Consultation Paper

Green Paper: A 2030 Framework for climate and energy policies

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4. QUESTIONS on 2030 Framework

General considerations

Dii GmbH was founded as a private industry joint venture in October 2009. Together with its partners from 16 countries and a wide range of stakeholders, Dii enables an industrial scale market for renewable energy in MENA. To this end, Dii is formulating a long-term vision and translating it into country specific assessments, a regulatory framework and concrete reference projects.

In June 2012, Dii presented the first part of its long-term strategy "Desert Power 2050". The analysis demonstrates the benefits of an integrated power system of Europe, the Middle East and North Africa (MENA) in terms of competitiveness, sustainability and security of supply. It compares an optimized European power system to a system connected to the MENA region. Both are based on more than 90% renewable energy, taking into account that demand has to be met in every hour of the year (i.e. hourly resource adequacy based on country specific real life load patterns and several thousand data points for hourly wind speeds and irradiation). In June 2013, Dii published the second part, "Desert Power 2050: Getting Started". It includes detailed recommendations on the implementation steps towards a renewables-based EUMENA power system in 2050 based on a comprehensive quantitative analysis in 10 year time steps.
The strategy report assesses in detail the different aspects of the EUMENA renewable energy transition. This assessment of renewables promotion and grid integration in EUMENA builds on a set of quantitative as well as qualitative analysis and covers

- the regulatory, financing and off-take aspects of the investment framework for renewable energy build-up in the MENA region
- national and international transmission regulation
- RE support mechanisms and
- international cooperation on the political and institutional framework for renewables.

The report builds on the EU's climate and energy package for 2020 and the EU target for reducing greenhouse gas (GHG) emissions by 80-95% until 2050, as well as on effective climate action in MENA, one of the regions most vulnerable to climate change due to water scarcity as well as high exposure to rising sea levels and rising food prices.

4.1. General

- Which lessons from the 2020 framework and the present state of the EU energy system are most important when designing policies for 2030?

The 2020 climate and energy targets have largely proven to be a suitable framework for achieving the European Union's climate and energy policy objectives However, these targets have been achieved through multiple and overlapping instruments, resulting in low cost efficiency. This led to unnecessary high burden on consumers, inefficient allocation of renewable energy generation, decreasing acceptance for renewable energy support and consequently even to retroactive changes in some countries. Therefore, in a renewed 2030 framework, major emphasis will have to be placed on finding the most cost-efficient, stable and secure trajectory to an increasingly decarbonised energy system, based on ambitious targets of renewables and

efficient policies as outlined in the "High Renewables Scenario" of the '2050 Energy Roadmap'. This trajectory should be designed to generate employment and economic growth. It should be seen as an opportunity to overcome Europe's most pressing economic and social challenges. Electricity cooperation with third countries can play an important role in meeting Europe's energy and climate objectives. Such cooperation should be accorded appropriate consideration in designing a 2030 framework.

4.2. Targets

- Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?
- Have there been inconsistences in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?
- Are targets for sub-sectors such as transport, agriculture, industry appropriate and, if so, which ones? For example, is a renewables target necessary for transport, given the targets for CO2 reductions for passenger cars and light commercial vehicles?
- How can targets reflect better the economic viability and the changing degree of maturity of technologies in the 2030 framework?
- How should progress be assessed for other aspects of EU energy policy, such as security of supply, which may not be captured by the headline targets?

A 2030 framework should include binding targets for renewable energies. Renewable energy targets should provide planning security to investors without placing an unnecessary burden on society. Targets should be accompanied by appropriate support schemes and industry promotion strategies. In light of the tremendous potential of electricity trade with third countries, including the MENA region in particular, there is a need to develop existing cooperation mechanisms further and promote their application.

1. The EU should set concrete, **binding and ambitious renewable energy targets for 2030** in the EU. These should be based on a stable European framework and coordinated with CO2 emissions reduction targets. These targets could be most effectively fulfilled if they include the exchange with neighbouring regions like MENA. The EU should therefore promote the setting of respective targets in the MENA region. Dii's strategy report "Desert Power:Getting Started" builds on the EU's climate and energy package for 2020 and the EU target of reducing greenhouse gas (GHG) emissions by 80-95% until 2050, as well as on effective climate action in MENA. Modelling carried out for the report shows that prudent decarbonization of the power sector should not drive up electricity costs. The analysis shows that MENA can reach 45% RE by 2030, while Europe can reach almost 60%. By 2040 each region can achieve 80% RE and by 2050 EUMENA can be powered by a combined 93% RE.

2. Electricity exchange is beneficial for both regions, independently of the generation mix. However, the more RE, the more benefits can be offered by such an exchange. While the amounts of electricity exchange between MENA and Europe until 2030 may appear small relative to demand, they are substantial in absolute terms. In 2030, 120TWh of electricity could be exchanged between Europe and MENA – three times the current annual imports of Europe's biggest electricity importer, Italy. To promote cross-border cooperation in renewable energy and incentivize first generation and transmission projects, specific import targets could be put in place. **These should be supported by a European approach on developing interconnector projects between Europe and the MENA region. While such interconnectors could be tied to MENA generation projects,** this should not prevent interconnectors to be operated flexibly according to market needs.

3. A greater integration between EU and MENA countries based on a flexible strategy is desirable. This would help diversify the EU's energy supplies and would thereby improve the EU's energy security and reduce exposure to price volatility. Such a measure would also enable greater shares of domestic energy sources, due to the complementary generation and consumption patterns across the EUMENA region. It would also contribute to electricity market integration between the EU and MENA.

4. A more cost-efficient trajectory towards increased shares of renewables on a European and wider geographical scale **necessitates improved cooperation mechanisms to make use of renewables potential (i.e. generation at best sites) and shared capacity**. The Directive on Renewable Energy (2009/28/EC) provides a framework for such cooperation both within the EU as well as with third countries, but these mechanisms have not found application up to date and thus require further development. The EU Commission should render cooperation mechanisms more operational by developing these mechanisms in more detail and providing an adequate timeframe reaching beyond 2020. Member States should be encouraged to transpose cooperation mechanisms into national law. Establishing a platform where different actors could submit their offer/demand for cooperation mechanisms could be a means to add transparency to the process and foster interaction. In the medium term, earmarking a small share of the RES targets for imports of renewable energy from the Southern Mediterranean region could be an effective measure to promote the effective implementation of such projects. Given that cooperation through joint projects is beneficial for the EU as a whole, a common EU approach to renewable energy exchange would be better suited to the nature of these projects.

5. Dii recommends **digressive, market-based and technology-specific support scheme designs.** Tendered power purchase agreements (PPAs), feed-in tariffs or premiums or quota schemes are all valid types of support schemes. Their effectiveness is determined by their diversification with respect to technologies and resource conditions, and their compatibility with long-term contracts for revenues. Allowing RE generators to enter into such long-term contracts will secure revenue streams and consequently reduce the cost of capital. The amount of support required should be reduced as technology costs decline. Support cost can be limited, e.g. with degression of remuneration levels or the use of competitive elements. A **convergence of support schemes on a European level is desirable in order to limit market distortions.**

6. The success of the European Union's energy policy should be assessed according to a wide range of indicators. Firstly, the development of **national and international grids** is a prerequisite for **internal market development and electricity cooperation with third countries.** Secondly, a stable regulation based on clarity, simplicity and flexibility as well as a truly competitive framework without undue restrictions that would undermine increasing exchanges in the whole region should be fostered in the neighbouring countries. **Diversification of energy supplies should be pursued** by increasing both the number of sources of energy as well as the importing countries. Thirdly, as a consequence of the correct fulfilment of the first two indicators, the availability **of energy at low and stable prices** is essential to secure the competitiveness of European industry and to protect low-income households.

4.3. Instruments

- Are changes necessary to other policy instruments and how they interact with one another, including between the EU and national levels?

- How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?
- How can fragmentation of the internal energy market best be avoided particularly in relation to the need to encourage and mobilize investment?
- Which measures could be envisaged to make further energy savings most cost effectively?
- How can EU research and innovation policies best support the achievement of the 2030 framework?

In order to further European energy and climate objectives in the most cost-efficient manner possible, a number of policy tools are essential. Convergence of European support scheme designs based on best practices is suggested. The necessity for common regulatory instruments for electricity cooperation and infrastructure planning both within and beyond the European Union should be emphasized. Moreover, the potential synergies between European energy policy and the European Neighbourhood Policy should be drawn attention to.

1. Support scheme designs: Renewable energy support schemes (PPA tender, FIP, FIT, quota) should be **technology-specific,** including a **remuneration digression** as technology costs decline. At the European level, a **possible redefinition of the support scheme framework** with two possible developments could be envisaged. Firstly, a harmonization of support schemes among Member States has been under discussion for a long time and has been mentioned as a long-term goal of the European Commission. This would imply that remuneration schemes to 2030 should be further aligned and coordinated across Europe in order to increase stability and transparency for investors, economies of scale and competition. Secondly, the continuation of the current national support schemes with stronger cooperation and coordination among the EU Member States, leading to a stepwise policy convergence of renewable energy policies. Convergence implies a diffusion of best practices in policy design rather than a central prescription of the policy layout. Harmonization is the more efficient approach for development of the overall system and with the least distortions of the common EU energy market. However, as this would imply the delegation of competencies from a national to an EU level, this development seems to be unlikely at the moment. Thus, as an alternative lighter version, EU Member States should engage in stronger convergence of their national support schemes. **Convergence of support schemes is a means to optimise cost-efficiency** in allowing improving resource allocation and providing planning security to investors.

2. Regulation, energy cooperation with third countries: Developing an integrated EUMENA power system and thereby facilitating the development of EUMENA-wide transmission infrastructure, requires a regional policy approach with **compatible regulatory instruments** with serving an interregional scope. At the European level, significant progress has been made with respect to European-wide regulatory policies, including the 3rd EU Energy Market Directive and the European Infrastructure Package. Despite this progress, the current regulatory regime is still insufficient to promote a truly integrated European market. The cooperation with neighbouring countries such as from the MENA region is still in its very infancy and the **first projects with Article 9 (2009/28/EC) application should be promoted by the EU and its Member States**. The European Union has shown interest in tackling this regulatory hurdle and thus enabling renewable projects in MENA, in order to achieve its climate and energy objectives cost-effectively. Cooperation mechanisms should be improved by streamlining them through a multilateral framework which could finally result in a common approach by the European Commission for renewable electricity exchanges. Furthermore, EU Member States should transpose Article 9 into national law.

1. Development of infrastructure: In order to allow for the most efficient exploitation of the best renewables resources, including those from the Southern Mediterranean countries, an extension of cross-border transmission capacity is necessary. In this context, the convergence towards a European-wide planning approach should be facilitated. Therefore, the **TYNDP should become binding for national TSOs**, which would, in particular, promote cross-border projects. However, this requires a **stronger role for the European regulator ACER.** In order to promote the development of cross-Mediterranean interconnectors, **ENTSO-TSO should take into account the**

grid developments and renewable potentials in the neighbouring Mediterranean countries when setting up its TYNDP. In the long-term, this should evolve in an EUMENA-wide planning procedure. In addition, openness of the transmission business to private sector capital should be strengthened. A first step would be to strengthen the role of non-TSO project promoters in the planning procedures. For instance, third parties, such as renewable project developers, should be able to promote transmission projects without directly acting as an investor, but rather as a future user of this infrastructure.

2. European Neighbourhood Policy: Strengthening cross-border cooperation in renewables, particularly between the EU and MENA, can aid in the realization of many of the wider socio-economic and environmental ambitions of the European Neighbourhood Policy. In this context, as a first step, in order to provide a foundation for future convergence of RE frameworks and support schemes, the EU should promote the expression of **RE targets as RE shares** in MENA countries**, i.e. as a percentage of consumption**. Furthermore, by introducing **RE traceability schemes** the actual share of RE in the electricity mix would become transparent. These are essential elements of renewables electricity trading, as they prevent carbon leakage and thus address environmental concerns about trading electricity with third countries. The introduction of traceability schemes requires appropriate metering and certification systems. As a next step, convergence between countries could potentially lead to the common expression of **national RE targets on a regional level through a regional RE share**. At the same time, expressing the renewables target as a RE share leaves national governments with the freedom to achieve this target through whatever mechanism they prefer. Hence, agreeing on comparable or even common targets does not imply giving up national sovereignty over RE support design. Furthermore, traceability of RE provides compatibility for convergence and potential harmonization in the future.

4.4. Competitiveness and security of supply

- Which elements of the framework for climate and energy policies could be strengthened to better promote job creation, growth and competitiveness?

Encouraging exchange and trade of electricity with third countries directly contributes to the development of markets and thus an increase of market size for RE and grid technology. The EU plays a pivotal role in facilitating cross-border electricity trade and could accordingly use its energy policy to promote job creation, growth and competitiveness.

- What evidence is there for carbon leakage under the current framework and can this be quantified? How could this problem be addressed in the 2030 framework?

'Desert Power: Getting Started' makes concrete recommendations to reduce the risk of carbon leakage in an integrated electricity system connecting Europe with its neighbouring countries including the MENA region. Firstly, all importers of power into the EU could be requested to submit CO2 certificates for the carbon emissions associated with power production. Such an approach has been implemented in California for power imports from neighbouring states. If importers do not provide evidence of the carbon intensity of the power plant where the power has been sourced, then the default emission rate of a coal power station would be assumed. Importers of carbon based electricity would subsequently receive the CO2 certificates needed from this account at the spot market price.
Secondly, approval for long-term transmission rights (LTRs) on the interconnector can be made conditional on their use to finance RE projects. Without access to LTRs it is difficult to finance the construction of new fossil fuel plants to export from MENA to Europe (implementation of the UIOLI mechanism). LTRs should be granted through competitive mechanism.

- What are the specific drivers in observed trends in energy costs and to what extent can the EU influence them?

Important drivers for energy costs are fossil fuel price development and the policy cost for renewables. Volatile fossil fuel prices make electricity production cost hard to predict, while, in the past, inefficient support of RE has contributed to increasing cost of electricity.
'Desert Power: Getting Started' provides evidence that an integrated EUMENA electricity grid can sustain high shares of renewable energy sources at much lower cost than a renewable energy strategy based on domestic sources alone, while, at the same time, providing a hedge against fossil fuel price volatility. This can be explained when looking at both regions' complementary patterns of RE resources and consumption: While average wind speeds in Europe are higher in winter than in summer, solar irradiation is higher in both MENA and Europe in summer, and the seasonal wind patterns are much more balanced in MENA. At prime locations in the MENA region, electricity could already be produced and exported to Europe at competitive prices. EU political support for EU-MENA RES cooperation i.e. in the form of the proposed power exchanges can accordingly help to achieve Europe's decarbonisation goals for 2050 in the most cost-effective way possible.

- How can the EU increase the innovation capacity of manufacturing industry? Is there a role for the revenues from the auctioning of allowances?

Market forces should be incentivized to generate substitutes of conventional technology in a timely manner. The price signal on carbon must therefore work effectively. Innovation of manufacturing industry should be pursued through EU industrial policy.
"Capturing" of grant systems (by industry) should be avoided. Funds should be allocated in particular to promising areas.

Extensive public R&D is necessary, as is support and incentives for greater private-sector R&D in areas related to renewables. At EU level, policy coordination is required in order to avoid replication across Member States and to ensure effectiveness of publicly funded research. Furthermore, strong, credible policy commitments should be set to encourage and leverage large-scale investment by private firms. R&D should in particular be incentivized in countries with relatively low rates of R&D investment.

- How can the EU best exploit the development of indigenous conventional and unconventional energy sources within the EU to contribute to reduced energy prices and import dependency?

The European Union has tremendous potential for domestic renewable energies. However, given the intermittent character of renewables, connecting the power systems of Europe and MENA would lead to benefits in terms of cost-efficiency and security of supply: a larger system offers more options to balance the load and the output of solar and wind power plants. Fewer gas peakers for balancing need to be built and less excess production by renewables, i.e. curtailment, occurs. MENA wind and PV are a natural fit with the EU, since they deliver electricity when it is needed, thus MENA fluctuating renewable energy contributes to generation adequacy in the EU. In addition, CSP with storage facilities in the MENA region will be an economically favourable source of flexible power generation for the EU. Creating a EUMENA-wide electricity system would allow for almost 100% RES-E by 2050 and 60% in electricity consumption by 2030. In promoting the realization of interconnectors between North Africa and Europe (as suggested by the ENTSO-E TYDP) and in facilitating projects under Article 9 (2009/28/EC), the EU could contribute to developing domestic and foreign RES, while also stabilising energy prices in diversifying its energy supply routes. Through the EU Neighbourhood Policy, the EU can help to foster regional integration and RES build-up in MENA.

2.5. Capacity and distributional aspects

- How should the new framework ensure an equitable distribution of effort among Member States? What concrete steps can be taken to reflect their different abilities to implement climate and energy measures?

The current 2020 framework incorporates different Member States' abilities to implement climate and energy measures adequately in assigning differentiated RES targets. This measure should be continued in a 2030 framework to account for increasingly divergent economic capabilities within Europe. In addition, cooperation mechanisms provide an important tool to share the benefits of RE more evenly across the European continent, providing a mechanism for countries to achieve RES deployment at lower costs in some countries while

providing renewable energy jobs in others. This point also extends to MENA. Dii's report "Economic Impacts of Desert Power" shows that the expansion of renewables in MENA would also lead to the creation of jobs in the EU, as well as significant opportunities for European companies. Thus, incorporating trade with MENA in renewable energy would help lower the burden on individual EU Member States, while also increasing the benefits of RE for the EU as a whole.

- What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?

The cooperation mechanisms of the Directive on Renewable Energy provide, if further improved, could provide a suitable instrument to promote cooperation and a fair effort sharing. Countries with good renewables conditions profit from increased renewables build-up and job creation while countries with worse renewables conditions can fulfil part of their targets at lower cost through cooperating with other countries.

- Are new financing instruments or arrangements required to support the new 2030 framework?

Ensuring and facilitating investment is particularly important for the renewable energy sector. This refers to renewable energy projects both in the EU and its neighbouring regions, such as MENA. While a large arsenal of risk mitigation and financing instruments is available, the key issue is their usability. The access procedures for the instruments offered by development finance institutions are complex and lengthy. Obtaining risk guarantees and concessional finance therefore requires expert resources and increases the development time and cost of projects. **To stay within this limit, medium-sized projects should be provided with eased access procedures to risk mitigation and concessional finance instruments.**

Access to long-term financing is a necessity for RE projects because their lifetime is often 20-30 years. However, access to long-term (15-20 years) financing is a challenge in many EU and MENA countries at the moment. **One major reason is insecurity about the political support of RE projects**. In recent years some EU governments (e.g. ES, CZ, BG, RO) have retroactively changed the regulatory framework for RE frequently and/or significantly. Some changes have reduced the planned revenue stream for RE projects already in operation. These changes have reduced dramatically the confidence of investors and banks in political commitment. Therefore, EU governments should avoid changes in investment conditions they have guaranteed by any means. Long-term financing is only possible if a project has manageable risks.

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