Phase-Out of HFC-134a in Mobile Air Conditioning in the largest car market of the world

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Outline

• Introduction: Deciding in the EU
• Main positions of the institutions
• Next steps
• Some global implications
• Conclusions
Why a proposal to reduce emissions of fluorinated gases?

- **Climate Change**
  - EU Kyoto commitments: -8% reduction of GHG by 2010-2012 relative to 1990
  - Measures needed to reduce GHG emissions also after 2012

- **European Climate Change Programme**
  - Identified reduction of fluorinated gases as a cost-effective measure
  - Mobile air condition (MAC) included in the proposal for an overall legislative package of the Commission in August 2003
Deciding on the F-gas legislation in EU

European Commission

- Proposal: Aug. 03

European Parliament

- 1st reading: March 04
- 2nd reading: April 05

Council (Member States)

- Common position

Council and Parliament negotiate through „Conciliation“ procedure

2nd reading = Common Position?

- no
- yes

Law
European Commission’s Proposal 2003
(Note: presentation covers only the MAC part)

• Based on extensive stakeholder consultation:
  See MAC SUMMIT 2003 at
• Proposed phase-out 2009-2013 using a flexible system of transferable quotas
• Proposed to include HFC-152a as an option
• Several technical requirements including leakage rate reduction up to 2009.
• In 2003 award from EPA for “regulatory flexibility”
Effects of the proposal

- Applies to the largest car market in the world
  - 17 million cars with 450 million people
  - Exports cars worth €66 billion every year
  - Imports cars worth €30 billion every year

- When fully implemented reduces fluorinated gas emissions by about 30 million tonnes of CO2 eq per annum
• Agreed that phase-out of HFC-134a needed
  – Disagreed with the flexible quota system
  – Proposed it to be based in the vehicle “type approval” system
    • see Directive 70/156/EEC and its amendments which is used for allowing placing new cars on the market in the EU
http://europa.eu.int/comm/enterprise/automotive/pagesbackground/regulatoryframework.htm

• Proposed to postponed dates to 2011-2014
• Wanted to exclude HFC-152a as an option
European Council: Political Agreement October 2004

Note: Political agreement is practically the same as the Common Position

• Agreed to phase-out of HFC-134a
• Based on the “type approval” system
• Proposed to change dates to 2011-2017
• Agreed on leakage requirement of HFC-134a
• Proposed to include HFC-152a as an option
• Made many technical amendments (*separate presentation!*)
  – Including leakage rate reduction <40 g/year for single evaporator and 60 g/year for dual evaporator systems
Two remaining issues

- End of phase out
  - Parliament suggested 2014, Council 2017
- Coverage
  - Include or exclude HFC-152a?
Commission’s views on the Common Position

- In general supportive
- Supports inclusion of HFC-152a
- Can support 2011 as start date of phase out
- End date of 2017 more practical than 2014
Next Steps

- Formal Adoption of Common Position in April 2005
- “Second reading” by Parliament by September 2005
- In the unlikely event of disagreement: “Conciliation” between Parliament and Council by the end of 2005
- Entry into force two years after approval
  - late 2007 or early 2008
Possible global implications

- Exporters to the EU: need to meet the new requirements
  - “Type approval” system treats European and foreign producers equally!
- Importers of cars from the EU: standards are likely to change
  - Maintenance of alternative systems, in particular CO2, is an issue
- Most car producers likely to offer CO2 systems soon
  - CO2 is a low cost (non-patented) refrigerant
- It could be that other phase-outs of HFC-134a following the EU
  - In particular signatories of the Kyoto Protocol
- Strategic choices for car manufacturers!
And what about fuel consumption?

- EU environment Council in 2000 asked the Commission to address GHG emissions from MACs – both HFC & CO2
- Increasing penetration rate of MACs and auxiliary heaters
- Additional fuel consumption is due to:
  - Weight of the equipment
  - Use of the equipment
- Up to now, EU strategy on car fuel economy does not cover MACs: first need to define a test method to assess the energy efficiency of these equipment
Defining a test method for MACs’ Fuel efficiency: the 2002-2003 study

- Conclusions of Commission’s initial study:
  - Focus on MACs (and then simplify for aux. heaters)
  - Double test procedure (MAC on/off) for each vehicle would be costly
  - Need to define a cost-effective approach

- Preliminary “family approach” proposed:
  - Subsystem 1: power generation system
  - Subsystem 2: air conditioner system
  - Subsystem 3: vehicle’s body & environment

- Additional FC would be derived from using the “family approach” and a “parent vehicle” for the fuel test
Defining a test method for MACs’ Fuel efficiency: the 2004-2005 study

- Objectives of the Commission’s second study:
  - Refine the family approach and carry out sensitivity analysis
  - Establish a detailed test protocol
  - Formulate policy proposals

- Possible options:
  - Include MAC FC information on cars’ FC labels?
  - Amend EU test procedure to include MAC’s FC?
  - Establish reference points/ranking for the EU market?
  - (…)?

- Preliminary results: development of family approach would need more support from industry and proves difficult; but a simplified test procedure could be established.

- Results awaited first-half 2005
Conclusions

- Leakage control and the phase-out of HFC-134a in MACs will contribute to meeting EU Kyoto objectives.

- EU is the largest car market in the world - About 17 million vehicles produced every year.

- Phase-out of HFC-134a will take start on 2011 - About 2 million alternative MAC systems will enter EU market - After the completion of the phase-out over 15 million new alternative units will be in the market annually.
Conclusions (cont.)

- Some details (HFC-152a and end date) to be determined
- Leakage test is under development *(separate presentation)*
- First step in regulating fluorinated gases
  - Eg. trucks and buses will be looked into
- No leaky HFC-134a MAC systems allowed in the EU from about 2008 onwards
- All MACs need aftermarket servicing and repair
Are you ready?

Thank you for your attention!