

EEA Core Set of Indicators - CSI 001

## Emissions of acidifying substances

May 2005 assessment

working draft

### About this document

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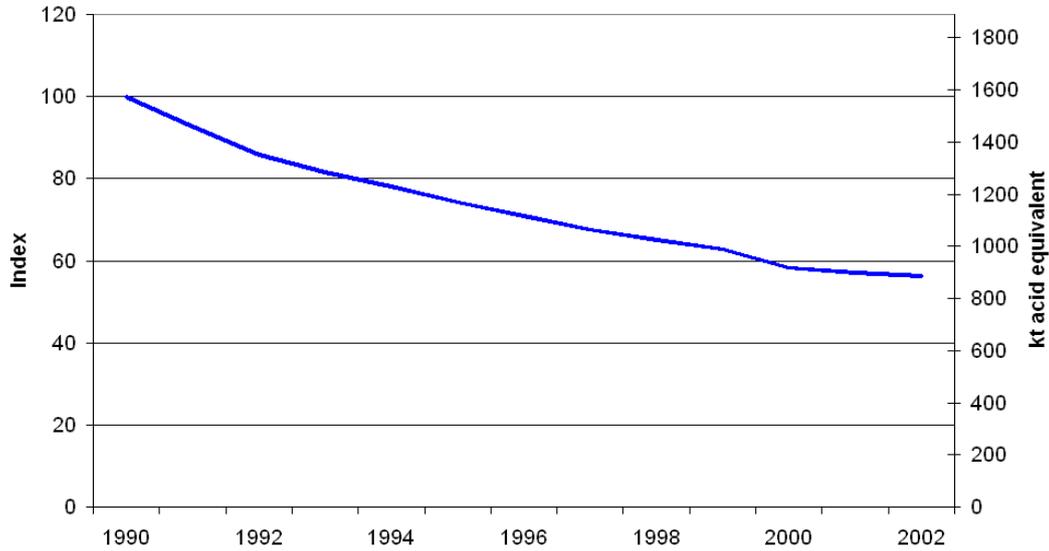
## Key policy question: What progress is being made in reducing emissions of acidifying pollutants across Europe?

**Key message:** Emissions of acidifying gases have decreased significantly in most EEA32 countries. Between 1990 and 2002, emissions decreased by 43% in the EU15 and by 58% in the EU10 despite increased economic activity (GDP) occurring across both regions during this period.

Emissions of acidifying gases have decreased significantly in most EEA32 countries. In the EU15, emissions decreased by 43% between 1990 and 2002 despite an increase in gross domestic product (GDP) during this time. The substantial decrease in emissions of acidifying substances in the EU15 is mainly due to the reduction of sulphur dioxide emissions since 1990. The reduction in sulphur dioxide emissions contributed 77% of the total reduction observed in acidifying substances. This reduction is mainly due to a switch from high sulphur solid and liquid fuels to natural gas, in the energy industries, industry and domestic sectors, as well as economic restructuring of the new Länder in Germany and the introduction of flue gas desulphurisation in some power plants. Emissions of acidifying gases have also decreased significantly in EU10 and Candidate countries. In EU10 Member States (excluding Malta for which data is not available), emissions have decreased by 58% between 1990 and 2002, again despite an increase in gross domestic product (GDP) across the region during this time. In the EU10 the substantial decrease in emissions of acidifying substances is also mainly due to the large reduction of sulphur dioxide emissions since 1990. This reduction is mainly due to a switch from high sulphur solid and liquid fuels to natural gas in the energy industries, industry and domestic sectors, as well as economic restructuring and the introduction of flue gas desulphurisation in some power plants. The reduction in emissions of nitrogen oxides that has occurred is due to reduced energy consumption and abatement measures in road transport.



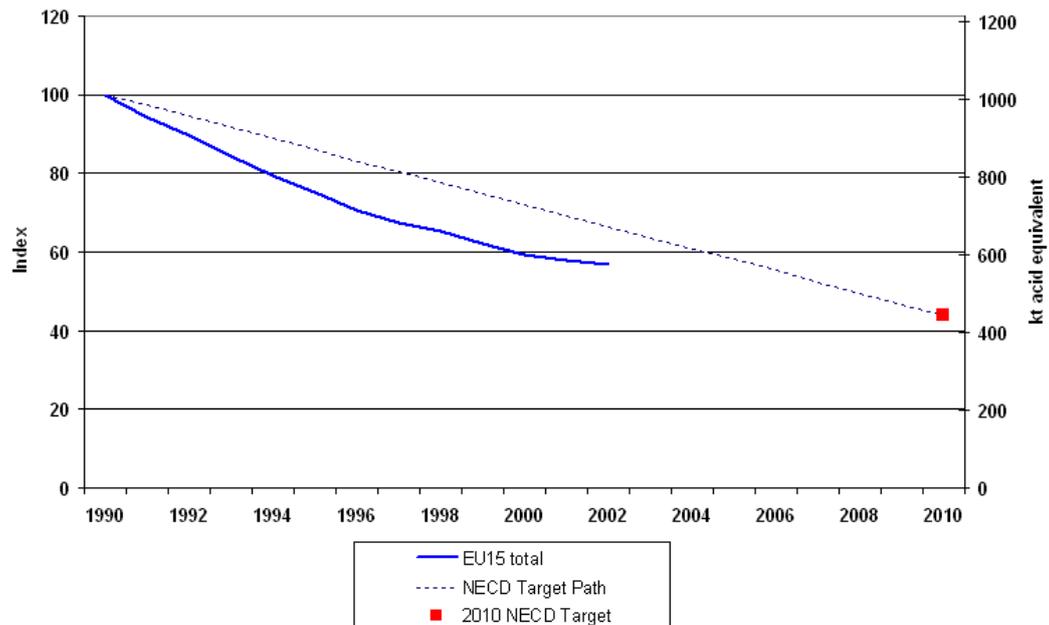
Fig. 1: Emission trends of acidifying pollutants (EEA32)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** The EEA32 country grouping includes EEA31 member countries + Croatia. Data not available for Malta.

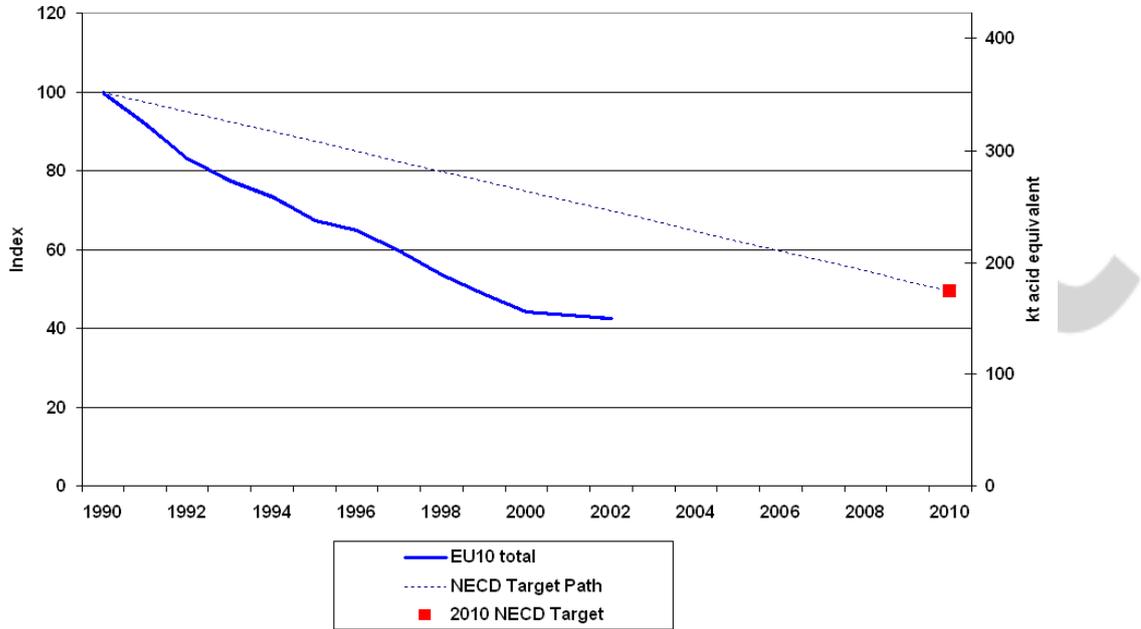
Fig. 2: Emission trends of acidifying pollutants (EU15)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.



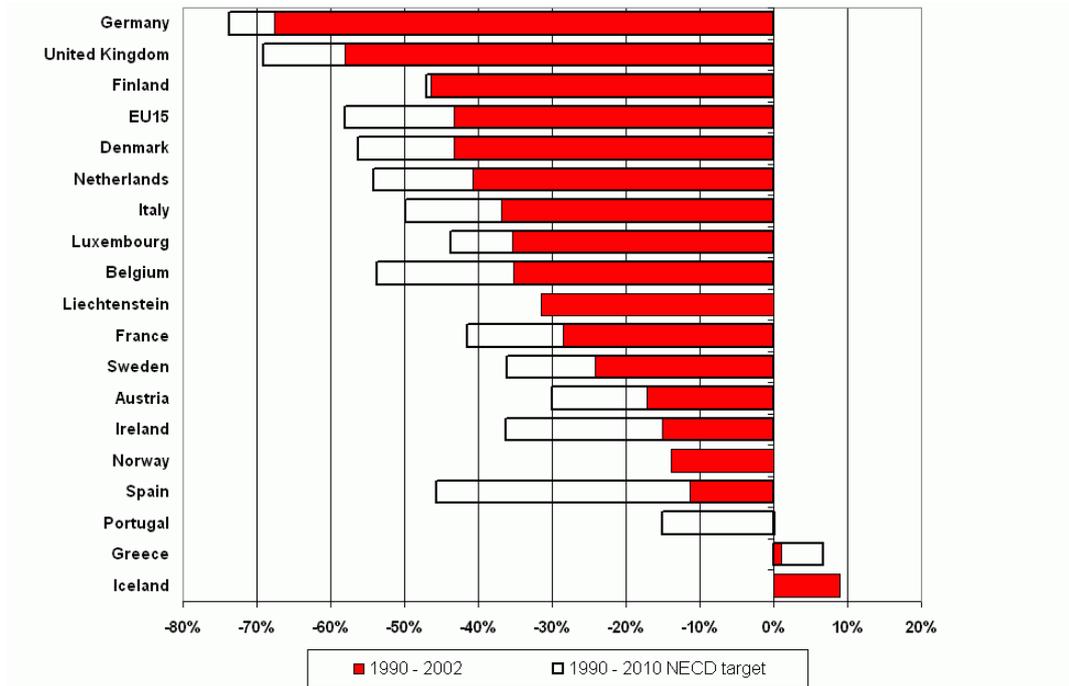
Fig. 3: Emission trends of acidifying pollutants (EU10)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** Data not available for Malta.

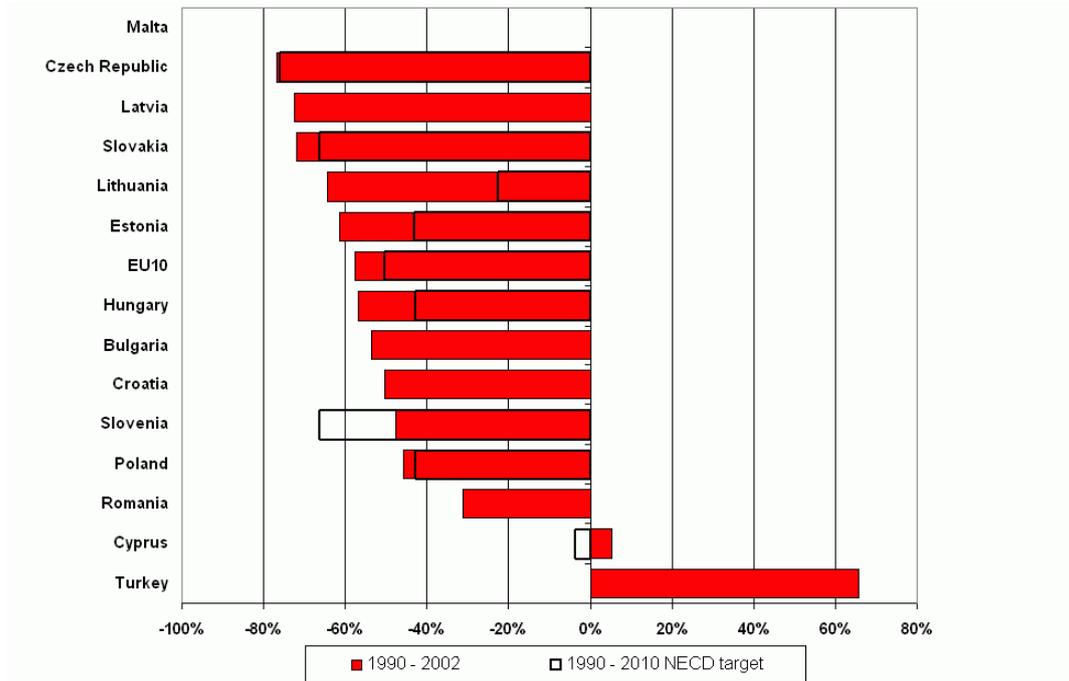
Fig. 4: Change in emissions of acidifying substances compared with the 2010 NECD targets (EU15 and EFTA3)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

working draft

Fig. 5: Change in emissions of acidifying substances compared with the 2010 NECD targets (EU10 and CC4)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** Data not available for Malta.

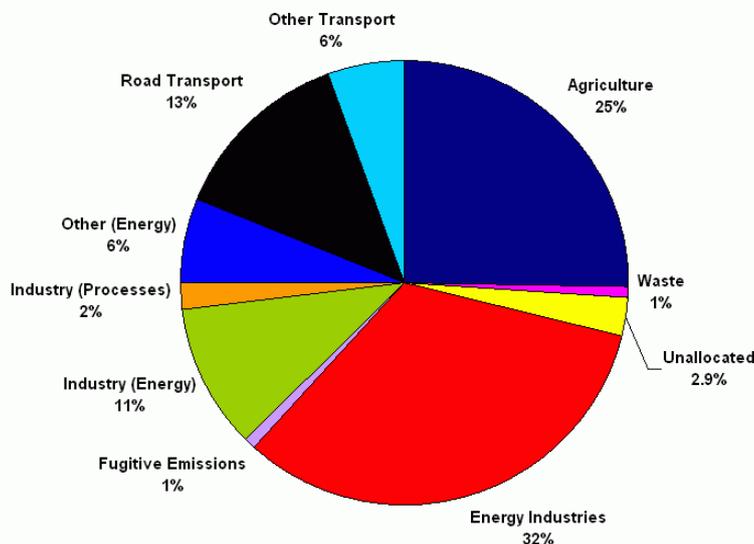


## Specific policy question: How do different sectors and processes contribute to emissions of acidifying pollutants?

Since 1990, the largest absolute decrease in emissions within the EU15 has occurred in the energy industries sector, which contributed 52% of the total reduction in emissions of acidifying substances. The most significant EU15 emission sources in 2002 were agriculture (31%), energy industries (27%), road transport (17%) and energy use in industry (10%). In 2002, the EU15 relative weighted contribution to acidification from SO<sub>2</sub> emissions was 31%, NO<sub>x</sub> emissions 36% and NH<sub>3</sub> emissions 33%. Emissions of nitrogen oxide have reduced since 1990 due to abatement measures in road transport and large combustion plant, but these have to some extent been off set by increased road traffic. Ammonia emissions in the EU15 are stabilising although agriculture emissions, the major source, are very uncertain and difficult to control.

The EU10 has experienced a similar percentage reduction of emissions since 1990 from the energy industries as in the EU15, with 45% of the total reduction in the EU10 emissions of acidifying substances occurring from this sector. Over the same period, emissions from the Industry (energy) and agriculture sectors have also decreased significantly. In 2002, the most significant EU10 sources were energy industries (36%), agriculture (21%), industry energy (13%), and road transport and other transport (14%). In 2002, the EU10 relative weighted contribution of SO<sub>2</sub> emissions was 53%, NO<sub>x</sub> was 24% and NH<sub>3</sub> emissions contribution was 23%.

Fig. 6: Sector split for emissions of acidifying pollutants (EEA32)

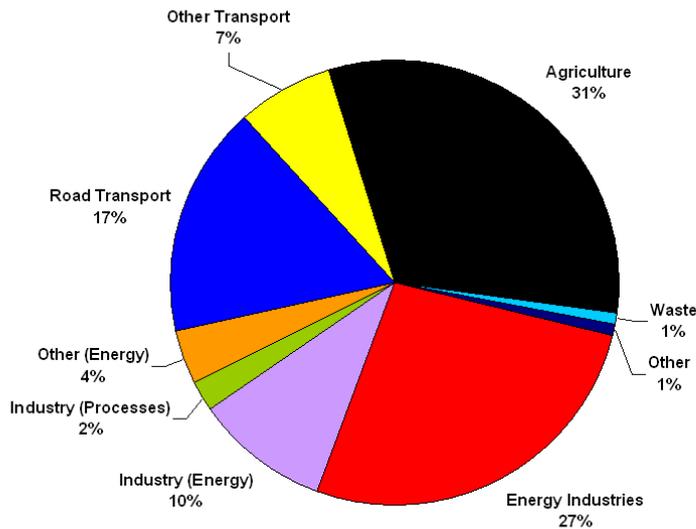


**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** The EEA32 country grouping includes EEA31 member countries + Croatia. Data not available for Malta.



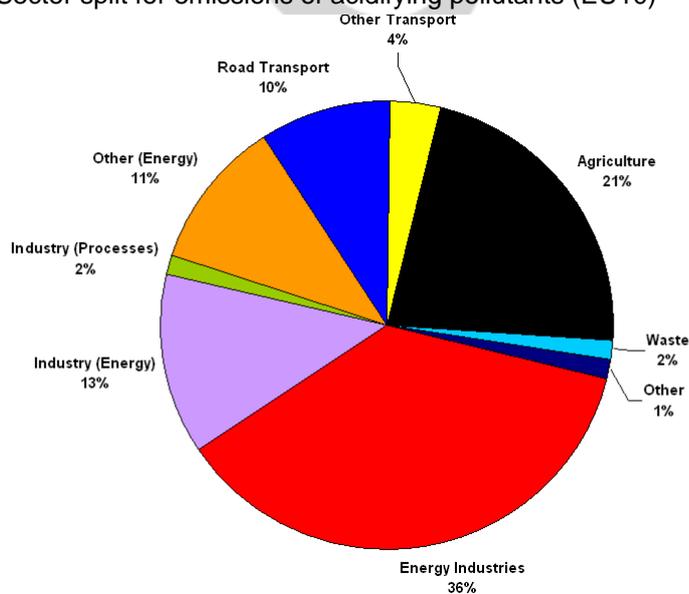
Fig. 7: Sector split for emissions of acidifying pollutants (EU15)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** Data from EEA sectors "fugitive emissions", "other non energy" and "unallocated" are aggregated into sector "others".

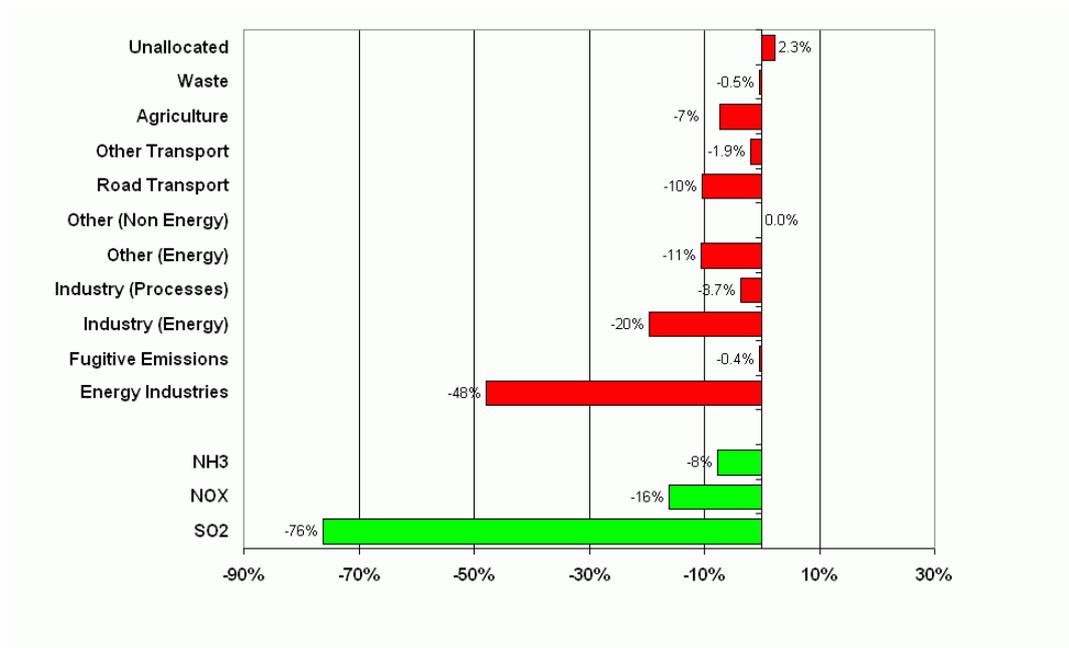
Fig. 8: Sector split for emissions of acidifying pollutants (EU10)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** Data from EEA sectors "fugitive emissions", "other non energy" and "unallocated" are aggregated into sector "others". Data not available for Malta.

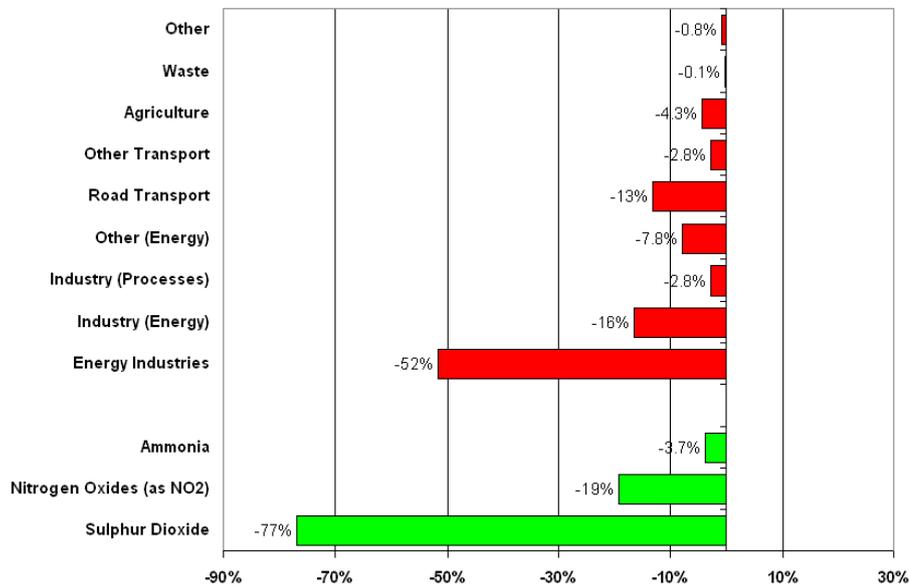
Fig. 9: Contribution to total change in acidifying pollutant emissions for each sector and pollutant (EEA32)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** 'Contribution to change' plots show the contribution to the total emission change between 1990-2002 made by a specified sector/ pollutant. The EEA32 country grouping includes EEA31 member countries + Croatia. Data not available for Malta.

Fig. 10: Contribution to total change in acidifying pollutant emissions for each sector and pollutant (EU15)

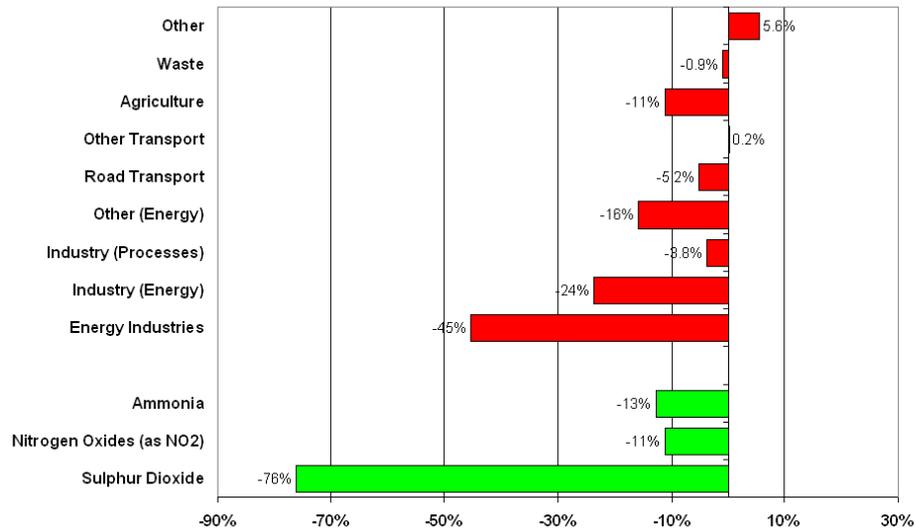


**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** 'Contribution to change' plots show the contribution to the total emission change between 1990-2002 made by a specified sector/ pollutant.



Fig. 11: Contribution to total change in acidifying pollutant emissions for each sector and pollutant (EU10)



**Data source:** Data from 2004 officially reported national total and sectoral emissions to UNECE/EMEP Convention on Long-Range Transboundary Atmospheric Pollution.

**Note:** 'Contribution to change' plots show the contribution to the total emission change between 1990-2002 made by a specified sector/ pollutant. Data not available for Malta.