

## **TECHNICAL EXPERT MEETING TO UNLOCK MITIGATION OPPORTUNITIES IN RENEWABLE ENERGY SUPPLY**

Wednesday, 3 June 2015, 09.30–16.30

### **Summary at the closing session of the technical expert meetings by the facilitator Mr. Amit Kumar (India)**

As part of the technical examination process under the Ad Hoc Working Group on the Durban Platform for Enhanced Action, a technical expert meeting (TEM) on renewable energy supply was held in Bonn, Germany, on 3 June 2015. This TEM built on the recommendations and findings resulting from the renewable energy TEM held in March 2014, and focused on the most promising and feasible policies and options for renewable energy supply that could be implemented and scaled up to achieve high emission reductions in the pre-2020 period; in particular, distributed generation and policy and financial incentives, such as feed-in tariffs. The TEM facilitated an effective dialogue between participants, including Parties and representatives of the UNFCCC institutions, public and private investors, renewable energy companies, civil society, and research and academia, focusing on concrete business models and regulatory frameworks being used to deploy renewables on the ground.

### **Realizing the potential and benefits of scaling up renewable energy supply**

The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change states that increasing energy efficiency and renewable sources are fundamental steps towards achieving a low-carbon energy system and development pathway, because over two thirds of global greenhouse gas emissions originate from the energy sector. The AR5 highlights that renewable energy technologies have demonstrated substantial performance improvements and rapid cost reductions in recent years, and that a growing number of such technologies have achieved a level of maturity to enable large-scale deployment. As such, renewable energy technologies could already play a significant role in achieving the goal of limiting temperature increases to less than 2°C above pre-industrial levels.

As highlighted by the International Renewable Energy Agency (IRENA) during its keynote presentation, a shift to renewable energy is already under way, as positive trends in the deployment of renewables can be seen worldwide through various national climate action plans and strategies. To date, 164 countries have national level targets related to renewables, representing various policy designs and implementation of renewable energy technology, such as distributed generation and feed-in tariffs. In 2014, renewable energy accounted for more than half of new global power capacity, and investment in new renewable energy capacity has outpaced investment in new fossil-fuel-based power generation for the last three years. During the meeting, participants identified several co-benefits to implementing renewable energy technologies, such as increased energy independence and security, health improvements, technological competitiveness and innovation, increased local manufacturing and job creation, and increased grid integration for rural areas.

Despite the momentum achieved in recent years and the co-benefits enumerated above, it was highlighted during the TEM that challenges and barriers remain to successful implementation of renewable energy technologies on a global scale. These include technical, infrastructure and economic challenges and barriers such as: (i) financial risks and high capital and operational costs, (ii) lack of stable policy frameworks, (iii) renewable energy grid integration and (iv) public perception.

As shown below, participants identified several ways of overcoming these challenges and barriers, as well as potential ways forward to increase the share of renewable energy technologies within the energy mix. One theme that was apparent in all of the discussions was the urgent need to

enhance collaboration among a wider range of stakeholders at the national, subnational and international levels as a way to facilitate more ambitious development and deployment of renewable energy technologies.

## **Accelerating the implementation of scalable, replicable and transformative actions**

At the meeting, participants discussed options to bring action to fruition, mobilize finance, technology and capacity-building support, and ways to overcome barriers. The discussions focused on distributed generation and policies and financial incentives, including feed-in tariffs. While it was highlighted that there is no one-size-fits-all policy or technological solution, many opportunities to scale up renewable energy supply were identified. In addition, several suggestions on the way forwards under the technical examination process were made.

### **Distributed generation**

The recent deployment of renewable energy is leading to a shift from centralized utilities to more diverse, localized energy production and mini-grids within the power sector. As such, the future of many power systems involves: (i) a broad mix of fossil fuels and renewable energy sources and technologies, (ii) decentralized or distributed renewable power generation, (iii) expanded storage capacity and (iv) improved demand and supply planning and operation through smart grids. In addition, distributed renewable power generation can create very important co-benefits, such as providing access to energy in rural and underserved areas as part of the goal to achieve energy access to all.

Participants discussed several actions and initiatives that are already being implemented on the ground to scale up the use of distributed renewable power generation and overcome barriers. Many countries are developing policy and regulatory frameworks to provide the stability needed to attract private sector investment in renewable energy technologies, as well as to develop local renewable energy technology manufacturing industries. In addition, some countries are utilizing international and national public funds to mitigate risk and leverage private sector financing. Participants identified four models with different capacity and financial requirements that can be used to successfully deploy distributed renewable power generation: a community-based model, a private-sector-based model, a utility-based model and a hybrid model.

For further deployment of distributed renewable power generation, there is a need to enhance collaboration and partnerships among a wider range of stakeholders. Participants highlighted that in addition to establishing new partnerships, it is important to scale up and improve coordination among existing partnerships in order to streamline and focus efforts. Regarding international financial support, it was suggested that more resources could be provided for feasibility studies and for early stage/readiness financing to help initiate projects.

### **Policies and financial incentives, including feed-in tariffs**

Participants identified a range of financial incentives and relevant schemes that are being utilized to scale up the deployment of renewable energy. These schemes can be divided into market-based and non-market-based schemes, as well as price regulation and quantity regulation. Examples include: (i) feed-in tariffs, (ii) tendering and reverse auctions, (iii) tax policies and carbon pricing and (iv) regulatory policies, such as renewable energy standards that could be linked to cap-and-trade schemes. During the meeting, a particular focus was given to feed-in tariffs, as they have been shown, in many countries, to be effective in increasing the amount of renewable-energy-based power generation by granting a long-term fixed price for energy output.

It was highlighted that to further scale up the deployment of renewable energy, policies and financial incentives should have long-term stability to provide a clear signal to investors and help to mitigate financial risks. In the context of capacity-building, countries could invest in a well-trained workforce and adequate physical infrastructure, such as transmission networks, sub-transmission

and distribution, roads and ports, to attract higher levels of investment. To address potential financing challenges, projects could be aggregated to achieve economies of scale, thereby reducing capital costs and transaction costs.

Multilateral agencies, national development banks and other institutions could provide the long-term financing required for investments in renewable energy, because such funding is typically difficult for local commercial banks to provide. Through its wide spectrum of financial instruments, the Green Climate Fund could play a key role in fostering investments in renewable energy by tailoring financial tools to national conditions in developing countries.

### **Action through 'accelerator partnerships': turning potential into action on the ground**

Participants shared information on international partnerships that assist countries with capitalizing on their renewable energy potential. IRENA presented the small island developing States (SIDS) Lighthouse Initiative that was launched on 23 September 2014 at the United Nations Secretary-General's Climate Summit in New York. The initiative includes 26 SIDS and 18 development partners, with the strategic objective to enable a sustainable energy transformation for SIDS. The main elements of the initiative involve information exchange, capacity-building and energy system transitions.

The Africa Group Renewable Energy Partnership Proposal was presented at the TEM. This proposal aims to establish a global partnership to accelerate energy transformation in African countries towards wider use of renewable energy that could be supported by feed-in tariffs and other incentives. Between now and 2020, the partnership could enable the installation of at least 10,000 MW of renewable energy capacity in Africa. In the longer term, by 2030, the partnership could catalyse a major transformation by achieving the goal of universal energy access.

A representative of the Global Energy Efficiency and Renewable Energy Fund (GEEREF) discussed how the GEEREF invests in private equity funds that focus on renewable energy and energy efficiency projects in emerging markets. The GEEREF was structured to catalyse private sector investments into funds and underlying projects by leveraging public sector seed contributions. GEEREF funds concentrate on infrastructure projects that generate clean power through proven technologies with low risk, and target attractive financial investments that also deliver strong positive environmental and developmental impacts.

The World Bank presented several of its projects, including the Readiness for Investment in Sustainable Energy project, which provides indicators that compare the renewable energy investment climate across countries. The World Bank has also put in place financial instruments such as the Multilateral Investment Guarantee Agency, which provides political risk insurance guarantees to private sector investors and lenders.

Participants expressed great interest in engaging in such partnerships and had a thorough discussion on what resources these partnerships make available to Parties. Participants highlighted that closer cooperation between various partnerships, as well as among efforts within the UNFCCC institutions (the Technology Mechanism and its Technology Executive Committee and Climate Technology Centre and Network, as well as the Green Climate Fund), could further help to stimulate the deployment of renewable energy supply on a global scale. It was mentioned that the technical examination process could continue to serve as a platform to further discuss the role of UNFCCC institutions and partnerships and how they can ensure that their activities fully meet expectations by Parties, complement each other and avoid duplication of effort.