Summary report on the workshop on pre-2020 ambition: energy transformation, including scaling-up renewable energy, enhancing energy efficiency and consideration of carbon capture and storage
ADP 2, part 2
Bonn, Germany, 7 June 2013

Note by the facilitator

25 July 2013

I. Introduction

A. Mandate

1. In its conclusions agreed at the second part of its first session held in Doha, Qatar, from 27 November to 7 December 2012, the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) decided to hold in-session round tables and workshops in 2013 under the two workstreams initiated in 2012,[1] and invited the Co-Chairs of the ADP to set out focused questions for those round tables and workshops, taking into account the submissions from Parties and accredited observer organizations.[2]

2. In response to this decision, the Co-Chairs of the ADP made arrangements for two workshops under workstream 2 to be held at the first part of its second session, one addressing pre-2020 ambition through low-emission development opportunities and the other addressing pre-2020 ambition through opportunities for mitigation and adaptation related to land use. In addition, the Co-Chairs of the ADP made arrangements for another workshop under workstream 2 to be held during the second part of its second session, addressing pre-2020 ambition through energy transformation, including scaling-up renewable energy, enhancing energy efficiency and consideration of carbon capture and storage (CCS).[3] The Co-Chairs set out focused questions for the workshops in an informal note on the second session of the ADP.[4]

3. This report summarizes the discussions during the workshop on pre-2020 ambition through energy transformation, including scaling-up renewable energy, enhancing energy efficiency and consideration of CCS held on 7 June 2013 at the Hotel Maritim, Bonn, Germany, during the second part of the second session of the ADP.

B. General objectives and approach to the workshop

4. As this workshop is a part of the series of workshops organized in 2013, the Co-Chairs built on the broad conceptual discussions on pre-2020 ambition carried out in 2012 and, in particular, at the first part of the second session of the ADP. Also relevant to the objective and approach of the workshop is the overall goal for the second part of the second session which was to deepen the focus of work of the ADP and engage in more

[1] FCCC/ADP/2012/3, paragraphs 28 and 30. Workstream 1 relates to a protocol, another legal instrument or an agreed outcome with legal force under the Convention (the 2015 agreement) and workstream 2 relates to pre-2020 ambition.
[2] FCCC/ADP/2012/3, paragraphs 30–32.
[3] This workshop under workstream 2 is organized as a part of series of ADP workshops in 2013, including those held during the first part of the second session of ADP held in Bonn from 29 April to 3 May 2013 that were focused on low-emission development opportunities, and mitigation and adaptation opportunities related to land use.
[4] Available at <http://unfccc.int/resource/docs/2013/adp2/eng/1infnot.pdf>.

specific and detailed work on a practical approach to increasing pre-2020 ambition.[5] This overall goal is to deepen the focus of work of the ADP and engage in more specific and detailed work on a practical approach to increasing pre-2020 ambition.

5. Accordingly, by in-depth consideration of the thematic areas, such as energy efficiency, renewable energy and CCS, the workshop sought to explore the role of national actions in increasing ambition as well as the mitigation and adaptation benefits of actions, related barriers and incentives. The workshop also explored the role of cooperative initiatives; finance, technology and capacity-building support; and options to enhance ambition.

II. Summary of the proceedings

6. The Co-Chairs of the ADP requested Mr. Hussein Alfa Nafo (Mali) to facilitate the workshop. The workshop was opened by the Co-Chairs of the ADP, Mr. Jayant Moreshver Mauskar (India) and Mr. Harald Dovland (Norway). The Co-Chairs encouraged participants, in discussing pre-2020 ambition through energy transformation, to make concrete suggestions on how to advance the work under workstream 2 through national and international action. Also, in his opening remarks, the facilitator encouraged Parties to share their experience and concrete ideas on actions, initiatives and options related to renewable energy, energy efficiency and CCS that can facilitate energy transformation with a view to closing the ambition gap. He proposed to build on information and ideas shared at the in-session round table meeting on building a practical approach to pre-2020 ambition and the briefing on finance that were held on 5 June and 6 June 2013, respectively.

7. The workshop was organized in three parts. Part I included three scene-setting presentations, which provided an overview of mitigation opportunities in energy and ways to promote energy efficiency, to increase the share of renewable energy and to advance the consideration of CCS technology.[6] Mr. Luis Gomez-Echeverri (Office of the Special Representative to the United Nations Secretary General) gave the first presentation entitled "Sustainable Energy for All". Mr. Philippe Benoit (International Energy Agency (IEA)) gave the second presentation entitled "Energy Transformation: A 'Collective' Marathon"; and Mr. Trygve U. Riis (Carbon Sequestration Leadership Forum) gave the third presentation entitled "The Role of CCS in Mitigation Strategies".

8. Part II consisted of focused interventions from the floor by six Parties invited by the Co-Chairs to lead off the discussion, including the European Union (EU), Japan, Malaysia, Nauru, Saudi Arabia and Swaziland. The invited Parties expressed their views and made comments on the three opening presentations.

9. Part III was a general discussion open to all Parties and addressed focused interventions from the floor and three scene-setting presentations. The facilitator highlighted the following questions to focus the discussion:

(a) What action can be undertaken at the national level to increase ambition?

(b) What incentives are needed for Parties to undertake these actions?

(c) What barriers do Parties face and how do they overcome them?

(d) How can cooperative initiatives contribute to strengthening national action?

(e) How to ensure that the support provided to developing country Parties, including finance, facilitates the move towards environmentally-friendly technologies and options, such as renewable energy, energy efficiency and CCS?

10. Eighteen Parties took the floor to share experiences related to mitigation action on energy transformation, including opportunities and barriers encountered.

[5] See informal note on the second part of the second session of the ADP, available at <http://unfccc.int/resource/docs/2013/adp2/eng/9infnot.pdf>.

[6] The presentations are available at <http://unfccc.int/meetings/bonn_jun_2013/workshop/7645.php>.

11. The facilitator concluded the workshop by thanking all participants for their rich contributions and active participation. He provided a short initial summary of the take-home messages and informed the participants that the summary of the workshop would be prepared and made available on the UNFCCC website.[7]

III. Summary of the workshop discussion

A. Presentations and panellists' reflections

12. The workshop discussion opened with three presentations. Mr. Gomez-Echeverri presented on the global initiative "Sustainable Energy for All" launched by the United Nations Secretary-General in 2011. The overall goal of the initiative is to mobilize action by all sectors of society in support of three interlinked objectives to be achieved by 2030, namely: (a) providing universal access to modern energy services; (b) doubling the global rate of improvement in energy efficiency; and (c) doubling the share of renewable energy in the global energy mix. The presentation emphasised that the objectives of the initiative are ambitious and formulated against the baseline that is set based on the trends of the past 20 years. More specifically, he highlighted that access to energy rose slightly during 1990–2010, driven by an increase in rural access rate and high economic growth in Asia. Over the same period, the rate of improvements in energy intensity, which varies substantially across the regions, has dropped globally, while the share of renewable energy has remained stable. The initiative is a platform to share experience, technologies and best practices and to mobilize financial resources, facilitating investment of about USD 9 billion a year in securing energy access, mostly in renewable energy and energy efficiency. However, the investment needs to ensure universal access to energy are much higher as estimated by Global Energy Assessment prepared by the International Institute for Applied Systems Analysis. Mr. Gomez-Echeverri concluded by mentioning that the progress achieved over the last 20 years in the provision of access to energy and promotion of energy efficiency and renewable energy has been moderate, given that the relevant rates of access were only slightly above the increase in population and growing energy demand.

13. In his presentation, Mr. Benoit recognized the collaborative efforts of the IEA, the United Nations agencies and specialized international organizations focusing on energy, including the initiatives, for example, such as "Sustainable Energy for All" and UN Energy, and the projects with United Nations Development Programme, United Nations Environment Programme, International Renewable Energy Agency, Renewable Energy Policy Network for the 21st Century, etc. He stressed that energy efficiency, renewable energy and CCS are the three key mitigation areas of focus in the effort to reduce emissions from energy by 2050. Urgent and ambitious action is needed to address energy-sector carbon intensity that remained relatively stable between 2000 and 2010 and should decrease by 40–50 per cent over the next several decades in order to make energy much cleaner. Tapping the sizeable mitigation potential of energy efficiency, renewable energy and CCS could contribute to significant emission reductions, according to the projections of global energy emissions by 2050. The presenter emphasized that addressing only the technical barriers would not be sufficient to utilize this mitigation potential in full. Instead, increasing motivation for enhancing energy efficiency, framing it as another "domestic fuel"; recognizing its multiple co-benefits at individual, national and international levels; and encouraging investment, particularly in non-hydro renewables and CCS, are deemed essential. Greater ambition in these three areas could be supported through cooperative initiatives aimed at sharing experience and knowledge, identification of mitigation possibilities and improving policy approaches across countries.

14. Mr. Riis, in his presentation, focussed on the role attached to CCS in reaching the 2°C goal by the Carbon Sequestration Leadership Forum and the mission of this Forum. He highlighted that the major challenge in promoting CCS is obtaining sufficient financing to demonstrate the technology on the large scale and disseminate the technology widely, as the private sector appeared reluctant to invest in CCS owing to a lack of market incentives; and public funding was difficult to secure in the aftermath of the global economic crisis. In

[7] The take-home messages from the workshop are available at http://unfccc.int/files/meetings/bonn_jun_2013/in-session/application/pdf/20130611_adp_2.2_adaptation_workshop_take_home_messages_by_the_facilitator_final.pdf>.

addition, the diffusion of CCS is constrained by financial challenges and limited technical expertise related to investing and implementing CCS in developing countries. However, he noted that CCS might become a cost competitive option as the costs of electricity generated by conventional and low-carbon technologies and the costs of CCS become comparable. At present, there are no operational large-scale projects where the CCS technology is applied in the area of power generation, but there is a small number of operational applications of CCS in industry and liquefied natural gas production. He also mentioned that a lack of public awareness and concerns related to the safety of CCS need to be addressed, noting that safe carbon storage has been already demonstrated.

15. The presentations were followed by a short question and answer session, where participants asked a few questions to the presenters on driving factors behind more ambitious action by developing countries; the examples of, and barriers to, low-carbon technology application; and the options to unlock mitigation potential in energy transformation. The presenters provided answers to these questions, clarifying the benefits of mitigation action, the importance of access to enhanced financial support, the role of technology demonstration, and the importance of public awareness, acceptance and understanding in making energy transformation happen.

16. The facilitator asked the presenters to provide their views on the key areas where most significant improvements could be made in energy transformation. In response to this question, the presenters highlighted the importance of creation of policy incentives and regulatory frameworks conducive for transformation of energy systems; mobilization of public support, acceptance and understanding of the needs to change to the low-carbon development pathway; and scaling up investment in research and development for technology development and transfer and in securing energy access.

B. Discussion

1. Mitigation potential in energy transformation

17. From the presentations, panel interventions and general discussion, it was clear that the combined mitigation potential of energy efficiency, renewable energy and CCS is significant relative to the emissions gap that is currently estimated to range by 2020 between 8 and 13 Gt CO_2 eq.[8] As mentioned by a group of Parties, the mitigation potential of energy efficiency and renewable energy is substantial, yet not sufficient on its own to close the emission gap. Hence CCS is an important element, together with many other thematic areas, of the mitigation solution in energy contributing to bridging the emissions gap. Thus the barriers related to application of CCS prior to 2020 should be addressed at a global scale with the involvement of all stakeholders, including governments, the private sector, academia, etc. This could be done using various approaches, such as pooling of financial resources, addressing technological shortcomings, reducing related risks, etc.

18. It was highlighted in the interventions by many Parties that the ways to utilize the full mitigation potential in energy in a comprehensive way should be considered in the context of the objective of the Convention, and in accordance with its principles and provisions and in line with national sustainable development priorities taking into account the national circumstances of Parties. To that end, it was mentioned that developed countries should take the lead in terms of ambition of mitigation pledges, action and support, and in particular in terms of optimization of energy mix and changing production and consumption patterns.

19. It was broadly recognized that a sizeable mitigation potential remains untapped, in particular in the use of renewable energy sources and energy efficiency, especially in residential and commercial buildings, industry, transport and electrical appliances. As was mentioned by a group of Parties, which referred to the World Energy Outlook 2012 by IEA, current policies realize only 20 per cent of the mitigation potential available in the buildings sector largely due to non-technical barriers, including poor policy frameworks, split incentives (e.g. between the landlords and tenants) and a lack of access to capital and information.

[8] United Nations Environment Programme. The Emissions Gap Report 2012.

20. To utilize fully the mitigation potential in the energy sector, a major transformation towards less carbon-intensive and more efficient energy systems is required at the global level. However, there is a recognition that such transformation will not happen without putting in place robust and long-term policy and regulatory frameworks, creating understanding and appropriate capacity and skills among citizens and decision-makers, and providing scaled-up public financing and private investment. At the national level, such transformation implies a transition from resource-based growth to efficiency-based growth that calls for innovative policy solutions and diverse approaches.

21. Some developing country Parties noted the importance of taking a holistic economy-wide perspective of untapped mitigation opportunities by considering all sectors, gases, sinks and reservoirs, without limiting the consideration to the thematic areas with high mitigation potential. The need to consider the discussion on ambition in the context of promotion of a sustainable development agenda at the national level was mentioned in this context.

2. Increasing the level of ambition by enhancing national action

22. It was recognized that there is a wide range of mitigation actions in energy that are already being implemented at the sub-national, national and international levels. A number of Parties presented their success stories in taking such actions and implementing relevant policies aimed at promoting energy efficiency in both energy supply and energy use in many areas, including transport, buildings, industry, home appliances as well as promotion of the use of renewable energy sources, such as wind, solar, biomass, mini- and large-scale hydrological resources. However, a few developing countries recalled the vulnerability of economies highly dependent on the production and consumption of fossil fuels and the difficulties faced by these countries in transforming their energy systems to promote low-carbon solutions.

23. There are many opportunities to further scale up national actions and strengthen relevant policies, in particular in the areas of promotion of renewable energy, energy efficiency and the wider use of CCS. Such mitigation actions could be accelerated and leveraged through identification, replication and scaling up best practices of national action taking into account associated benefits and incentives for further action.

24. Many Parties engaged in information exchange on the outcomes of their implemented, on-going and planned national policies covering a wide spectrum of policy options, measures and instruments aimed at catalysing energy transformation. Parties mentioned, inter alia, the feed-in tariff schemes, emission trading schemes, energy pricing mechanisms, financial burden sharing between energy producers and consumers, solutions to stimulate economic competitiveness and innovation in industry, fuel efficiency standards, building material labelling, behavioural change schemes, efficient management practices and community involvement approaches. In addition to national action, some developed countries mentioned their experience in supporting mitigation action in developing countries, for example preparing energy road maps or financing energy efficiency programmes. In relation to CCS, a few developed country and developing country Parties shared their experience in the implementation of various policies aimed at demonstration of technology application and safety, efficiency improvements, monitoring of emission reductions and prevention of carbon leakage.

25. Many Parties referred to their 2020 or longer-term sustainable development policies and energy and climate change policies. In this context, Parties referred to the outcomes of their policies that lead to significant emission reductions, efficiency gains and cost savings as well as the progress in increasing the share of renewables in energy mix. For example, the EU mentioned that it is well on its way to achieving its 2020 goal of a 20 per cent share of renewable energy in the gross final energy consumption, as it already reached the 13 per cent share in 2011.

26. When considering options and ways to scale up national actions and strengthen relevant policies, participants highlighted the importance of taking into account:

(a) Specific national circumstances;

(b) The level of economic development;

(c) Existing planning strategies;

(d) The need to involve all stakeholders for more effective policy implementation;

(e) The need to avoid a technology lock-in effect preventing effective technology transfer and diffusion.

3. Mitigation and adaptation benefits of actions to increase ambition

27. Participants shared their experience on developing and implementing mitigation actions with multiple co-benefits, such as provision of energy security, sustainable access to energy for all, sustainable economic growth, job creation, poverty alleviation, cost savings, environmental protection, reduction of air pollution and associated health benefits, etc. These co-benefits represent a major driving force behind a wide range of national actions that also bring sizeable mitigation benefits.

28. Many developing country Parties stated that mitigation and adaptation aspects of policies should be treated in an integrated way and should receive equal political attention and commensurate financing. Policies that can bring about both mitigation and additional co-benefits should be replicated and scaled up taking into account the specific national circumstances.

29. Developing country Parties emphasized the importance of policies aimed at substitution of conventional energy with renewable energy and the policy co-benefits related to securing sustainable energy access and cost savings, especially among rural communities. A few developing country Parties mentioned that in the absence of reliable continuous climate-friendly energy services, energy users revert to low-cost fuels that are readily available and are usually more carbon intensive. Many Parties recognized that there is room for further improvements in tapping mitigation potential, even though existing climate and energy policies bring about tangible results and well recognized benefits. Among the examples for further action, some Parties mentioned enhanced fuel switching and the use of biomass and solar energy in Africa.

4. Incentives and barriers to enhancing ambition of national action

30. Some Parties highlighted the importance of setting up policy frameworks for energy efficiency and renewable energy that provide "win-win" solutions for emission reductions, cost savings and other co-benefits. It was highlighted that one of the barriers, namely the cost of renewable technology (in particular, solar energy), has been addressed in part in recent years, as the costs dropped significantly contributing to broader dissemination and technology transfer.

31. Many developing country Parties, however, mentioned that the high up-front capital costs and the longer payback periods, especially in developing countries, where the cost of capital is higher, continue to remain a barrier preventing promotion of low-carbon technologies and energy efficiency. A substantial factor behind this high cost is risk assessments linked to investment security, energy system inefficiencies, potential climate change impacts and even possible conflict risks. This is particularly relevant for renewable energy.

32. More specifically, Parties mentioned the factors that can help strengthen and promote actions that, in turn, contribute to achieving transformational change in energy, such as:

(a) Creating enabling environments through, inter alia, the development and implementation of policy frameworks, the introduction of regulatory, economic, financial and other instruments;

(b) Recognizing co-benefits of actions through awareness, communication and education programmes;

(c) Access to sufficient finance, technology and capacity-building support, including delivery of appropriate and adequate level of support through the institutional arrangements under the UNFCCC (e.g. Green Climate Fund, Technology Executive Committee and Climate Technology Centre and Network).

33. There are a number of barriers preventing the full realization of the mitigation potential in energy. These can be addressed by well-designed and comprehensive energy and climate change policies that take fully into account the co-benefits. Examples of such barriers include:

(a) Insufficient anchoring of climate change considerations in domestic development strategies;

(b) Misaligned or split incentives inhibiting "win-win" solutions in energy supply and demand;

(c) Lack of knowledge and information on opportunities, options and benefits related to policies, actions and support to promote further mitigation action;

(d) Lack of adequate means of financial support, secured access to capital, and economic and financial instruments, in particular to address high up-front capital costs, long-payback periods and perceived investment risks;

(e) Policies that may inhibit access to technologies and the lack of suitable enabling environments for technology development and transfer, including matters related to the intellectual property rights (IPRs).

5. The role of support and enablement in facilitating an increase in ambition

34. Parties acknowledged the role of enhanced support in raising the ambition of actions by developing countries, in particular the importance of transparency and predictability of such support.

35. Several Parties recognized that market drivers alone are not sufficient to promote the use of renewable energy and energy efficiency, and that it is important to recognize the role of the public sector, in particular in price regulation for energy resources, setting efficiency standards, introduction of carbon taxes and feed-in tariffs, etc. The role of the private sector was also recognized, in particular in supporting innovation and the commercialization of technology use and in mobilization of investment.

36. Developing country Parties raised concerns related to the lack of easily accessible low-cost technologies and alternatives to the use of fossil fuels to cover growing electricity demand as well as poor energy system infrastructure, high electricity losses in transmission and distribution systems, low efficiency of energy generation facilities and lack of energy storage capacities. The limited reliability and high cost of renewable energy technologies and energy efficiency solutions limit technology diffusion in developing countries and affect their absorptive capacity to implement policies, programmes and projects aimed at energy transformation. At the same time, a few developing country Parties noted the importance of receiving access to innovative advanced modern technologies in energy systems.

6. The role of cooperative initiatives in supporting national actions

37. The role of cooperative initiatives (as exemplified by the Sustainable Energy for All and the Carbon Sequestration Leadership Forum) was deemed important by a number of Parties in mobilizing various stakeholder groups at all levels and providing incentives for enhanced mitigation action by promoting climate-friendly energy sources and new technologies. The cooperative initiatives could contribute to facilitating transfer of mitigation technologies; harnessing significant potential of action at different levels, including communities and cities; and strengthening cooperation across thematic areas that help promoting energy transformation. As was mentioned in all three opening presentations, the initiatives facilitate action through information exchange, demonstration work, technical advisory support and awareness creating related to multiple cross-sectorial benefits of mitigation action (see paras. 12–14 above).

38. A few Parties mentioned several global and national climate partnership programmes and funding mechanisms established to finance energy efficiency and renewable energy projects in developing and developed countries with the participation of public- and private-sector stakeholders. For example, the EU mentioned the Green Africa Power project which provides funding to address investment risks at the early project stages.

7. The next steps under the ADP

39. Parties mentioned that they benefited from the constructive conversation and that sharing experiences and examples is an important component of the process under workstream 2. Parties have encouraged more focused discussion and identified potential areas for further work at the technical level by the ADP, including through more focused workshops in 2013 that would consider specific solutions for the challenges identified by Parties. There was a proposal to request the secretariat to capture in a technical paper the best practices of national actions, their relevant benefits and barriers to further actions.

40. More specifically, Parties suggested to consider the options and ways that can facilitate pre-2020 ambition, including the following:

(a) Share information on best practices, success stories and experience in implementation of national action in relation to energy transformation, in particular renewable energy, energy efficiency and CCS;

(b) Address and overcome key barriers that impede additional mitigation actions by developing countries;

(c) Create the right enabling environments for enhancing mitigation action;

(d) Increase the provision of finance, technology and capacity-building support to facilitate actions by developing countries, including through the institutional arrangements under the UNFCCC (e.g. Green Climate Fund, Technology Executive Committee and Climate Technology Centre and Network);

(e) Identify ways to overcome the challenge of funding for new technologies, high up-front capital costs and long payback periods in order to promote the use of renewables, energy efficiency and the CCS technology.