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ECLIPSE

Evaluating the Climate and Air Quality Impacts of Short-Lived Pollutants

Collaborative Project

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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Evaluating GAINS base year emissions and the reference scenario against peer reviewed studies and IPCC-RCP scenarios

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SUMMARY

The work on this deliverable is part of the task T1.1 (Development of the global reference emission scenario for the period 2005-2030/2050) and specifically the objective O1.2 (Assure comparability of the base year emissions with recent regional and global inventories and evaluate the reference scenario against the IPCC-RCP projections).

Owing to the interest in air pollution trajectories of the IPCC-RCP scenarios and more specifically a rather narrow range of these outcomes independent of the forcing resulting from the RCPs, the work on comparison and evaluation of the GAINS scenarios resulted in a peer reviewed paper rather than a report as originally planned. The paper includes discussion of air pollution scenarios developed within the RCP process in perspective of more recent scenarios including GAINS baselines and GEA (Global Energy Assessment) scenarios.

Past and likely future trends in air pollutant emissions evolve rather differently from those of long-lived GHGs, so that superficial extrapolations of GHG trends would lead to misleading conclusions. In many world regions, the evolution of air pollutant emissions has effectively decoupled from economic growth. Since 1990, air pollutant emissions declined (sulphur dioxide, SO₂), stabilized (nitrogen oxides, NO_x), or increased slightly (black carbon, BC; organic carbon, OC; and ammonia, NH₃). This review discusses to what extent structural changes, technological improvements, and dedicated environmental legislation have contributed to these changes. The scenarios of future emissions in the literature span a wide range, mainly owing to different assumptions about future environmental policies. Although the more recent scenarios agree on declining air pollutants up to 2030, avoiding potential rebounds of emissions after 2030 will require additional policy interventions.

The whole paper is attached below.

