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COP21 objectives: towards a joint energy transition in the Mediterranean?

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CONVINCED THAT REGIONAL INTEGRATION between the two shores of the Mediterranean can be structured around large-scale sectoral projects, and especially in the energy sector, IPEMED's preparatory works for the COP21 relied on formerly published studies, and in particular on the Mediterranean Energy Community[1], as well as on the carbon constraint in the Euro-Mediterranean space[2]. The concept of "carbon constraint" comes from the application of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, which resulted in the implementation, since 2005, of the European Union Emissions Trading System (EU ETS) by EU countries. While European countries committed to respect emission reduction targets (so called "Annex 1" countries of the UNFCCC and "Annex B" countries of the Kyoto Protocol), Southern and Eastern Mediterranean countries (SEMC), like other emerging countries, have so far followed the principle of "common but differentiated responsibility" which did not tied them to constraining objectives of greenhouse gas emission reductions. The COP21 is therefore essential since it must lead to a new international and legally binding agreement on climate, applicable to all countries, that is to say to both northern Mediterranean countries and PSEM, in order to maintain global warming under 2°C by 2100.

1- COP21, the energy transition challenge in the Mediterranean

North of the Mediterranean: varied commitments but a greater acknowledgement of opportunities linked to a better energy cooperation between both shores

Among the 10 priorities of the Juncker Commission, the "energy and climate union" comprises 5 action fields:

1- security of supply;
2- fully integrated internal energy market;
3- energy efficiency;
4- emission reduction;
5- research & innovation[3].

Regarding these last points, the new **European plan on climate change**, concluded in 2014 by the European Council, is a new crucial step in the construction of a sustainable energy European Union and in the success of the COP21. It is willing to put the European Union, represented as such at the COP21, at the cutting edge of energy transition. While the objectives of the former 2008 Plan were of 3 X 20% by 2020, the 2014 version sets strengthened targets:

- at least 40% of greenhouse gas emission reduction by 2030, with 1990 as a reference[4] ;
- share of renewable energies set at 27%;
- improvement of energy efficiency by 27% for 2030**,** with a reassessment in 2020 to update this last target to 30%.

The security of energy supply is also a priority since, in 2012, more than half (53.4%) of the UE-28 gross inland energy consumption was covered by imported sources.[5] A more detailed analysis of EU energy importations shows that it relies on energies imported from Russia and that

[1] *Towards a Euro-Mediterranean Energy Community*, Moncef Ben Abdallah et al., IPEMED, mai 2013
[2] *Carbon Constraint in the Mediterranean*, Boisgibault, Louis and Mozas, Morgan, IPEMED, 2012.
[3] http://ec.europa.eu/priorities/energy-union/index_fr.htm
[4] http://www.horizon2020.gouv.fr/cid83421/adoption-du-paquet-energie-climat-2030.html
[5] http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports/fr

southern Mediterranean countries, and especially Algeria, play a significant role by supplying 13.5% of its natural gas in 2012. **Therefore, given the proximity, interdependency and complementarity linking countries from both shores, the European Union was led to think about a deeper regional cooperation in the field of energy.** This new strategic orientation could already be seen on 25 May 2011, in a joint communication by the High Representative of the Union for Foreign Affairs and Security Policy and the European Commission called "A New Response to a Changing Neighbourhood":

> "*Energy co-operation will be stepped up through increased energy policy dialogue aiming at further market integration, improved energy security based on converging regulatory frameworks, including on safety and environmental standards, the development of new partnerships on renewable energy sources, energy efficiency and nuclear safety. In the medium term this could lead to extending the Energy Community Treaty to neighbours not yet party to it or, building on its experience, establishing a complementary* "***EU-Southern Mediterranean Energy Community***[6]".

A communication of 7 September 2011 on "The EU Energy Policy: Engaging with Partners beyond Our Borders", underlines that "*As a first step, the EU is ready to work on developing a '**EU-Southern Mediterranean Energy Partnership**,' focussed primarily on the development of renewable energy. Promising exploratory talks with partners in the region such as Morocco or Algeria suggest that this initiative meets interest and deserves to be fully explored*[7]", explaining afterwards the key role of Algeria: "*Likewise, the Union has an interest in extending and lifting to a higher level its energy cooperation with Algeria. Both sides intend to finalise without delay their work on a Memorandum of Understanding on energy, which has the potential to boost bilateral energy cooperation beyond the traditional topics of trade in gas and oil and notably to target cooperation regarding the development and trade of renewable energy*[8]".

The high-level conference "Building a Euro-Mediterranean energy bridge" organized by the Italian Presidency of the Council of the EU and the European Commission in November 2014 highlighted once again the importance of **energy security**[9]**.** The Ministers of Energy of the EU and Mediterranean countries, as well as financial institutions representatives and industry and regulator associations, decided to create three Euro-Mediterranean **"**platforms**"**. The first one (led by the Mediterranean Energy Observatory), focusing on gas, was officially launched on 11 June in Brussels[10], while the second one, focusing on the regional electricity market, was presented on 12 October 2015 in Rabat. Even though it is much anticipated, given the commitments specified above, the third platform, supported by the secretariat of the Union for the Mediterranean, focusing on renewable energies and energy efficiency, should be launched in Cairo at an unspecified date[11].

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[6] http://www.senat.fr/europe/textes_europeens/ue0082.pdf
[7] P.7, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0539&from=EN
[8] P.9, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0539&from=EN
[9] "*The conference participants confirmed that there is broad agreement among the Euro-Mediterranean Countries on the importance of regional energy cooperation for ensuring secure, affordable and sustainable energy supply which is a key factor for underpinning stability and shared prosperity in the Mediterranean area*", Final Statement, Rome, 19 November 2014, available for consultation on: http://archives.dimed.gouv.fr/sites/dimed.gouv.fr/files/141119_reunion_euromed_energie_rome_-_declaration_finale.pdf
[10] https://ec.europa.eu/energy/en/news/commissioner-launches-euro-mediterranean-gas-platform
[11] https://ec.europa.eu/energy/en/news/commissioner-launches-euro-mediterranean-electricity-market-platform

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Southern and Eastern Mediterranean countries: ambitious objectives for the COP21 with a "conditional" implementation

Most SEMC having submitted an initial communication followed by a second communication to the UNFCCC just handed over their Intended Nationally Determined Contributions (INDC), in view of the COP21 agreement. IPEMED's analysis of the INDC[12] shows the importance of the SEMC climate change mitigation measures, especially in the energy sector. There seems to be a greater acknowledgement of the issues linked to the reduction of greenhouse gas emissions and of the opportunities linked to the energy transition. In this regard, let us quote Tunisia's observation: "*The climate change policy is reflected, in particular in the energy sector, by a voluntarist energy transition policy targeting the major challenges of the sector and in particular a challenge of energy supply security [...], a challenge of economic sustainability*".

Indeed, in terms of energy consumption, with the demographic growth and economic development going on in SEMC, the average growth rate of primary energy demand could reach 4.2% a year from 2006 to 2025. SEMC would then have a growth rate of primary energy demand almost four times higher than northern Mediterranean countries[13]. In 2025, they would account for 42% of the total energy demand in the Mediterranean basin, against 29% in 2006, with Turkey as the second European consumer. The estimations for a 2030 base scenario indicate a primary energy demand of SEMC of 1,500 million tonnes of oil equivalent; hence, the importance of developing energy efficiency. SEMC are already doing it thanks to MEDENER, the Mediterranean Association of National Agencies of Energy Conservation[14].

As regards energy production, Algeria, Libya, Egypt and Syria have oil and gas fields and export hydrocarbons while other SEMC import them. Thanks to the new fields of Bir Sebaa and Bir Mssana, Algeria reaches a crude oil production of 1.2 million barrels/day. The country produces as much oil as gas[15]. It is the SEMC major energy actor. The four importing countries suffer from the consequences of hydrocarbons price reduction. For electrical production, SEMC mainly recur to gas-powered plants (58GW) and renewable energies, especially to hydropower which is already quite developed (21GW). More recently, they have started to invest on wind power, solar energy[16] and a better reuse of waste.

SEMC are aware that the energy sector, as main contributor to greenhouse gas emissions, must be reformed. In this regard, let us remind the commitments of:

- Algeria: **9%** reduction of energy consumption by 2030, **27%** of electricity national production produced with renewable energies;
- Tunisia: **30%** reduction of primary energy demand by 2030 compared with the trend scenario, **30%** penetration rate of renewable energies in electricity production;

[12] Kelly Robin, Climate - What did Mediterranean countries commit to in view of the COP21?, November 2015
[13] Sources: Mediterranean Energy Observatory (OME)
[14] In this regard, see: http://medener-indicateurs.net/fr/index.html
[15] Sources: International Energy Agency
[16] Synthesis of Mediterranean Energy Community interviews and publication Towards a Euro-Mediterranean Energy Community, collective, IPEMED 2013

- Morocco: 12% energy saving by 2020 and **15% by 2030**, 42% of electric power installed from renewable sources, 14% of which in solar energy, 14% in wind power and 14% in hydropower by 2020 (50% by 2050).

Egypt does not mention any quantitative objective but raises the issue of energy subsidies. Lebanon, however, distinguishes two types of objectives: firm targets[17] and conditional targets[18].

INDCs show that southern Mediterranean countries have very different positions in terms of energy efficiency and development of renewable energies but also regarding the potential of use of waste as an energy source. Nevertheless, the latter is highlighted in Morocco, Tunisia and Algeria's contributions.

Two elements appear in all contributions:

- The importance of natural gas in countries' energy compositions. Morocco explicitly refers to infrastructure projects for the importation of Liquefied Natural Gas (LNG). Natural gas extraction is cleaner than that of oil and carbon, even though unconventional gas can lead to genuine ecological disasters. LNG regasification is cleaner than oil refining but its combustion produces emissions.
- The conditionality to international funding but also to expertise and technology transfers.

[17] -15% of power ad heat demand in 2030 generated by renewable energy sources; -3% reduction in power demand through EE measures in 2030.

[18] -20% of power ad heat demand in 2030 generated by renewable energy sources; -10% reduction in power demand through EE measures in 2030.

What can we learn from the Ouarzazate Solar Complex?

In order to illustrate the industrial issues linked to the development of renewable energies in the South of the Mediterranean, IPEMED also examines national solar plan initiatives as well as the resulting innovative projects. The Noor-Ourazazate solar complex of 500 MW in Morocco is the most representative as it is the world's largest project of this type. Ever since its conception, it has been the object of a very close follow-up[19]. The first 160 MW phase will come into production in the next few days and uses the parabolic trough collectors technology on a surface of 480 hectares in the desert. The second phase is divided into two projects, Noor 2 and Noor 3. Noor 2 is a 200 MW extension, also featuring parabolic trough collectors, while Noor 3 is a 100 MW extension using the solar tower technology, that is to say a field of heliostats which reflect and focus the solar radiation on the receiver installed at the top of a tower. Noor 4 is the last phase of the complex and the only one that has not been attributed yet.

Photo[20] *of Noor 1 parabolic trough collectors in Ouarzazate:*

The entry into operation of the first phase will demonstrate Morocco's success **while highlighting the failure of the Euro-Mediterranean cooperation, as European companies did not manage to confer to build a joint successful offer.** Over the next few years, Euromed platforms should help reinforce this cooperation.

[19] Book « L'énergie solaire après Fukushima, la nouvelle donne » [Solar energy after Fukushima, the new deal"] Medicilline 2011, p. 112 à 131.

[20] Source: picture of Les Ecos newspaper (Morocco), article « Solaire, une longueur d'avance !» [Solar energy: one step ahead!] 9 June 2013.

2- COP21, the funding issue in the Mediterranean:

The United Nations Conferences on Climate Change organised in Durban (COP 17), Doha (COP 18), Warsaw (COP 19) and Lima (COP 20) enabled to make progress on the funding of the fight against climate change, especially on the extension of the Kyoto Protocol with its flexible mechanisms and on the implementation of the Green Climate Fund.

Climate funding represents a large spectrum of equity and working capital operations that can be defined as contributing to the funding:

- of mitigation actions aiming at reducing greenhouse gas emissions by modifying production processes for instance;
- of adaptation actions aiming at reducing the vulnerability of natural and human systems to the effects of real or expected climate changes.

The relevant flexibility mechanisms of the Kyoto Protocol in the Mediterranean are the European Union Emission Trading Scheme (EU ETS) and the Clean Development Mechanism (CDM), a joint implementation being less adapted to this area. Even though it proved difficult, the European Union Emission Trading Scheme is being reassessed, recast and adapted in different regions of the world, included by SEMC.

As shows IPEMED's study on carbon constraint, the **Clean Development Mechanism** enabled to finance relevant projects in SEMC. Nevertheless, it remains too marginal in Africa, facing the problem of low demand and therefore of the price of carbon credits. For example, Tunisia mentions in its INDC the launching of CDM degassing and flaring projects on the eight major landfill sites of the country since 2006. This means that it already gets carbon credits for the reduction of greenhouse gas emissions and it negotiates them on the market to bring extra funding. Even though the operation mode of this mechanism has been criticised, it will keep working in SEMC.

The study on the carbon constraint showed also that the **Nationally Appropriate Mitigation Actions (NAMAs[21])** were new instruments encouraging SEMC to undertake national projects on specific territories and sectors. They offer opportunities of access to international financial, technological and capabilities support. Tunisia explicitly refers to 5 NAMAs applied to the sectors of cement, construction, electricity, forestry and sanitation.

As for the Green Fund, it has been working since its creation in 2009 and it is one of the COP21 major topics. Annex 1 signatory countries committed to support virtuous projects up to $US 100 billion a year until 2020. The practical modalities need to be specified between public and private actors, between direct and indirect flows from country to country and with development banks. Some consider this amount, which seems quite significant, as insufficient. It must be developed at the Paris conference, both in its conception and implementation.

[21] UNFCCC NAPA project database

In order to close the gap between needs and available resources, adaptation funding will have to mobilise development funding institutions, governments and international funds. It is necessary to implement shared metrics, measures and indicators in order to assess projects and policies, ensure their efficiency and the good use of funds.

Conclusion

The Intended Nationally Determined Contributions (INDC), which have just been submitted, enhance the real energy issues of the Mediterranean region that IPEMED had already anticipated. While most SEMC seem genuinely committed to this exercise, we can see, as expected, that future actions mostly relied on the conditionality of international funding. By asserting that the COP21 is the last chance to act, stakeholders are pressuring France and Laurent Fabius - President of the COP21 - to find a new legally-binding global agreement and appropriate funding. This is underestimating the COP22 which will take place in Marrakesh in December 2016 and which is no less important. As an African hub, Morocco can play a key role and contribute to the success of countries' commitments.