



## **Sensitivity studies performed in the RETRO project on the environmental impact of past, present and potential future policy measures**

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Within the RETRO project we have carried out an analysis of the past performance of the various air quality and emission reduction regulations within the EU and UN ECE regions. This involves an assessment of the changes in the emission of nitrogen, CO and VOCs during the last 40 years, and the correlation of such changes with changes in the concentrations of these compounds in air. Three points are of particular importance in this context: Firstly, there have been significant reductions in the emission of certain pollutants, particularly during the last one to two decades; secondly, the reduction both in magnitude and time is highly different for the different compounds; and finally, there are large regional differences in the reductions.

Sensitivity studies with scenarios calculating the impact of important measures on pollution levels and acidic deposition will be performed by the models taking part in RETRO. The first results from these simulations will be discussed in this presentation.

Two major air pollution policy measures introduced the last decades were aiming at two sources with important contributions to air pollutant emissions: road transport and especially passenger cars and large combustion plants. The European Union has introduced a series of directives, setting standards for tail pipe emissions from road vehicles, substantially decreasing the emission factors for CO, NO<sub>x</sub> and NMVOC. These measures were aimed at reducing the air pollution caused by the ever increasing transport volumes.

In response to these and other policy measures cars are more and more equipped with catalysts in their exhaust systems. A set of sensitivity studies were developed to:

- assess the contribution of the introduction of catalysts to air quality and
- quantify the maximum potential of this measure

For combustion plants we first discuss the contribution to air pollution from the increasing use of basically fossil fuels in power generation to air pollution problems. This discussion includes a worst case scenario where the effect of not including new technologies from 1970 until the year 2000 is assessed. This is compared to the effects of including technology improvement. A scenario has been developed to assess the extent to what the present air pollution concentrations could have been lower if all developed countries (OECD member countries) would have replaced all of their coal fired power plants by nuclear power plants between 1975 and 1995. This strategy would have decreased the emissions from coalfired power plants to essentially zero.