



Did you know that ...

**The emissions of methane and nitrous oxide have so far been reduced twice as fast as the carbon dioxide emissions, but the current scenarios predict a slower reduction up to 2030 and 2050**

The reduction of methane and nitrous oxide in EU 28 during 1990-2012 has been significant, equalling 200 Mtonnes CO<sub>2</sub>-eq./year each. In percentage terms, both the methane and the nitrous oxide emissions have been reduced by approximately 35 %, which is twice as much as the 16 % reduction of carbon dioxide emissions. The emission reductions can be found in the agriculture sector, waste management, fuel extraction/fuel management and in the industry. The development of methane and nitrous oxide emissions in Sweden is similar to that in EU as a whole.

Reports about greenhouse gases include six different gases, or groups of gases. In NEPP three of these gases have been studied in more depth; carbon dioxide, methane and nitrous oxide. These gases represent 98 % of the greenhouse gas emissions (2012). The other greenhouse gases (SF<sub>6</sub>, PFCs and HFCs) are, in comparison, of little importance and are therefore not further analysed. (LULUCF is also excluded from the analysis).

The reduction of methane emissions is mainly explained by three factors:

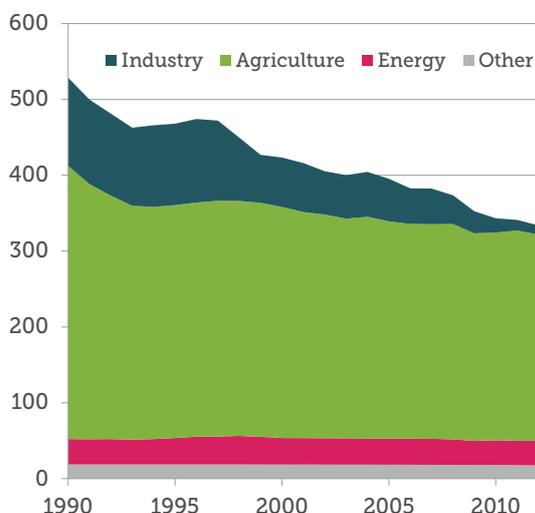
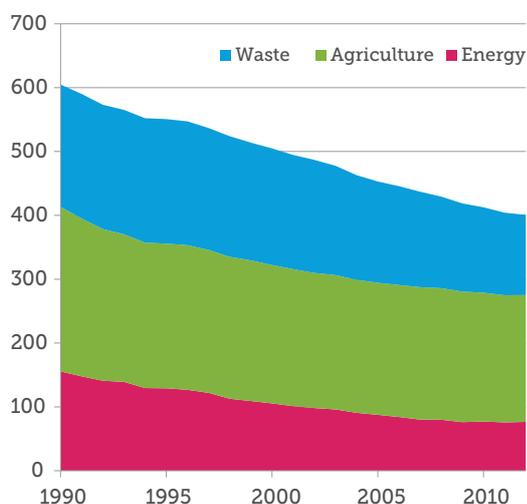
- A decline in coal mining with related fuel management
- A reduction of landfill waste

- Less emissions of methane from livestock, as a result of a reduction of the number of animals, but also of changes in the way organic fertilizers are used

The reduction of nitrous oxide emissions is mainly explained by:

- Reduced emissions from agricultural land-use
- Significantly lowered emissions from industrial processes

Several political actions in the EU and the Member States, e.g. the Nitrate Directive, the unified agricultural policies, and the Waste Framework Directive (with the associated landfill prohibition)



Emissions of methane (left figure) and nitrous oxide (right figure) in EU 28 during the period 1990-2012. The reduction in emissions amounts to 34 % for methane and 37 % for nitrous oxide.



## Did you know that... ?

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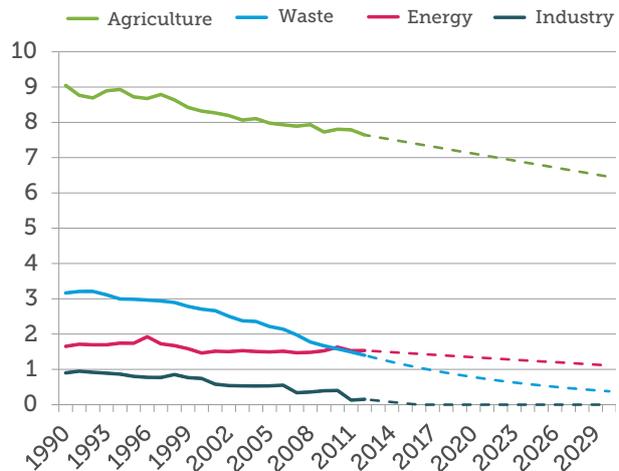
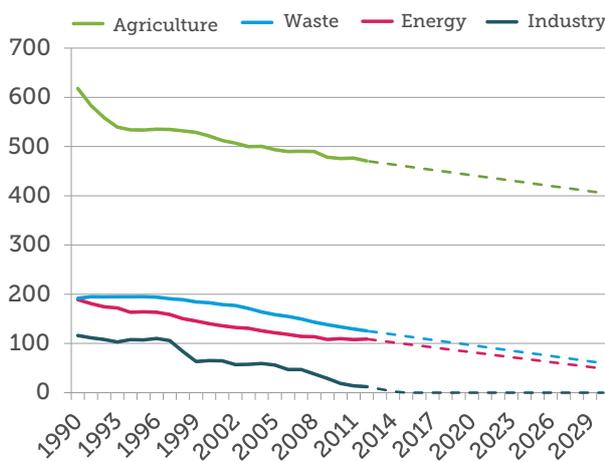
have been successful in reducing the emissions of both methane and nitrogen oxides.

### The reduction of emissions is expected to continue, although at a slower rate

The development of the emissions of methane and nitrous oxide is significantly different from the development of the emissions of carbon dioxide. Methane as well as nitrous oxide emissions have shown a relatively constant reduction, whereas carbon dioxide reductions to a higher degree has fluctuated, both up and down, following the changes in the economy. In accordance with the current scenarios, in particular the reference scenario of the EU commission, it is reasonable to believe that the reduction of methane and nitrous oxide emissions will continue, in the EU as well as in Sweden, albeit at a slower rate than hitherto.

In the figures below we have extrapolated the total amount of methane and nitrous oxide emissions for the four most important sectors. For EU 28, the total amount of emissions from these sectors together has been reduced by approximately 35 %, between 1990 and 2012, and the extrapolation shows yet another 20 % of reduction up to 2030. For Sweden the reduction has been 25-30 % during the same period, and for the period up to 2030 there will be a further reduction of 20 %, if the current trend stays stable.

This would mean that both methane and nitrous oxide will continue to contribute to the reduction of greenhouse gas emissions, in Sweden as well as in the EU as a whole. But, the reduction will not be of the same magnitude as it has been until now, which will call for an increasingly larger reduction of carbon dioxide emissions, if we are going to reach the target of a 40 % reduction of greenhouse gases by 2030.



The total amount of methane and nitrous oxide emissions, in EU 28 (left figure) and in Sweden (right figure) in the four sectors with the largest amount of emissions. The figures show the historical emissions for the period 1990-2012, along with extrapolations based on the last 25-20 years, for the period 2012-2030.