

## **DISCUSSION PAPER**

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### **Background**

Both the Gothenburg Protocol at UNECE level and the “Clean Air For Europe“(CAFE) programme at the European Union level have the objective to develop long-term policies to protect human health and the environment from the effects of air pollution.

Those long-term policies are imposing to Member States emission reduction for SO<sub>x</sub>, NO<sub>x</sub>, NH<sub>3</sub>, VOCs and probably PM.

International strategies for emission reduction of the above mentioned pollutants and also greenhouse gases are mainly based on scenarios generated by means of Integrated Assessment Modelling.

The RAINS/GAINS Model is and will currently be used in the framework of the NEC and UNECE Gothenburg Protocol review, proposing the application of emission reduction measures for a region depending on the impact of pollutant deposition on receptors at least costs.

For assessing reduction potentials in the different activity sectors and the related economic consequences, an appropriate techno-economic description of the technologies in place is necessary.

Moreover, for national and supranational emission reduction strategies, country specific parameters such as market shares or implementation rates are needed.

To develop long-term prospective emission reduction strategies for a time horizon until 2030, technological progresses and their penetration potentials have to be estimated.

### **So called Emerging Technologies**

When elaborating the Thematic Strategy on Air Pollution in the framework of the CAFE Programme, DG ENV asked IFARE and UBA Berlin to carry out a study on “Assessment of the Air Emissions Impact of Emerging Technologies”. This study had to look at numerous sectors in short time and resulted in a long list of potential emerging technologies/applications which were more qualitative than quantitative. Due to lack of information concerning application rates and costs particularly, outcomes of this study were not really taken into consideration in the modelling work for the Thematic Strategy.

DG ENV is now working on the NEC Directive review and the idea of developing a so called ultimate MTRF scenario has been discussed during the last NECPI meeting. It was suggested to include in the MTRF actions which are not considered up to now. A wish was expressed to

be able to take into consideration evolution of performances of abatement technologies between now and 2020 and to have information on speed of replacement of existing plants by new ones.

Description of existing technologies can be found into the BREF Documents or in Annexes to UNECE Protocols. Those documents are mainly covering state of the art of control measures technologies. Emerging technologies, which are currently at demonstration or pilot scale, are only described in a qualitative manner in BREF Documents.

There is definitely not enough information available on emerging technologies to proceed to a modification of the model used. Moreover, most of the information is more qualitative than quantitative.

### **From Emerging Technologies to Evolution of Emission Abatement Technologies**

In order to have a better assessment of what could be the MTR within 10 to 30 years, it could be useful to try to focus the work on a more complete quantitative picture of what could be the evolution of selected single activity sectors.

Depending on sector specific investments cycles and structural conditions in different Member States, installations and processes should undergo changes within the next 30 years for several reasons :

- Their end of life is approaching and they need to be replaced or refurbished
- Constant modification and optimisation take place under evolving economic and environmental constraints
- Nature of fuel could change
- Global competition induces the need for medium or long term technological advances

In most cases, progress will be made through improvement of conventional techniques.

The objective of the work which could be done by EGTEI, in close collaboration with IIASA, could be to :

- Select a certain number of activity sectors where there is a possibility to find the information necessary for the work
- Select partners for this work in Administrations or industry
- Try to make a selection, identification and description of promising emerging technologies
- Try to be more quantitative than qualitative
- Try to focus on 2020/2030
- Find money to do the work