

BRIEFING PAPER

Sustainable Desert Power

Discussing the future of cross-border renewable electricity exchange between the Southern Mediterranean and Europe

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Brief Summary

This paper discusses the future of cross-border renewable electricity exchange between Europe and Southern Mediterranean countries as defined under Article 9 of the EU Renewable Energy Directive from a development policy perspective.

While many hurdles are still blocking the implementation of Article 9, the authors argue in favor of Southern Mediterranean electricity imports into Europe in the mid- to long term because of their potential contribution towards a low-carbon development trajectory for the Euro-Mediterranean region.

For the case that electricity were indeed to be exported from Southern Mediterranean countries to Europe in accordance with Article 9, the paper outlines the energy-development nexus and argues why both sides should insist not only on “green electricity” but on “sustainable electricity”.

In the end, the paper makes the case for a “Sustainable Desert Power” certificate and concludes with recommendations how it could be moved forward at the European level.

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1. Introduction

Planning for a sustainable development trajectory that incorporates climate change mitigation, energy security, and socio-economic development for regions as diverse and large as Europe and the Southern Mediterranean is a challenging task. Although renewable energy is not a silver bullet, it is an essential part of a sustainable pathway toward solving the regions' shared challenges.

In order to enable sustainable development on both shores of the Mediterranean Basin, a regional trans-Mediterranean energy system³ built on renewable energy and energy efficiency is regarded a promising option. Besides mitigating climate change, transitioning from an ageing fossil energy infrastructure to a sustainable energy system could not only enhance electricity generating capacity in both the EU and Southern Mediterranean⁴ countries but also contribute to poverty eradication, job creation and the development of a renewable energy industry - especially in the South.

Designing a sustainable energy system for the Euro-Mediterranean region, however, requires strong political will as well as international collaboration and coordination. To date, various policies and regulations have been implemented on both sides of the Mediterranean Sea to promote the large-scale deployment of renewable energy and also to allow a cross-border renewable electricity exchange between North Africa and Europe - with, however, limited success.

The two most prominent initiatives cover energy security, energy access, and sustainability of energy resources. They are:

- the Mediterranean Solar Plan (MSP), a framework for the deployment of renewable energy sources (RES) in the Mediterranean region, and
- Article 9 of the EU Renewable Energy Directive 2009/28/EC (RED), a cross-border cooperation mechanism with third countries.

1.1 The Mediterranean Solar Plan (MSP)

Under the umbrella of the Union for the Mediterranean⁵ (UfM), the MSP offers a regulatory framework of joint ownership, dialogue, and cooperation to promote the deployment of RES and to facilitate the cross-border exchange of electricity in the Mediterranean.

Launched at the Paris Summit in 2008, the initial phase of the MSP foresees the construction of 20 GW of installed RES capacity on the Southern shores of the Mediterranean Basin; 5 GW of this would be reserved for exports to Europe by 2020, along with South-North cross-border transmission corridors. Furthermore, improved energy efficiency, the creation of new green jobs and industrial capacities, and the fostering of regional energy market integration are all within the scope of the MSP (ENIC, 2013).

1.2 The EU's 20-20-20 goals and the RED

The MSP is closely linked to the RED (FEMISE, 2012). The RED is part of the EU Climate and Energy package that came into force in June 2009 and sets mandatory national renewable energy targets for EU Member States to achieve the EU's collective renewable energy target of a 20% share of the

3 Also known as the "EU-Mediterranean Energy Community" (see, for example, IPMED, 2013a).

4 Southern Mediterranean countries are: Morocco, Algeria, Tunisia, Libya and Egypt.

5 The UfM is a multi-national partnership consisting out of 43 countries both, from the EU and the wider Mediterranean region. It was established in 2008 building on the Barcelona Process. The UfM aims towards the promotion of peace, stability and prosperity in the Mediterranean basin.

EU's gross final energy consumption by 2020. Additionally, Article 3(4) sets mandatory goals for the transportation sector that "[...] shall ensure that the share of energy from RES in all forms of transport in 2020 is at least 10% of the final consumption of energy in transport [...]" for each Member State. Article 17 of the RED also sets "sustainability criteria for biofuels and bioliquids" (see chapter 7).

The other components of the package are an improvement of energy efficiency by 20% (Directive 2012/27/EU⁶) and a target of 20% reduction in greenhouse gas (GHG) emissions compared to 1990 levels (Directive 2009/29/EC⁷). The EU Emission Trading Scheme (EU-ETS), including mechanisms to use emissions certificates from third countries (CDM and Joint implementation (JI)) are the primary implementation tools for the GHG target (Kluth and Smeddinck, 2013).

Against the background of these two initiatives, this paper briefly introduces Article 9 of the RED (chapter 2). It then proceeds with an overview of the current status as well as hurdles related to realizing article 9 projects and identifies possible options on how to overcome these hurdles (chapter 3). The authors continue with an analysis of Article 9 from a development perspective (chapter 4) and develop answers to the following questions:

- Why a sustainability framework for Article 9 projects is needed (chapter 5)?
- How a sustainability framework for Article 9 projects could be designed (chapter 6), implemented (chapter 7) and financed (chapter 8)?

The paper concludes with recommendations for different stakeholders, such as the European Council and European Governments (chapter 9).

2. Cross-border electricity exchange between North Africa and Europe

Both the MSP and the RED frame energy as a catalyst for development, and provide coherent and complementary platforms to promote RES generation for energy self-sufficiency as well as cross-border RES flows across the Mediterranean that could pave the way towards a low-carbon development trajectory for the Euro-Mediterranean region (see chapter 4).

While the MSP is vague about how to establish a "green electricity" exchange framework, the RED is more concrete. Article 3(2) of the RED stipulates that Member States are under a legal obligation to introduce measures effectively designed to ensure that the share of energy from RES equals or exceeds that specified for each Member State⁸. To provide Member States with greater flexibility, by allowing those with low RES potential or expensive generation costs to partially meet their National targets in other countries, as well as to reduce the overall cost of meeting the 20% European RES, the RED introduces the possibility for Member States to make use of the cooperation mechanisms (defined in articles 6, 7, 9 and 11). These instruments can be implemented within Europe (Article 6, 7 and 11) but they can also be based on cooperation between Member States and other countries through a joint project with a third country as defined in Article 9.

⁶ Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

⁷ Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and to extend the greenhouse gas emission allowance trading scheme of the Community.

⁸ The RED contains an indicative trajectory for each Member State, which sets out the national overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020 and are listed in part B of Annex 1 of the RED.

Article 9 provides a regulatory framework for physical RES electricity imports from non-Member States that would allow Europe to capitalize on the abundant RES potential of its Southern neighbors, including availability of desert land with high levels of solar radiation and plentiful wind resources.

However, in order to apply the cooperation mechanism defined in Article 9 and for measuring compliance with the national targets, projects must meet the following conditions (MEDREG, 2012):

- Electricity must be produced by a newly constructed (after 25 June 2009) or upgraded renewable energy plant located in a non-EU country⁹;
- Electricity must be physically transferred from plants installed in the origin non-EU countries and consumed in the destination EU countries;
- The amount of electricity exported must be tied to the allocated interconnection capacity by all responsible transmission system operators involved: in the country of origin, the country of destination and, if relevant, each third country of transit;
- Electricity produced (in the origin country) and exported (to the destination country) should not have received support from a third country other than investment aid granted to the power plant;
- The amount of electricity nominated for export and the production of electricity from RES are referring to the same period of time.

Because RED permits “statistical transfer” only between EU Member States, “physical transfer” is currently the only option for cooperation between EU and third countries if EU Member states want the imported RES to count towards the fulfilment of their national renewable energy targets.

However, because it takes a long time to plan for and construct a cross-border transmission line, Article 9 (3) allows also for statistical transfer while the interconnections are under construction if the following conditions are met (Ahner and Glachant, 2014):

- The construction of the cross-border transmission line started by 31 December 2016 and will be operational on or after 31 January 2021, at the earliest, and on the 31 December 2022, at the latest;
- After it becomes operational, the cross-border transmission line will be used for the export of RES from third countries to EU Member States and for the purpose of achieving the national renewable energy targets of the EU Member States;
- Electricity must be produced by a newly constructed (after 25 June 2009) or upgraded renewable energy plant located in a non-EU country;
- The quantity of RES that is used for statistical transfer is not allowed to exceed the quantity of electricity that is exported to EU Member States after the cross-border transmission line becomes operational.

⁹ While the focus of this paper is on the Southern Mediterranean region, in principle, any third country is eligible under Article 9 (e.g., Western Balkans or Turkey).

3. Quo vadis Article 9?

3.1 Status quo

Until recently, there were efforts in the EU to promote the Southern Mediterranean region as a new supplier of RES under the MSP and Article 9 of the RED. However, despite the start of construction on the first potentially export-oriented renewable energy project – the 500 MW Concentrating Solar Power (CSP) project named “Noor” in Ouarzazate, Morocco— the political will to make Euro-Mediterranean electricity exchange a reality has diminished significantly. Nevertheless, the political will of Arab states to develop RES is very high. This is not only reflected in national targets, but also in initiatives like the “Pan Arab Strategy for the Development of Renewable Energy Applications: 2010 – 2030” where Arab governments committed themselves to develop electricity based on RES and agreed, for the first time, on long-term targets for the region (IRENA, 2014).

In fact, with the absence of both an appropriate commitment and an agreement among the involved Southern and Northern Mediterranean countries, there is no longer a clear signal from the EU Member States to spur the development of electricity imports (Ahner and Glachant, 2014). While RES electricity exchanges are still a possible contribution to the EU’s future energy mix, no EU Member State currently imports renewable energy from Southern Mediterranean countries¹⁰ and only Italy and Spain have developed legislation¹¹ that would enable RES imports (Ahner and Glachant, 2014). This situation is unlikely to change in the near term, because a clear commitment from the EU regarding the role of future cross-border RES exchange with its Southern neighbors is lacking and achieving the 2020 RED targets most likely will not require any electricity transfer from third countries.¹² Nor do the National Renewable Energy Action Plans (NREAPs) and the forecast reports of EU Member States’ indicate any significant use of the cooperation mechanism under Article 9 to reach RES targets.

Further, some experts expect that if Southern Mediterranean countries, such as Morocco and Tunisia, were integrated into the European electricity market, they would become net importers of European electricity by 2025 due to the availability of lower-cost electricity from European countries, such as Spain (Mason and Kumetat, 2011). Therefore, achieving green electricity imports under Article 9 is unrealistic in the short-term and uncertain in the mid- to long-term.

3.2 Looking ahead – overcoming hurdles

In order to improve the prospects for RES imports from the Southern Mediterranean region to the EU, three major hurdles must be overcome:

1. lack of demand within the EU for cross-border RES imports from third countries,
2. missing grid infrastructure including high voltage transmission lines across the Mediterranean Sea and national grids in possible transit countries,
3. regulatory and legislative gaps related to the harmonization of the two energy markets (EU and Southern Mediterranean).

¹⁰ Electricity exchange between the EU and Southern Mediterranean countries is currently very limited. The exception is Spain, which exports electricity to Morocco via the Strait of Gibraltar (FEMISE, 2012).

¹¹ As with all EU directives, the RED, including Article 9, must be enacted into national law. If an EU country does not want to develop electricity imports via Article 9, there is no need to enact Article 9 into national law. Therefore, enactments of Article 9 related laws can be viewed as an indicator for an EU’s country commitment to RES exchange with third countries.

¹² Haller et al. (2012) predict that RES exports from the MENA-region to the EU will increase after 2040 but will only play a minor role before.

These hurdles will be outlined briefly below and suggestions will be provided for overcoming them.

3.2.1 Lack of demand within the EU for cross-border RES imports from third countries

While the EU's insufficient political commitment and the high costs to develop interconnections with the Southern Mediterranean makes it highly unlikely that Article 9 projects will be used at any significant scale, new and ambitious EU climate and energy targets beyond 2020 would provide an opportunity to develop these interconnections. Such targets for 2030 geared toward meeting the EU's long-term climate change mitigation objective of 80-95% emissions reduction by 2050 are a crucial precondition for making RES transfer from third countries worthwhile and thus for achieving a truly integrated EU-Mediterranean energy market.

However, the new targets under discussion in the EU's communication "A policy framework for climate and energy in the period from 2020 to 2030" (EC, 2014) are not sufficiently ambitious and thus fail to send clear signals for an EU-Mediterranean RES partnership (GW, 2014a; GW, 2014b).

Box 1: Ideas to spur RES deployment via transnational climate change mitigation mechanisms in the Southern Mediterranean region

The Clean Development Mechanism (CDM) is one of the flexibility mechanisms of the Kyoto Protocol. It allows developed countries to buy carbon credits generated by approved projects that reduce emissions in developing countries and to use those credits to meet their own obligations under the Protocol. Concerning CDM projects registered after 31 December 2012, the EU only accepts carbon credits to be used in the EU-ETS if they were generated by a project in a Least Developed Country (LDC), none of which are located in the Southern Mediterranean. While the CDM did not gain strong momentum in the Southern Mediterranean region, the situation could change in case of more ambitious climate targets in the EU. Once demand would be created via ambitious climate targets, the favorable conditions and high potential for the deployment of RES infrastructure within Southern Mediterranean countries, especially in Morocco, Egypt and Tunisia which had a Designated National Authority (DNA) in place for several years could be harnessed (IPEMED, 2012). The idea here would be to create a new market mechanism, similar to the CDM, which would make the creation of carbon credits possible in Southern Mediterranean countries and which may take into account the specific circumstances of the region.

A second idea might be to integrate Southern Mediterranean countries in the EU-ETS: All countries under the UNFCCC have to put forward so-called Intended Nationally Determined Contributions (INDCs), which specify national GHG mitigation goals, policies or projects, in preparation for the 2015 climate agreement at the COP 21 in Paris (Ecofys, 2014; WRI, 2014). In this context, it is possible, that Southern Mediterranean will pledge climate or energy targets. Once they would commit to these targets, efforts could be made to consider widening the EU-ETS to the Southern Mediterranean countries and allowing them to become part of the EU-ETS. Participating in the EU-ETS might open new possibilities to generate financial flows from EU Members States to Southern Mediterranean countries by trading emission allowances, achieving cost effective emissions reduction. However, the price of CO₂ within the EU-ETS is currently far too low to incentivize RES development in the Southern Mediterranean region. A higher price – either realized via fewer certificates or more ambitious climate targets - could encourage and mobilize investments for renewable energy projects in the Southern Mediterranean region (IPEMED, 2013a) and enable an integrated "Energy Community" across the Mediterranean.

3.2.2 Missing grid-interconnections – statistical transfer as an interim solution?

Today, the lack of grid interconnections within and between the EU and the Southern Mediterranean region is one of the major bottlenecks¹³ to achieving physical electricity transfer under Article 9 of the RED. While the ultimate goal should be to physically connect the Southern Mediterranean region with the EU via High Voltage Direct Current (HVDC) transmission lines and, thus, achieve the full potential of a Euro-Mediterranean Energy Community, this goal is out of reach in the short- to mid-term.

There are, however, two different approaches to overcoming this hurdle, both of which account for the difficulties of achieving physical imports and highlight the possibilities of statistical transfer.

The first option would require a modification of EU legislation to permit non-EU countries to benefit from statistical transfer, or “virtual trading,” across the Mediterranean Basin (Folkmanis, 2011).

The RED already provides the second option by allowing non-EU countries to benefit from statistical transfer if they were to join the EU Energy Treaty, thus, achieving an “EU-Mediterranean Energy Community” (FEMISE, 2012; Escribano, 2010).

Due to the focus on physical transfer, little is known about the statistical transfer option. From the authors’ perspective, South-North statistical transfer across the Mediterranean would be comparable to the development of “Certified Emission Reductions” (CERs) under the CDM – with the important difference that CEAs can be used to achieve emission reduction targets and not renewable energy targets.

Box 2: Pros and cons of statistical transfer

The authors assume– besides the already existing option of statistical transfer under certain conditions (see chapter 2) – an option where statistical transfer is possible *without* the need to build grid-interconnections.

Statistical transfer between the EU and third countries has the advantage that no grid-interconnections would be required and also issues like congestion management and balancing rules to cover supply and demand with sufficient back-up could be avoided.

However, as the electricity would be consumed in the third country and not within the EU, statistical transfer bears the danger of a “license” to continue with business as usual in the EU as it may allow EU Member States to continue to use fossil fuels instead of advancing their own energy transition towards an energy sector based on RES. Furthermore, statistical transfer could be used as an excuse not to advance the grid-interconnections between the two regions. Lastly, exporting countries could re-invest their revenues coming from the electricity sale into building up new fossil power plants and by that undermine the objectives of scaling-up a sustainable energy system.

Before the option of statistical transfer would be considered, all of these possible drawbacks should be addressed and measures be developed to avoid possible loopholes that could counteract the sustainable outcomes of statistical transfer.

¹³ Besides missing grid-interconnections, in large parts of the Southern Mediterranean and partly in Member States, the national grid-infrastructure would have to be improved as well if large amounts of RES were to be imported.

3.2.3 Harmonization of regulatory and legal issues

In contrast to the integrated EU energy market, an integrated energy market with harmonized rules and policies covering the whole Southern Mediterranean is still missing.¹⁴ Likewise, harmonized rules between the two regions, including issues like “[...] green facility certification, the measurement of green generation output and green injections into the grid, congestion management, dispatch priority, balancing rules, or access to the interconnection [...]” (Glachant and Ahner, 2013) are also absent.

Despite efforts to establish an Arab Renewable Energy Framework (AREF) (RCREEE, 2014) based on the EU RED, as well as plans to encourage the integration of the electricity systems between the European Network of Transmission System Operators for Electricity (ENTSO-E) and the Association of Mediterranean Regulators for Electricity and Gas (Medreg) via the Mediterranean Transmission System Operators (Med-TSO) (EC, 2012a), a fully-fledged EU-Mediterranean wide system appears to be far from realistic in the short- to medium-term.

However, alternate steps to harmonize the energy markets between the two regions could accelerate the development, such as using a “corridor-by-corridor” approach¹⁵, in which several third countries and EU countries could implement the necessary regulations in the form of bi- or multi-lateral “corridor-agreements”. A “corridor-by-corridor” approach would permit more flexibility for third countries and EU Member States' needs and circumstances, would simplify negotiations, and could allow for more organic growth (Glachant and Ahner, 2013).

4. A development policy perspective on Article 9

4.1. Renewable energy and development

Fast tracking socio-economic development for poverty reduction, the generation of jobs, and social justice while responding to climate change requires a paradigm shift in the development of any future energy pathway in the Southern Mediterranean region.

Due to the climate crisis, socio-economic development can no longer follow traditional pathways, which depend heavily on the use of fossil energy sources. As a consequence, emerging economies, such as Southern Mediterranean states, will need to achieve their development objectives in a way that also respects the carbon constraints stipulated by the latest climate science.

Against this background, climate change mitigation, energy security, and socio-economic development are increasingly recognized as interrelated issues that should be addressed simultaneously. As part of a sustainable energy system, RES play a very relevant role for both socio-economic development and climate mitigation strategies. For instance, the UNSG's Sustainable Energy for All initiative (SE4ALL) acknowledges this nexus by addressing renewable energy, efficiency, and access, and emphasizes the need for transformative change in the energy sector in developed and developing economies that accounts for energy, climate, and development as a whole (IECI, no date).

¹⁴ A good overview of legal instruments, political institutions as well as sector-specific organizations aiming towards an integrated EU-MENA energy market is provided by the study “Desert Power: Getting Started” (Dii, 2013, p28).

¹⁵ A comparable approach was suggested by the authors of the BETTER project (BETTER, 2013) to link Morocco with Germany via HVDC transmission lines.

RES exports from Southern Mediterranean countries to the EU could potentially create synergies and benefits for all involved parties. It could provide additional support for making a new energy pathway in the Southern Mediterranean countries possible. At the same time, the EU would benefit from using the Southern Mediterranean countries' wind and dispatchable solar resources to achieve its energy and climate targets beyond 2020 and thereby improve its energy security, system stability, and diversification of its sources of energy supply while achieving cost savings in the long-term.¹⁶ However, whether such cross-border electricity exchange would spur development in Southern Mediterranean countries is difficult to answer and requires critical reflection.

From a development perspective, access to affordable renewable energy in the exporting countries is of utmost importance as it constitutes a prerequisite for achieving human development and, thus, plays a crucial role in combating poverty and achieving the MDGs in the Southern Mediterranean region. Therefore, it is crucial to first sufficiently cover the increasing electricity demands of the Southern Mediterranean countries to achieve socio-economic development, rural electrification, and energy poverty eradication before considering the option of exporting electricity.

Although there is considerable political interest of Southern Mediterranean countries to utilize their export potential as an instrument for greater trans-Mediterranean market integration, capacity building, technology transfer, job creation, and economic revenues through the sale of exported electricity, developing export-oriented RES projects does not necessarily ensure that the joint cooperation mechanism will contribute *de facto* to sustainable development outcomes in Southern European neighborhood.

In fact, the global record of comparable large-scale, export-oriented infrastructure projects (particularly in the energy sector), provides numerous examples in which strategically overestimated benefits and underestimated costs of technologies have resulted in inflated cost-benefit ratios and negative outcomes for local societies and the environment. Like any other large-scale investment, utility-scale renewable energy plants have the potential to transform communities at the project-level beyond the economic benefits of employment and income generation. But poorly planned and designed projects could hinder the pursuit of people's traditional ways of life, infringe on human rights and thereby magnify the local vulnerability of already stressed regions. This could occur, for example, by restricting the usage of land and water resources and reducing the social cohesion of community groups. Further, potential conflicts and social discontent could arise from distributional equity issues (i.e., who accepts the risks and benefits) – varying from verbal disagreement to sabotage to violent confrontation. The convergence of deteriorating climate conditions, increasing water scarcity, diminishing arable land, and structural unemployment are likely to further increase these project level risks. The vulnerable, such as, minority groups, women, children, and the impoverished, are particularly sensitive to such changes.

Thus, whether or not the large-scale deployment of export-orientated renewable energy technologies in the Southern Mediterranean countries results in a true “win-win” success story significantly depends upon the conditions under which RES deployment is implemented at the project level.

On the other hand, renewable electricity exports, in comparison to non-renewable energy exports such as oil and gas, are less prone to disadvantages associated with the “resource curse”. For example, shocks after resource depletion, macro-economic fluctuations, and competition for a fixed amount of resources are less pronounced (Eisgruber, 2014).

¹⁶ In particular CSP technologies are considered relevant for imports as CSP would be capable of providing reliable baseload or balancing power capacity on demand that would not cause uncontrollable fluctuations in power supply but can be used to compensate for fluctuations in PV, wind power and load in Europe (see for example Hess, 2013).

4.2 Policy coherence and the promotion of EU values in its external governance

The EU's external energy policy is intertwined with other policies, values, and norms. This understanding is reflected in the EU's external governance activities, which construct the EU's credibility as a global player.

For instance, the Committee on Foreign Affairs (CFA) notes, that a "comprehensive European foreign policy on energy must contribute to the promotion and implementation of the values and interests of the European Union and the main aims of its foreign policy, namely the safeguarding of peace and the primacy of human rights, democracy and the rule of law" (CFA, 2007). Hence, the EU has to address issues, such as democracy and human rights in its external energy policy if it does not want to undermine or compromise its self-understanding (Abbasov, 2014). This feature constitutes an important element of the EU's external (energy) policy, as other regions may not prioritize these values in their external governance.

The European Commission (EC) has developed a "Policy Coherence for Development" (PCD) agenda (EC, 2013) which reflects that EU governments should, on the one hand, avoid negative consequences of their own domestic policy objectives for development prospects of poor countries ("do not harm"-principle) and, on the other hand, "[...] actively look for ways to exploit the potential for positive spill-overs and build synergies between different policies to benefit developing countries" (EC, 2013). As a consequence, the PCD agenda addresses linkages among poverty, energy access, education, health, and sustainable development under the European Consensus on Development, which requires that all European policies that impact development to provide positive socio-economic impacts upon the poorest and most vulnerable social groups in order to acceleration progress on the MDGs¹⁷ (Leopold and Dietz, 2012).

Similar development aims are also reflected in the sustainability chapters included in bilateral free trade agreements the EU has negotiated with third countries. These chapters are meant to ensure that sustainable development objectives are integrated and reflected in all levels of trade relationships and comply with "[...] key international labour and environment standards and agreements, the prudent use of natural resources such as timber and fish, the promotion of practices favoring sustainable development such as Corporate Social Responsibility (CSR), and the set-up of mechanisms for wider civil society involvement" (TRIALOG, 2013).

Further, Article 208 of the "Treaty on the Functioning of the European Union" (TFEU) states that "[...] the Union shall take account of the objectives of development cooperation in the policies that it implements which are likely to affect developing countries" (EC, 2013).

Lastly, the "EU Strategic Framework and Action Plan on Human Rights and Democracy" adopted and endorsed in 2012 by the EU Heads of State, holds the EU accountable to "promote human rights in all areas of its external action without exception [...] and to integrate the promotion of human rights into external policy areas such as trade and investment [in order to] strengthen its efforts to assist partner countries in implementing their international human rights obligations" as well as to contribute to the implementation of the UN Guiding Principles on Business and Human Rights (EC, 2012b).

The EU thus has a legal obligation to ensure that its external governance policies do not have negative effects on human rights and development in countries outside of the EU and contribute to the achievements of the MDGs.

17 The Commission suggests five elements that should underlie a future set of goals and that are essential to ensuring a 'decent life for all' by 2030: Basic living standards (based on the unfinished MDG business); Drivers for inclusive and sustainable growth; sustainable management of natural resources; equality, equity and justice, including human rights, democracy; and peace and security.

5. A sustainability framework to safeguard Article 9 projects

Currently, numerous CSP plants, wind parks, and photovoltaic projects are in the planning or implementation phase in the Southern Mediterranean region. Many of them receive funding from Multilateral Development Banks (MDBs) and therefore have to comply with their social and environmental safeguards. However, in the mid-term, it is likely that concessional financing from MDBs will no longer be required as the technology comes down the cost curve.

Once MDB funding dries up or is no longer needed, there is a danger of a “race to the bottom” as international investors and private sector entities would solely finance the design, construction, and operation of renewable energy projects and thus search for countries and locales with the most profitable investment conditions, which may often include less stringent environmental and social standards for project development. Competition within the region to attract foreign direct investment could then lead to the neglect of essential regulations with standards that are less stringent than those that would prevail under an international funding regime. Several previous projects developed with climate finance mechanisms (e.g., the CDM) have demonstrated that host countries tend to dilute sustainable development criteria (Rindefjäll et al., 2010).

Considering this, the authors argue that without commonly accepted best-practice guidelines based on international conventions and agreements backed by strong institutional support in the region, there is thus a risk of a “race to the bottom” among the Southern Mediterranean countries that are deploying renewable energy on a large-scale.

The authors are, therefore, of the opinion that sustainability should become the guiding principle of electricity export. Reaping all the benefits of potential Article 9 projects – regionally, nationally, and at the project level – would require a balance between EU interests and the human development needs of Southern Mediterranean states.

One way to successfully promote sustainability in Article 9 projects would be to incorporate social and environmental safeguards based on international conventions, national laws, and the state-of-the-art impact assessment research within an overarching sustainability framework into the utility-scale deployment of renewable energy technologies during all project development stages. In such a hierarchically ordered framework, consisting of Principles, Criteria, and measurable Indicators (PC&I), all three dimensions of sustainability would have to be covered (i.e., the environmental, the economic and the social dimensions). Nonetheless, PC&I could also be accompanied by guidelines on how to achieve specific requirements and, by virtue of these guidelines, address the procedural dimension of achieving free, prior, and informed consent (FPIC) for export-oriented RES projects.

The option of developing bilateral agreements, as outlined in Article 18(4) of the RED, to facilitate a more flexible fulfilment of sustainability criteria could be an interesting starting point. The bilateral approach – as described under the “corridor-by-corridor”-approach (see chapter 3.2.3) - could offer greater flexibility to address country specific circumstances, e.g., some countries might want to include local content requirements that ensure the inclusion and use of available local industries and businesses while other countries attach greater importance to capacity building and knowledge as well as technology transfer. However, these bilateral agreements should acknowledge overarching “minimum requirements” based on existing commitments, e.g., human rights, enshrined in the sustainability framework for Article 9 projects to safeguard these projects and to prevent a “race to the bottom”.

6. Sustainable Desert Power Certificate

The recommended sustainability framework provides a set of socio-economic, environmental and procedural objectives safeguarding the livelihoods of local communities in addition to achieving emissions reduction and energy security targets that are the ultimate objectives of building RES across the Mediterranean. If electricity were to be exported from Southern Mediterranean countries to the EU in accordance with Article 9, both sides should insist not only on “green electricity” but on “sustainable electricity” which fulfils the requirements enshrined in the sustainability framework discussed above. This would imply that - similar to the double goal of CDM projects¹⁸ - the goal for Article 9 projects would be two-fold:

- *Traceable renewable energy:* Aiding European import countries in achieving their renewable energy targets cost-effectively by promoting the exchange of traceable electricity from RES between the EU and third countries¹⁹, and
- *Sustainable development:* Avoiding negative livelihood impacts and instead promoting equitable economic and social development, environmental protection and the respect of human rights, e.g., in terms of protecting water and land resources and promoting meaningful stakeholder involvement at the project level in the exporting countries.

Whereas to date the discussion on Article 9 implementation mostly follows the spirit of the RED as a climate change mitigation policy and therefore revolves around issues related to *traceable renewable energy*, the proposed sustainability framework would address *sustainable development* in particular by aligning the design of export-oriented projects with a wide range of project level sustainability safeguards beyond the obvious carbon emission reductions and green electricity generation. Such safeguards would also help define “traceability” beyond “Renewable Energy Guarantees of Origin (REGO)” by requiring value added in terms of development.

From a development policy perspective and in order to achieve an integrated and interconnected power system across the Euro-Mediterranean region such safeguards ought to address the following questions:

How could renewable energy plants meant for exporting electricity to the EU could be designed and developed to:

- protect the livelihood security of local communities from critical environmental and socio-economic threats (“do no harm”)?
- provide long-term livelihood opportunities and distributional equity for local communities (“do good”)?
- promote the empowerment of community stakeholders to participate in the development of CSP projects in fair and accountable ways (“good process”)?

In the end, the sustainability safeguards of such a framework would have to be accompanied with economic feasibility criteria in order to make them attractive for project developers. If the implementation of any export-orientated project is hindered, e.g., due to high “hurdles” and lack of

¹⁸ The CDM has the objectives to both contribute to sustainable development in developing countries and to generate emissions reductions that developed countries can use to fulfill their climate commitments. The Gold Standard is a voluntary tool for the CDM to ensure that projects have measurable, positive impacts on sustainable development. It evaluates projects based on a so-called “Sustainability Development Matrix” which consists out of a set of sustainability criteria.

¹⁹ For this, the introduction of traceability schemes/Guarantees of Origin in the MENA-region is encouraged (see Dii, 2013, p190). However, in order to certify the generation of “green energy,” a trusted body would have to be in place, which is also seen as one of the greatest hurdles of such a system, as North African countries do not have such a body in place right now (Folkmanis, 2011).

socio-economic or environmental viability, the overall vision of a Euro-Mediterranean renewable energy future would be jeopardized. On the other hand without such safeguards, the social acceptance and hence also the viability of Article 9 projects could be endangered, for instance if the benefits for the local population are neglected to a wide extent. In this regard, the authors want to point out, that working towards sustainable development at the local level does not necessarily imply increased costs for project developers. Experience from other large-scale infrastructure projects, such as dams (Tilt et al., 2009) or mines (Esteves and Vanclay, 2009), shows that achieving the "social license to operate" in adjacent communities is often about proactive processes in regards to transparent information disclosure, meaningful community engagement and grievance mechanisms, and less about costly physical investments.

The application of such a sustainability framework for Article 9 projects would mean that EU Member States would have to require operators to provide proof of compliance in order to verify their sustainability and thus be allowed to receive government support and count the electricity towards European renewable energy targets under the RED.

7. Implementing a Sustainable Desert Power Certificate

From the authors' view there are several ways in which sustainability safeguards for Article 9 projects could be implemented, including host country regulations in the Southern Mediterranean region, voluntary labelling, extraterritorial state obligations²⁰ for participating EU Member States, or private sector CSR commitments.

Voluntary labelling could be implemented similar to the various eco-labelling schemes, where eco-labels are awarded to forestry (FSC), fishery (MSC) or other products originating from sustainably managed resources in third countries and imported to the EU, any electricity produced and traded under Article 9 would have to be certified through such a framework²¹. This would make a certified standard or eco-label ("Sustainable Desert Power Certificate/Label") awarded to electricity originating from sustainably developed and implemented Article 9 projects imaginable²². However, in contrast to traditional eco-labels that identify a product that meets certain criteria, "green electricity", once injected into the grid, cannot be distinguished from fossil fuel generated electricity. Therefore, the power plant actually constitutes the "product" that has to be certified. In other words, the processes of planning, constructing, operating, and disassembling the power plant must comply with the safeguards of the sustainability framework in order to be certified, which has to be verified due to an independent certifier / a trusted entity.

The Dii suggested to implement a certification institute in a MENA country that should work together with international certification companies (Dii, 2013). Although, this idea is based on economic considerations to make local firms more capable and competitive, such a certification institute could be a viable starting point to a) further develop sustainability criteria, b) raise awareness for the issue of sustainability within the context of Article 9 projects, as well as to c) train local working forces to be able to certify Article 9 projects according to these sustainable criteria.

20 „Extraterritorial state obligations“ acknowledge that a state that commits to international laws, e.g., human rights, has a certain degree of responsibility not only for its own citizen, but also for people living outside the state's territory (Hausmann and Künnemann, 2006).

21 First steps towards the establishment of sustainability criteria and guidelines have already been explored due to the Desertec Foundation's "PCIs [Principles, Criteria, Indicator] for renewable energy power plant evaluation" (DF, 2012).

22 The idea of an eco-label for African products is actually not new. Already, there are a number of Eco-labelling initiatives in the region, the majority of which are international Eco-labelling schemes relevant to a sector (i.e., fisheries, forestry, organic agriculture, etc.), and used for African products or services.

While voluntary labelling could play a vital role at the beginning of the process of implementing a sustainability framework, the authors believe, however, that the EC could play a pivotal role in implementing sustainability safeguards for RES under Article 9 of the RED. Mandatory EU import requirements for electricity under Article 9, in contrast, appear to be the most promising option, because this would help prevent a ‘race to the bottom’ in the host countries through clearer rules that protect Southern Mediterranean countries from being subjected to constant pressure from potential investors for lower standards in order to attract new investment.

The RED’s standards on imported biofuels are of relevance to such sustainability safeguards in so far, as they already give an example of the integration of sustainability requirements in EU legislation. Various policy goals – reducing greenhouse gas emissions, de-carbonizing transport fuels, diversifying fuel supply, and developing long-term replacements for fossil fuels while increasing income and employment in rural areas – have motivated the EU to promote the production and use of sustainable biofuels under the RED.

Due to concerns about the impacts of biofuels on food prices, rain forest destruction, and social issues (Rösch and Skarka, 2009), the EU requires private enterprises to demonstrate that biofuels imported from third countries and sold in the EU comply with specific sustainability requirements in order to be counted towards EU renewable energy targets. Mandatory sustainability safeguards are laid out in Article 17(2) to 17(5) and Article 18(1) of the RED, as well as in Article 7b(2) to 7b(5) and Article 7c(1) of the Fuel Quality Directive (2009/30/EC) and stipulate that:

- Greenhouse gas emissions are avoided;
- No raw material comes from land with high biodiversity value;
- No conversion of land with high carbon stock takes place; and
- Good agri-environmental practices are followed.

Thus, sustainability safeguards for imported biofuels were developed to ensure benefits (such as value creation), and to prevent negative impacts (such as child and forced labor, loss of biodiversity, acceleration of climate change due to the release of high amounts of stored carbon).

Although biofuels production differs from the generation of electricity based on RES, the basic concept behind the EU legislation for biofuels is very similar to the sustainability framework the authors propose for Article 9. While both, the EU and exporting third countries could benefit from RES electricity exchange, there is also considerable risk of negative impacts, such as, distributional problems, conflicts over land acquisition or disappointments due to wrong expectations, which must be avoided to comply with existing legislation, norms, and values.

Besides binding EU legislation, institutions are needed to guide the implementation of Article 9 projects under the proposed sustainability framework. Hence, a “Euro-Mediterranean Energy Committee” as suggested by IPEMED (2013a) would be required, which “[...] would operate on the basis of jointly agreed strategic priorities and a set of common values (dialogue, durability, cooperation, sharing, trust, solidarity, etc.) [...]” Such a Committee would consist of policy representatives from both shores of the Mediterranean, as well as industry and civil society representatives. The Committee could also be the trusted body that supervises the compliance of Article 9 projects with the safeguards outlined in the envisioned sustainability framework. While its role has significantly weakened over the last few years, the Secretariat of the UfM could still help develop such an organization due to its extensive experience in this area.

Because a “corridor-by-corridor” approach appears to be the most promising mid-term option for achieving cross-border electricity exchange across the Mediterranean, the implementation of specific rules between non-Member and Member States under bilateral agreements should be considered until an EU-Mediterranean-wide system has been put in place.

In this regard, country-specific requirements should be developed within bi- or multi-lateral negotiations between EU and Southern Mediterranean states that take seriously the option of South-North electricity exchange. However, for the long-term, sustainability safeguards for Article 9 projects should be coordinated with ongoing efforts to develop a pan-Arab strategy for the promotion and development of RES, such as, the AREF.

8. Financing aspects of a Sustainable Desert Power Certificate

RES certificates or labels would not only have a value to EU governments for achieving their RES targets but also to consumers as it would allow them to support sustainable development objectives through supporting sustainable electricity from the Southern Mediterranean region. Offered on the wholesale market, such a certificate could connect European consumers of “Sustainable Desert Power Certificates” with the areas and the people where renewable energy installations are located: namely European with North African citizens.²³ Consumers would also be informed that the product not only originates from RES in the Southern Mediterranean but also delivers sustainable development outcomes in the host countries.²⁴ By that the label would educate consumers, increase their awareness on renewable energy and sustainability, and encourage them to buy sustainable rather than polluting energy.²⁵

This might also be an appealing business opportunity to operators as “Sustainable Desert Power Certificates” would provide a unique selling feature on the market which could on the one hand motivate project developers to improve their public image and communicate their good practices to consumers and thus influence their positive reputation on consumers purchasing decisions (similar to CSR activities). On the other hand it would meet the “Zeitgeist” of a more environmentally and socially aware society and consumers and thereby help attract additional demand in importing countries through an increased public acceptance resulting in a higher willingness to pay for ecolabelled electricity²⁶ thereby adding an additional push to the renewable energy transition in the Southern Mediterranean.

In this regard, a “Sustainable Desert Power Certificate” should not be seen as a trade barrier but as a means to promote electricity exports, particularly to those countries with environmentally and socially aware consumers.

Another means of financing Article 9 projects could be through the “NER300” instrument, which finances climate mitigation and the deployment of innovative renewable energy technologies²⁷. Parts of the budget stemming from auctioning 300 million emission allowances (2 – 4.5 billion EURO, depending on the current carbon price) could be used to invest into a new energy system in the Southern Mediterranean region.

However, only projects from EU-ETS participating countries on the territory of EU Member States are eligible. Hence, the “NER300” would need to be modified so that Southern Mediterranean countries could benefit from it. This could be strengthened due to EU Member States that take advantage of electricity imports (physically or statistically) to fulfil their renewable energy targets.

²³ However, a “Sustainable Desert Power Certificate” should be accompanied by information material about the origin of the electricity and should, by all means, avoid racist imagery in advertisements.

²⁴ From the authors view, such kind of certificate would only make sense if the electricity is physically transferred to consumer countries.

²⁵ It is noted that eco-labelling programs have been more successful in countries or regions that benefit from a higher level of consumer awareness of environmentally sound products and therefore a consumer demand for eco-labelled products (e.g. Germany).

²⁶ Such as it is the case for “green electricity” selling companies in, e.g., Germany, where the price of the electricity is often higher compared to conventional electricity.

²⁷ For detailed information see the Commission Decision 2010/670/EU.

9. Recommendations

The authors conclude that if electricity were to be exported from North Africa to the EU, a sustainability framework stipulated under the RED would be required to establish safeguards for renewable energy infrastructure projects in the Southern Mediterranean region and, thus, maximize sustainable development outcomes for the whole EU-Mediterranean region.

In this context, the following recommendations are given to the European Council and European governments considering bilateral energy partnerships with Southern Mediterranean countries:

- Establish a Euro-Mediterranean policy dialogue on sustainability requirements for article 9 projects. The UfM Secretariat could act as a key facilitator of the MSP;
- Establish an expert group committed to developing a sustainability framework for Article 9 projects (consisting of government, industry, academia, civil society, and funders from the South and the North);
- Couple any developments with regards to a sustainability framework for Article 9 projects to AREF and/or MED-TSO;
- Invest in flagship projects (such as the 500 MW Noor CSP project in Morocco) that make use of RES in the Southern Mediterranean region and could potentially be orientated to export electricity to Europe and ensure they meet sustainability requirements.

Recognizing the political situation in many Southern Mediterranean countries as well as the events of the Arab Spring, European governments should furthermore:

- Open up and enhance the dialogue with third countries to create the political conditions to develop a Euro-Mediterranean Energy Community;
- Offer assistance in terms of capacity development as well as technology transfer;
- Encourage the development of bilateral projects in the Southern Mediterranean region.

Lastly, the authors urge the European Council to adopt ambitious climate and energy targets for 2030 to create the demand necessary to develop a Euro-Mediterranean RES electricity exchange:

- Build on the vote of the European Parliament from the 5th of February and significantly strengthen the EC's weak proposals for the 2030 climate and energy package with four concrete and binding commitments:
 - *Climate target:* A greenhouse gas emissions reduction target that goes well beyond 40% and achieves an EU domestic emissions reduction of at least 55% by 2030, including nationally binding targets;
 - *Renewable energy target:* A binding EU target of 45% renewable energy in final energy consumption by 2030, including nationally binding targets;
 - *Energy savings target:* A binding target of 40% energy savings by 2030 compared to 2005 levels of consumption, including nationally binding targets;
 - *Member States' plans:* Benchmarking on direct and indirect renewable energy cooperation between EU members and MENA countries by 2030, under Article 9 of the European Renewable Energy Directive 2009/28/EC, i.e., by establishing binding national targets for X% of amounts of RES that have to be imported via Article 9 to fulfill the EU renewable energy target.

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