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Item 6 of the Provisional Agenda
Review of the work of the Committee and its subsidiary bodies after the 2005 ECE Reform

Progress report on studies under the Ad Hoc Group of Experts on Cleaner Electricity Production from coal and other fossil fuels

Note by the secretariat

I. Introduction

1. The Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and other Fossil Fuels (Ad Hoc Group of Experts) was established in 2007 to serve as a platform for intergovernmental dialogue on investments, technologies, infrastructure, and regulations needed to promote cleaner electricity production in the United Nations Economic Commission for Europe (UNECE) region, and in particular in the countries with economies in transition.

2. According to the Ad Hoc Group of Experts' Terms of Reference (see Annex to ECE/ENERGY/GE.5/2007/2) its principal tasks are to: (a) Provide a forum for the exchange of information and experiences on: clean coal technologies; carbon capture and storage; “zero” emissions technologies; impact of regulation on cleaner electricity production; competitiveness, investments and operating costs of cleaner electricity production; contribution of renewable energies; and sustainable nuclear energy; (b) Assess the relationship between electricity industry regulation and choice of fuel mix with special focus on cleaner electricity production methods; (c) Evaluate policies and measures to reduce the electricity efficiency gap between developed market and emerging market economies in the UNECE region; (d) Appraise the development of a regulatory framework conducive to promoting investment in cleaner electricity production; (e) Assist member States develop norms and standards to integrate new electricity production technologies (e.g., carbon capture and storage) into regulatory structures, including environmental regulations; (f) Analyse short-term and long-term competitiveness, current and expected technological trends for clean-fuel-based electricity production (capital costs, fuel cost and other operational costs, cost of capital/expected rate of return, risk mitigation and

management) and security of electricity supplies; and (g) Pay special attention to the transfer of knowledge and experience in the aforementioned areas to UNECE member countries with emerging economies.

3. Since the 19th session of the Committee on Sustainable Energy, the Ad Hoc Group of Experts has continued to pursue several important activities and has initiated a few new ones. Perhaps the most crucial activity has been the Ad Hoc Group of Experts' review of its own programme of work. In this review, conducted on several occasions in January, March and May 2011, the Ad Hoc Group of Experts and its Bureau took a critical look at its current and future activities, and arrived at a consensus on priorities and deliverables.

4. In addition to reviewing its programme of work, the Ad Hoc Group of Experts has:

- supported implementation of the United Nations Development Account project (UNDA) “Mitigating climate change through attracting foreign direct investment in advanced fossil fuels technologies”,
- initiated work on improving the efficiency of coal-fired electricity production,
- initiated work on possible smart grid standards, and
- continued its cooperation with other international organisations.

These activities are described in greater detail below.

II. Reviewing the Ad Hoc Group of Experts' programme of work

5. The Committee on Sustainable Energy at its 19th session in November 2010 reviewed the work of the Ad Hoc Group of Experts. The Committee extended the mandate of the Group of Experts for two years, until December 2012, with the current Terms of Reference and Programme of Work, and invited the Bureau of the Committee to review, in consultation with the participating countries, the Group of Experts’ programme of work for 2011–2012, with a view of presenting it in a more balanced way reflecting the mandate given to the Group of Experts in its Terms of Reference.

6. In response to this, the secretariat provided a detailed Programme of Work with objectives, activities, outputs, deliveries, and deadlines. This report was reviewed and approved by the Committee's Bureau on 29 March 2011 and accepted unanimously by the Ad Hoc Group of Experts at its Seventh session held on 12 May 2011. The agreed Programme of Work confirmed the Ad Hoc Group of Experts' commitment to focus not only on the financial aspect of the cleaner electricity production (through, *e.g.*, promoting investments) but also on the technical issues called for by the Terms of Reference. The Ad Hoc Group of Experts agreed to strike a balance between these two principal fields of its activities.

III. UN Development Account Project: “Mitigating Climate Change through attracting foreign direct investment in advanced fossil fuel technologies”

7. This project, financed from the United Nations Development Account ($629,900), covers nine countries: Afghanistan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Ukraine, and Uzbekistan. As the principal executing agency of this project, UNECE reports regularly to the Ad Hoc Group of Experts on its implementation. The Ad

Hoc Group of Experts has discussed this project at all its recent sessions and will continue to do so.

8. The project goals are closely related to the work of the Ad Hoc Group of Experts as they are expected to:

(a) Increase the skills to develop an attractive investment climate to encourage financial development investments into the coal- and gas-fired power plants electricity sector, which would achieve significant climate change mitigation goals;

(b) Improve cooperative relationships between energy policy makers in the countries with economies in transition and the investors;

(c) Increase the skills to develop electricity-related pre-feasibility studies;

(d) Exchange the experiences and lessons learnt in fostering investment in cleaner electricity generation among the countries covered by the project and possibly beyond.

9. To ensure project's efficient functioning, UNECE has invited several reputed industry and government experts to the project's Advisory Board. The Advisory Board is led by the Chair of the UNECE Ad Hoc Group of Experts. Most of its members are also members of the Ad Hoc Group of Experts. The Advisory Board supports various operational activities in the project implementation, including by recommending possible international and national consultants and participating in regional workshops. The first workshop of the project was held in Dushanbe, Tajikistan in September 2011. Two more workshops are scheduled for 2011, and three for 2012. In all of them, the Ad Hoc Group of Experts, primarily through its involvement in the Advisory Board, will play both substantive and advisory roles. The Advisory Board will also recommend an independent project evaluation officer who will then provide the final project evaluation.

IV. Improving the efficiency of coal-fired power plants

10. The energy priorities for the 21st century include ensuring security of energy supply, balancing growing demand, economic growth and climate change mitigation, and ensuring affordability. Coal plays a key role in the energy mix of UNECE member states by supplying more than 25 per cent of primary energy and more than 40 per cent of electricity generation. The age and technology used in coal-fired power plants varies significantly throughout the region, and the objective of many UNECE countries is to increase the energy efficiency of their coal-fired installations to over 40 per cent to improve their environmental performance and to meet climate change mitigation objectives in a cost-effective manner.

11. Improvements have already been made in coal-fired generation technologies, such as reducing atmospheric pollution by controlling emissions of sulphur dioxide, nitrogen oxides and particulates and by improving overall thermal efficiency, which means reduced carbon dioxide emissions per kWh. Further progress will be possible through application of carbon capture and storage (CCS) if and when this technology becomes commercially available.

12. For all these reasons, the Ad Hoc Group of Experts at its eighth session will dedicate significant time to explore what Governments could do to improve the efficiency of existing coal-fired power units as a cost-effective way to reduce CO_2 emissions. Representatives of countries with large fleets of coal- and fossil fuel-fired power plants (*e.g.*, the Czech Republic, Poland, the Russian Federation, Ukraine, and the United States) will be invited discuss specific topics, best practices, and case studies.

V. Smart grid standards

13. At its fourth session on 16–17 November 2009 the Ad Hoc Group of experts requested the secretariat to prepare a short note on smart grid standards in the UNECE region into the Group of Experts' programme of work and circulate it among UNECE member States and private sector for their feedback.

14. In March 2011 the secretariat prepared a brief analytical paper, which was circulated among the interested parties and discussed at the Ad Hoc Group of Experts' Seventh session held in May 2011. Because smart grids are a relatively new area for most UNECE member states, the paper outlined the most important developments in this field. Several questions were raised, most important among them concerned the role for the UN in the development of smart grid standards, including the possibility for UNECE to establish a specific task force for that purpose.

15. The Ad Hoc Group of Experts decided to continue to be involved in this field, but primarily from the perspective of improving energy efficiency in electricity generation and, to a certain extent, transmission. The Ad Hoc Group of Experts felt that discussing smart grid standards in the context of electricity generation would fall within its terms of reference. However, the Ad Hoc Group of Experts restricted its involvement in this topic because it considered that going further down the value chain would take the Ad Hoc Group of Experts away from its core competency--a cleaner and more efficient electricity production. To this end, the Ad Hoc Group of Experts at its November session will consider how the smart grid and its components might enable a more efficient electricity generation and transmission.

VI. Cooperation with other international organisations

16. In most of its activities, the Ad Hoc Group of Experts counts on support of relevant international organisations. In the implementation of UNDA project, for example, the Ad Hoc Group of Experts and its secretariat collaborate closely with the United Nations Conference on Trade and Development (UNCTAD) and the Economic and Social Commission for Asia and the Pacific (ESCAP). The World Energy Congress, the Global Sustainable Electricity Partnership (former e8), the European Bank of Reconstruction and Development, the World Bank, and the United Nations Development Programme (UNDP) have also been invited to provide in-kind contribution to this project through, *e.g.*, providing content for the workshops and for other capacity building activities.

17. The Ad Hoc Group of Experts has also invited the European Commission and the International Electrotechnical Commission (IEC) to assist in defining the possible role of the Ad Hoc Group of Experts in the smart grid standards.