The Prospects for Renewable Energy in the Southern and Eastern Mediterranean Region amidst Low Oil Prices

Simone Tagliapietra
Senior Researcher at Fondazione Eni Enrico Mattei, Milan
Research Fellow at Bruegel, Brussels

Dropping Oil vs. Growing Renewables? An Overview

Since the summer of 2014 dropping oil prices have been the big news story of the energy world. As this trend became more and more resilient, many analysts also started to put into question the future of renewables, arguing that by entering an era of low oil prices the economic rationale for clean energy investments would have soon been weakened. However, new research released in January 2016 by Bloomberg New Energy Finance - the authoritative data source - revealed that in 2015 clean energy technology spending increased by 4% in comparison to 2014, reaching a record level of $329.3 billion.

This trend is based on the decreasing costs of renewable technologies, but also on the decarbonization policies being adopted all around the world. In particular, a major share of this trend is due to wind and solar power, which are now being adopted in many developing countries - starting from China - as a natural and substantial part of the energy mix.

In short, notwithstanding the current environment of low oil and gas prices, renewables are generally staging a good performance in global energy markets. But what about Southern and Eastern Mediterranean countries' (SEMCs) renewable energy outlook? Let's take a closer look at the future prospects for the region.

The Southern and Eastern Mediterranean Region: a Paradoxical Energy System?

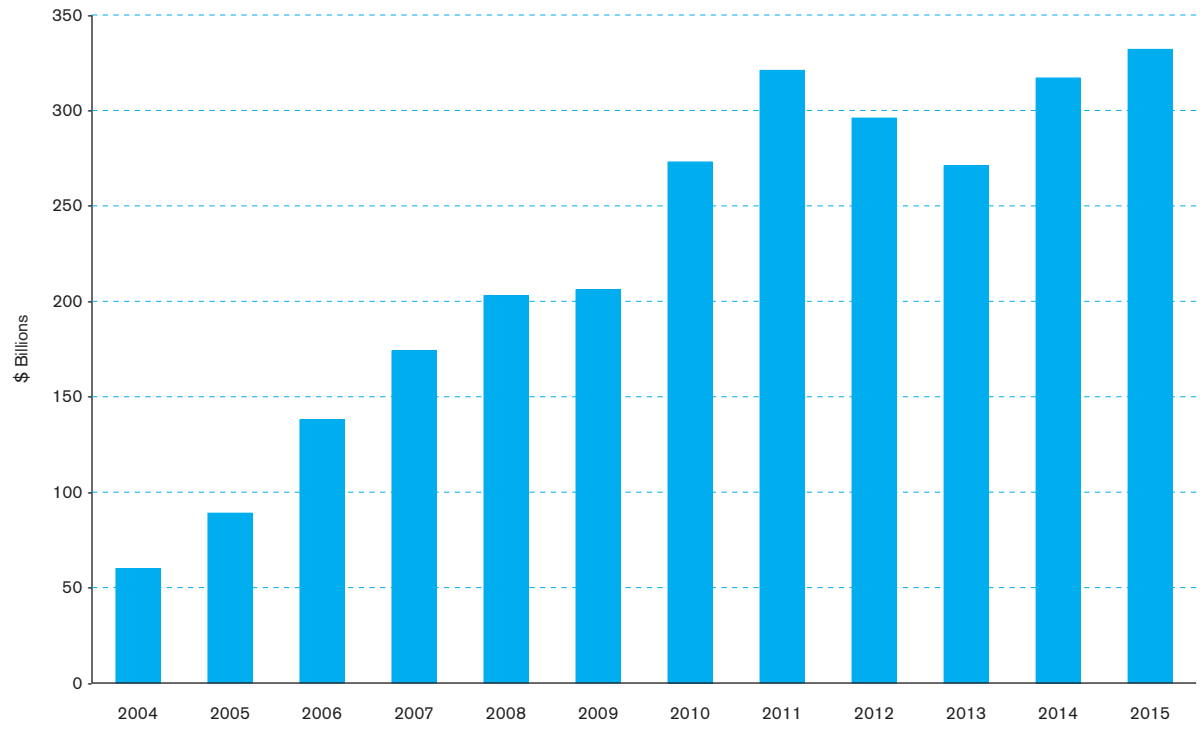
The starting point of any discussion on SEMCs' energy prospects has to be demand. In fact, primary energy demand of SEMCs has progressively increased over the last few decades, and most notably after the early 2000s, due to various factors such as rapid population growth, urbanization, economic growth and low energy efficiency.

In absolute numbers, the primary energy demand in SEMCs grew from 289 million tonnes oil equivalent (Mtoe) in 1990, to 340 Mtoe in 2000 and to 376 Mtoe in 2013. Presented in this way, these figures may not mean very much, but they become more useful if translated into growth rates. Such a perspective reveals that the primary energy demand in SEMCs rose by an annual growth rate of 5.6% between 1980 and 1990, by 3.4% between 1990 and 2000 and by 3.5% between 2000 and 2013. These growth rates are even more interesting if compared with other regions in the world.

In fact, over the last few decades the growth rates of primary energy demand in SEMCs well surpassed – in comparative terms – the ones of OECD Asia Oceania, OECD Americas and OECD Europe: the world's three key economic areas.

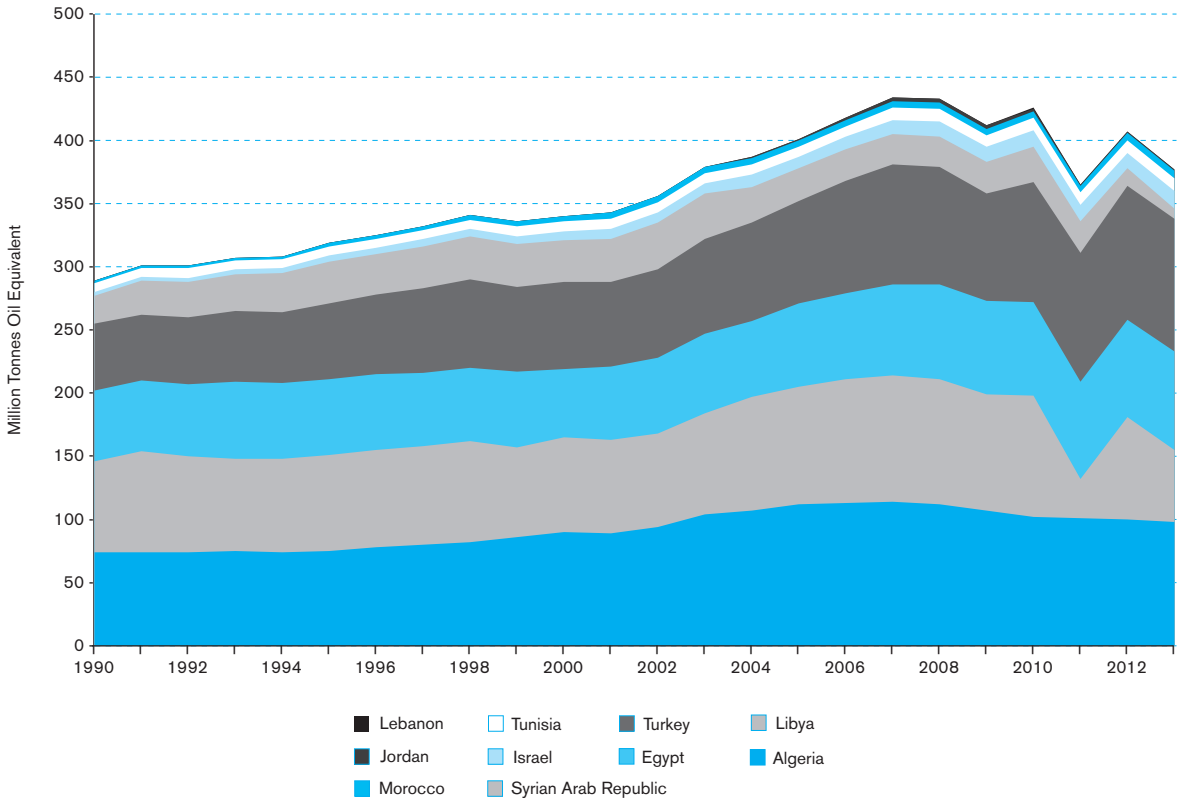
This trend, significantly accentuated in the 1980s and then less pronounced in the 1990s, is particularly interesting in relation to the first decade of the 2000s. In fact, in this period of time the growth rate of primary energy demand in SEMCs strongly exceeded the one of OECD Asia Oceania, an area generally considered as the key driver of energy demand worldwide. This figure clearly exemplifies how rapid and consistent the evolution of primary energy demand in SEMCs currently is.

CHART 17 **Global Clean Energy Investments (2004-2015)**



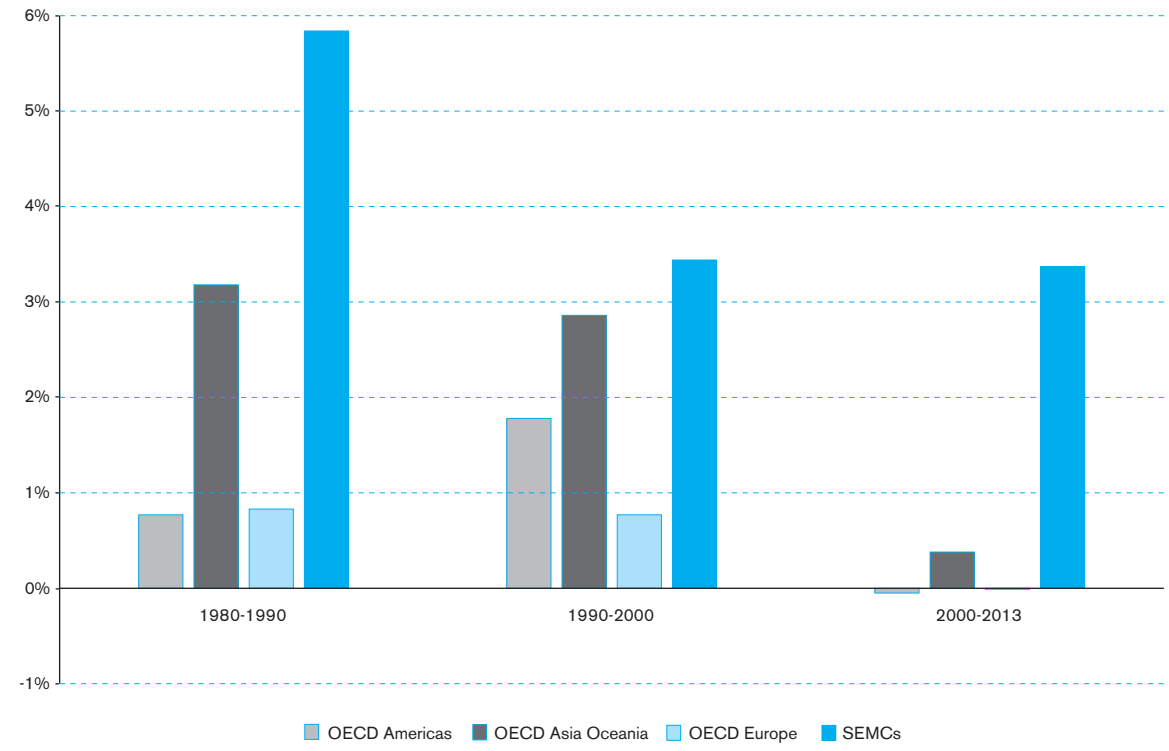
Source: Bloomberg New Energy Finance (2016).

CHART 18 **Total Primary Energy Demand in SEMCs (1980-2013)**



Source: own elaboration on International Energy Agency, Extended World Energy Balances Database, accessed in March 2016.

CHART 19 **Growth Rates of Total Primary Energy Demand in SEMCs and Other Regions**



Source: own elaboration on International Energy Agency, Extended World Energy Balances Database, accessed in March 2016.

In particular, electricity plays a crucial role in SEMCs' energy systems. Between 1990 and 2013 electricity consumption in the region grew by an annual growth rate of about 6%. Just to provide a quick comparison, in the same period of time electricity consumption in North Mediterranean countries grew by an annual growth rate of 2%. Electricity generation in SEMCs grew from 179 TWh in 1990 to 665 TWh in 2013.

Higher levels of economic growth and growing populations will most likely further push up demand for electricity in the future. But how is electricity being produced in SEMCs? Unsurprisingly, the regional electricity generation mix continues to be mainly based on fossil fuels. Natural gas covers almost half of the regional electricity generation mix, followed by coal and oil. In terms of renewable energy, only hydro plays a significant role, particularly in Turkey.

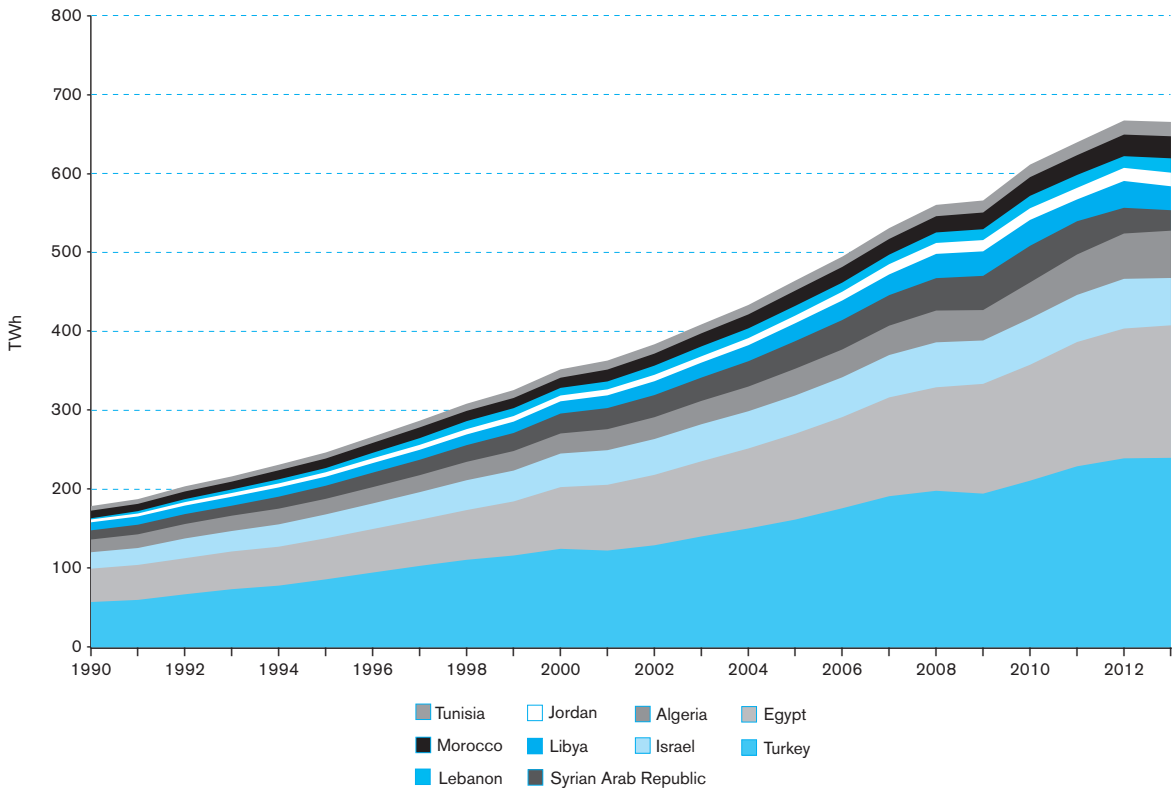
Other renewable energy sources such as solar, wind and geothermal continue to cover only about 1% of the region's electricity generation mix. This number represents a major paradox, considering the region's huge renewable energy potential that will be hereafter described.

The Case for Renewable Energy in the Southern and Eastern Mediterranean Region

The Southern and Eastern Mediterranean region is endowed with a huge solar and wind energy potential. Various scientific analyses have demonstrated that SEMCs' economic potential for concentrated solar power (CSP) is 300 times higher than the one of North Mediterranean countries. At the same time, the economic potential of photovoltaic systems in the region is set at a level five times higher than in the North. Finally, SEMCs are also estimated to have a technical potential 34 times higher than in Northern countries.

Such an abundant solar and wind energy endowment could bring various benefits to SEMCs, 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, considerably reducing energy bills in energy importing countries, creating new jobs, alleviating energy poverty, enhancing the quality of the environment and enhancing cooperation both among SEMCs and between SEMCs and the EU.

CHART 20 **Electricity Generation in SEMCs by Country (1980-2013)**



Source: own elaboration on International Energy Agency, World Energy Balances Database, accessed in March 2016.

Paving the Way for the Growth of Renewable Energy in the Region

Notwithstanding the huge renewable energy potential of the region and the numerous benefits potentially related to its exploitation, SEMCs continue to lag far behind most other regions in the world in terms of solar and wind energy deployment. This paradox is mainly due to the fact that the deployment of renewable energy in the region faces key barriers related to certain specific features of the regional energy markets:

a) *The commercial barrier*: the extensive use of universal energy subsidies leads to an inefficient allocation of resources and market distortions that, among other things, also limit the competitiveness of renewable energy sources vis-à-vis conventional energy sources;
b) *The infrastructural barrier*: SEMCs lack an adequate electricity infrastructure. Electricity transmission systems need to be enhanced at both the national level and between SEMCs. Furthermore, the electricity connections between SEMCs and the EU also need to be expanded/constructed in order to allow future potential 'green' electricity exports from SEMCs to the EU;
c) *The regulatory barrier*: SEMCs lack a stable and harmonized energy regulatory framework. Such a framework would represent a fundamental prerequisite for the deployment of solar and wind energy, particularly considering these technologies' long payback period. The current fragmentation of the regional regulatory landscape needs to be fixed in order to allow international investors to be fully committed to developing projects in the region;
d) *The financial barrier*: also because of the three previous barriers, the region lacks an adequate financing scheme for renewable energy. Government investment and finance from various international institutions – mainly European ones – continue to represent the cornerstone of the regional renewable energy financing. This situa-

tion is not sustainable, as a large-scale deployment of renewable energy in the region must rely on a much more solid financing scheme in order to be fully successful.

Towards a New Euro-Mediterranean Renewable Energy Cooperation Scheme

Tackling these barriers will be key not only to allowing a sustainable development of the regional energy markets but also to allowing a sustainable regional economic growth. In particular, to tackle these barriers a 'double-track' approach seems essential. In other words, these barriers are so resilient that they should be faced both singularly and globally, in one fell swoop.

Notwithstanding the huge renewable energy potential of the region and the numerous benefits potentially related to its exploitation, SEMCs continue to lag far behind most other regions in the world in terms of solar and wind energy deployment

First of all, SEMCs should advance an energy-subsidy reform process, phasing out universal fossil-fuel consumption subsidies in favour of targeted subsidies aimed at effectively addressing the problem of energy poverty.

Secondly, as far as the development of an adequate regional electricity infrastructure is concerned, the Association of Mediterranean Transmission System Operators (Med-TSO) might play a potentially crucial role in coordinating the various players in the field, in promoting a clear regional transport code and in developing operational tools for the coordinated planning process of the regional interconnection.

Thirdly, the same rationality might well be applied to energy regulation. In fact, the Association of Mediterranean Energy Regulators (MEDREG) might play a key role in promoting a clear, stable and harmonized regulatory energy framework in the Mediterranean region.

Finally, concerning the financial dimension, priority should be given to the creation of new financing mechanisms aimed at attracting institutional investors such as pension funds, mutual funds, insurance companies and sovereign wealth funds into the regional renewable energy market. Based on the principle that institutional investors will only come into this area if a proper risk-adjusted return is considered as guaranteed, key European financial institutions such as the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD) should cooperate to develop a sort of 'Mediterranean Renewable Energy Infrastructure Fund' aimed at channelling financial resources from institutional investors into regional renewable energy projects.

Considering the complex interdependence of all these infrastructural, regulatory and financial issues, close coordination between Med-TSO, MEDREG and the EIB-EBRD tandem seems essential. This would not require the creation of an additional institution, but only the rationalization of the current initiatives.

In fact, the Euro-Mediterranean region is currently characterized by the presence of many large, medium and small-scale organizations dealing with renewable energy. In such an intricate – and often redundant – situation, it is necessary 'to put the house in order' and focus on the key players in the field to develop a new renewable energy mechanism able to break with conventions. Transmission system operators, energy regulators and key international financial institutions in the region are the most important players to proceed in this direction. Through an inclusive, pragmatic and bottom-up approach, they have the potential to boost the regional renewable energy market, reversing the trend of disillusion that has progressively characterized the Southern and Eastern Mediterranean renewable energy sector in recent years and ultimately translating the regional renewable energy potential into a reality.