FINANCING ENERGY TRANSITION IN THE MEDITERRANEAN REGION: ISSUES, CHALLENGES AND KEY RESPONSES

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INTRODUCTION ........................................................................................................................................... 5

1. AN ACUITY OF CLIMATE CHANGE IN THE MEDITERRANEAN REGION MAKING THE MOVE TOWARDS ENERGY TRANSITION A MUST .............................................................. 6

2. FINANCING ENERGY TRANSITION : AN INTERNATIONAL ISSUE THAT CONCERNS THE MEDITERRANEAN WITH A PARTICULAR ACUITY ................................................................. 10

2.1. MAPPING INTERNATIONAL CLIMATE FINANCE: AN ARCHITECTURE MARKED BY THE PLURALITY OF ACTORS AND THE DIVERSITY OF INSTRUMENTS ....................................................... 10

2.2. FINANCING ENERGY TRANSITION IN SMECS : EVOLUTION AND MAIN FEATURES ........ 11

2.3 DIFFERENT PATHS FOR FINANCING ENERGY TRANSITION IN SEMCS : SOME COUNTRIES EXAMPLES ..................................................................................................................................... 15

3. RELEASE PERSISTENT CONSTRAINTS TO EXPAND FINANCIAL PERSPECTIVES FOR ENERGY TRANSITION IN THE MEDITERRANEAN REGION ................................................................. 17

4. REQUIRED LEVERS TO ENHANCE THE FINANCING OF ENERGY TRANSITION ................ 18

4.1. RAISING FINANCIAL RESOURCES TO ACCOMPANY THE PROCESS OF ENERGY TRANSITION .... 18

4.2. SETTING AN ECOSYSTEM THAT IS FAVOURABLE FOR ENERGY TRANSITION ....................... 19

4.3. ACCOMPANYING MEASURES THAT ARE NECESSARY TO THE SUCCESS OF ENERGY TRANSITION ................................................................................................................................. 20

REFERENCES ......................................................................................................................................... 22

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Introduction

The energy transition is a really crucial issue in the world and especially in the Mediterranean region which shows an intense vulnerability to climate change. Many countries of the region have undertaken strategies and adopted ambitious goals to move toward a sustainable pathway development. However, the implementation of many of those commitments faces serious impediments, particularly, to financing.

In order to share some thoughts and ideas on this specific topic, this present paper tries to highlight some aspects of this issue with a specific focus on the financing side of the energy transition in Southern-Eastern Mediterranean Countries (SMECs).

In order to face the financing constraints of this transition, the adaptation of the financial sphere to climate issues is absolutely required, but also the structural overhaul of current modes of production and consumption and the adoption of an appropriate regulatory and normative framework that fosters sustainable development choices.

In this paper, it will be a question of referring to the experience of some countries of the South-Mediterranean shore in terms of energy transition, by highlighting the public policy choices adopted on the subject in the same way as the efforts to enable the financial sector to align with the requirements of this important transition.

After giving a brief recall on climate change threats in the Mediterranean which put at stake the need to accelerate the process of energy transition and to secure its funding, this paper attempted to draw up the state of international climate finance and how Southern-Eastern Mediterranean Countries (SMECs) perform in this regard. Then a specific focus on some experiences within the region was addressed, and finally, the paper identified some policy responses proposals to address major challenges to which SMECs are confronted in the area of financing their energy transition.
1. AN ACUITY OF CLIMATE CHANGE IN THE MEDITERRANEAN REGION
MAKING THE MOVE TOWARDS ENERGY TRANSITION A MUST

Although it has a low level of greenhouse gas emissions (6% of global emissions), the Mediterranean region is severely hit by the shocks induced by climate change. Several studies (GIEC, the Mediterranean network of experts on environmental and climate change), highlighted the devastating effects of climate change in the Mediterranean.

- Compared to other regions of the world, the Mediterranean would experience a higher warming, well beyond the target of the Paris Agreement. Without vigorous actions in terms of mitigation efforts, the temperature rise in the Mediterranean could reach 2.2°C by 2040 and 3.8°C by 2100.

- The region could experience a significant reduction of rainfalls, especially in the Southern and Eastern Mediterranean countries, estimated at 40%. In such case, 250 million people could suffer from water scarcity by 2040.

- The sea level would continue to rise faster (3 mm per year during the two previous decades against 1.1 mm per year between 1970 and 2006). By 2050, half of the 20 cities vulnerable to sea level rise in the world will be located in the Mediterranean.

- The climate change would induce enormous public health challenges, in connection with the increase in the intensity and frequency of heat waves as well as the emergence/re-emergence of certain infectious diseases linked to climate change.

If the energy transition raises common issues for the region as a whole, it is noticeable that the nature and extent of these issues are expressed, however, differently between both shores of the Mediterranean. The Northern countries have already achieved at least two decades of reforms that enabled them to gradually diversify their energy mix and control to some extent their energy demand thanks to the deceleration of their demographic growth and the gains in terms of energy efficiency. With respect to the relatively high level of CO2 emissions emanating from these countries, their energy transition is bound by a rational that is different from that of Southern and Eastern Mediterranean countries (SEMCs).

The energy transition issue in the SEMCs is closely linked to the sustainability of their development model. Indeed, these countries face multiple challenges related among others to:

- The fast population growth (637 million inhabitants by 2040 against 534 million in 2015) which would put additional pressure on energy demand to accompany the surge of urbanization and increasing needs of various sectors of the economy. Therefore, the energy demand in the south-east Mediterranean countries is expected to rise nearly 118% by 2040.

- The polarization of SEMCs’ energy mix on fossil fuels, mainly oil and natural gas, is another important challenge, especially for the countries where hydrocarbon export revenues play a central role in the macro-financial balance.

The nature and magnitude of current and future impacts of climate change on the Mediterranean region is clearly an important imperative to accelerate the energy transition in the countries of this region and enable them to secure a sustainable and inclusive development trajectory.
The importance of fossil fuels in the energy mix of most of the Mediterranean countries impact negatively their trade balance. The South-east countries suffer more from this negative impact because most of them are net importers and the energy imports reach, for some countries, up to 20% in the trade balance.
The significant weight of subsidies allocated to fossil fuels. These subsidies are significantly important in countries such as Egypt, Lebanon and Algeria where they amount to 10% of their respective GDP. Other SEMCs show relatively more moderate levels (around 4% of GDP in Tunisia and Jordan, less than 2% of GDP in Morocco).

The significant infrastructure needs, in particular those required for energy transition, while their public financing capacities are under recurrent stress. The high level of Treasury debt (in terms of GDP) is a proof of this situation: it varies between 65% in Morocco to 93% in Egypt, while the level of Treasury debt exceeds 70% of GDP in Tunisia and Jordan in 2018. It is true that SMECs level of debt remains below that reached by Northern Mediterranean countries (98% of GDP in France, 97% of GDP in Spain, 142% of GDP in Italy). However, the sustainability of SEMCs’ debt is quiet uncertain, especially in a depressed international economic and financial environment.
Domestic credit to private sector remains quite insufficient around an average of 65% in comparison with the level observed in the north countries (an average of 95%).

The insufficient degree of maturity of SEMCs financial systems. While these systems play a central role in financing the economy, with the exception of Algeria and Egypt, they face several constraints (financial inclusion, convergence towards international norms and standards ...). These constraints reduce, for instance, the banking system capacity to become a powerful source of funding energy transition projects, especially with view to the non-binding character of ecological and environmental standards in the regulatory framework governing SEMCs financial market.

Despite the diversity of their economic situation and the heterogeneity of their energy mix, both sides of the Mediterranean would benefit from consolidating their efforts to achieve their progress towards energy transition.

The OME and the ADEM’s 2040 projections create a possible scenario where an acceleration of the energy transition in the Mediterranean context would enable the region to increase the share of renewable energies to 27% in its energy mix against 14% currently. It would lead to CO2 emissions reduction by 38%, compared to a scenario of inaction.

The effects of the energy transition would be more positive for the SEMCs because of the catch-up margins available to them compared to the North-Mediterranean countries. Indeed, the SEMCs would almost triple the share of renewable energies in their energy mix, increasing it from 6 to 16%, which would enable them to cut by half their CO2 emissions.

To make this positive path concrete, the effective implementation of bold policies encouraging the development of low-carbon activities is necessary. This would depend largely on the mobilization of substantial resources to fund, at the best conditions, the infrastructure and projects related to energy transition.

However, far from being a mere problem of financial flows, the issue of financing energy transition is complex because it includes all the signals and economic mechanisms that directly or indirectly affect the financial viability of projects. These mechanisms include, in particular, instruments aimed at improving the attractiveness of green financing as well as regulatory standards, taxation/subsidies and risk reduction/sharing mechanisms.
2. FINANCING ENERGY TRANSITION: AN INTERNATIONAL ISSUE THAT CONCERNS THE MEDITERRANEAN WITH A PARTICULAR ACUITY

2.1. Mapping international climate finance: an architecture marked by the plurality of actors and the diversity of instruments

The international climate finance architecture brings together a diverse range of public and private actors. Their mission is to channel funds provided by developed countries (donors) to developing countries (recipients).

Public actors include notably relevant UN agencies; multilateral development banks; international cooperation agencies; and national development agencies.

Private actors include project developers, investors and financial market intermediaries but also financial system regulators (banks, insurance, and capital market) through the introduction of standards and benchmarks fostering a greater apprehension of climate risk by financial institutions.

Climate oriented financial instruments have evolved significantly over the years as a result of progress in climate negotiations at the multilateral level. These instruments, which are closely tailored to the diversity of actors involved, are subdivided into two broad categories, namely public funding and private finance.

For the public funding, two important sources should be highlighted:

- **Funds mobilized under the United Nations Convention on the climate (UNFCCC)** through its two major components: Green Climate Fund and Global Environment Facility, with financial resources of $10.3 billion and $4.43 billion respectively over the 2014-2018 period. It should be noted that the Green Climate Fund is particularly geared towards mitigation projects.

- **Contribution of multilateral, regional and national development banks.** In 2017, funding from multilateral development banks alone amounted to $35.2 billion. Climate-related World Bank financing reached $20.5 billion in 2018.

As for the private finance dedicated to green investments, it covers a diversified range of financial instruments including:

- **Carbon Market**, a mechanism set up in 2005 under the Kyoto Protocol, to exchange CO2 emission rights in the same way as financial securities.

  "Of the various mitigation strategies to reduce fossil fuel CO2 emissions, carbon taxes—levied on the supply of fossil fuels (for example, from oil refineries, coal mines, processing plants) in proportion to their carbon content—are the most powerful and efficient, because they allow firms and households to find the lowest-cost ways of reducing energy use and shifting toward cleaner alternatives."

- **Green bonds** are securities issued by a company or a public entity to finance projects that contribute notably to the energy transition (renewable energies, energy efficiency, clean transport, resilient infrastructure, etc.). Since the Paris Agreement, the volume of green bond issuance has increased steadily from $41.8 billion in 2015 to nearly $171 billion in 2018. In terms of sectoral distribution, energy accounted for 26% of total projects funded through green bonds. The MENA region was recipient of less than 6% of the green bonds.
Public Private Partnerships, which are methods of financing based on risk reduction, are a tool that enable to channel the private investments in ecological projects, and more particularly those coming within the framework of the energy transition (renewable energy infrastructure, energy efficiency projects ...). Well-structured public-private partnerships can help governments tap into the expertise and efficiency of the private sector, raise capital, access innovative new technologies, and spur development.

Green Banking, through an offer of bank financing sensitive to ecological considerations, enables to support private operators in channelling their investments in low carbon activities.

Other private financing instruments exist, some of which are climate insurance as well as the mechanisms related to environmental risks analysis.

2.2. Financing energy transition in SEMCs: Evolution and main features

In order to accompany their process of energy transition, SEMCs need substantial funding. The financial resources required to implement their NDCs targets are estimated at more than 170 billion dollars, of which 81% are conditional:

- 73 billion USD in Egypt for the Mitigation Program over the period 2020-2030;
- 35 billion USD in Morocco for the adaptation program and 50 billion USD for mitigation by 2030;
- 17.4 billion USD for mitigation and 1.9 billion USD for adaptation in Tunisia.

In general, SEMCs share of total financial flows related to climate is limited, with an average of 16% over the period 2000-2017. These flows cover a large spectrum of sectors among which energy sector is predominant. This sector alone, concentrates around 31% of financial commitments over the period 2000-2017.
The climate finance commitments increased significantly during the period 2000-2017, with an average annual growth rate of 44.5%. The energy sector has benefited mainly from this climate finance dynamic, particularly over the period 2007-2017 with an average annual growth rate of 35.5%.

In terms of geographic distribution of financial flows dedicated to energy transition in SEMCs, three countries capture 84% of total financial flows over the period 2001-2017: Egypt (35%), Morocco (26%) and Turkey (23%).
Since 2012, financial commitments increased by 21.5% in annual average over the period 2012-2017. This dynamic is strongly linked to efforts deployed by some SEMCs in favour of acceleration their energy transition.

As for the structure of instruments used to finance energy transition in SEMCs over the period 2001-2017, loans represent a predominant share (83%). Aid/subsidy does not exceed 12% of the total, whereas shares and collective investment vehicles represent only 5% of flows.
Turkey is the only country among the states of the sample which has appealed to others financial instruments such as equity and shares in collective investment vehicles.

As for the main contributors to financing energy transition in SEMCs, 52% of financial commitments over the period 2001-2017 come from the Development Assistance Committee country members (such as Japan, Germany and France), followed by Multilateral Development Banks (40%).

Indeed, the diversification of the energy transition funding sources in SEMCs has started since 2013, with an important breakthrough of the Multilateral Development Banks and in a lesser extent the Non-Development Assistance Committee.
In terms of the bilateral financing, Germany was far away the most important funder with a 48% share followed by Japan and France... As for multilateral financing, the highest funding volume originated, especially, from The European Bank for Reconstruction and Development (EBRD) and World Bank (WB), with a 66% share. Finally, the weight of the climate funds is still modest with a relative advance of the Clean Technology Fund.

2.3 Different paths for financing energy transition in SEMCs: some countries examples

For SEMCs that are well known for their strong commitment to energy transition -Morocco, Egypt, Turkey and Tunisia- their ambitions vary in terms of fixing mid-term goals. They also follow more or less different paths in financing their energy transition strategy:

Morocco

In Morocco, the national energy strategy set up objectives that aim at raising renewable energy share in the energy mix up to 52% by 2030 and reducing, through an energy efficiency policy, energy consumption by 12% and 15% respectively in 2020 and 2030. An appropriate institutional and legal framework has been implemented in order to help deploy the strategy. Total mobilized funding accounts for 3.6 billion USD over the period 2001-2017. Member countries of the Development Assistance Committee represent 64% of total amounts committed followed by multilateral banks that account for 30% of total committed amounts.
Egypt

In Egypt, raised funds to accompany energy transition reached 4.82 billion USD over the period 2001-2017. Strategic choices for this country by 2035 focus on solar energy (25%). Energy efficiency received less importance.

Like Morocco, raised funds mainly come from member countries of the Development Assistance Committee (54%) and multilateral banks (36%). In 2017, the funding volume has been doubled thanks to the surge of the multilateral banks funding.

Figure 16: Financing commitments to the Egyptian energy sector by funder (2001-2017)

Source: OECD database, DEPF calculation

Turkey

In Turkey, energy transition goals should be attained in a short term period (2023). This show how well advanced this country is compared to its Mediterranean neighbours. These goals are more balanced, focusing on renewable energy as well as energy efficiency.

Fund raised account for 3.2 billion USD over the period 2001-2017, mainly from multilateral development banks (64%).

Figure 17: Financing commitments to the Turkish energy sector by funder (2001-2017)

Source: OECD database, DEPF calculation
In Tunisia, the implementation of its energy transition strategy is quite similar to Morocco. On the other hand, Tunisia counts more on the energy efficiency to accelerate its transition to sustainable development pathway.

Its ability in raising funds is much lower compared to the countries previously mentioned: only 839 million USD over the period of which 94% comes from member countries of the Development Assistance Committee. Meanwhile, Tunisia has the most ambitious objective in reducing the share of primary energy of all SEMCs (34% by 2030).

Constraints related to financing climate transition in general and energy transition in particular, are not specific to the Mediterranean region. It’s an international issue that reflects the slowness by which commitments are implemented as well as the lack of interest of investors and financial markets for energy transition projects.

According to an OECD recent survey, obstacles related to financing energy transition concern first, the complexity of climate funding mechanisms which require huge capacity in terms of formalization of eligible projects for multilateral funding.

In addition, the financing issue related to energy transition reflects higher risk aversion for private investors to invest in clean energy projects. According to the same survey, the risk is fuelled by investor concerns regarding sudden changes in county’s priorities especially in terms of reviewing subsidies systems and supporting clean energy.

Other determining factors have been highlighted such as the country’s macroeconomic situation, its level of solvency as well as its technological capacity in the field of clean energy (connectivity, networks) and to secure infrastructure against natural disasters.

In parallel to these constraints that are common to all countries, SEMCs face some structural constraints, though with a different intensity from a country to another, that affect their ability to secure sufficient funding for their energy transition:

- Slow progress in reversing current energy models, despite some progress, due to the strong structural dependence on fossil fuels compounded by the persistence of public subsidies for petroleum products in some countries of the region (estimated at $130 billion in 2015 in the South-East Mediterranean countries, according to OECD).
In order to overcome the above mentioned challenges and to meet funding needs for energy transition in SMECs, a strong action must be deployed at various levels (sharing financing and risks between public and private sector, increasing multilateral funding, appropriate fiscal measures and guarantee instruments to reduce risk perception inherent to green investment...).

Financing energy transition is a structural question that cannot be resolved without reviewing the legal and normative framework in line with low carbon development requirements. The same applies to other important aspects such as strengthening R&D and technology innovation as well as inflecting consumption and production patterns to create an environment conducive to the development of clean energy.

4. REQUIRED LEVERS TO ENHANCE THE FINANCING OF ENERGY TRANSITION

4.1. Raising financial resources to accompany the process of energy transition

- Broaden the spectrum of multilateral financing dedicated to energy transition projects

Raising substantial financial resources requires strengthening multilateral development bank’s financial commitments as well as those of international institutions through a dual action: (1) Increase the share of loans and grants for energy transition in their portfolio and (2) Set their actions on a long-term horizon to improve projects financial visibility and to enable a better apprehension of the risks involved.

- Diversify green financial instruments, with a particular emphasis on green bonds

Attractiveness of private financing to accompany the energy transition requires providing investors with suitable solutions allowing them to secure their financial commitments. Among the relevant instruments to reduce risks, we can find state guarantee mechanisms for institutional investors, syndicated loans and subordinated debt. Other appropriate instruments can also help reducing financial constraints such as public-private partnerships and technical assistance contracts to support green energy projects implementation.

Important financial resources that channel through capital markets as well as the international bond market, represent a great opportunity that sovereign and private actors should seize to raise funds for financing large-scale energy transition projects.

Green bonds offer a potential which will develop as financial markets put a greater focus on climate risk. Green bonds issues, by drawing from long term institutional savings, will allow the satisfaction of ever increasing needs.
• Resort to an efficient eco-fiscal mechanism

This mechanism could be very useful to generate substantial revenues for the public authorities. These revenues can help finance investments in green technology and equipment’s while encouraging eco-responsible behaviour. Furthermore, revenues from the eco-fiscal mechanism can be used eventually to support the state incentive policy that encourages the use of renewable energy or to attain energy efficiency targets without having incidence on the budget.

A study conducted by the IMF in the context of the G20 revealed that increasing the carbon tax up to 75 dollars/ton of CO2 (a level compatible with objective of the Paris agreement) could generate additional tax revenues estimated at 1.5% of the GDP by 2030. These tax revenues could be sufficient enough to invest in clean energy infrastructure, strengthen budgetary margins and reduce other taxes to support vulnerable households.

4.2. Setting an ecosystem that is favourable for energy transition

• Recourse to an integrated approach to implement the energy transition strategy

In order to succeed in implementing energy transition it’s necessary to give equal interest to economic and industrial aspects, scientific and technologic research as well as human resources and professional training. This goes through adopting a double trigger policy with a « production » component where renewable energies take a greater place, and a « control of consumption » component where energy efficiency plays a major role.

To be efficient, the energy efficiency policy should set accurate goals for each sector of activity and conducted in coherence with the implementation of other public policies such as urban development, transportation, construction...

• Strengthening the governance of the green financing system to maximize benefits in terms of achieving energy transition goals

Green financing system architecture at the international level is characterised by the entanglement of initiatives and the plurality of actors which represent both an opportunity and a source of complexity. An appropriate governance framework is necessary in order to optimize current initiatives; This will allow the establishment of a common reference system comprising (1) a unified classification of investments dedicated to energy transition, (2) appropriate standards to ensure the integrity and reliability of the green financial market and ensure its harmonious development and (3) appropriate prudential rules to reflect the risk associated with sustainable financial assets held by banks and insurance companies.

• Indexing socio-economic development options on the imperatives of energy transition

In order to promote a smooth transition towards a lower carbon economy, public policy harmonisation and convergence with energy transition objectives is vital. These policies will gain in efficiency by prioritizing projects that emphasize the conversion of key economic sectors towards sustainability.

• Promote equitable sharing of benefits and costs of the energy transition

Assuming collective responsibility for the issues related to energy transition is closely dependant on the measures that will be taken to share benefits and costs of energy transition. Therefore, it would be valuable to extend and generalise access to clean energy sources and to provide for compensatory measures for economic activities facing difficulties in their energy transition.
4.3. Accompanying measures that are necessary to the success of energy transition

• Implement an appropriate legal and regulatory framework

Implementing a legal and regulatory framework for the energy transition is essential to succeed in liberalizing the energy sector and ensure free competition and unhindered access to clean energy transmission and distribution infrastructure. It also requires the implementation of a legal framework that adjusts progressively in order to support and accelerate progress towards the achievement of energy transition goals, particularly the legal framework for renewable energy.

• Mobilize the human resources needed to meet new jobs associated with energy transition

Training and acquisition of new professional skills to adapt to the structural changes induced by the transition to a low-carbon economy must become a top priority. Also, training programs for green jobs should be incorporated into both academic and non-formal educational cycles. North-South cooperation would build capacity for green technology ownership, with particular emphasis on innovation in renewable energy and energy efficiency.

• Promote North-South and South-South cooperation

A new dynamic for North-South cooperation should be implemented in order to strengthen capabilities in green technology appropriation, focusing particularly on innovation in the field of renewable energy and energy efficiency. The South-South partnership must be encouraged in order to enable experience sharing and pooling of expertise between scientific and innovation research centers so as to promote appropriate technological solutions at a lower cost.
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