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# Addressing fossil fuels, meeting energy needs

Bonn, 12 June (Alejandro Rafa) – The complexities and challenges in addressing fossil fuels while meeting energy needs, especially of developing countries, emerged again in a workshop held under the Ad Hoc Working Group on the Durban Platform (ADP) Workstream 2.

On 7 June, the "*Workshop on pre-2020 ambition: Energy*" explored mitigation and adaptation benefits of actions of the specific thematic areas of energy efficiency, renewable energy and carbon capture and storage (CCS). It was organized in three parts with three introductory presentations, followed by questions and answers, then by focused intervention by some Parties.

Developing countries highlighted the importance of sustainable development and energy access, and that the implementation of renewable energy, energy efficiency and CCS would require the provision of finance and technology. Many Parties highlighted positive experiences with domestic feed-in-tariffs and other policies and AOSIS continued to call for a more focused discussion on renewable energy, energy efficiency and CCS as a part of a structured workplan for Workstream 2. The roles of the Technology Executive Committee (TEC), the Climate Technology Centre and Network (CTCN) and the Green Climate Fund were also highlighted, while several developing countries emphasized a country-driven approach.

(This workshop was a part of a series of workshops with different focuses, and in the Workstream 2 roundtable discussions here in Bonn, many developing countries had expressed a desire not to focus on one sector specifically pending the finalisation of the parameters of Workstream 2.)

**Mr. Seyni Nafo** of Mali, facilitated the 7 June workshop and in his opening noted that in previous sessions Parties and observers had realized that there was sizeable mitigation potential in the energy and renewable sector. He reminded Parties of the presentation by UNEP (see TWN Bonn Update # 9) that suggested the power sector had a high mitigation potential of 2.2 - 3.9 gigatonnes (Gt) and the use of renewables had up to 2.5Gt.

The first presentation was by **Luis Gomez-Echeverri, Senior Advisor to the UNSG on Sustainable Energy For All (SE4ALL)** who outlined the history of the initiative and its goals, including universal energy access for all by 2030; doubling the share of renewable energy by 2030; and doubling the rate of improvement of energy efficiency 2030. He said these would entail increasing the amount of expenditures on access by a factor of four and even more for renewable energy and energy efficiency. He noted there were significant co-benefits of all of the approaches.

**Mr. Nafo** noted that in his region of sub-Saharan Africa energy access was fundamental given that energy demand increases by 10% per year but installed capacity only increases by 3%, leaving a clear gap to be filled.

**Philippe Benoit, Head of the Energy & Efficiency division of the International Energy Agency (IEA)**, described 'energy transformation as a collective marathon.' He said the IEA partnered with many organizations and made many recommendations, such as a list of 25 technical recommendations on energy efficiency, but that the scale of the challenge meant that technical work was not enough.

He said the key challenge was to increase "motivation". One means of doing this was to

highlight the "multiple benefits" of efforts. He said the IEA was now repositioning energy efficiency as the "hidden fuel" to compare it to other fuels and to highlight ways it was often "penalized." He said that in general renewable energy was expanding at a rate consistent with the 2°C target, but that there were "clouds" as new capacity investment decreased from 2011 to 2012. He said this was due policy uncertainty and that continued policy commitment was important to "keep us on track." He added that the global Energy Sector Carbon Intensity Index had remained largely flat and that to meet the 2°C target this would need to drop by 40-60% over the coming decade. This, he said, showed that we needed to reduce fossil fuels and focus on the fossil fuel side of the equation.

**Trygve U. Riis, the Chairman of the Technical Group of the Carbon Sequestration Leadership Forum (CSLF)** said that renewables would take a long time and asked whether there was "time to wait." He said that to meet a 2°C target CCS would have to play some role. He acknowledged there were various CCS methods and there was uncertainty over the "best" and that the "technology needed to be developed." He described the Sleipner project in Norway, which had injected 1 megatonne of CO2 in 17 years. He conceded that the cost of capturing CO2 was high but suggested it was in the 'middle' of alternative technologies and the cost would come down if it were done at a larger scale. He also said the challenges for CCS included limited public funding, limited market incentives (like the feed-in tariffs which had worked for renewables) and a lack of resources and expertise in developing countries. He added that the "high public resistance" to CCS came without a scientific background and that with funding it would be a viable technology.

(According to an observer at the workshop who is familiar with the subject, Riis' dismissal of public concerns was unfortunate given that there are uncertainties and an ongoing scientific debate on the CCS technology.)

**Kuwait** asked Riis about short and long term monitoring systems.

**China** asked Riis, with respect to the finance issues, what the source of funds should be and what the commercial model would be.

**Nauru** welcomed the presentations and said they were compatible with the process they had been trying to promote. It highlighted the 1.2 billion people without electricity and the 2.8 billion people using solid fuels. It referred to the World Economic Forum happening in Myanmar, which had identified the opportunity for Myanmar to 'leap-frog' straight to LEDs, and said this was the 'type of opportunity we need to find.'

It asked Gomez-Echeverri what developed countries could do as the SE4ALL seemed biased toward developing countries. It asked Benoit about the disappointing share of investments going to renewable energy and why investments in coal continued. It asked Riis what the total storage capacity of CCS would be given the largest project mentioned was 3 megatonnes, which was "three orders of magnitude too small."

**Mr. Nafo** asked for an indication of which approach was the most important.

**Mr. Riis** responded that for onshore storage there was a need to monitor leaks and that lot of work was going on this issue. On financing he said: "I wish I knew." He said the CSLF was organizing capacity building but there needed to be transfers for it to happen. He said that on the storage capacity there was "no limitation on the theoretical side" but that as to what could be "really utilized" that would require more public support, research and development and demonstration projects.

**Mr. Benoit** responded that focusing on energy efficiency in developing countries was a critical part of access. He said that the historical investment in fossil fuels reflected the fact it was traditional and investors were familiar with it. He said that Parties needed to focus on fossil fuel emissions as the IEA had suggested that new fossil fuel infrastructure after 2017 would breach the 2°C limit.

**Mr. Gomez-Echeverri** said SE4ALL was a global initiative with energy access being a big driver for countries to join. He said developing countries needed capacity building and support. He said the key was a major transformation that required the right policy frameworks, capacity, and skills. He also said current investments in energy access were about $9 billion a year and that figure needed to be closer to $40 billion to provide access for all.

**Mr. Nafo** summarized that demonstration projects, addressing fossil fuel emissions and

scaling up investment were priorities emerging from the presentations.

**Saudi Arabia** said it was an active member of CSLF and wanted to highlight the importance of CCS to its region. It said without CCS the region would not contribute as much to ambition under the Convention. On the area of perception it said sharing experiences was important as it had been an oil exporter and its practice had shown that the technology was safe, having worked in capture, separation, transportation and in managing the fields. It said the critical element was commercialization and so the focus was finding ways and means to make it more viable.

**Swaziland** said on the issue of access it was not only about power-systems but also their uses. It said access should build on the communities' livelihoods and generate income; otherwise they may not be able to sustain the energy because of the cost. It added that energy services needed to be reliable; if not people would return to dirty-sources.

It further said the challenge was how to access the abatement cost and the infrastructure cost, as these were very big. Thus, Swaziland stressed, the provision of means of implementation was very important. It welcomed Europeans taking up CCS if it contributed to raising ambition. It said that Parties needed to consider risk-management as such things could be exposed to climate change impacts or even conflict.

**Japan** said its feed-in-tariff had improved renewable energy capacity by 7 gigawatts in the last six-months, which was almost the same as for the whole year in 2011. It said the feed-in tariff had had a huge impact and it also detailed its energy efficiency program of setting targets for manufacturers of various consumer goods. It said it intended to inject 1Gt of CO2 using CCS in 2016. Japan added that a compilation on best practices from the secretariat would be useful.

**Malaysia** described its national policy on climate change, introduced in 2010, noting economic competitiveness required energy efficiency and renewable energy production. It said the plan integrated climate change into planning and implementation at all levels and highlighted the importance of engaging stakeholders. It said its promotion of renewable energy generation included local communities and through a feed-in tariff, funded through a 1% levy on electricity bills, it had generated significant megawatt hours. It had focused on enhancing energy efficiency in industry and the transportation sector. It had also taken a fourth "key action" on buildings including 'zero' design concepts, retro-fitting and adding to five urban mass rail rapid transit systems. Malaysia also said there was an important role for education and had a sustainable schools program, which also acted as a collection centre for used-cooking oil.

**The European Union (EU)** said that energy efficiency and renewable energy had a combined mitigation potential of 5Gt, which was significant given the 8-12Gt gap. It said both developed and developing countries ignore this potential because of barriers such as access to capital, information, and incentives. It described several measures undertaken in the United Kingdom and noted that the cost of solar PV technology had come down by 75%. It said it was clear that solar PV was cheaper in many parts of the developing world but that access to capital was the issue. It agreed that that CCS would be a part of strategy to achieve 2°C and appreciated the suggestion from China to have a more detailed discussion given CCS's significant costs.

**Brazil** said, "All renewable energies will have an impact" and encouraged Parties not to take "an ideological position." It said CCS was key and should be accelerated. It said Parties would commit to more significant things post- 2020 if they knew what they could do in the medium and long-term. It said energy efficiency would not be enough and that Brazil had an impressive participation of renewables, largely biofules and hydro, and that these needed to be recognized as it was not "very constructive" to only consider those renewables that developed countries wanted investments in.

**Mr. Nafo** noted that in Africa the Democratic Republic of Congo and Ethiopia had the highest hydro potential but the lowest access to energy.

**India** supported Brazil and Swaziland in seeing energy in a "holistic manner." It noted that at Rio+20 intensive discussions realized that SE4ALL had been created in a non-transparent manner and some of the targets were incompatible, leading to it only being 'taken note of.' It said that 'universal access' was its number one priority, 'irrespective of source.' It also reminded Parties of Article 4.8(h) (of the Convention) which recognized the vulnerability of countries highly dependent on hydrocarbons, and said that Parties could not recognize them as vulnerable and then penalize them for being

vulnerable. It said issues should be addressed based on the Articles of the Convention.

**Mr. Nafo** related a story of considering various sources of fuels in a domestic policy situation but that the choice was then limited to coal by a lack of finance. He said often the 'political will was there' but the 'finance or technology was not.'

**Iran** said energy was now important because of the unrestricted use of fossil fuels, and use of atmospheric space, by Annex 1 Parties, which had led to climate change. It said that energy was a necessity for developing countries' sustainable development. It said the challenge for the post-2020 agreement was to get everyone involved in a multilateral system under the Convention. It believed in ensuring equitable access to sustainable development and that by end of its 5th development plan the share of renewable resources would reach 15% - including hydro, wind and solar. It also outlined how it was bringing the benefits of natural gas to millions of people in Iran and the region. It concluded that the environment was a "common good", and all were responsible to protect it and preserve it for future generation and to use it in an equitable manner.

**Nauru** said that 2/3 of remaining known coal and gas reserves could not be burnt, observing that "gas is less dirty but it is not clean." It said that as it could not "put the genie back in the bottle" that CCS would be vital for fracking and shale gas. It said that no country was taking the risk to build the first commercial plan for CCS and that governments needed to collaborate and share the risk.

It welcomed news of feed-in-tariffs in countries and noted that the cost of renewable energy was competitive in some countries. It highlighted the role that such policies could play in the 'empowerment of communities' and the 'democratization of energy generation' leading to households and business generating power, changing the role of utility companies in the future. Nauru concluded that there had been a rich discussion on solutions to challenges and invited Parties to continue the conversation in a more focus manner (referring to its proposed workplan) so that countries could "bring specific problems to find specific solutions."

**Nepal** concurred with Parties who had raised the issue of energy access and emphasized that many of the people without access were living in LDCs. It said that enabling developing populations to access electricity in a carbon constrained world would require effort, to produce growth without increasing emissions. It welcomed the ideas from the IEA on energy efficiency and the returns it could provide in savings over time. It also highlighted many co-benefits of renewable energy including cost-savings, lower use of fossil fuels, lower overall prices, local job creation, access through decentralized systems, and increased energy security. It said the sector presented an opportunity to scale up.

**The Republic of Korea** noted that for CCS the storage capacity would be different in different parties and this should be considered a part of their national circumstances.

**Australia** said there as no "silver bullet." It said it employed an ETS (emissions trading system) and a renewable energy target domestically. It noted that the "private sector does not embrace commercially untested technologies" and so it had established a domestic Clean Energy Finance Corporation with a $10 billion endowment. It agreed the case for investing in CCS was compelling. It said the UNFCCC had a role to play in supporting a clean energy transformation and supported building likes to the TEC and CTCN.

**Iraq** said the discussion of energy needed to occur in the context of sustainable development and the means of implementation.

**China** said that energy was a good arena for Parties to exercise and implement the Convention. It emphasized that the overriding priority for developing countries was poverty eradication and that this was reflected in the needs of many people without access to energy. It said developed countries needed to take the lead to optimize the energy mix, to improve efficiency in transport and building, as well as to address consumption patterns and to, change inefficient products. It suggested a possible response to the recession was the reconstruction of the energy sector, and it was a good opportunity to fund renewable energy and to join low-carbon pathways. It said the other action that developed countries could take was to support developing countries to undertake low-carbon pathways.

China also outlined the outstanding need for technology transfer. It said that market share did not represent technology transfer as it was

possible to have 99% but be missing the key final 1%, which was required to make the whole system work. It said that 'smart grids' were an example, and that there was a 'bottle-neck' in scaling up the use of renewables in terms of solar on grid and that some technology in industrialized countries would help with this problem, so it needed to be disbursed to avoid lock-in of less climate-friendly technologies.

On CCS technologies China noted it had been working hard on the issue but did "not have very high expectations" and that finance was a key issue that developed countries needed to address, as provided in the Convention. It noted that the EU had initially wanted 20-30 demonstration plans by 2020 but had retreated from this objective and so there was a need to ensure the incremental cost of public-private projects was covered to drive such projects.

It added that there were social-economic impacts of changing energy shares and that, for example, closing large inefficient coal power plants would put hundreds of thousands of workers out of jobs. It concluded that technology and finance were the real challenge.

**Peru** called on the GCF (Green Climate Fund) to focus on energy and for it to provide funds for the problems highlighted by developing countries.

The **United Arab Emirates** agreed with Brazil that all energies were equal. It said that the technology mechanism and the CTCN could achieve a lot, particularly for CCS. It said a discussion of enabling environments and a framework to promote investment was important.

The **USA** said the objective of concrete actions was right. It said it was pursuing objectives in the Climate and Clean Air Coalition, the MEF (Major Economies Forum) and at energy ministerials. It said leveraging these initiatives should be the 'preeminent theme.' It welcomed suggestions on how the CTCN and TEC could accelerate transformation.

**Kenya** agreed with Swaziland that energy was crucial for sustainable development and that access was crucial. It noted that 77% of its population depended on biomass and said the opportunity for renewable energy was high. It said that CCS should not be ignored given the discovery of oil in Africa. It said there were barriers in the form of high initial investment costs. It said CTCN, TEC and finance would all have a key role to play and the right institutional structures were important.

**Saudi Arabia** reiterated that discussion on actions pre-2020 was under the Convention and so all of its principles and provisions applied. It noted that the objective of the Convention was to stabilize emissions, not to transform, shift or change sectors, but to stabilize emissions to prevent anthropogenic interference with the climate system. That meant Parties needed to consider all sources, sectors and sinks. It said closing the gap would require work on sinks and reservoirs. It concluded that Parties needed to advance all issues together in the context of sustainable development, so as not to cause adverse effects, and with the provision of the means of implementation central to discussions.

**Mr. Nafo** closed the session by reviewing Parties interventions. He said he had heard that in order to close the gap in the context of the Convention, with sustainable development as the overriding priority, all options should be explored and that the importance of finance and technology would be central. He said that Parties also wanted to address barriers to technologies, frameworks, and access to finance. He noted two requests from the session: the compilation of best practices; and for the TEC and CTCN to make links with global networks. He added that Parties had expressed that the UNFCCC could leverage initiatives through its institutions. He noted a call for an even more structured discussion on frameworks, barriers, technologies, and national circumstances. He concluded that renewable energy and energy efficiency would not be enough and so there would be a role for CCS and resources were needed for demonstration projects.