Second ECCP Progress Report

Can we meet our Kyoto targets?

April 2003

4.5 Fluorinated gases

4.5.1 Background: Results of the first phase of the ECCP

The objective of the Working Group on fluorinated gases under the ECCP was to develop the basis for a framework of an EU-policy to reduce emissions of the fluorinated greenhouse gases covered by the Kyoto Protocol (HFCs, PFCs and SF_6) in a cost-effective way. The first report of June 2001 concluded that fluorinated gases contributed about 2% (65 Mt CO_2eq) of overall EC greenhouse gas emissions in 1995. Views on the likely future evolution of these emissions levels varied but were in the range of 2-4% of total emissions by 2010 (98 Mt CO_2eq), with a particular increase expected in HFC emissions. It was agreed that this potential growth warrants specific action from regulators and industry to limit emissions of fluorinated gases. Consequently the group recommended that a regulatory framework in a

"Community Directive on Fluorinated Gases" should be established. The key objectives of such a Directive would be:

- Improved monitoring and verification of emissions of fluorinated gases.
- Improved containment of fluorinated gases.
- Marketing and use restrictions in certain applications

4.5.2 Follow-up in the Council and the European Parliament

With the Communication on the implementation of the first phase of the ECCP the Commission endorsed the recommendations of the working group without any change. The Environment Council at its meeting of 12 December 2001 supported the Commission's proposal for legislative action and confirmed its objectives. The Council stated that the legislation should address stationary and mobile sources. Marketing and use restrictions should be considered in those cases where viable alternatives existed and improvement of containment was not feasible.

In its resolution of 25 September 2002 on the Commission Communication the European Parliament welcomed the Commission's intention to submit a proposal for a framework directive on fluorinated gases. It considered the expected reductions in emissions of fluorinated gases and improved monitoring as a cost-effective and environmentally efficient measure. The European Parliament considered it important that all areas of application are covered by the proposal.

4.5.3 Mandate and activities of the Working Group in the second phase

In this second phase of the ECCP the mandate of the working group has changed. It is now a forum for stakeholder consultation on the preparatory work for the envisaged Community legislation.

In the reporting period the group discussed the draft reports of the two regulatory impact studies for the future legislation. The first of these deals with the expected costs of introducing measures to contain emissions in the various Member Stakes. The results of the draft final report confirm that containment can be regarded as a cost-effective approach in the refrigeration and air-conditioning sector. Costs in the Member States vary according to the structure of the refrigeration sector and measures already taken. In those cases where control systems are already in place incremental costs will be low while they are considerably above average where there are delays in the implementation of earlier legislation. The emission reduction achievable by 2012 due to additional containment efforts is estimated by the consultant in the range of 12-15 million tonnes CO_2 equivalent for an average cost of €18.32 per tonne CO_2 equivalent.

The second study examines the cost and impact on businesses of potential marketing and use restrictions of certain applications of fluorinated gases. A total of nine sectors have been investigated. According to the preliminary findings in the draft final report such restrictions could contribute to an emission reduction equivalent of around 6 Mt CO_2eq in 2010 for an average cost of <€1 per tonne CO_2eq. This reduction would correspond to about 6% of the estimated total emissions of fluorinated gases in 2010. Both regulatory impact studies were finalised in January 2003.

4.5.4 Mobile air conditioning

In the last few years, mobile air conditioners are increasingly fitted as standards feature in most cars. Air conditioner-related emissions comprise both CO_2 from operating air conditioning compressors and leakage of HFCs themselves. Greenhouse gas emissions due to mobile air conditioning are significant and growing fast in the European Union. In a

consultation paper[32], the European Commission estimated that these emissions will be between 31 and 53 Mt CO_2 eq in 2010 and between 54 and 90 Mt CO_2 eq in 2020 without technological improvement or additional policies. About one third of these emissions are due to higher fuel consumption and consequent CO_2 emissions and two thirds due to the emissions of the refrigerant, HFC-134a. This would be equivalent to 16 and 28 grams of CO_2 equivalent per kilometre in 2010 depending on the assumptions. These data do not include the possibility for technical improvements, such as a move to HFC with lower global warming potential (HFC 152-A) or a future move to 42V battery systems. The Wuppertal Institute's[33] report gave a similar, albeit slightly lower estimate of 13.7g/km CO_2eq in 2010.

While the sub-group on Fluorinated Gases was working, the Commission was also studying in detail the impact of air conditioning systems on the emissions of greenhouse gases from vehicles. This is in response to the Council's request of 10 October 2000 to the Commission to *"study and prepare measures in reduction of all greenhouse gas emissions from air conditioning in vehicles"*. The ECCP sub-group Fluorinated gases had considered the options for reducing HFC emissions from mobile air conditioning systems to some extent during the first phase, while WG 4 (Transport) had deliberated the impact of mobile air conditioners on fuel consumption and subsequent CO_2 emissions. This preliminary work was developed further by two Commission studies: one focussing on measuring the actual leakage of HFCs from mobile air conditioners in the EU and one focussing on how to include the additional fuel consumption and consequent CO_2 emissions to the test cycle, with a view to informing the consumer of this increase. The reports from these two studies have just been completed.

Since vehicle manufacturing is a global business, the Commission considers it important to consult the stakeholders on the options to reduce greenhouse gases. It organised an international conference on the Options to Reduce Greenhouse Gas Emissions due to Mobile Air Conditioning on 10 and 11 February 2003[34]. The purpose of the conference was to collect comprehensive information on the state of play and to identify policy relevant options on how to reduce greenhouse gas emissions due to mobile air conditioners used in passenger cars. The purpose was also make recommendations to regulators and vehicle manufacturers in the EU and elsewhere on what action needs to be taken.

In the conference it was evident that there are different views among the industry of the possible advantages and disadvantages between containing the current emissions of HFC-134a and to phasing out to HFC-152a or CO_2 (or hydrocarbons) as the refrigerant. Understanding that action is needed, several industrial representatives asked the Commission to take initiative in order to provide industry with a long-term planning perspective. Also many regulators in EU Member States are waiting for the Commission's proposal for the regulation on fluorinated gases. Given the international context of the problem, the choice of refrigerant of mobile air conditioners is an important issue for developing countries. NGOs stated that a phase-out of HFC-134a as the refrigerant is the only sustainable solution for mobile air conditioners and that this phase-out should start in 2008.

On increased energy consumption (responsible for 30 to 40% of the greenhouse emissions from mobile air conditioning in the EU) and the consequent increased CO_2 emissions the overall conclusion was that the it is in everybody's interest to make the mobile air conditioners more energy efficient and that corresponding initiatives should be developed. The Commission's plans to develop a standard test procedure, to inform the consumer by adding adequate information to the label of CO_2 emissions (Directive 1999/94/EC), and to develop policies which guide manufacturers towards more efficient systems were generally supported but not discussed in detail.

[32] http://europa.eu.int/comm/environment/air/mac2003/pdf/consultation_paper.pdf
[33] http://www.wupperinst.org/Publikationen/Presse/2003/01_2003.html
[34] see http://europa.eu.int/comm/environment/air/mac2003/

After the receipt of the responses to the consultation paper made for the Conference (11 March) the Commission will decide on its regulatory approach during the second quarter of 2003 and make the appropriate legislative proposals.

4.5.5 Next steps

Following the finalisation of the studies and the conference on mobile air-conditioning, the Commission will finalise its legislative proposal, in the form of a Regulation on fluorinated gases, with adoption envisaged in the third quarter of 2003. In addition, the Commission will consider including the operation of mobile air conditioning systems during the type approval tests for measuring pollutant and CO2 emissions . This would enable to make a proposal aimed at informing consumers about the impact of vehicle air conditioning systems on greenhouse gas emissions.