

Panel Summary: Project Development - Co-operation between MENA and the EU

Moderator: Dr. Mario Ragwitz (Fraunhofer ISI)

Panelists:

- Karim Asali (First Solar)
- Thorsten Rauch (Abengoa Solar)
- Christos Ghionis (Terna Energy)
- Dr. Olaf Heil (RWE Innogy)
- Dr. Andreas Wiese (Lahmeyer International)

Summary:

Utility-scale project development in MENA faces particular challenges, e.g. political risks, lack of track record regulatory and grid restrictions which all have an impact on bankability. The Arab spring might intensify these challenges in the short term, but may also offer an opportunity for mid and long term stability and a favorable investment climate. A number of business initiatives between MENA and the EU have already been realized in the past. This panel gave examples of successful project development by different European companies in the MENA region and addressed the obstacles and opportunities facing the implementation of large scale energy projects between MENA and the EU. Furthermore, the means necessary to overcome the obstacles – especially in light of the latest political changes – were discussed.

First Solar mentioned its vast experience in PV utility scale projects with a track record of 4.5GW of global installed capacity (including desert areas). The PV market is perceived to be in a transition phase with a reduction of support mechanisms towards grid parity and a self-sustainable PV industry. The PV technology provides short project development cycles which are a must with growing energy demand and ambitious RE targets. First Solar is able to erect up to 1MW of solar modules per day. It is anticipated to see a number of smaller PV projects of up to 10MW in the MENA region in order to allow local operators to get familiar with the O&M procedures and related costs. What is required is a regulatory implementation for renewables in an O&G monopolized marketplace. Grid integration of PV is not an issue as easily addressed by power electronics.

Abengoa Solar has currently 393 MW of CSP plants in operation and 1010 MW under construction. The MENA expertise includes the ISCC plants in Ain Bin Mathar and Hassi M'Rel

as well as Shams 1 in VAE, which is currently under construction. Depending on project conditions, Abengoa can provide tower as well as CSP hybrid technology. A CSP project pipeline of 2.5GW can create approx. 20,000 jobs in the supply industry, component manufacturing, construction, and O&M.

Terna Energy mentioned that most of the MENA IPP renewable energy projects are tender based. Whereas the documentation of the tender documents appears to be fairly good there are numerous deficiencies with regard to environmental impact assessment, a risk allocation among the stakeholders involved, and the local licensing processes. Furthermore, commercial banks have been reluctant to enter the MENA market leading to lower the competition/ to less competition for lending and resulting in unfavorable terms. In many of the MENA projects there have been lots of pre-qualifiers, however, only a few parties turn out to be final bidders. Inexperienced independent local developers and bureaucracy hurdles put a burden to faster project development.

RWE Innogy referred to its first successful operation start of the 50MW Andasol 3 CSP plant including 7.5h of thermal storage. Plenty of improvements have already been undertaken in comparison to Andasol 1 and 2. Further improvements are expected on the design of CSP steam turbines. MENA partners with regional experience and renewable project development know-how are needed and local governments should push to accelerate approval processes.

Lahmeyer is advising developers and governments on the implementation of renewable energy projects with currently 600MW of wind projects and 500MW of solar projects (both CSP+PV) in various development stages. MENA countries still lack sufficient data on solar and wind resources in addition to a limited number of developers with local experience. The governments in the region have too high expectations of local content in projects which can actually be counterproductive for the process and sometimes even increase costs. Furthermore, MENA is short of trained personal for construction, installation and O&M and it is not well-thought –out/elaborated what happens after the typical warranty period.

An expansion of Dii reference projects to Egypt might occur at a later point of time as interconnection is more difficult. The mix of technologies is usually dictated by a subset of local conditions. The expansion of a renewable energy industry in Egypt has been dragging due to a lack of qualified people. Most of the O&M personal currently is tied to the conventional power industry and requires relearning. The renewable projects in Egypt are actually not delayed as delivery dates for tenders hardly exist.

Panel Summary: Transmission systems operators: Cooperation between MENA and the EU

Moderator: Jakub Fijalkowski (Manager Systems Operations; ENTSO-E)

Panelists:

- Michelangelo Celozzi (Head of North Africa development area, International Development Division; Terna)
- Dr. Albrecht Kaupp (Team Leader; MED-EMIP)
- Jean Kowal (Director General; Medgrid)
- Rabah Touileb (Director Strategy; Sonelgaz)

Summary:

Historically, energy systems were largely confined to small geographical boundaries such as inner state regions or, in most EU and MENA countries, national boundaries. Therefore, transmission system operators were acting independently and without much interrelation with neighboring grids. In Europe, however, the political drive for an internal energy market and large scale renewable energy integration require a much more coordinated approach between TSOs. Jakub Fijalkowski pointed out that this is reflected by the creation of European organizations such as ENTSO-E or the European Regulatory Agency ACER. ENTSO-E, with its TYNDP, and Modular Development Plan for Electricity Highways is already taking into account both European and MENA developments. Main challenges from the ENTSO-E point of view lie in operational aspects, shown by the failure of the attempts to close the MedRing.

Albrecht Kaupp underlined the lack of coordination between MENA countries today. He suggested some concrete steps to increase cooperation and common understanding, including

- Institutionalization and merger of transmission and power plant map updating and visualization of ENTSO-E and AUE map
- Online visualization of cross-border physical flow in MW (monthly basis) and as a larger step:
- Harmonization of cross-border trading practice rules and regulations (should be started now, as it will take years to be realized)

The Desertec concept will require to extend coordination and cooperation beyond Europe and also include MENA countries. To this aim, Algerian TSO Sonelgaz and Italian TSO Terna

have founded a common organization, METSO, as commonly presented by Mr. Celozzi and Mr. Touileb. The organization aims at fostering closer cooperation and coordination in planning and operation. Its statute is due to be passed by the end of 2011.

Mr. Kowal underlined, again, the need for cooperation and broad regulation, as well as adequate financing mechanisms, which are three of the main targets which Medgrid will assess in the coming years.

Panel Summary: How to integrate RE into the markets

Moderator: Dr. Till Stenzel, COO, Nur Energie

Panelists:

- Laroussi Chebbi, Director General, STEG ER
- Dr. Hafez El-Salmawy, Managing Director, Egyptera
- Silvia Kreibiehl, Vice President, Deutsche Bank Group
- Dr. Dirk Uwer, Partner, Hengeler Müller
- Roberto Vigotti, Director Electricity Division, Observatoire Méditerranée de l'Énergie and Senior Advisor PWC

Summary

Worldwide, installed capacities of Renewable Energies (RE) are rapidly increasing and governments around the globe announce their commitment to integrate significant RE shares in national electricity supplies. However, so far most RE technologies are fostered by separate support schemes and regulations and the market integration of RE is in its infancy. As Dii envisions a significant contribution of RE to cover local and European electricity demand, successful market integration of RE beyond first reference projects is a central success factor.

The panel “How to integrate RE into markets?” discussed this question both from a MENA and European perspective. The experts on the panel represented the full spectrum relevant for successful market integration, which comprises economic and financial as well as technical and regulatory aspects. As the moderator of the panel, Mr. Till Stenzel (COO, Nur Energie) made clear in his introduction, integration of renewables into markets is not only about costs of renewable energies but also has to address the availability of adequate infrastructure and the creation of market opportunities.

Mr. Chebbi opened explaining how Tunisia is paving the way on the regulatory side for renewable energy both for local consumption as well as for export.

The existence of a stable regulatory framework (TLC - Transparency, Longevity and Certainty) was also emphasized by Ms. Silvia Kreibiehl as a critical prerequisite to attract investors. From the financing perspective, Ms. Kreibiehl concluded four success factors necessary for bringing renewable energies in developing countries to market integration: Public-Private-Partnerships and a fair risk allocation, the right balance between concessional and private finance as well as local and international investors.

The need for a stable and “bankable” institutional and regulatory framework was also highlighted by Mr. Vigotti who proposed an integrated policy approach along the maturity stages of technologies. According to Mr. Vigotti, large-scale integration of renewables is possible from a technical point of view, however to cope with the variability of renewable energies, antidotes have to be put in place: More flexibility in the system, strong and intelligent grids as well as large, liquid markets.

Indirect trade of renewable energies was presented by Prof. El-Salmawyas a concept, which could help to bridge the time until infrastructure and markets for direct electricity trade between Egypt and Europe are in place. In face of the fast growing demand for electricity generation in the Arab world, these concepts could enable the use of renewable energies to cover the local demand and at the same time ensure compliance of consumers in Europe with their obligations.

The demand of European countries for renewable energy imports in order to meet their renewable targets was highlighted by Dr. Uwer. He concluded with providing an overview of the existing European regulatory frameworks to integrate renewable energies into European markets and of their challenges.