National Emission Ceilings (NEC) Directive

NEC Directive reporting status 2015

As of 2010, all European Union Member States are required to meet their emission ceilings set for main air pollutants in Directive 2001/81/EC. The briefing presents preliminary data reported for 2014 and final data for 2010-2013.

- In 2014, 10 Member States reported emission data under the NECD that were above the ceiling for at least one pollutant.
- Germany was the only Member State that exceeded three out of the four emission ceilings in 2014.
- Four Member States (Austria, Denmark, Ireland and Luxembourg) exceeded two ceilings in 2014.
- No Member State exceeded its SO_2 ceiling during the period 2010 to 2014.
- Since 2010, 10 Member States have persistently exceeded their respective emission ceilings for NOx (Austria, Belgium, France, Germany, Ireland and Luxembourg), NMVOCs (Denmark, Germany, Ireland and Luxembourg) and NH_3 (Austria, Denmark, Finland, the Netherlands, Germany and Spain).
- Under the Gothenburg Protocol of the LRTAP Convention, a process was established in 2012 that allows countries to 'adjust' their emission inventories for compliance purposes if certain conditions are met (see Box 1). Had these adjustments also been applied under the NECD, the number of exceeded ceilings would have been lower.

The need to reduce air pollution in Europe

Air pollution is the single largest environmental health risk in Europe. It leads to more than 400 000 premature deaths each year, shortening lifespans and contributing to serious illnesses such as heart disease, respiratory problems and cancer. It also causes soil and surface water acidification, harms crops and leads to grassland species loss due to eutrophication.[1]

Under the National Emission Ceilings Directive (NECD),[2] EU Member States have individual air pollutant emission limits, or 'ceilings', restricting emissions for four important air pollutants: nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOCs), sulphur dioxide (SO_2) and ammonia (NH_3). As of 2010, all Member States are required to meet their emission ceilings.

Air pollution

This briefing presents the latest preliminary emissions data reported by Member States for 2014 as well as 'final' data for the preceding years – 2010 to 2013. It also presents progress of the European Union (EU)[3] in meeting its aggregated ceilings as specified in the NECD.

A number of Member States exceeded their emissions ceilings for NO_x, NH_3 and NMVOCs during the period 2010 to 2014. While all EU Member States have reduced their emissions of air pollutants since 2010, ten countries still continued to exceed one or more of their national NECD ceilings in 2014. The EU-28 as a whole did not exceed its aggregated emission ceilings for any of the four air pollutants in 2014.

Comparison of Member State emissions with respective NECD ceilings

Table 1: EU Member State progress in meeting NECD emission ceilings

Member State	NO_x					NMVOCs					SO_2					NH_3				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Austria	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×
Belgium	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulgaria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Croatia					✓					✓					✓					✓
Cyprus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Czech Republic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Denmark	×	×	×	✓	✓	×	×	×	×	×	✓	✓	✓	✓	✓	×	×	×	×	×
Estonia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Finland	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×
France	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Germany	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	×	×	×	×	×
Greece	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hungary	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ireland	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Italy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Latvia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lithuania	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Luxembourg	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Malta	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Netherlands	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×
Poland	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Portugal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Romania	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Slovakia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Slovenia	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Spain	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×
Sweden	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
United Kingdom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	15	16	17	21	22	22	22	23	23	24	27	27	27	27	28	21	21	21	21	22
×	12	11	10	6	6	5	5	4	4	4	0	0	0	0	0	6	6	6	6	6

Notes: 'v' indicates that the emission ceiling has been attained; 'x' indicates that the ceiling has not been attained. 2010, 2011, 2012 and 2013: final data; 2014: provisional data.
In some cases, the ceiling could have been attained on the basis of adjusted emission inventories as approved under the Gothenburg Protocol of the LRTAP Convention (see Box 1).[4][5] In particular for 2013 and 2014, the number of exceedances above the 2010 NECD emission ceilings would become fewer.

Nitrogen oxides (NO_x)

Six Member States exceeded their NO_x emission ceilings in 2014. Austria and Luxembourg exceeded their NO_x ceilings the most, by 26 and 29 %, respectively. The largest emitters of NO_x in 2014 were Germany, the United Kingdom, and France. Between 2013 and 2014, 21 Member States reported emission reductions for NO_x. The total reduction for the EU-28 between 2013 and 2014 amounts to – 4.7 %.

Non-methane volatile organic compounds (NMVOCs)

In 2014, four Member States (Denmark, Germany, Ireland and Luxembourg) did not attain their ceilings. The highest exceedance in 2014, in percentage terms, was reported for Ireland (58 %). The largest emitters of NMVOCs were Germany, Italy and the United Kingdom. Between 2013 and 2014, 23 Member States reported emission reductions for NMVOCs. The total reduction for the EU-28 between 2013 and 2014 amounts to – 3.1 %.

Sulphur dioxide (SO_2)

All Member States complied with the emission ceilings for SO_2. The largest emitters of SO_2 were Poland, Germany and the United Kingdom. Between 2013 and 2014, 23 EU Member States reported emission reductions for SO_2. The total reduction for the EU-28 between 2013 and 2014 amounts to – 7.7 %.

Ammonia (NH_3)

Six Member States (Austria, Denmark, Finland, Germany, the Netherlands and Spain) exceeded their NH_3 ceilings in 2014. The highest exceedance, in percentage terms, was reported for Germany (35 %), the smallest for Austria (1 %). The largest emitters of NH_3 were Germany, France and Spain. Between 2013 and 2014, 11 EU Member States reported emission reductions for NH_3. There was an increase of 1.3 % for the EU-28 between 2013 and 2014.

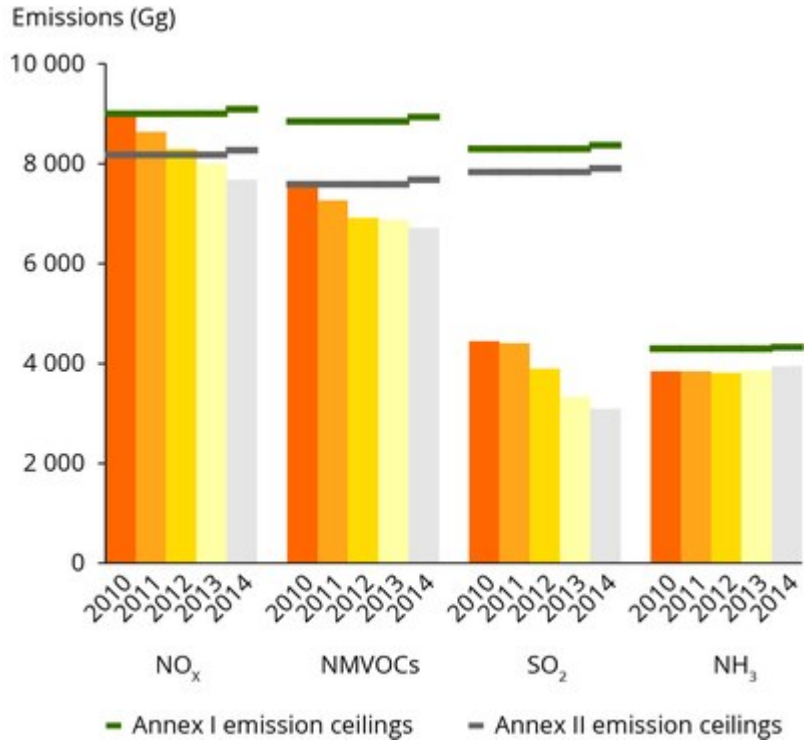
EU progress in meeting its emission ceilings

The EU itself has two different sets of emission ceilings for 2010 and onwards, as set out in the NECD. With respect to the aggregated emission ceilings set for SO_2, NO_x and NMVOCs and NH_3described in Annex I of the NECD, the final 2010-2013 and provisional 2014 emission data are lower than the respective 2010 ceilings (see Figure 1, table on Total emissions for compliance and interactive data viewer).

The stricter emission ceilings in Annex II of the NECD were designed to ensure that specific environmental objectives were met, such as targets limiting the acidification and eutrophication of

European ecosystems. Annex II of the 2001 NECD does not include a ceiling for NH_3 emissions. The aggregated NO_x emission data for the 28 Member States of the EU were above the Annex II limit for the 2010 to 2012 period. Similarly the aggregated NMVOCs emissions were above the Annex II ceiling for 2010. In 2014, the EU-28 as a whole achieved all its Annex I and II emission ceilings.

Figure 1: EU progress in meeting emission ceilings set out in NECD Annexes I and II



Notes: Croatia joined the EU in mid-2013, therefore for the period 2010 to 2013 emissions and ceilings are shown for the EU-27. For 2014, emissions and ceilings are given for the EU-28.

The aggregated EU emissions for mobile sources are calculated based on data on fuel sold for 22 Member States and data on fuel used for 6 Member States (Austria, Belgium, Ireland, Luxembourg, the Netherlands and the United Kingdom).

Reasons for exceedances of emissions ceilings

Emissions from road transport contribute approximately 40 % to the EU-28 emissions total. They are one of the main reasons for the large number of NO_x exceedances since 2010. NO_x reductions from this sector have been lower than originally anticipated over the last two decades, partly because transport has grown more than expected, and partly owing to the larger than expected growth in diesel vehicles producing higher NO_x emissions than petrol-fuelled vehicles. Furthermore, it is widely accepted that 'real-world emissions', particularly from diesel passenger cars and vans, generally exceed the permitted European emission (Euro) standards which define the acceptable limits for exhaust emissions of new vehicles sold in the EU Member States.

Six Member States continue to exceed their respective NH_3 ceilings. About 94 % of NH_3 emissions stem from agriculture, mainly from the handling of animal manure and the use of fertilisers. NH_3 emissions have decreased since 1990, but not to anywhere near the same extent as the other pollutants covered by the NEC Directive. A number of technical measures exist to reduce NH_3 emissions. A main reason in countries with high or even rising NH_3 emissions is an increasing number of pig or poultry facilities, without implementing measures and/or technologies to limit emissions.

Box 1: Adjustments to emission inventories under the Gothenburg Protocol of the LRTAP Convention

In 2012, the Executive Body of the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP)[6] decided that countries improving their emission inventories by incorporating previously unknown emission sources or increased emission factors should not be penalised when compliance was subsequently judged against fixed national ceilings. An 'adjustments' procedure was subsequently agreed under the Convention, allowing changes to emission reduction commitments, or to inventories, for the purpose of comparing total national emissions with them.

The 'adjustments' process encourages Parties to incorporate the latest science in their national emission inventories, and to incorporate scientific updates included in the latest versions of the EMEP/EEA air pollutant emission inventory guidebook.[7] Some countries have subsequently updated their emission inventories by applying new approaches recommended in the latest guidebook version. This has led, in some instances, to higher national emission totals. However, not all countries have yet included, for example, information on new emissions sources, meaning that the reporting from these countries is considered incomplete.

In 2014 and 2015, adjustment applications by Belgium, Denmark, Finland, France, Germany, Luxembourg and Spain were approved under the Gothenburg Protocol, addressing NOx, NMVOCs and NH_3. Countries that have signed, but not ratified the protocol, for example Austria and Ireland, cannot apply for adjustments.[5] Had adjusted emissions also been applied under the NECD, the following Member States would not have exceeded their ceilings: Belgium NOx, 2010-2014 and NMVOCs, 2010; Denmark, NMVOCs, 2011-2014 and NH_3, 2012-2014; France, NOx, 2014; Germany, NOx, 2014 and NMVOCs, 2010-2014; Luxembourg, NOx, 2013-2014.

More information

Access the complete data set reported by Member States in an interactive data viewer.

References and footnotes

[1] EEA (2015), Air quality in Europe — 2015 report, EEA Report No 5/2015, European Environment Agency.

[2] EU (2001), Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants.

[3] Croatia joined the EU in mid-2013, therefore for the years 2010-2013 emissions and ceilings are shown for the EU-27, and for 2014 emissions and ceilings are given for the EU-28.

[4] EEA (2015), European Union emission inventory report 1990–2013 under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP), EEA Technical Report No 8/2015.

[5] EEA (2016), European Union emission inventory report 1990–2014 under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP), EEA Technical Report, to be published in June 2016.

[6] UN ECE (2016), The Air Convention

[7] EMEP/EEA (2013), EMEP/EEA air pollutant emission inventory guidebook — 2013, EEA Technical Report No 12/2013, European Environment Agency.

Identifiers

Title: Annual NEC Directive status report 2015 (Briefing 1/2016)

Epub	TH-AM-16-001-EN-E	ISBN 978-92-9213-812-7	ISSN 2467-3196	doi: 10.2800/595827
PDF	TH-AM-16-001-EN-N	ISBN 978-92-9213-811-0	ISSN 2467-3196	doi: 10.2800/307737
HTML	TH-AM-16-001-EN-Q		ISSN 2467-3196	doi: 10.2800/767419

Published on 10 Jun 2016