

Durban Platform: Expert meeting highlights barriers to renewable energy technologies

Bonn, 7 April (Dale Wen) – Several developing countries highlighted the barriers they faced in accessing finance and technology to allow for the development and deployment of renewable energy (RE) technologies during technical expert meetings (TEMs) on ‘renewable energy’ held on 10, 11 and 12 of March 2014 under the Ad Hoc Working Group on the Durban Platform (ADP) in Bonn, Germany.

Presentations were made by Parties, international organizations, international partnerships, sub-national entity and civil society organizations about their efforts and perspectives in scaling up deployment of renewable energy (RE) technologies. The TEMs were facilitated by Youba Sokona (Mali), who presented a summary of the discussion at the closing meeting of the TEMs on 14 March.

Sokona said that delegates agreed that large scale deployment of existing and readily available RE technologies can help increase mitigation ambition both pre-2020 and post 2020, with significant economic, social and environmental co-benefits. He added that a number of institutional, financial, technical, technological and geographical challenges and barriers related to scaling up deployment of RE technologies were raised.

These included the lack of affordable up-front finance; high cost of technology and high operational and maintenance costs; grid network, connections and dispatch issues; supply and demand imbalance; lack of tailored research and development to suit local conditions such as high temperature, dust and sandstorm, which have impacts on the efficiency of some of the technologies; lack of capacity to develop and implement stable policy options; lack of access to information and high transaction cost of small-scale renewable energy systems.

Sokona said that fortunately, participants also heard about various policy options, actions and technologies that can assist countries in addressing some of the challenges and removing barriers faced in scaling up deployment of such technologies. The policy options raised included RE targets, providing stable long-term policy and legal framework; economic instruments, such as carbon pricing or setting up of price stabilization fund; feed-in tariffs/guaranteed access to grid; smart grids and smart metering; direct subsidies or tax credits, and removal of fossil fuel subsidies; and strengthening of the institutional, legal and regulatory framework to promote RE.

He added that policy options in themselves are not sufficient if countries do not have means to put in place and operationalize stable policy frameworks needed to scale up deployment of RE technologies. For a more ambitious development and deployment of such technologies, Sokona stressed the need for continuous support for research, development and innovation to develop technologies in line with national and regional circumstances and also to identify and use innovative financing models.

He added further that existing institutions under the UNFCCC namely the Technology Mechanism, the Technology Executive Committee (TEC) and Climate Technology Centres and Networks (CTCN) need to be actively engaged to assist countries in scaling up deployment of RE. Guidance to UNFCCC institutions including the Green Climate Fund (GF) could be provided to build pipeline for future funding of programmes and policy options. Sokona said the UNFCCC Secretariat could also facilitate the process by developing a common platform for countries to register their policies, challenges, success and failures to be shared and for their further discussion through the TEMs process and to

assisting Parties in finding the information on organizations and partnerships that best meet their needs.

Mali stressed that many African countries have the largest RE potential, but the lowest access rate to energy. What was missing was the incentive structure to cover the differentiated price of different technologies. It said that, therefore, the proposal of globally-funded renewable energy feed in tariffs had merit as it would influence whether developing countries' energy investment would be funneled into the 'brown' or 'green' sector. It also highlighted difficulties with the nationally appropriate mitigation action (NAMA) registry and called for a holistic approach to addressing bottlenecks in accessing finance including for a permanent space for focused technical discussions.

Dolf Gielen from **IRENA (International Renewable Energy Agency)** said that about half of the new electricity generation capacity worldwide is based on renewable energy now and the share has doubled in recent years. He outlined that a diverse set of drivers exist for renewable energy, including energy access, cost saving opportunities through increased use of RE, improved trade balance and enhanced supply security, job creation (RE industry created 5.7 million jobs in 2012), and economic growth (\$254 billion in 2013). In 2012, RE subsidies were only USD 101 billion, while fossil fuel subsidies were USD 544 billion and fossil fuels caused \$650 billion of health damage.

He directed Parties' attention to IRENA's recently published report "REmap 2030", which outlines a roadmap for doubling the global RE share by 2030. It estimates that RE share can reach and exceed 30% by 2030, and can bring an additional 8.6 Gt CO₂ in emissions reductions. The REmap proposal would result in 60 million cumulative RE job out to 2030, as well as significant cost savings. He said that subsidies per unit of RE can halve or fall even more steeply depending on the future CO₂ price. However, in order to achieve all these, he stressed that it is important to create enabling business environments including through technology cost reduction; fossil fuel subsidies reduction or elimination; providing fair market access; internalizing externalities; and long-term credible policy frameworks. He concluded that IRENA is an active player of the Sustainable Energy for All Initiative (SE4All).

The United States presented its aim to generate 80% of its electricity from a diverse set of 'clean energy' resources, and to develop RE technologies so that they are cost competitive with traditional sources

of energy, without subsidies. Since 2008, the U.S. has doubled RE energy generation from wind, solar, and geothermal. It said that solar had enjoyed 60%+ annual growth rates recently with an 80% price reduction in the last 4 years. Its 'SunShot' Initiative's goal is to reduce the costs of solar photovoltaic (PV) and concentrated solar power (CSP) energy technologies to be cost-competitive without subsidies with conventional energy sources by 2020.

Mali asked the US what the time frame was for the US's 80% clean energy target and what was the definition of 'clean energy'. The US answered that no target date had been formally set and did not elaborate a definition.

China said its target was for 15% non-fossil fuel energy in the primary energy mix by 2020. It noted that solar PV and wind had grown particularly fast in recent years due to policies decisions, including its RE law and feed-in-tariffs. However, it said that China faces multiple challenges to further scale up RE, including: the geological distance between supply and demand requires better grid or large scale power storage technology; that discontinuous supply poses challenges for peak shaving; that the cost (especially of solar PV) is still higher than coal-thermal power. Thus, it concluded that support for R&D of country specific technology is crucial, and that technology transfer is a must to advance RE. It added that financial support is needed to ensure the diffusion of technology.

Kenya stated that while only 29% of its population has access to electricity now, the projected demand would be 15,000 MW by 2030, more than 8 times of its current 1753 MW generating capacity. It highlighted that it has vast indigenous potential RE resources, including hydro, geothermal, solar and wind. It said it saw RE sources as having the potential to enhance energy security, generate income, create employment, mitigate climate change and generate foreign exchange savings. However, it said that the country also has other emerging choices given recent oil and coal discoveries. Thus, it said, financing and technology access will determine which choices it takes. It noted that barriers for RE development includes high upfront cost of project development/investments, high exploration and drilling cost and risk for geothermal, long lead time for geothermal power development (5-8years), high costs of technology transfer resulting in slow domestication of technology manufacture and assembly. Therefore it said there was a need for enhanced financial, technological and capacity building support to increase RE uptake in countries like Kenya.

The **Mashall Islands** said it had made incremental progress in RE deployment, with its “Outer Islands Solar Project” aiming to provide 95% solar power for outer island households and public facilities. It also had a solar-to-grid aim to increase grid connected solar from 200kW to more than 1MW. However, it noted that it faces barriers including the lack of affordable, up-front finance, threats to grid stability from an increasing proportion of renewable energy, lack of national capacity for planning, installing and maintaining infrastructure and equipment, in addition to the obstacle of navigating different donor priorities in order to find a ‘finance match.’

Brazil said that it currently has 87.8% RE in its electricity supply mix, and the challenge is to increase energy production and security at an affordable cost, while maintaining a high share of renewable energy sources.

Saudi Arabia highlighted priorities towards sustainable development, including economic diversification, combating desertification, job creation, adapting to adverse impacts of response measures, addressing water resources and water security issues, adapting to climate change (noting that natural disasters cost 15% of national GDP). It stressed that a plausible energy mix must deliver the required capacity both cost-effectively and in a timely fashion. It concluded that there are challenges for many countries including access to suitable technologies and technology dissemination barriers, namely intellectual property controls and barriers.

Ethiopia noted that green growth is a necessity as well as an opportunity, giving the example of the need to arrest land degradation which threatens millions of its citizens with poverty. It informed Parties that the government had stopped particular fossil fuel subsidies in 2008, and that it aims to be a zero net emitter by 2025.

Chile noted that 5.9% of its grid is RE now, and it aims to have 20% RE by 2025. It said that it urgently needs the transfer of suitable technologies to help to tap the potential of RE and strengthen capacities for the implementation of variable energy sources (eg. solar, wind). It said it had focused on large centrally connected grid players so far, and the challenge is to shift towards small scale distributed sources helped by smart grids.

Germany presented core elements of its energy transition. It said that RE, energy efficiency and grid management make up the three pillars of its approach. It said it was on track to achieve its ambitious targets of -40% GHG reduction by 2020, and -80~95% reduction by 2050. It explained that an

integrated policy for decarbonization existed in all major sectors including electricity, heating and transport and this was supported by research and development. It informed Parties that in 2013 the use of RE avoided 147.9 million tone CO₂eq in Germany and well as creating new entrepreneurship and new jobs.

During the discussions, **China** stressed that ‘showcase examples’ alone would not make a significant difference, and the challenge is to make RE a sustainable sector/industry. **Tanzania** and **Ethiopia** stressed that they have huge hydro potential, and international rules should help them to finance hydro schemes.

IRENA also made a presentation on current and future challenges of RE finance. While renewable power generation is increasingly competitive it said that the traditional investors of the past (international finance bodies, development banks, utilities) are unlikely to provide the main share of future investment into renewable energies. This meant that new investors, including insurance and pension funds, green bonds, and crowd funding would need to provide the main share of future renewable energy investments. It said that unpredictable policies and regulatory uncertainty are the main barriers to new investments; and private investors consider the investment risk in the RE sector as comparably higher than others. It concluded therefore that stable and predictable policy frameworks are needed in order for the risks and the cost of capital to be reduced.

The representative from **Sustainable Energy for All Initiative (SE4All)** emphasized the importance of collaborative action and partnerships. More than 80 developing countries are already involved in a streamlined process to catalyze action including through: gap analysis, creation of national Action Agendas (that include support for the improvement of enabling environment and capacity building). It also outlined the challenges ahead such as that the overall share of RE has remained quite flat, with some sources grew exponentially from a small base (most notably solar, biogas and wind). It said that traditional biomass accounts for over half of the energy, mainly for heating and cooking and that progress over the last 20 years has only kept slightly ahead of huge growth in population and energy demand.

The **GCF Secretariat** presented on the status of the Fund. On the readiness work programme, it identified priorities, such as the establishment of designated national authorities; strategic frameworks,

including for building on NAMAs and national adaptation plans (NAPs); selection of intermediaries and/or implementing entities; and an initial pipeline of projects and programme proposals.

The **CTCN** outlined its structure and functions of the CTCN. Its main function is to assist developing countries, and respond to specific requests from designated national entities. CTCN has a menu of resources related to technology transfer on RE.

The **World Bank** highlighted the Bank's RE funding portfolio and its evolution with 86 countries receiving funding of US\$ 9.6 billion for RE between 2004-2013. It had identified barriers and risks for different RE sectors such as wind, solar, small hydro, biomass and geothermal. It told Parties that legal provisions allowing private sector participation and efficient regulatory processes are important to facilitate market entry. It said that investment-grade policy instruments should be introduced for transparency, certainty and longevity.

The **Global Environment Facility (GEF)** presented ideas and examples to scale up RE, highlighting lessons learned including the reduction of investment risks by improving and stabilizing policy, regulatory, and contractual frameworks; facilitating access to capital (e.g. guarantee schemes); and work on a price premium system if needed. It detailed an example from 1995 where \$30 million GEF grant and \$1.3 billion WB investment played a critical role for in allowing the Philippines government to choose Leyto-Luzon Geothermal Project over coal. With 385 MW generating capacity, it has avoided 2.2 million tCO₂ eq.

It said that GEF's support had also helped to transform China's RE sector with a \$76 million grant over two major interventions driving key laws and regulations in the Chinese electricity sector. It explained that in 2006 the major RE law was supported by the GEF and that in 2009 a feed-in tariff for wind was also supported. China's installed wind capacity increased 100-fold from 2006 to 2012, from 760 MW to over 75 GW, and is expected to reach 150 GW by 2015. In 2012, electricity produced from wind power grew at a rate faster than from coal for the first time ever. GEF said it was committed to support innovation and "early adoption" and gave the example of \$142 million in grants to support four large-scale projects in Egypt, Morocco, Mexico and India to push concentrating solar power down the cost curve.

ICLEI (Local Governments for Sustainability) presented leadership cases by local governments, noting that lessons learned needed to be more widely

shared, although replication potential is context specific. It called for the creation of enabling frameworks that actively support local climate / energy action led by local governments, including the regular flow of up-to-date information (policy, trends, technology options, sharing lessons, mistakes to avoid). It said that this would increase local governments' capacity to act in addition to better trained staff and easier access to financing.

The **United Kingdom (UK)** provided some examples of mobilising private finance in renewables. It noted that key barriers to RE technology deployment was the high upfront costs of capital and long-term price risks. It said that the UK government had set up the International Climate Fund (ICF) to provide £3.87 billion between April 2011 and March 2016 to help the world's poorest adapt to climate change and promote cleaner, greener growth. Its priorities are to demonstrate that building low carbon, climate resilient growth, at scale, is feasible and desirable. It hoped to drive innovation and new ideas for action, and create new partnerships with the private sector to support low carbon climate resilient growth.

A civil society representative, **Niclas Hällström**, from **What Next Forum**, made a presentation about globally funded renewable energy feed-in tariffs, based on a proposal from many observer organizations to the negotiations. He said that a 15-year public investment programme – a "global Marshall plan" – was needed to tackle both climate and development. He said the challenges was to transit to a 100% RE in a very short timeframe whilst massively expanding electricity access for a large part of humanity. He said that RE feed-in-tariffs (REFiTs) were the most effective policy tool to promote renewable energy, as the public investment would bring down the cost of RE and makes RE the default choice. He said that more than 65 countries world-wide already had, or are in the process of setting up, some form of REFiTs. He explained that REFiTs in developing countries could massively increase supply for growing demand, while avoiding costly lock-in to fossil fuels. He said that this approach would enable community power and new distributed, decentralized energy models. The main bottleneck was the finance needed for national REFiT programmes. The components of a globally-funded FiTs would therefore include: invitation and support to developing countries to establish, through their NAMAs, new or links to existing national FiT mechanisms to a coordinated programme under the UNFCCC with global funding coming through GCF based on delivered energy.

Nauru noted the need to internalize external costs, saying REFiTs are revolutionary in that they change the energy mix and democratize the energy sector. The **UK** stated that availability of finance is less important than establishing a pipeline of bankable

projects. On how to move forward, **Nauru** said the main question is how to address barriers to deployment of mitigation opportunities in developed and developing countries.