

# Emission targets: Basic information on the Gothenburg protocol to Abate Acidification, Eutrophication and Ground-level Ozone

## Background

*Convention on Long-range Transboundary Air Pollution (CLRTAP)*

Since its adoption in 1979, the *Convention on Long-range Transboundary Air Pollution* (CLRTAP) has addressed some of the major environmental problems of the UNECE region (United Nations Economic Commission for Europe). This has been achieved through a process of scientific collaboration and policy negotiation. In this way, since its entry into force in 1983, the Convention has been extended by eight protocols which identify specific obligations or measures to be taken by Parties.

*Gothenburg protocol*

One of these was the Gothenburg protocol to *Abate Acidification, Eutrophication and Ground-level Ozone*.

*EU and the NEC directive*

In the EU, the Gothenburg protocol has been implemented through the National Emission Ceilings (NEC) directive (see the reference document "[National emission ceilings prescribed by the NEC directive](#)"). The NEC directive is more recent than the Gothenburg protocol and deviates slightly from it.

## Contents of the protocol

*Adopted November 1999*

The Executive Body adopted the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in Gothenburg (Sweden) on 30 November 1999.

*Four pollutants: sulphur, NOx, VOCs and ammonia*

The Protocol sets emission ceilings for 2010 for four pollutants: sulphur, NO<sub>x</sub>, VOCs and ammonia. These ceilings were negotiated on the basis of scientific assessments of pollution effects and abatement options. Parties whose emissions have a more severe environmental or health impact and whose emissions are relatively cheap to reduce will have to make the biggest cuts. Once the Protocol is fully implemented, Europe's sulphur emissions should be cut by at least 63%, its NO<sub>x</sub> emissions by 41%, its VOC emissions by 40% and its ammonia emissions by 17% compared to 1990.

The Protocol also sets tight limit values for specific emission sources (e.g. combustion plant, electricity production, dry cleaning, cars and lorries) and requires best available techniques to be used to keep emissions down. VOC emissions from such products as paints or aerosols will also have to be cut. Finally, farmers will have to take specific measures to control ammonia emissions.

*Guidance documents*

Guidance documents adopted together with the Protocol provide a wide range of abatement techniques and economic instruments for the reduction of emissions in the relevant sectors, including transport.

*Expected effect*

It has been estimated that once the Protocol is implemented, the area in Europe with excessive levels of acidification will shrink from 93 million hectares in 1990 to 15 million hectares. That with excessive levels of eutrophication will fall from 165 million hectares in 1990 to 108 million hectares. The number of days with excessive ozone levels will be halved. Consequently, it is estimated that life-years lost as a result of the chronic effects of ozone exposure will be about 2,300,000 lower in 2010 than in 1990, and there will be approximately 47,500 fewer premature deaths resulting from ozone and particulate matter in the air. The exposure of vegetation to excessive ozone levels will be 44% down on 1990.

## References

- Reference document: [Emission targets: Ratification of the Gothenburg protocol](#)
- Reference document: [Emission ceilings according to the Gothenburg protocol](#).
- Reference document: [Gothenburg protocol \(full text\)](#).
- Reference document: [National emission ceilings prescribed by the NEC directive](#).
- Home page of CLRTAP (UNECE):  
<http://www.unece.org/env/lrtap/welcome.html>
- Home page of the Gothenburg protocol:  
[http://www.unece.org/env/lrtap/multi\\_h1.htm](http://www.unece.org/env/lrtap/multi_h1.htm)