) to focus on sustainable policy development with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE), which is the regional focal reference for both the SEMCs and the GCC countries on energy efficiency and renewable energy deployment. This regional energy cooperation should also focus on regulatory

Glossary

CDM: Clean Development Mechanism

DSM: Demand-side management

GCC: Gulf Cooperation Council

MED-EMIP: Euro-Mediterranean Energy Market Integration Project

MED-ENEC: Energy Efficiency in the Construction Sector in the Mediterranean

MEDSTAT: Mediterranean Statistics

NAMA: Nationally appropriate mitigation action

PV: Photovoltaic

PWMSP: Paving the Way for the Mediterranean Solar Plan

SEMCs: Southern and eastern Mediterranean countries

SMEs: Small and medium-sized enterprises

UfM: Union for the Mediterranean

UNFCCC: United Nations Framework Convention on Climate Change



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