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Working Group on Strategies and Review

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Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP)

Thirty-third session Geneva, 7–9 September 2009 Item 6 (b) of the provisional agenda\*\*\*

## INTEGRATED ASSESSMENT MODELLING

Report by the Chair of the Task Force on Integrated Assessment Modelling\*\*\*

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<sup>\*\*\*</sup> This document was submitted late for document processing as clearances from relevant parties were received late.

## I. INTRODUCTION

1. This report describes the results of the thirty-fifth meeting of the Task Force on Integrated Assessment Modelling, held from 8 to 10 June 2009 in Bilthoven, the Netherlands, in accordance with item 2.3 of the workplan approved by the Executive Body at its twenty-sixth session (ECE/EB.AIR/96/Add.2). It describes progress made with regard to the development of the baseline scenario. The presentations made during the meeting and the reports presented are available at: <a href="https://www.unece.org/env/lrtap/TaskForce/tfiam/35.htm">www.unece.org/env/lrtap/TaskForce/tfiam/35.htm</a>.

#### A. Attendance

2. Fifty-four experts from the following Parties to the Convention attended the meeting of the Task Force: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Russian Federation, Serbia, Slovakia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, and the European Community. Also present were representatives from the Centre for Integrated Assessment Modelling (CIAM) of the Steering Body to Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), the Coordination Centre for Effects (CCE) of the International Cooperative Programme (ICP) on Modelling and Mapping, the Expert Group on Techno-economic Issues and the Task Force on Reactive Nitrogen. The European Environment Agency (EEA), the European Environmental Bureau (EEB), the Joint Research Centre (JRC) of the European Commission, the Oil Companies' European Organization for Environment, Health and Safety (CONCAWE) and the Union of the Electricity Industry (EURELECTRIC) were represented. A member of the Convention secretariat also attended.

## B. Organization of work

3. Mr. R. Maas (Netherlands) chaired the meeting, which was hosted by the Netherlands Environmental Assessment Agency and the National Institute for Health and Environment.

#### C. Welcome addresses

4. The Director of the Netherlands Environmental Assessment Agency welcomed participants.

#### II. OBJECTIVES AND INTRODUCTORY REMARKS

5. The Chair noted that the meeting's purposes were: (a) to discuss the national baseline projections received by CIAM and to formulate one baseline scenario for further work on to the revision of the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-

level Ozone (Gothenburg Protocol); and (b) to assess of the progress achieved in other areas of integrated modelling.

- 6. The representative of the Convention secretariat outlined the conclusions from the twenty-sixth session of the Executive Body, drawing attention to the links being established this year at the technical expert level with the climate change and biodiversity communities. The Task Force welcomed the increasing collaboration with effects-oriented bodies, the Task Force on Reactive Nitrogen and other bodies under the Convention.
- 7. The representative of the network of National Integrated Assessment Modelling (NIAM) presented its recent developments. Currently, the network comprised 19 countries and JRC, with four more prospective members extending the geographical range in countries in Eastern Europe, Caucasus and Central Asia (see <a href="www.niam.scarp.se">www.niam.scarp.se</a>). The Task Force took note of the results from NIAM workshop held in January 2009 on reducing the environmental impacts of transport through behavioural change. A common methodology to assess costs of behavioural changes in parallel with technical measures was not yet available. The Task Force also welcomed the results from another NIAM workshop held in April 2009 on evaluating country-specific baseline projections, particulate matter (PM) emissions and studies addressing the shipping, transport, housing and agricultural sectors, as well as how further cooperation between countries might be developed. The Task Force further welcomed the active role of NIAM and invited more Parties to join its work. It also reconfirmed its wish that national focal centres of the Working Group on Effects would be in contact.
- 8. The Head of CIAM informed the meeting about the tutorial workshop on the GAINS (Greenhouse Gas and Air Pollution Interactions and Synergies) model, held from 23 to 25 February 2009 in Laxenburg, Austria. The training was held partly in Russian. Thirty participants attended the workshop, including nine experts from countries in Eastern Europe, Caucasus and Central Asia (EECCA). The Task Force took note of the efficient and useful session, which had succeeded in increasing national participation and activities regarding the GAINS model data.
- 9. The Head of CIAM presented the status of submitted national baseline data: (a) four Parties had submitted data by the required deadline; (b) eight had promised to send them within the two following weeks; (c) eight had requested further guidance from CIAM; and (d) for the rest of the Parties no information was exchanged at all. Details are provided in the chapter III.
- 10. The Head of CIAM also reported on a new European Consortium for Modelling of Air Pollution and Climate Strategies (EC4MACS) project comprising a methodology to address air quality, extended to urban areas. The EC4MACS interim assessment in November 2009 would provide, inter alia, air quality fields for use in assessing air pollution effects under the Working Group on Effects. He emphasized that an Internet consultation was ongoing regarding the review of all models in the EC4MACS project, including the GAINS model, to be followed by a

ECE/EB.AIR/WG.5/2009/10 ECE/EB.AIR/GE.1/2009/4 Page 4

meeting on the review results to be held on 5 October 2009 in Laxenburg, Austria. He noted that the methodology of the GAINS model concerning greenhouse gases (GHGs) had already been reviewed in a workshop on the intercomparison of GHG mitigation potentials and costs of different global models. He finally presented the GHG mitigation potentials and the costs in the countries of the annex I of the United Nations Framework Convention on Climate Change (UNFCCC). Publicly available input data had been used in the study, which was fully available online, including the data, results and an interactive calculator (http://gains.iiasa.ac.at/MEC). The methodology enabled a comparison of mitigation efforts between countries. Mitigation costs depended, inter alia, on the payback period assumed for climate investments. With payback periods that reflected social planners' perspectives, GHGs could be reduced by 20-25 per cent below baseline projections at rather low cost. He noted that the GAINS model assumed a constraint on premature scrapping of existing capital stock, while other models in the field did not consider such a limitation. He concluded that top-down models (e.g. economic general equilibrium models) showed more mitigation potential than bottom-up approaches (e.g. as used in the GAINS model), as top-down models included responses in consumer demand and carbon leakage to countries without stringent climate policies.

- 11. The representative of the European Commission presented progress on the 2009 update of the PRIMES energy baseline for the 27 European Union (EU) Member States and seven candidate and neighbouring countries (e.g. Croatia, Norway, Switzerland and Turkey), including GHGs other than carbon dioxide (CO<sub>2</sub>) from the CAPRI (Common Agricultural Policy Regionalized Impact) model. The main aim was to take into account the current economic crisis and to ensure overall consistency of projections of the countries involved. The key assumptions included the EU Emission Trading Directive<sup>1</sup>, CO<sub>2</sub> and passenger car regulation, an economic recovery package, national and EU legislation on emissions from sectors not in the emission trading system, and national renewable policies; the latter, however, were not always sufficient to meet the target of a 20 per cent share of total energy use. The draft data had been prepared in consultation with the countries. Results would become available in autumn 2009.
- 12. The Task Force encouraged all delegates to participate as soon as possible in the Internet consultation regarding the review of the models, including the GAINS model, used in the EC4MACS project (http://www.ec4macs.eu/home/review1.html).

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<sup>&</sup>lt;sup>1</sup> Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, and Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC.

# III. DEVELOPMENT OF THE BASELINE SCENARIO

13. The Task Force noted that in its previous meeting some delegates had expressed their concern that while they would be able to submit energy and activity projections compatible with climate change policies, the date to provide these to CIAM would not be possible to meet. Therefore, the deadline of September 2008 proposed at that time had been postponed to 15 February 2009, with an ultimate date to provide data directly to CIAM of 31 May 2009.

#### A. National data

- 14. The Task Force agreed to prepare a summary table on key assumptions in the national data, including gross domestic product (GDP) growth rate in percentage in 2020, the price of oil, the ways climate and energy policy was included (e.g. the expected use of renewables) and additional key policies. The data would be based on the presentations given during the meeting or on direct submission from the Parties. This could be helpful information for the forty-fifth session of the Working Group on Strategies and Review in September 2009.
- 15. The Task Force took note of the following national energy and activity projections that were submitted within the required deadline to CIAM:
- (a) <u>Czech Republic</u>. National baseline scenarios had been developed for current legislation, which reflected climate policy measures to some extent. An alternative scenario with additional climate policy measures was being explored. The latter scenario resembled the GAINS scenario including the climate and energy package of the EU, but less use of biomass and more use of natural gas were assumed;
- (b) <u>Finland</u>. The baseline was designed to fulfil obligations of the EU. Emissions were calculated only for the baseline projection, and no official CO<sub>2</sub> emission reduction targets were set for emission trading sectors. The target for renewables was considered challenging due to the changing infrastructure of forest industry. National scenarios had been close to estimates of the GAINS model, and the biggest differences were found in the co-firing of low-sulphur fuels in fluidized beds;
- (c) <u>Ireland</u>. The scenario was developed from national energy and agricultural projections that included additional climate policy measures and an interim economical crisis effect. Emission files and the control strategy of the GAINS model had been adapted where national evidence supported such a change. Ongoing shifts in policy, potential policy and economic outlook had introduced uncertainties requiring further attention;
- (d) <u>Italy</u>. The new emission scenarios were based on preliminary unofficial results. They included new activity levels and the effect of the climate and energy package of the EU. Significant reductions of the air pollutants were expected by 2020 as were co-benefits on CO<sub>2</sub>

emissions. Some discrepancies between modelled emissions and the national emission inventory would require further attention.

- 16. The Task Force noted that the following countries had promised to submit data, but after the deadline:
- (a) <u>Denmark</u>. The representative of Denmark reported that data were being finalized and would be submitted the following week;
  - (b) <u>Greece</u>. There was no national scenario available for Greece;
- (c) <u>Netherlands</u>. The national baseline projection assuming current legislation and high economic growth had been submitted to CIAM. It included the policies on meeting the requirement of the EU climate and energy package to some extent. A new baseline with full implementation of the EU climate and energy package measures would be available in the beginning of 2010 for informational purposes;
- (d) Norway. The projection for Norway was based on data from autumn 2008. It contained the current legislation, but no further climate and energy related policies. The data had been submitted the previous week;
- (e) <u>Portugal</u>. The new energy scenario indicated that the renewable energy target for 2020 was more limiting than the climate target, and determined both air pollutant and GHG emissions. The new energy scenario included the EU climate and energy package and aimed to increase energy efficiency. All sectors within the emission trading system were required to make significant efforts beyond measures already implemented and scheduled. The data had been submitted to CIAM;
- (f) <u>Spain</u>. Three national baselines had been developed employing the new economic development after the economic recession and different levels of basic and additional measures. Data would be submitted the following week;
- (g) <u>Sweden</u>. The baseline included policy measures as decided in June 2008, with inter alia a high share of renewables in 2020. The largest uncertainties were considered to be the economic growth, oil prices, and non-road mobile emission sources. No additional climate policies were included. The data would be delivered in a few days;
- (h) <u>Switzerland</u>. The update of the energy scenario was delayed because post-Kyoto energy policy would be decided in autumn 2009, supposedly targeting a 20 per cent reduction of CO<sub>2</sub> from 1990 to 2020. New data for energy projection would be submitted the following week, including current legislation but no post-Kyoto climate policy measures. Ammonia (NH<sub>3</sub>) emissions projections from the agricultural sector had been updated based on a revised nitrogen flow model and would be submitted as soon as possible;

- (i) <u>United Kingdom</u>. New emission projections had been derived for a recent energy scenario reflecting the economic recession and the commitments of the EU energy and climate package. There were some sources that were in the national inventory, but not in the GAINS model and vice versa, and these differences were being investigated. The comparison with the PRIMES 2007 scenario indicated that total emissions were reasonably similar for volatile organic compounds (VOCs) and PM, but that there were differences for individual sources. Larger differences for nitrogen oxides (NOx) and sulphur dioxide (SO<sub>2</sub>) reflected the large amount of coal consumption in the energy projections. Bilateral consultation with International Institute for Applied Systems Analysis (IIASA) to clarify differences and assumptions was being followed up. Updated data had been submitted to CIAM.
- 17. The Task Force took note of the countries with which CIAM had had contact, but from which no data was expected by autumn 2009:
  - (a) <u>Austria</u>. There was no national scenario available for Austria;
- (b) <u>Belgium</u>. The data already existing in the GAINS model would be used for Belgium. Additional data updates might become available by the end of the year;
  - (c) <u>Belarus</u>. There was no national scenario available for Belarus;
- (d) <u>Bulgaria</u>. The secretariat had received a letter from the Ministry of Environment and Water that required data had been submitted to CIAM;
- (e) <u>Croatia</u>. Croatian experts had informed the Head of CIAM that a new energy strategy had been adopted by the Government. However, a baseline projection was not yet completed;
- (f) <u>France</u>. France had a target to reduce its greenhouse gas emissions by 20 per cent in 2020. The scenario for implementing this aim was not yet officially available. The anticipated reductions on GHGs could help to further reduce emissions of air pollutants;
- (g) <u>Germany</u>. There were two emission projections available: an updated current legislation projection and a climate protection scenario. The differences between national scenarios and PRIMES 2007 with EU climate and energy package had been assessed. Climate measures were partly included. The secretariat was later informed that Germany considers its emission projections submitted earlier sufficient to meet the requirements of the revision of the Gothenburg Protocol. These data reflected the German climate and energy policies and are consistent with the EU energy and climate package, but did not address the consequences of the financial crisis:
  - (h) Hungary. There was no national scenario available for Hungary;

- (i) <u>Republic of Moldova</u>. No national scenario was available for the Republic of Moldova;
  - (j) <u>Romania</u>. There was no national scenario available for Romania;
- (k) <u>Russian Federation</u>. The data on activities and emissions in the European part of the Russian Federation, currently divided in four areas for use in the GAINS model, were being evaluated. The data would not be available by autumn 2009;
  - (l) <u>Slovakia</u>. New data would be submitted to CIAM by the end of June;
- (m) <u>Ukraine</u>. National experts had provided some updates to the energy scenario in the GAINS model.
- 18. The Task Force noted that neither it nor CIAM had received information on updating national baseline scenarios from the Parties to the Convention not listed above.

# B. Sensitivity analyses of baseline projections

- 19. The representative of Spain presented recent extensive uncertainty analysis of Spanish emission scenarios with three methods. He noted that the impacts of the financial crisis fell within the uncertainty band of the previous baseline. The Task Force acknowledged the importance of the results presented and noted that these methods might provide a reasonable approach for carrying out uncertainty assessments on data from other countries.
- 20. The representative of Netherlands presented the impacts of the economic recession on air pollutant emissions. The dominant effect of the recession was on the decreasing activity levels in the manufacturing industry. In the short run, the recession would help to meet national emission ceilings by 2010, but investments in clean and energy-efficient technologies would be delayed, which could make ambitious targets for 2020 even more challenging.
- 21. The representative of Netherlands presented the analysis of uncertainties due to CO<sub>2</sub> emission trading, using a global economic model. Sectoral changes in Europe were sensitive for global carbon policy design. A global agreement would have less economic impact in Europe, but also the reduction of energy use within Europe would be less. He drew attention to the fact that such macro-economic uncertainties would be difficult to address with bottom-up models such as PRIMES and GAINS.
- 22. In the ensuing discussions, some delegates noted that there were major uncertainties in the predictions, e.g. in economic growth assumptions, the development of energy prices, climate policy implementation and technological developments. PRIMES 2007 data were not always considered correct in its national details and did not include the effects of the recent economic

crisis. On the other hand, many national baseline scenarios used different basic assumptions, and EU climate and energy package was interpreted in different ways. Some delegates proposed using multiple baselines to include uncertainty bands, assess the differences between PRIMES 2007 and national scenarios, introduce flexibilities in national ceilings and ensure that conclusions from scenarios would be practical, in order to avoid potential legal difficulties.

#### C. Final baseline scenario

- 23. The Task Force considered it important that all scenarios be based on coherent assumptions, and national data would be preferable. Changes in global economical development constituted an important source of uncertainty. In view of these inevitable uncertainties, the Task Force drew attention to the need for flexibility in terms of new quantitative emission reduction obligations while at the same time maintaining the achievement of environmental objectives in a cost-effective manner.
- 24. The Task Force noted that it was important to understand and highlight the assumptions behind the national projections. Some were based on ambitious climate targets, while others included only measures of current legislation. Also, projections employed different assumptions on the potential and international trade of, inter alia, renewable energy. The Working Group on Strategies and Review should be clearly informed about the key differences.
- 25. The Task Force agreed that where there was no national update, the data from the PRIMES projection of 2007 (including the EU climate and energy package) would be used.
- 26. The Task Force noted that a new PRIMES baseline projection would be produced in the coming months. This would include the likely impacts of the economic crisis and the latest climate policy measures. Assumptions were currently being made in consultation with national experts. In addition, new agricultural projections of the CAPRI models were being developed that included, inter alia, the recent reform of EU milk quotas and the demand for biofuel production assumed in the PRIMES energy projection.
- 27. The representative of the European Commission informed the meeting that the current Commission would most likely leave it to the new Commission to decide on the revision of the National Emission Ceilings (NEC) Directive<sup>2</sup>. Provisional planning based on a realistic timetable indicated that a proposal could be ready by May 2010. The aim was to have the emission ceilings for 2020 of the NEC Directive as harmonized as possible with those in the amended or new Gothenburg Protocol. He also drew attention to the possible need to develop cross-border flexibilities to ensure that the most cost-efficient policy and measures could be taken, in line with the liberalization of the energy market in many regions, including in the EU. However, the

<sup>&</sup>lt;sup>2</sup> Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants.

location of emission was important for effects; such flexibilities should therefore be compatible with the environmental objectives of the revised NEC Directive and the Gothenburg Protocol.

- 28. The Task Force agreed that it would need to focus attention on some non-agricultural sources of NH<sub>3</sub> emissions and PM inventories for further investigation by the Task Force on Emission Inventories and Projections.
- 29. The Task Force noted that some national projections did not include climate policy compatible measures that should be clearly identified. There would not be an equal starting point for all countries if climate policy were not factored in to all projections. It further noted that very old, pre-Kyoto data were available from many non-EU countries, and that no updates were expected.
- 30. The Task Force agreed to provide for the forty-fifth session of the Working Group on Strategies and Review in September 2009 a baseline scenario based on the national submissions. This scenario would be available by 13 June 2009. For countries that have not provided national projections, the 2007 PRIMES scenario (including the EU climate and energy package) would be used. As basic assumptions of the national projections showed considerable differences, the Task Force also agreed to present, for the twenty-seventh session of the Executive Body in December 2009, a coherent scenario would be based on the most recent PRIMES projection for all EU Member States and would become available in autumn 2009. It further agreed that CIAM should also prepare a scenario with using the GAINS model taking into account available cost-effective energy conservation and fuel substitution measures to explore the co-benefits and tradeoffs with climate change abatement. These three alternative projections would help in exploring the impacts of existing uncertainties in baseline assumptions.

#### IV. ASPIRATIONAL WORK FOR 2050

- 31. The Chair of the Task Force summarized the results from the workshop on non-binding aspirational targets for air pollution for the year 2050 held on 5 and 6 March 2009 in Utrecht, the Netherlands. The results had been reported to the Working Group on Strategies and Review in an informal document to its forty-fourth session in April 2009. The Task Force took note of the workshop's conclusions and recommendations and agreed to forward them for the consideration of the forty-fifth session of the Working Group on Strategies and Review in September 2009.
- 32. The representative of CCE presented examples on scenario analyses of effects within integrated assessment modelling. He presented an updated map of exceedance of critical levels for NH<sub>3</sub> on sensitive lichens, bryophytes and herbaceous plants, as well as the consequences for emission reductions of using a convergence approach to equal emission densities. The Task Force welcomed the enhanced capacity to carry out ex-post analyses, in collaboration with CIAM, of the exceedance of critical loads and levels and the application of dynamic modelling and target loads, both to address the state and timing of chemical recovery and to further develop

indicators on biological diversity employing empirical critical loads and dose-response relationships.

- 33. The representative of EURELECTRIC presented work on a carbon-neutral electricity sector by 2050. The carbon emissions from the electricity production would be reduced significantly and the remaining would be compensated activities such as forestation, the firing of biomass, and joint implementation and clean development mechanism (JI/CDM) projects. The Task Force welcomed the declaration of the European electricity sector chief executive officers (CEOs) of their vision for 2050 as well as further information to be delivered later, in particular on details on fuel cell prices and the compensation of remaining CO<sub>2</sub> emissions to fulfil the requirement of carbon neutrality.
- 34. The representative of Netherlands presented the contribution from the European Topic Centre on Air Quality and Climate to the EEA report, "State of the environment 2010: Europe in transition". The Task Force took note of: (a) the benefits and caveats of constructing an average indicator for population exposure; (b) the combined impacts of air pollution and climate change on ecosystems, which would be of particular interest to the Working Group on Effects; and (c) the importance of long-term visions and required short-term actions to attaining such long-term goals.

#### V. DEVELOPMENT IN RELATED AREAS

- 35. The Co-Chair of the Expert Group on Techno-economic Issues presented the progress of work on preparing proposals to amend technical annexes of the Gothenburg Protocol and related guidance documents, excluding NH<sub>3</sub>. The aim was to introduce flexibility to facilitate new ratifications, to provide multiple technical options and to restrict the proposal to technical aspects only.
- 36. The representative of CONCAWE presented the EU project EuroDelta, comparing various air quality models in Europe. In the EuroDelta project, five regional air quality models, including the EMEP model, had shown that source-receptor relationships based on sectoral emission reductions of key pollutants were significantly different to source-receptor relationships derived by reducing national pollutant totals across all sectors. A means of incorporating sectoral effects into integrated assessment modelling should be found to improve delivery of benefits and avoid the risk of underachievement of environmental benefits. The Task Force noted that the models compared reasonably well amongst each other, and that low-level sources from specific sectors were important in terms of abating urban population exposure.
- 37. The Task Force received information about the EU project PAREST. An integrated approach at the national level had been developed to assess reduction strategies for PM and nitrogen dioxide (NO<sub>2</sub>) for Germany. The methodology allowed for assessing the impact of

national as well as local reduction measures to concentrations of NO<sub>2</sub>, coarse and fine PM based on selected indicators.

#### VI. FURTHER WORK

- 38. The Chair briefed the meeting on recent developments within the Steering Body to EMEP and its Bureau. He drew attention to the special session planned for the thirty-third session of the Steering Body in September 2009. The special session would assess information from the GAINS model related to emissions, abatement and atmospheric transport to support the revision of the Gothenburg Protocol, in particular its status of scientific knowledge and possible systematic biases. The Head of CIAM noted the benefits to CIAM of being able to participate in the work of the Bureau of the Steering Body to EMEP, in particular those of collaborating and coordinating work with other EMEP centres.
- 39. The Chair explained the links with the Working Group on Effects, in particular the draft report on airborne nitrogen effects. The Task Force agreed to continue the collaboration with the Working Group, in particular in: (a) quantifying the robustness of air pollution effects, which comprises, inter alia, information such as robustness of exceedance and identifying possible biases such as harmfulness of different components of PM; and (b) the work on ex-post analyses, including the centralized provision of harmonized data on pollutant concentration and deposition scenarios by CIAM to the ICPs with the help of CCE. This would allow the ICPs to contribute to the reports of CIAM and the Task Force with scenario specific information on effects that were not direct outcomes of the GAINS model.
- 40. The Task Force agreed to specify in more detail the following selected workplan items for 2009. It would hold its thirty-sixth meeting form 6 to 7 October in Laxenburg, Austria, in connection with the workshop of the EC4MACS project on the 5 October. The meeting would concentrate on discussing the merits of different options for target-setting, robustness and flexibilities in abatement.
- 41. The Task Force agreed on its draft 2010 workplan:

#### 2010 main activities by Parties:

- (a) All Parties participate in the review of the results of the GAINS model;
- (b) Share experiences in integrated assessment modelling via the new Network for National Integrated Assessment Modelling;

# 2010 main activities by the Centre for Integrated Assessment Modelling:

- (c) Support of the revision of the Gothenburg Protocol through analyses of policy strategies as requested by the Working Group on Strategies and Review, and report on its results to the sessions of the Working Group in 2010;
- (d) Sensitivity analyses and reporting on the robustness of modelling results to the Task Force;

# 2010 main activities by the Task Force:

- (e) Contribute to the revision of the Gothenburg Protocol, in particular by preparing alternative scenarios based on the baseline projections (Task Force, CIAM, Parties, Network for National Integrated Assessment Modelling);
- (f) Collaborate with the Task Force on Reactive Nitrogen, the Task Force on Hemispheric Transport of Air Pollution, the Expert Group on Techno-economic Issues and the Working Group on Effects;
- (g) Hold a workshop on the robustness of modelling results together with the Working Group on Effects, tentatively scheduled to be held in spring 2010, and submit its report;
- (h) Hold its thirty-seventh and thirty-eighth meetings, tentatively scheduled to be held in February and May 2010;
- (i) Submit appropriate reports to the EMEP Steering Body, the Working Group on Strategies and Review and the Working Group on Effects.

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