



**Economic and Social
Council**

Distr.
GENERAL

ECE/EB.AIR/WG.5/2007/2
7 February 2007

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

**EXECUTIVE BODY FOR THE CONVENTION ON LONG-RANGE
TRANSBOUNDARY AIR POLLUTION**

Working Group on Strategies and Review

Thirty-ninth session
Geneva, 18–20 April 2007
Item 3 of the provisional agenda

REVIEW OF THE GOTHENBURG PROTOCOL

Techno-economic issues

Report by the Chair of the Expert Group on Techno-economic Issues

1. This report presents the results of the tenth meeting of the Expert Group on Techno-economic Issues, held in Marseille on 23 November 2006, and of the Workshop on Emerging Technologies for Air Pollution Abatement held by the Expert Group on 24 November in Paris (see section III). The meeting assessed further progress in the incorporation of techno-economic data into the RAINS model for integrated assessment modelling and the preparation for the review of technical annexes to the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (1999 Gothenburg Protocol). Presentations from the meeting and the workshop are available at www.citepa.org/forums/egtej_index.htm.

2. Experts from the following Parties to the Convention attended the meeting of the Expert Group: Austria, Belgium, the Czech Republic, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden and the United Kingdom. Also present were industry experts from CONCAWE (the oil companies' European association for environment, health and safety in refining), Electricity of France (EDF), the European Association of Internal Combustion Engine Manufacturers (EUROMOT), the European Confederation of Iron and Steel Industries (EUROFER) and a representative of the Saint-Gobain Glass Company. The French-German Institute for Environmental Research (IFARE), the Interprofessional Technical Centre for Studies on Atmospheric Pollution (CITEPA) and the French Agency of Environment and Energy Management (ADEME) were represented. A member of the secretariat also attended.
3. Mr. J.-G. Bartaire (France) and Mr. T. Pignatelli (Italy) co-chaired the meeting, which was hosted by France.

I. INTRODUCTORY REMARKS AND OBJECTIVES

4. The Co-Chairs informed participants of the objectives of the meeting: to report on progress made by the Expert Group on Techno-economic Issues, to elaborate a 2007 workplan and to finalize the contribution of the Expert Group to drafting the review report of the Gothenburg Protocol. The review report would include proposals for revision of the technical annexes to the Protocol, in particular concerning the evaluation of emission limit values (ELVs) for new and existing boilers and process heaters with a rated thermal input larger than 50 MW_{th} and new heavy-duty vehicles, in accordance with article 3, paragraph 4 of the Protocol, with a view to amending annexes IV, V and VIII of the Protocol. A draft document on the evaluation of ELVs and the review of annexes was presented to the Expert Group for its consideration, including a comparison of ELVs in the annexes with ELVs in relevant EU directives. Excerpts from the document were reflected in the draft review report, to be submitted to the Working Group on Strategies and Review for its consideration at its thirty-ninth session (ECE/EB.AIR/WG.5/2007/1).

5. A member of the secretariat presented the workplan of the Expert Group and the expectations of the Working Group on Strategies and Review. Once the Executive Body had decided that the first review of the Protocol was completed, Parties might decide to revise the Protocol, depending on the results of the review. In addition to the review of the text of the Protocol, the Guidance Documents that accompanied the Protocol would need to be revised. The Guidance Document on Ammonia had already been revised, but other Guidance Documents (on SO₂, NO_x, NMVOCs and economic instruments) had yet to be considered. Parties would also need to consider how they would account for particulate matter (PM) in a revised version of the Protocol. It might be important to consider the European Integrated

Pollution and Prevention Control (IPPC) Bureau's technical information on best available techniques reference documents under IPPC Directive 96/61/EC (BREFs) pertaining to the various industries covered by the techno-economic data used for the revision of the technical annexes.

II. PROGRESS OF THE EXPERT GROUP

6. The Chairs provided additional background information on the inputs for the Gothenburg review report. While the draft review report was being developed in the framework of the Convention, it also drew on results of the European Commission's baseline scenario in accordance with the present ambition level of the European Union's thematic strategy on air pollution. The Chairs pointed out that different energy scenarios might engender different costs of abatement techniques than those originally considered. For example, the increased use of coal could have implications for abatement costs, since emissions from coal would be higher than those used in original energy scenarios. Where national scenarios were available, the European Commission would use these, in addition to the PRIMES model or other alternative energy scenarios, in developing the baseline. However, national scenarios were not always in line with international climate change policies. The results of the next National Emission Ceilings (NEC) Directive and Policy Instruments (NEC/PI) meeting would be transmitted to the Expert Group at its eleventh meeting, scheduled for 2–3 April 2007.

7. The Chairs noted that the Expert Group had continued its close cooperation with the Centre for Integrated Assessment Modelling (CIAM) in order to ensure the usefulness of ECODAT parameters in the RAINS model. Future priority sectors were defined as the following: small combustion plants, domestic wood burning, industrial processes with PM emissions, steel production, emerging technologies and large combustion plants. The Working Group on Strategies and Review had approved a synopsis document on the cement industry at its thirty-eighth session and would subsequently consider a synopsis document on glass production once it was finalized. Belgium was currently testing the methodology used by the Expert Group on refineries. Finland had offered to begin work on proposing revisions to annex V, table IV (Limit values for NO_x emissions from new stationary engines). The work on large combustion plants larger than 500 MW_{th}, had been continued after a meeting with non-governmental organizations in autumn 2005. The Czech Republic and Sweden were also testing the methodologies for this sector.

8. The Expert Group discussed its contribution to the organization of a workshop on abatement technologies, to be held back to back with the third workshop under the CAPACT¹ project, probably in July 2007 in Almaty. The workshop would be held in English and Russian, in accordance with the implementation of the Action Plan for Eastern Europe, Caucasus and Central Asia (EECCA Action Plan, ECE/EB.AIR/2006/13). The secretariat pointed out the importance of adequately preparing the workshop for an appropriately targeted audience for maximum effectiveness, depending on the actual abatement potential in the EECCA region. The agenda would target abatement of emissions from both stationary and mobile sources, especially in light of the urban air pollution from transport in EECCA countries.

9. Mr. G. Tackels, attending as a representative of the Saint-Gobain Glass Company and as Chair of the Standing Committee of the European glass industry (CPIV), relayed the industry's concerns about the work of the Expert Group, citing the revision of the IPPC BREF on glass production and the need for Parties to provide country-specific data on abatement techniques in the glass industry.

10. Ms. A. Krizova (Czech Republic) informed participants of the use of the methodologies of the Expert Group on large combustion plants, noting that the methodologies had to be adapted for the Czech Republic, where coal characteristics had changed over time. Mr. M. Lindgren (Sweden) noted that Sweden had difficulties with the methodology related to fuels and types of data to be collected.

11. Mr. P. Meulepas (Flemish Region of Belgium) presented the results of the methodology testing on refineries in his country. He noted that the background document covered only 80% to 90% of the emissions of Belgian refineries. Processes such as bitumen and gas turbines (replacing boilers) should be added. The emission factors and abatement technologies taken into account did not sufficiently reflect existing EU directives.

12. Ms. K. Saarinen (Finland) presented the results of a survey carried out by Finland on the review of the Gothenburg Protocol, annex V, table IV on limit values for NO_x emissions released from new stationary engines. New ELVs for stationary engines were proposed in order to apply the same ELVs to all engines, from small unit spark ignition engines and compression engines to large engine plants. For competing plants, such as boilers and gas turbines, ELVs can be set up for plants larger than 50 MW_{th}, and it was desirable to have the same approach for all competing technologies. Mr. P. Daskalopoulos (EUROMOT) noted that his organization would cooperate with Finland in proposing alternative ELVs for new stationary engines.

¹ Capacity Building for Air Quality Management and the Application of Clean Coal Combustion Technologies in Central Asia.

13. Mr. T. Pignatelli (Italy) presented progress on a survey by Italy of small combustion installations in the commercial sector. Two main classes of boilers had been identified: horizontal boilers ranging from 35 to 605 kW and vertical wall boilers similar to single house boilers. The final results would be presented at the next meeting of the Expert Group.

14. Ms. K. Krauss (Germany) presented the objectives of a study carried out by experts from Stuttgart University to determine sectoral emission factors from small combustion installations. The aim was to improve the quality of data on emission factors and on emissions from small and medium-size combustion installations, household equipment and small consumer sectors. All types of fuels presently used in Germany were considered. The study would provide appliance-specific emission factors, taking into account the mode of operation and the age structure; the determination of the stock of firing appliances in Germany and appliance-specific energy consumption, estimating associated uncertainties. The results would be presented at the next meeting of the Expert Group.

15. Ms. N. Allemand (CITEPA) highlighted the need for further work on wood combustion in domestic appliances. Wood burning remained a sector with large uncertainties and was a priority sector for CIAM. This issue could be brought to the attention of the Task Force on Emission Inventories and Projections and addressed by the Expert Group at its next meeting.

III. WORK ON EMERGING TECHNOLOGIES

16. The Expert Group held a Workshop on Emerging Technologies for Air Pollution Abatement on 24 November in Paris, noting that current emission ceilings only took into account existing technologies and that there was a potential for further reductions through the use of emerging techniques. Needed was a pragmatic approach drawing on the experience of recent studies, discussions with CIAM and the results of the first and second meetings on emerging technologies, held respectively in June 2005 in Rome and in April 2006 in Paris. The focus would be on PM and NO_x sources, including large combustion plants, iron and steel for PM emissions and industrial processes emitting PM. While mobile sources were important, relevant expertise in the Expert Group was limited. The increase in performance of existing technologies over time, rates of penetration and economic data should be considered.

17. The Expert Group discussed the importance of work on emerging air pollution abatement techniques and their efficiencies and costs over time, as well as their application (penetration) and implementation rates. This analysis should consider evolving trends in energy consumption and the impact on emission scenarios. It was important to have a clear working definition of “emerging technologies” and their relationship with best available technologies (BAT) for purposes of further work.

18. Mr. R. Maas, Chair of the Task Force on Integrated Assessment Modelling, presented his views on technological futures and what they could mean for air pollution and climate change. He presented both the short-term perspective (including inputs into the review of the Gothenburg Protocol, the Protocol's revision process, and the revision of the European Union's NEC Directive) and the long-term perspective (i.e. the possible role of emerging technologies and their impact on emission reduction and sustainable development to 2020 and beyond). He suggested that the Expert Group keep a working definition as broad as possible and not narrowly focused on RAINS, including inputs to GAINS from models such as TREMOVE, PRIMES and CAPRI. Energy flow charts comparing 2000 to 2050 indicated long-term energy scenarios, including mitigation measures for both air pollution and climate change (e.g. use of biofuels and nuclear energy).

19. Mr. Maas pointed out that sustainable development required innovation – not only optimization of existing technologies through more efficient power plants, cleaner fuels or a move toward a hydrogen economy, but also technological breakthroughs. Successful innovations were often new combinations of existing knowledge, driven by research and development needs, but also fuelled by imagination and the cross-fertilization of ideas.

20. The Expert Group discussed the possibility of extending its work to consider the longer term (beyond 2030) and agreed to prepare a contribution on emerging technologies to be presented at the Saltsjobaden III Workshop on Air Pollution and Its Relation to Climate Change and Sustainable Development (12–14 March 2007, Gothenburg).

IV. CONCLUSIONS

21. The Expert Group agreed to:

(a) Extend its work on large combustion plants (LCPs) $> 500 \text{ MW}_{\text{th}}$ and on small combustion plants to include $< 500 \text{ MW}_{\text{th}}$, as well as to further test the methodology used for ECODAT on LCPs in the Czech Republic and Sweden;

(b) Revise the background document on LCPs in light of the experience of the Czech Republic and Sweden and previous comments;

(c) Further explore emerging techniques for LCP $> 500 \text{ MW}_{\text{th}}$;

(d) Update the background document on refineries in light of Belgium's experience with experts from industry and national administrations;

- (e) Extend the work on small combustion plants done by Italy to other countries;
- (f) Set up a small informal group on wood combustion to carry out further work on costs and abatement techniques in this sector;
- (g) Further enhance its cooperation with the IPPC Bureau in the Institute for Prospective Technological Studies (IPTS) in Seville, in particular with the technical working group on glass industry and steel production, with an emphasis on emerging technologies in this sector;
- (h) Further explore the cross-media impact of air pollution abatement techniques on CO₂ emissions and other greenhouse gases, in particular their costs and efficiencies;
- (i) Consider the possibility of cooperating with the European Environment Agency in the project to update and restructure the *EMEP/CORINAIR Atmospheric Emission Inventory Guidebook*, in particular the chapters concerning abatement techniques and technologies;
- (j) Continue its work on emerging technologies for air pollution abatement, exploring synergies with climate change, and consider producing a note on emerging technologies and optimal emission reduction strategies to be presented to the Working Group on Strategies and Review at its fortieth session in September 2007. This would be further explored at the Saltsjobaden III workshop, where the activities of the Expert Group would be presented;
- (k) Coordinate with the secretariat (including the UNECE Regional Adviser for Environment) to prepare a workshop on abatement techniques, including stationary and mobile sources, to be held back to back with the third workshop under the CAPACT project, probably in July 2007 in Almaty.