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NEC Directive status report 2008

Reporting by the Member States under Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants

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European Environment Agency

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Acknowledgements

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Executive summary

This report presents the most recent information provided under the National Emission Ceilings Directive (NECD) ([1]). The directive requires all 27 Member States of the European Union to report information annually concerning emissions and projections for four main air pollutants: sulphur dioxide (SO_2), nitrogen oxides (NO_X), non-methane volatile organic compounds (NMVOCs), and ammonia (NH_3). These pollutants harm both human health and the environment by contributing to formation of ozone and particulate matter and by causing acidification and eutrophication. To help protect human health and the environment, NECD sets pollutant-specific and legally binding emission ceilings for each of these pollutants and for each country, which must be met by 2010.

A new annex accompanying this year's report contains country-specific profiles, which provide a more detailed comparison of the data reported. The country profiles present parameters such as emissions per GDP, emissions per capita, and current and projected progress towards the ceiling for each pollutant.

Comparison of projected emissions with the NECD emission ceilings for 2010

For the first time since reporting began under the NECD, all Member States submitted at least some of the emissions and projections data required by the directive in the latest (2008) reporting round ([2]). Fourteen Member States anticipate they will meet all four of the pollutant-specific emission ceilings specified in the NECD with the remaining 13 Member States indicating they will miss at least one of their respective ceilings (Table ES.1). In the previous reporting round (2007), only 11 Member States reported that they anticipated meeting their emission ceilings. Following a revision of their projected emissions during the course of 2008, Denmark, Hungary and Italy now also anticipate meeting their emission ceilings for all four pollutants.

As noted in last year's NECD Status report ([3]), for many Member States the 2010 emission ceiling for NO_X remains the most challenging. Twelve Member States now report that they anticipate missing it, based on the reported 'with measures' projections. Four Member States (France, Poland ([4]), Portugal and Spain) indicate they will miss their NMVOC ceiling; two Member States (Germany and Spain) expect to miss their NH_3 ceiling, and one Member State (the Netherlands) anticipates missing its SO_2 ceiling. France and the Netherlands have however both indicated that by implementing additional measures to further reduce NMVOC and SO_2 emissions they could still achieve their respective 2010 emissions ceilings for these pollutants.

By 2010 a number of Member States will have successfully reduced emissions of certain pollutants significantly below the levels required by the NECD ceilings i.e. they will have reduced emissions beyond their original commitments for these pollutants. Several Member States have also indicated that their emission projections for 2010 will be recalculated to take into account the effect of the economic contraction in Europe that has occurred since their projections were originally estimated. The effects of the economic contraction are expected to cause lower 2010 emissions across the EU than otherwise would have occurred.

It is noted however, that a large number of Member States (Bulgaria, Denmark, Finland, Germany, Greece, Ireland, Italy, Lithuania, Malta, Luxembourg, Portugal, Romania and the United Kingdom) have reported 'with measures' (WM) projections that are either identical, or very close to, their respective emission ceilings for at least one of the four NECD pollutants. Therefore, even small

([1]) Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants OJ L 309, 27.11.2001, p. 22, as amended.
([2]) Twenty of the 27 EU Member States reported their national inventories of SO_2, NO_X, NMVOC and NH_3 by the required date of 31 December 2008, while the remaining Member States reported data after this deadline. Eight Member States subsequently provided additional or revised data between 1 January and 5 May 2009.
([3]) *NEC Directive status report 2007* (EEA, 2008).
([4]) In its 2010 NMVOC projection, Poland has included emissions from natural sources. Discounting these emissions, Poland presently anticipates meeting its 2010 ceiling.

increases in the level of emissions above their WM projections would lead to these Member States also exceeding their ceilings for these pollutants.

For a small number of the listed Member States, the reported 2007 emissions are already below their respective ceilings and so for these countries meeting their 2010 targets does seem feasible. For the remainder, however, the reported data imply that they plan often significant emissions reductions in percentage terms between 2007 and 2010 in order to comply with the ceilings.

Particularly for SO_2, comparing the emissions reported for 2007 with projections for 2010 shows that several countries report WM projections that imply large SO_2 emission reductions between 2007–2010. The greatest decrease is projected by Spain (64 %), followed by Bulgaria (56 %), Malta (52 %), Ireland (45 %), Belgium (29 %), Portugal (28 %) and the United Kingdom (23 %). From the limited information provided by Member States under the NECD, it is not at all clear whether such significant reductions by 2010 will be feasible. It is quite possible therefore that a larger number of Member States will in fact miss their 2010 ceilings than is apparent from the reported data summarised in Table ES.1. Balancing this however will be the effects on future emissions arising from the economic recession which, as noted earlier, are expected to lead to lower emission levels in Europe than otherwise would have occurred. The exact number of Member States that will miss their emission ceilings is therefore presently difficult to estimate with certainty.

At the aggregated European Community level, Member States' WM projections imply that for some pollutants the EU-27 emission ceilings defined in Annex I and II of the NECD ([5]) will be exceeded for some pollutants. Only for SO_2 and NH_3 is the EU-27 likely to meet both the aggregated ceilings set in Annex I and II (Figure ES.1).

Specifically for the four NECD pollutants:

- projected EU-27 NO_X emissions ([6]) are 6 % above the aggregate emission ceiling given in Annex I (calculated on the basis of the individual Member State ceilings defined in the NECD), and 16 % above the stricter Annex II ceiling of the NECD for the EU-27 as a whole;
- NMVOC projections for the EU-27 are 10 % below the aggregated emission ceiling given in Annex I for 2010, but still 5 % above the Annex II ceiling;
- the EU-27 is projected to be 31 % below the Annex I SO_2 ceiling and 27 % below the Annex II SO_2 ceiling;
- the NH_3 WM projections are 7 % below the EU-27 Annex I emission ceiling. There is no separate ceiling for NH_3 defined in Annex II of the NECD.

Past emission trends

Under NECD, Member States must formally submit only two years of emissions data ([7]). This prevents any robust assessment of long-term emission trends (either within individual Member States or for the EU-27 as a whole) on the basis of data submitted under NECD. Nevertheless, several Member States do submit revised emissions data for the years back to 1990. The available data show quite clearly that there has been a decrease in emissions of the four NECD pollutants in the majority of Member States. Several have already succeeded in reducing emissions to meet the requirements of NECD or are projected to do so before 2010, as noted earlier. A more complete picture of past emission trends in the European Community is provided by the European Community's emissions inventory submission to the United Nations Economic

([5]) Annexes I and II of the NECD define aggregated emission ceilings for the EU-27. The Annex I EU-27 ceilings represent the aggregation of individual Member State ceilings defined in that Annex. The Annex II EU-27 ceilings are stricter than those of Annex I and are designed with the aim of attaining by 2010, for the European Community as a whole, the interim environmental objectives set out in Article 5 of the NECD (i.e. a reduction of acidification, health- and vegetation-related ground-level ozone exposure by 2010 compared with the 1990 situation). There is no separate ceiling for NH_3 defined in Annex II of the NECD.

([6]) EU-27 WM projections are based on the aggregated WM projections data reported by individual Member States (without data from Luxembourg).

([7]) By 31 December each year, Member States shall report to the European Commission and the EEA their national emission inventories; final emissions data should be submitted for the previous year but one, and provisional emissions data for the previous year.

Commission for Europe (UNECE) pursuant to its Long-Range Transboundary Air Pollution (LRTAP) Convention ([8]).

Transparency

Providing inventory reports or explanatory information is not mandatory under NECD, meaning that the transparency of submitted data is rather limited. Six Member States submitted

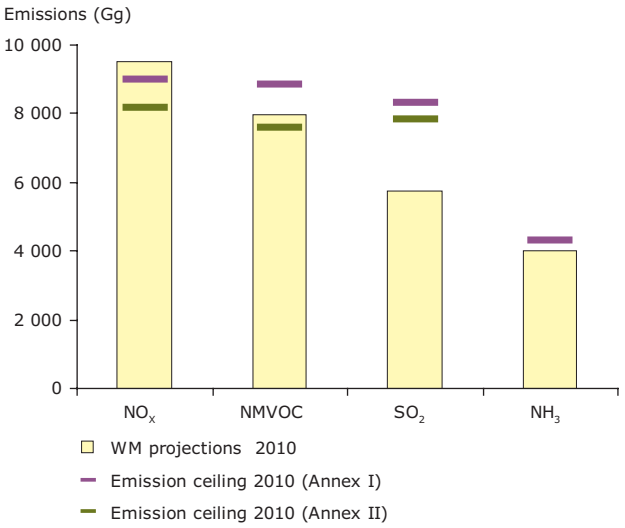
Table ES.1 Overview of 'with measures' (WM) projections as reported by the Member States

Member State	NO_x	NMVOCs	SO_2	NH_3
Austria	×	√	√	√
Belgium	×	√	√	√
Bulgaria	√	√	√	√
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	23	26	25
×	12	4	1	2

Note: '√' indicates that a Member State anticipates meeting or surpassing its respective emission ceiling on the basis of currently implemented and adopted policies and measures.
'X' indicates that a ceiling will not be met without implementing additional measures to reduce emissions.
France did not submit projections in the 2008 reporting round. Data used in this report were therefore taken from the 2007 submission.
In its 2010 NMVOC projection, Poland has included emissions from natural sources. Discounting these emissions, Poland presently anticipates meeting its 2010 ceiling.

([8]) *European Community emission inventory report 1990–2007 under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP)* (EEA, 2009).

Table ES.1 Comparison of aggregated EU-27 WM emissions projections and ceilings in 2010



Note: EU-27 WM projections are aggregates of the projections reported by individual Member States (excluding data from Luxembourg which were not reported). The emission ceilings shown are the aggregated EU-27 emission ceilings defined in Annex I and Annex II of the NECD. Annex II of the NECD does not define a ceiling for NH_3.

an inventory report together with their NECD inventories ([9]). Additionally, some Member States provided limited explanatory information in the form of letters or Excel spreadsheets accompanying their submissions. Only a few Member States reported key socio-economic assumptions used in preparing their projections, despite this being a formal NECD requirement.

Emissions per capita and emissions per GDP

The environmental pressure of economic activity can be assessed using different indicators. The indicators used in this report and in the annexed country-specific profiles are emissions per GDP and emissions per capita. Emissions per GDP of all four pollutants decreased between 2000 and 2007 in all the Member States that had data for both years (the only exception being Malta where NO_X emissions per GDP increased by approximately one per cent).

In 2007, the average EU-27 citizen emitted 22 kg of NO_X, 18 kg of NMVOC, 15 kg of SO_2 and 8 kg of NH_3. Trends of per capita emissions do not necessarily follow exactly the same trends as emissions per GDP. Particularly in Greece and in a number of new Member States, per capita emissions increased between 2000 and 2007 for at least one pollutant. More detailed information is provided in the body of this report and in the annexed country profiles.

([9]) Nineteen Member States submitted Informative Inventory Reports (IIRs) under the LRTAP Convention.

1 Introduction

'The aim [of the National Emission Ceilings Directive] is to limit emissions of acidifying and eutrophying pollutants and ozone precursors in order to improve the protection in the Community of the environment and human health ... by establishing national emission ceilings…'

The National Emission Ceilings Directive (NECD) ([10]) highlights the importance of reporting air pollutant emissions data for assessing progress in reducing air pollution in the European Community region and for ascertaining the compliance of the Member States with their commitments. This report provides an overview of the NECD data submitted by Member States from December 2007, and a summary of emissions trends. It also presents projections of sulphur dioxide (SO_2), nitrogen oxides (NO_X), non-methane volatile organic compounds (NMVOCs) ([11]), and ammonia (NH_3) emissions for the year 2010, based on the data reported by Member States. The report was prepared on behalf of the European Environment Agency (EEA) by its European Topic Centre on Air and Climate Change (ETC/ACC).

By providing summary information on the status of national reporting, this report helps EEA and the European Commission to communicate with Member States. The information presented is useful for the European Commission and EEA when they seek to improve further reporting under the NECD of air emissions data and other related information.

Throughout this report, the term 'European Union' refers to the 27 Member States as of 31 December 2008: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

1.1 Reporting obligations under the NECD

Articles 2, 6, 7 and 8 of the National Emission Ceilings Directive (NECD) set forth the requirements for the EU-27 Member States concerning their national inventories, projections and programmes. As specified in the directive, Member States shall prepare and annually update national total emissions and emission projections for 2010 for the pollutants SO_2, NO_X, NMVOC, and NH_3. In addition, by 31 December each year, the Member States shall report to the European Commission and EEA their national emission inventories and emission projections for the year 2010; final emissions data should be submitted for the previous year but one, and provisional emissions data for the previous year. Anticipated significant changes in the geographical distribution of national emissions shall also be indicated.

Member States were obliged to report their updated national programmes for progressive reduction of national emissions of SO_2, NO_X, NMVOC and NH_3 to the European Commission by 2006. The reported national programmes should have included information on policies, adopted and envisaged, and quantified estimates of the effect of these policies and measures on emissions of those pollutants in 2010. A detailed evaluation of the reported NECD programmes was performed in 2007 for the European Commission. It analysed projections and programmes submitted by the Member States and the measures they planned to implement (AEA Technology, 2007).

To help ensure that information on emissions reported by Member States is consistent and harmonised, NECD further states that the Member States shall establish emission inventories using the methodologies agreed upon by the Convention on

([10]) Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants OJ L309, 27.11.2001, p. 22; as amended by Council Directive 2006/105/EC of 20 November 2006, OJ L363, 20.12.2006, p. 368; the Act concerning the conditions of accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic, and the adjustments to the Treaties on which the European Union is founded, OJ L236 23.9.2003 p. 33. A consolidated version of the NEC Directive is available at: http://ec.europa.eu/environment/air/pdf/nec_eu_27.pdf [Accessed 6 July 2009].

([11]) The NEC Directive defines VOCs as being non-methane volatile organic compounds (NMVOC).

Long-range Transboundary Air Pollution (LRTAP Convention). It also requests (Annex III, NECD) that in preparing these inventories and projections, Member States should use the latest version of the EMEP/CORINAIR Emission Inventory Guidebook (i.e. EMEP/EEA, 2007).

It is considered good practice that in preparing emission inventories and projections under NECD Member States should apply the principles outlined in the UNECE Guidelines for Estimating and Reporting Emission Data under the Convention on Long-range Transboundary Air Pollution (UNECE, 2003). The historic and projected emissions data presented must be 'transparent, consistent, comparable, complete and accurate'.

The EMEP/CORINAIR Guidebook provides comprehensive guidance for the estimation of emissions from all relevant source sectors. It also allows the Member States to use national or international methodologies to estimate emissions and projections other than those recommended in the Guidebook, as long as such methods are considered to be more representative of the national situation and are compatible with the Guidebook. When using alternative methods, it is important that a description of the chosen alternative method is provided. To comply with the requirement for consistency in inventories, any time-series data provided pursuant to the NECD should be calculated in a consistent manner. Where methods are revised, these amended methods should be applied to the other years of the inventory and new estimates for these years should be compiled and reported.

1.1.1 Scope

The NECD covers emissions from all sources of NO_X, NMVOCs, SO_2 and NH_3, which arise as a result of human activities within the territory of the Member States and their exclusive economic zones, except:

(a) emissions from international maritime traffic;
(b) aircraft emissions beyond the landing and take-off cycle;
(c) for Spain, emissions in the Canary Islands;
(d) for France, emissions in the overseas departments;
(e) for Portugal, emissions in Madeira and the Azores.

1.1.2 Accessibility of information

As specified in Article 7 of NECD, the European Commission, assisted by EEA, shall, in cooperation with the Member States and on the basis of the information provided by them, establish inventories and projections for the relevant pollutants. The inventories and projections shall be made publicly available ([12]).

1.1.3 Emission ceilings

By 2010 at the latest, Member States shall limit their annual emissions of SO_2, NO_X, NMVOC and NH_3 to the ceilings defined in the directive. In this report, emissions by Member States in 2007 and their projections for 2010 are compared with the emission ceilings defined in Annex I of NECD. Emission ceilings for the EU-27 Member States and as a whole (as defined in Annexes I and II of the NECD) are shown in Tables 1.1 and 1.2.

The emission ceilings (Table 1.2) given in Annex II of NECD are designed with the aim of attaining the European Community's interim environmental objectives set out in Article 5 of NECD by 2010. Meeting those objectives is expected to result in reduced acidification, health- and vegetation-related ground-level ozone exposure by 2010 compared with the 1990 situation. The Annex II emission ceilings for the European Community are stricter than the aggregated Member State emission ceilings given in Annex I of the NECD. There is no ceiling for NH_3 in Annex II of NECD.

([12]) Data submitted by Member States under NECD is available through the EEA data service: http://dataservice.eea.europa.eu/dataservice [Accessed 6 July 2009].

Table 1.1 National 2010 emission ceilings for SO_2, NO_x, NMVOC and NH_3, as defined in Annex I of NECD

Member State	NO_x (kt)	NMVOC (kt)	SO_2 (kt)	NH_3 (kt)
Austria	103	159	39	66
Belgium	176	139	99	74
Bulgaria	247	175	836	108
Cyprus	23	14	39	9
Czech Republic	286	220	265	80
Denmark	127	85	55	69
Estonia	60	49	100	29
Finland	170	130	110	31
France	810	1 050	375	780
Germany	1 051	995	520	550
Greece	344	261	523	73
Hungary ([a])	198	137	500	90
Ireland	65	55	42	116
Italy	990	1 159	475	419
Latvia	61	136	101	44
Lithuania	110	92	145	84
Luxembourg	11	9	4	7
Malta	8	12	9	3
Netherlands	260	185	50	128
Poland	879	800	1 397	468
Portugal	250	180	160	90
Romania	437	523	918	210
Slovakia	130	140	110	39
Slovenia	45	40	27	20
Spain	847	662	746	353
Sweden	148	241	67	57
United Kingdom	1 167	1 200	585	297
EU-27	**9 003**	**8 848**	**8 297**	**4 294**

Note: ([a]) These emission ceilings are temporary and without prejudice to the review of the NEC Directive according to Article 10.

Table 1.2 European Community 2010 emission ceilings for SO_2, NO_x, and NMVOC, as defined in Annex II of NECD

	NO_x (kt)	NMVOC (kt)	SO_2 (kt)
EC-27	8 180	7 585	7 832

1.2 Preparation of NECD inventories in the European Community

1.2.1 Institutional arrangements and dataflow

Preparation of the aggregated European Community NECD inventory involves several stages: the Member States provide data; the European Commission and EEA receive the data; and EEA (via its ETC/ACC) compiles the data and preparing the inventory data and inventory report. EEA and the European Commission also communicate with the Member States and disseminate the results.

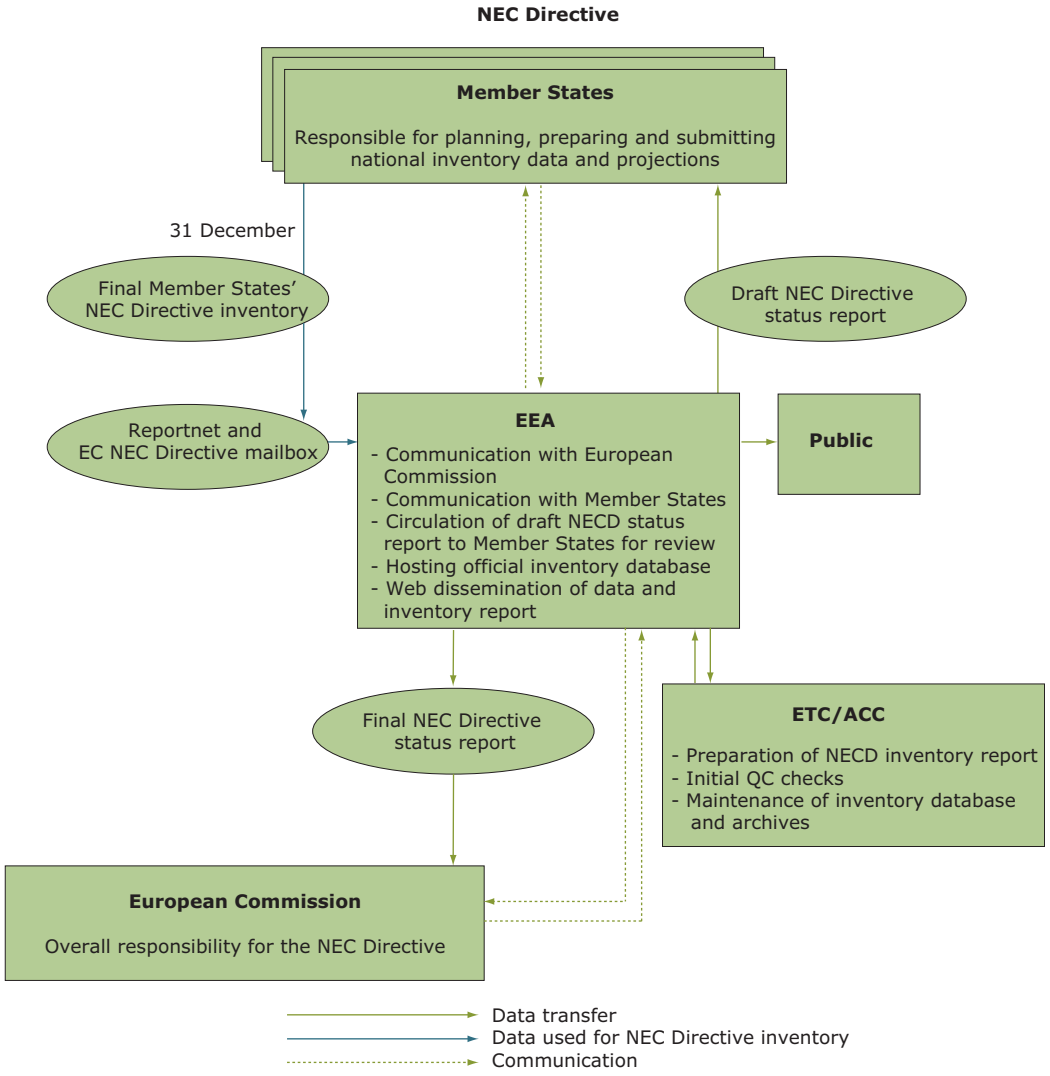
For reporting purposes, EU Member States are requested to make use of the EEA Eionet ReportNet tools. Within the Eionet priority dataflow agreement, EEA requests its members to supply a copy of their report on NECD emissions, projections and programmes, as reported to the European Commission. The European Commission encourages EU acceding and candidate countries to provide data on a voluntary basis.

A flowchart diagram illustrating the dataflow necessary to compile the European Community's NECD emission inventory is presented in Figure 1.1.

1.2.2 Inventory QA/QC activities

To ensure the data quality and to verify and validate their emissions data, the Member States are encouraged to use appropriate quality assurance/quality control (QA/QC) procedures. These procedures should be consistent with those described in the EMEP/CORINAIR Guidebook.

Figure 1.1 Dataflow for the compilation of the EU NECD emission inventory



There is no formal QA/QC plan in place for the European Community's NECD inventory. The main activities enhancing the quality of the inventory are the checks performed by the EEA's ETC/ACC on the status of each submission. More detailed quality assurance activities are performed by ETC/ACC and the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) in the process of annual reviews of emissions inventories. The review process includes checks on timeliness, consistency, accuracy, completeness and comparability. A summary of the review findings is published annually by the EMEP Centre for Emission Inventories and Projections (CEIP) and EEA (e.g. CEIP/EEA, 2009).

All NECD inventory documents (submissions, inventory master file, inventory report, status reports and related correspondence) are archived electronically at ETC/ACC.

1.2.3 Differences between NECD, LRTAP Convention and UNFCCC inventory reporting

In addition to reporting emissions data under NECD, Member States are also required to report emissions of certain pollutants under two other international reporting obligations: the UNECE LRTAP Convention, and the EU Monitoring Mechanism ([13]) and its implementing provisions ([14]). Table 1.3 provides an overview of Member States' air pollution reporting obligations.

These three reporting obligations differ mainly in the number and type of air pollutants for which reporting is required, the geographical coverage of countries (e.g. the inclusion or not of overseas dependencies and territories of France, Spain, Portugal or UK), and the inclusion of domestic and international aviation and navigation in the national total. The LRTAP Convention and UNFCCC inventories differ only in the pollutants included and slightly in the sector split. The major differences are summarised in Table 1.4.

Table 1.3 Overview of air emission reporting obligations in the European Community

Legal obligation	Emission reporting requirements	Annual reporting deadline for EU Member States	Annual reporting deadline for the European Community
LRTAP Convention	Emissions ([a]) of SO_X (as SO_2), NO_X (as NO_2), NH_3, NMVOCs, CO, HMs, POPs and PM	15 February	
NEC Directive	Emissions of SO_2, NO_X, NMVOCs and NH_3	31 December	–
EU Monitoring Mechanism/ UNFCCC	Emissions ([b]) of CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NO_X, CO, NMVOCs and SO_2	15 January (to the European Commission) 15 April (to the UNFCCC)	

Note: ([a]) Parties are formally required to report only on the substances and for the years set forth in protocols that they have ratified and that have entered into force.
([b]) The greenhouse gases listed include methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF_6).

([13]) Decision 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, OJ L 49, 19.2.2004, p. 1.
([14]) Commission Decision of 10 February 2005 laying down rules implementing Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, OJ L 55, 1.3.2005, p. 57.

Table 1.4 Major differences between the reporting obligations of the LRTAP Convention, NECD and Council Decision 280/2004/EC

	EU NECD	LRTAP Convention — NFR ([a])	EU-MM/UNFCCC — CRF ([b])
Air pollutants	NO_X, SO_2, NMVOCs, NH_3	NO_X, SO_X, CO, NMVOCs, NH_3, HMs, POPs, PM	NO_X, SO_2, NMVOCs, CO
Domestic aviation (landing and take-off)	Included in national total	Included in national total	Included in national total
Domestic aviation (cruise)	Not included in national total ([c])	Not included in national total ([c])	
International aviation (landing and take-off)	Included in national total	Included in national total	Not included in national total ([c])
International aviation (cruise)	Not included in national total ([c])	Not included in national total ([c])	Not included in national total ([c])
National navigation (domestic shipping)	Included in national total	Included in national total	Included in national total
International inland shipping	Included in national total	Included in national total	Not included in national total ([c])
International maritime	Not included in national total ([c])	Not included in national total ([c])	Not included in national total ([c])
Road transport	Emissions calculated based on fuel sold	Emissions calculated based on fuel sold ([d])	Emissions calculated based on fuel sold

Note: ([a]) 'NFR' denotes 'nomenclature for reporting', a sectoral classification system developed by UNECE/EMEP for reporting air emissions.
([b]) 'CRF' is the sectoral classification system developed by UNFCCC for reporting greenhouse gases.
([c]) Categories not included in national totals should still be reported by Parties as so-called 'memo items'.
([d]) In addition, Parties may report emission estimates on a fuel consumed basis as a 'memo' item.

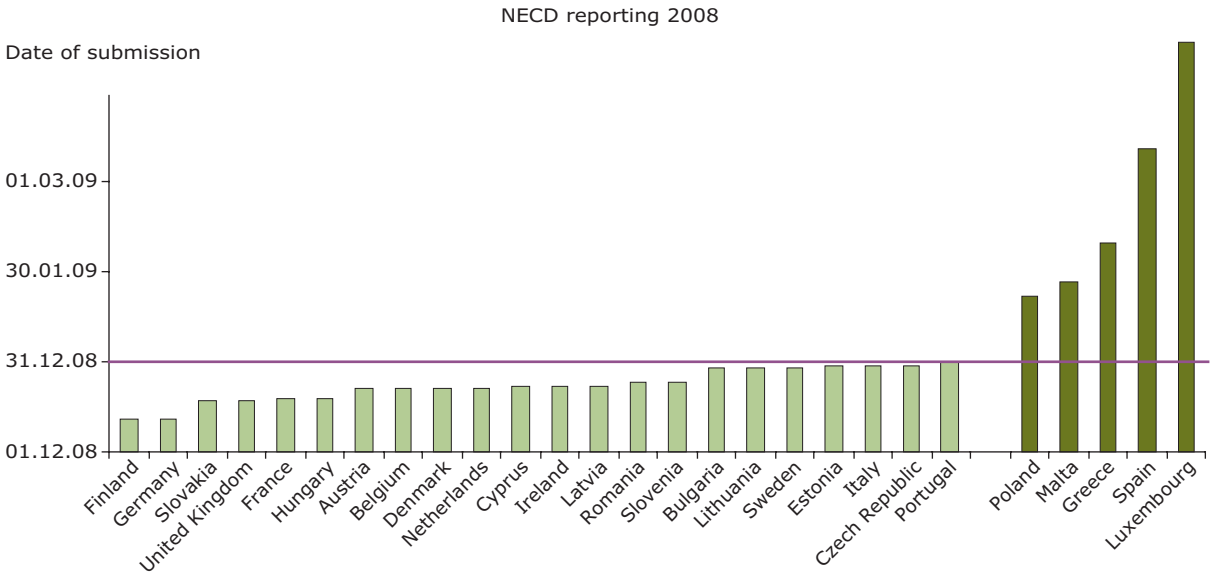
2 Status of reporting

Information in this chapter is based on submissions from Member States delivered to EEA via the Eionet ReportNet Central Data Repository (CDR), submissions delivered directly to the Commission and explanatory information provided by Member States directly to ETC/ACC. Trend tables include information on emissions submitted by Member States under NECD in previous reporting cycles (see Table A1.1 in Appendix 1).

2.1 Timeliness

Pursuant to Article 8 of NECD, by 31 December each year Member States are required to report their emission inventories for the previous year but one, along with preliminary emission inventories for the previous year. Emission projections for 2010 should also be submitted by the same date. In the 2008 reporting round, 22 of the 27 Member States submitted their national inventories of SO_2, NO_X, NMVOC and NH_3 to the Commission on or before the reporting deadline of 31 December 2008. Greece, Malta and Poland delivered their inventories between 1 January and 28 February 2009, Spain submitted its on 12 March 2009 and Luxembourg submitted its by 17 April 2009 (see Figure 2.1 and Table A2.1 in Appendix 2). Eight Member States provided additional or revised data between 1 January and 5 May 2009. In the previous year, 18 Member States reported by the required deadline, and eight reported at least some data by May 2008. Timeliness and completeness of reporting thus improved compared to the previous reporting round.

Figure 2.1 Status of reporting — date of first NECD inventory submission to the Central Data Repository or European Commission



2.2 Completeness

In the 2008 reporting cycle ([15]), all 27 Member States provided the mandatory information on final emissions for the year 2006 and preliminary emission data for 2007. The 2010 projections were not submitted by France. Austria, Bulgaria, Czech Republic, Estonia, Finland, Lithuania, Malta, Portugal and Romania did not revise their reported projections in 2008. The projections documented in this report for these Member States are therefore the same as those documented in the previous year's NEC status report (EEA, 2008).

As no agreed gap-filling procedures are in place with respect to the NECD reporting, compilation of a complete EU-27 trends is not possible for as long as any number of countries have not reported their complete emission inventories (Appendix 2, Table A2.1). It must be noted, however, that this compilation is required in order to allow comparison with the EU-27 ceilings as defined in Annex I and II of the NECD.

2.3 Consistency and comparability

NECD does not require that emissions data should be provided using a standard format. However, the European Commission and EEA encourage Member States to use the standardised NFR templates as defined in the EMEP Guidelines (UNECE, 2003) when estimating and reporting emissions. Twenty Member States submitted inventories in a comparable format using a standard spreadsheet template (NFR02, NFR08 or flat files). The remaining seven Member States (compared to 18 Member States in 2007) submitted data using a mixture of formats.

The consistency of reporting significantly improved but several countries still delivered data in non-standard formats (e.g. modified spreadsheet files or PDF files).When information is provided in a non-standard or fragmentary format, it significantly complicates the processing and analysis of the data. More detailed information about the quality of the 2008 NECD submissions (for example in terms of its internal consistency and completeness) will be provided in the joint EEA and EMEP/CEIP Inventory Review 2009 report, which is in preparation.

2.4 Transparency of submitted information

Providing inventory reports or explanatory information is not mandatory under the NEC Directive, meaning that the transparency of submitted information is rather limited. Only six Member States (Austria, Finland, Poland, Romania, Sweden and Slovakia) submitted an Inventory Report together with their inventories ([16]). Finland, the Netherlands and Spain provided limited explanatory information in the form of accompanying letters or Excel spreadsheets. Similarly just a few Member States (Finland, Latvia, Portugal and United Kingdom) reported the key socio-economic assumptions used in preparing their projections, despite this being a formal requirement of NECD. Sweden referred to the socio-economic assumptions reported under the EU-MM.

([15]) The reporting deadline for the 2008 reporting cycle was 31 December 2008.
([16]) Nineteen Member States submitted Informative Inventory Reports (IIRs) under the LRTAP Convention.

3 Member State emission trends and projections

3.1 Introduction

3.1.1 Emissions and projections

This chapter presents emission and projection trends of NO_X, NMVOC, SO_2, and NH_3, as reported by the Member States under the NECD. Totals for the EU-27 are available only for some years because ***NECD does not require that Member States annually report a complete time series of emissions from 1990 onwards*** and complete time-series data are thus not available for all Member States.

Table A1.1 in Appendix 1 provides an overview of the data available from the current and previous NECD reporting rounds used in the trend tables (i.e. Tables 3.3, 3.4, 3.5 and 3.6). No additional information has been used to fill any of the gaps in the NECD data received from the Member States (e.g. data reported to other bodies including the LRTAP Convention or the EU Greenhouse Gas Monitoring Mechanism/UNFCCC).

With respect to Member State projections, there are three basic different types of projections commonly provided (AEA Technology, 2007). These comprise 'without measures' (WOM) projections, which some reports call 'business as usual' (BAU) projections; 'with measures' (WM) projections; and 'with additional measures' (WAM) projections.

Box 3.1 sets out a definition for each of these projection types, in accordance with the Cleaner Air for Europe (CAFE) Working Group on Implementation (WGI) reporting guidelines (CAFE, 2006). Member States providing projections in older versions of the EMEP NFR file template refer to current legislation scenarios (CLS) and current reduction plans (CRP). In these instances CLS has been taken to correspond to WM projections and CRP to WAM projections. The NECD itself makes reference to policies 'adopted and envisaged'. However Annex III of the NECD also points to the methodologies of the LRTAP Convention under which the terms CLS and CRP are used.

In providing detailed information on adopted and envisaged policies and measures under NECD, Member States have previously demonstrated a certain ambiguity in using these terms. For example, some Member States use 'business as usual' (BAU) ([17]) to mean 'without measures', whereas other Member States used the term to mean 'with measures' (AEA Technology, 2007).

Data on 2010 WM projections are available from all 27 Member States (Table 3.1). Appendix 1 (Table A1.2) provides an overview of the sources of national projections data used in this report.

The aggregated WM projections reported by Member States were compared (Table 3.2 and Figure 3.1) with the EU-27 emission ceilings specified in Annex I of NECD (Table 1.1). This analysis shows that with current measures in place, emissions in the EU-27 are anticipated to be greater than the aggregated 2010 ceiling for NO_X but lower than the ceilings for the remaining pollutants (SO_2, NMVOC and NH_3). In contrast, of the three more strict Annex II emission ceilings (Table 1.2) which are designed with the aim of broadly meeting the interim environmental objectives as set out in Article 5 of the NECD, only the ceiling for SO_2 will be met, while those for NO_X or NMVOC are projected to be missed.

Box 3.1 Projection scenarios as defined in the CAFE WGI reporting guidelines

A **business as usual** (or **without measures**) projection should exclude all policies and measures implemented, adopted or planned after the year chosen as the starting year for the projection.

A **with measures** projection is taking into account all currently implemented and adopted policies and measures.

A **with additional measures** projection is taking into account all currently implemented and adopted plus all planned policies and measures.

([17]) Henceforth, the term 'business as usual' (BAU) is not further used in this report due to the ambiguity concerning its definition. It is replaced with WOM.

Table 3.1 Overview of Member State emission projections submitted under NECD (as of 5 May 2009) and emission ceilings for 2010

Member State	NO_x projections (Gg)		NO_x	NMVOC projections (Gg)		NMVOC	SO_2 projections (Gg)		SO_2	NH_3 projections (Gg)		NH_3
	WM	WAM	Ceilings	WM	WAM	Ceilings	WM	WAM	Ceilings	WM	WAM	Ceilings
Austria	154	NE	103	140	NE	159	26	NE	39	62	NE	66
Belgium	253	NE	176	134	NE	139	90	NE	99	69	NE	74
Bulgaria	247	247	247	175	175	175	380	380	836	108	108	108
Cyprus	19	NE	23	8	NE	14	27	NE	39	6	NE	9
Czech Republic	275	NE	286	164	NE	220	206	NE	265	60	NE	80
Denmark	126	NE	127	85	NE	85	20	NE	55	65	NE	69
Estonia	39	NE	60	41	NE	49	80	NE	100	9	NE	29
Finland	151	NE	170	130	NE	130	98	NE	110	31	NE	31
France	1 105	1 050	810	1 060	1 040	1 050	345	330	375	730	730	780
Germany	1 112	1 051	1 051	987	995	995	459	520	520	610	550	550
Greece	320	320	344	261	235	261	523	315	523	63	50	73
Hungary	164	NE	198	123	NE	137	72	NE	500	78	NE	90
Ireland	103	101	65	54	52	55	30	28	42	104	104	116
Italy	865	NE	990	941	NE	1 159	376	NE	475	416	NE	419
Latvia	45	NE	61	55	NE	136	4	NE	101	14	NE	44
Lithuania	110	44	110	92	56	92	145	37	145	84	55	84
Luxembourg	13	13	11	9	9	9	3	3	4	5	5	7
Malta	8	NE	8	4	NE	12	9	NE	9	2	NE	3
Netherlands	261	261	260	162	162	185	53	48	50	123	123	128
Poland	895	NE	879	947	NE	800	878	NE	1 397	302	NE	468
Portugal	242	242	250	194	194	180	133	133	160	69	69	90
Romania	336	327	437	347	340	523	826	724	918	205	198	210
Slovakia	90	90	130	97	97	140	65	64	110	27	27	39
Slovenia	49	49	45	37	37	40	17	17	27	19	19	20
Spain	1 145	NE	847	761	NE	662	401	NE	746	388	NE	353
Sweden	149	NE	148	168	NE	241	33	NE	67	50	NE	57
United Kingdom	1 251	NE	1 167	784	NE	1 200	454	NE	585	294	NE	297
EU-27	**9 525**	**NE**	**9 003**	**7 960**	**NE**	**8 848**	**5 752**	**NE**	**8 297**	**3 993**	**NE**	**4 294**

Note: France did not submit projections in the 2008 reporting round. Data used in this report were therefore taken from the previous 2007 submission.

In its 2010 NMVOC projection, Poland has included emissions from natural sources. Discounting these emissions, Poland presently anticipates meeting its 2010 ceiling.

NE denotes 'not estimated or not provided'.

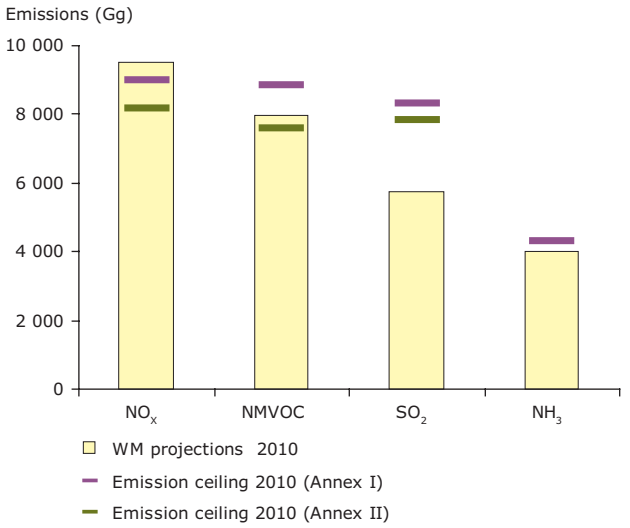
Table 3.2 Aggregated Member State projections compared with EU-27 emission ceilings as defined in NECD Annexes I and II

	WM projections (Gg)	Annnex I emission ceilings (Gg)	Difference from WM (Gg)	Difference from WM (%)	Annex II emission ceilings (Gg)	Difference from WM (Gg)	Difference from WM (%)
NO_X	9 525	9 003	522	6 %	8 180	1 345	16 %
NMVOC	7 960	8 848	– 888	– 10 %	7 585	375	5 %
SO_2	5 752	8 297	– 2 545	– 31 %	7 832	– 2 080	– 27 %
NH_3	3 993	4 294	– 301	– 7 %			

Note: EU-27 WM projections comprise the aggregated WM projections data reported by the individual Member States.

The emission ceilings shown are the aggregated EU-27 emission ceilings defined in Annex I and Annex II of NECD. Annex II of the NECD does not define a ceiling for NH_3.

Figure 3.1 Aggregated Member State projections compared with EU-27 emission ceilings defined in NECD Annexes I and II



Note: EU-27 WM projections comprise the aggregated WM projections data reported by the individual Member States.

The emission ceilings shown are the aggregated EU-27 emission ceilings defined in Annex I and Annex II of NECD. Annex II of the NECD does not define a ceiling for NH_3.

The trend tables (Tables 3.3, 3.4, 3.5 and 3.6) show, for each pollutant, a comparison ([18]) between 2007 emissions and those reported for 1990 and 2006. This illustrates the development of the emission trends within individual Member States and across the EU-27 as a whole. Figures 3.3, 3.7, 3.11 and 3.15 illustrate the relative difference ([19]) between emissions in 2007 and the emissions ceilings, and between Member State projected emissions for 2010 and the ceilings. Where percentage values are positive, it indicates that 2007 emissions were above the emission ceilings or that WM projections imply that the 2010 ceiling will not be achieved unless the Member State in question takes additional measures to reduce emissions further.

The trends of emissions data reported by Member States under the NEC Directive and LRTAP Convention are not consistent for all countries. An explicit analysis of these differences is not within the scope of this report, but is provided in the joint EMEP/EEA Stage 2 emission inventory review process. Similarly, a number of countries report significant dips and/or jumps of emissions in subsequent years. This can only be noted but in the main not explained, as so few Member States (six in 2008) provided supplementary information in addition to emission data.

([18]) Changes of emissions in each country during 2006–2007 are expressed as 100 x (E_{curr} – E_{prev}) / E_{prev} (%), where E_{curr} and E_{prev} are current and previous total emissions in the each year. Changes of emissions in each country in 1990–2007 are expressed as 100 x (E_{curr} – E_{1990}) / E_{1990} (%), where E_{curr} and E_{1990} are current and 1990 total emissions in each year.

([19]) The relative difference between emissions in 2007 and the emissions ceilings was estimated as 100 x (E_{2007} – $E_{ceiling}$) / $E_{ceiling}$ (%), where E_{2007} and $E_{ceiling}$ are the 2007 emissions and the 2010 emission ceiling value. The relative difference between Member State projected emissions for 2010 and the respective ceilings was estimated as 100 x (P_{2010} – $E_{ceiling}$) / $E_{ceiling}$ (%), where P_{2010} is the reported WM projection for 2010 and $E_{ceiling}$ is the 2010 emission ceiling value.

3.2 NO_x

3.2.1 NO_x emissions

For the EU-27, total aggregated emission totals for NO_x are given only for the years 2005–2007, because not all Member States have reported the whole data time-series ([20]). Compared to 1990, emissions decreased in 15 Member States (from 19 Member States which reported 1990 data), but increased in 4 Member States; Greece (26%), Cyprus (20%), Spain (17%) and Malta (8%)

EU-27 NO_x emissions have generally decreased since 2005. The annual change between 2006 and 2007 was – 4 %. The largest inter-annual change was reported by Bulgaria (– 24 %) but no explanation for this large change has been provided to EEA.

Table 3.3 NO_x emission trends for Member States, 1990–2007

NO_x (Gg)	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	Change 2006–2007 (%)	Change 1990–2007 (%)	Contribution to EU-27 in 2007 (%)
Austria	179	162	164	165	165	167	166	166	166	163	– 2	– 9	2
Belgium	379	371	329	314	297	295	297	284	267	259	– 3	– 32	2
Bulgaria	NE	NE	NE	NE	NE	NE	NE	233	246	188	– 24	NE	2
Cyprus	14	17	19	19	19	20	18	17	17	17	0.3	20	0.2
Czech Republic	NE	NE	291	291	284	283	286	293	281	281	– 0.1	NE	3
Denmark	273	265	201	198	195	204	188	180	181	167	– 8	– 39	2
Estonia	74	38	35	38	40	39	37	32	31	34	12	– 53	0.3
Finland	286	238	210	220	208	219	205	177	192	182	– 5	– 36	2
France	1 938	1 765	1 617	1 569	1 533	1 498	1 479	1 459	1 397	1 344	– 4	– 31	13
Germany	2 862	2 132	1 815	1 735	1 640	1 580	1 532	1 447	1 354	1 284	– 5	– 55	12
Greece	296	315	337	351	350	361	359	386	361	374	4	26	4
Hungary	238	NE	186	NE	NE	180	185	203	208	190	– 9	– 20	2
Ireland	130	131	126	128	120	116	115	117	113	114	0.2	– 13	1
Italy	1 947	1 808	1 378	1 367	1 276	1 245	1 173	1 114	1 061	1 035	– 2	– 47	10
Latvia	68	40	37	38	38	40	45	43	44	43	– 3	– 37	0.4
Lithuania	NE	NE	NE	NE	51	53	55	58	61	67	9	NE	1
Luxembourg	23	19	16	16	16	16	14	14	14	14	– 5	– 41	0.1
Malta	11	12	9	10	10	10	12	12	11	11	– 1	8	0.1
Netherlands	560	460	398	420	396	393	379	351	327	300	– 8	– 46	3
Poland	NE	NE	NE	NE	NE	808	804	811	879	862	– 2	NE	8
Portugal	255	286	298	300	309	285	288	289	266	253	– 4.9	– 0.5	2
Romania	NE	NE	296	NE	NE	NE	NE	303	326	329	1	NE	3
Slovakia	NE	NE	109	109	101	98	98	98	87	83	– 5	NE	1
Slovenia	NE	NE	NE	NE	58	56	58	47	47	45	– 5	NE	0.4
Spain	1 179	1 259	1 353	1 336	1 390	1 385	1 416	1 412	1 367	1 378	1	17	13
Sweden	301	265	212	203	197	192	182	175	170	165	– 3	– 45	2
United Kingdom	NE	NE	1 512	1 828	1 715	1 710	1 657	1 622	1 597	1 486	– 7	NE	14
EU–27	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**11 342**	**11 073**	**10 666**	**– 4**	**NE**	**100**

Note: NE denotes 'not estimated or not provided'.

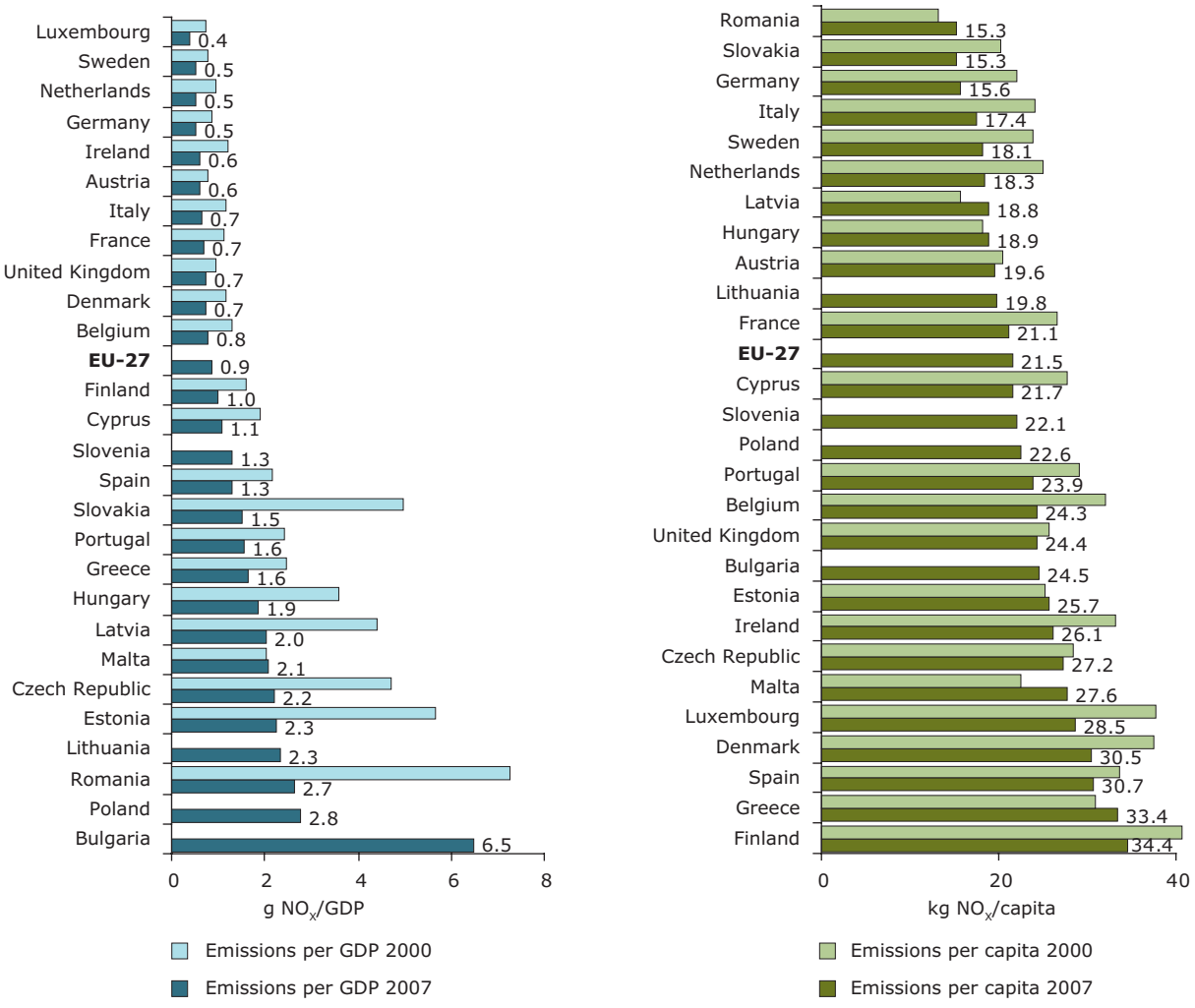
([20]) As noted previously, the NECD does not require the reporting of emissions from 1990, however, Member States are encouraged to do so to enable an improved analysis of the emission trends.

In 2007, NO_X emissions per GDP (expressed in terms of grams of NO_X per EUR of GDP) in the EU-27 (Figure 3.2) varied between 0.4 g/EUR in Luxembourg and 6.5 g/EUR in Bulgaria, the average in EU-27 was 0.9 g/EUR. Significant decreases of NO_X emissions per EUR of GDP (ranging from 23 % reductions to 63 %) was observed in all the 21 Member States that reported 2000 emissions except Malta, where NO_X per GDP increased by about 1 % since 2000.

In 2007, NO_X emissions per capita ([21]) in EU Member States varied from 15.3 to 34.4 kg/cap (the EU-27 average is 21.5 kg/cap). Emissions per capita between 2000 and 2007 increased in six Member States: Malta (23 %), Latvia (20 %), Romania (16 %), Greece (8 %), Hungary (4 %) and Estonia (1 %).

The proximity of the Member States to their respective NO_X emission ceilings is shown in Figure 3.3. In spite of significant emission decreases

Figure 3.2 NO_X emissions per GDP (left) and per capita (right) in Member States in 2000 and 2007



Note: Bulgaria, Lithuania, Slovakia, Slovenia and Poland did not report 2000 emissions.
GDP and population data from the Statistical Office of the European Communities, Eurostat.
Eurostat http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home accessed: 06.05.2009.
GDP in current prices (EUR).
France: the population and GDP data include overseas departments.
Portugal: the population and GDP data include Madeira and the Azores.
Spain: the population and GDP data include the Canary Islands.

([21]) Inhabitants of a country on 1 January of the year in question, based on data from the most recent census or population register.

since 1990, for example in Germany (55 %), Estonia (53 %), Italy (47 %), the Netherlands (46 %) and Sweden (45 %), 16 Member States (compared to 18 Member States in 2007) reported emissions above their ceilings.

3.2.2 NO_X projections

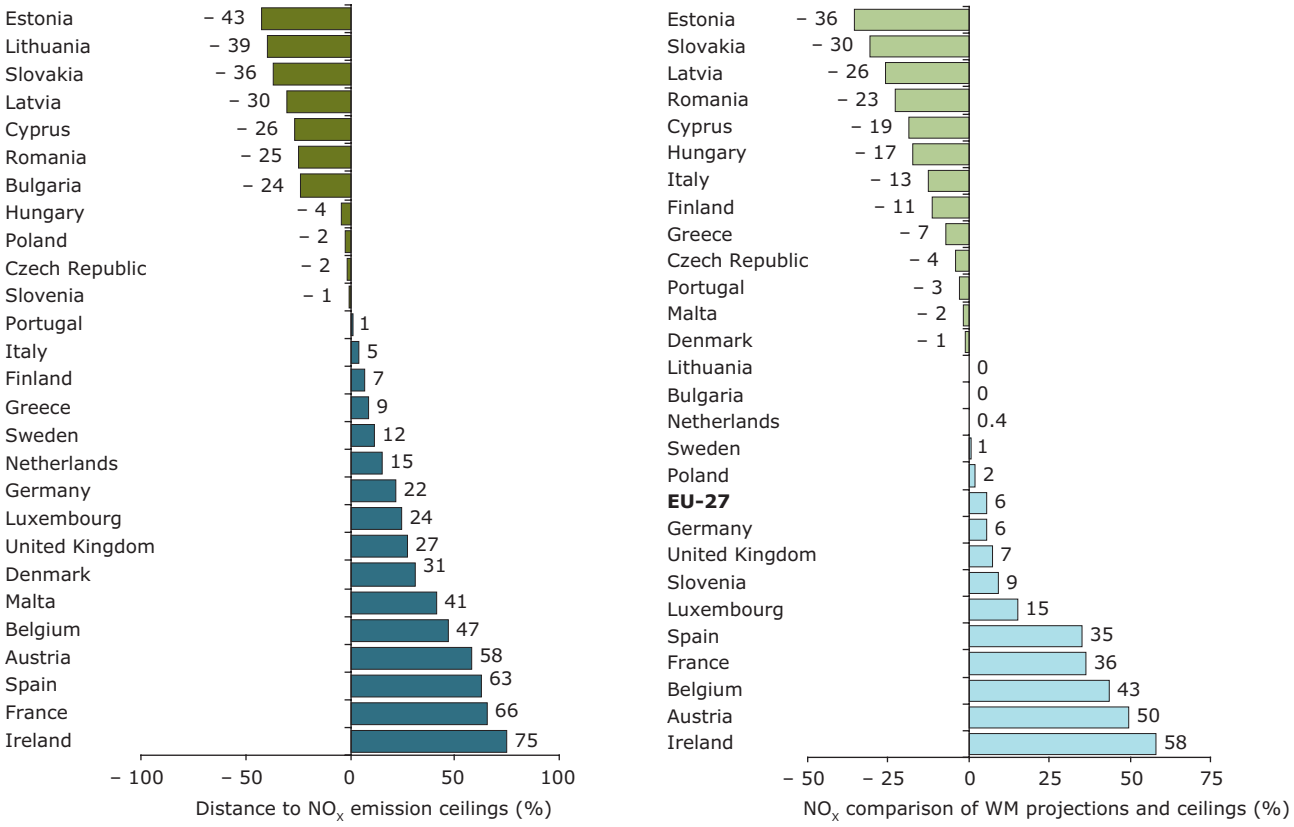
Of the EU-27 Member States, only 15 (up from 10 in 2007) expect to be at, or below, their respective emission ceilings by 2010 (Figure 3.3). Bulgaria and Lithuania report WM projections identical to their 2010 NO_X emission ceilings set in NECD. As the emissions reported in 2007 for both Member States are already significantly below their 2010 ceilings (by 24 % and 39 % respectively) it seems likely that both will indeed meet the 2010 NO_X ceilings. Five Member States (Austria, Belgium, France, Ireland and Spain) submitted WM projections more than 35 % above the ceilings (Figure 3.3). WM projections submitted in the 2008 reporting round show that largest shortfalls in reaching the NECD ceiling in absolute terms are expected in Spain (298 Gg), France (295 Gg) and the United Kingdom (84 Gg).

A comparison of the emissions reported for 2007 with projections for 2010 shows that two Member States in particular (Denmark and Malta) anticipate reducing NO_X emissions very significantly by 2010 in order to achieve their ceilings (24 % for Denmark and 30 % for Malta). It is not clear from the limited information available under NECD reporting whether such large reductions are feasible. Several other Member States also anticipate making reductions of a similar magnitude, for instance France (18 %), Spain (17 %) and the United Kingdom (16 %), although in these instances the Member States do not anticipate meeting their ceilings even with the foreseen reductions.

The EU-27 projection indicates that it will be 6 % above the Annex I aggregate emission ceiling, calculated on the basis of the individual Member State ceilings defined in the NECD, and 16 % above the Annex II ceiling.

A comparison of NO_X projections (WM) submitted in 2005, 2006, 2007 and 2008 (Figure 3.5) shows that Belgium, Finland, France, Italy, Spain and the

Figure 3.3 Proximity in 2007 to the 2010 NO_X emission ceilings (left) and comparison of WM projections for 2010 reported by Member States with their respective 2010 ceilings (right)



United Kingdom have changed their projections considerably during those years ([22]). As NECD does not require Member States to provide information explaining the basis for the changes in projections, the reasons for them are generally not known.

Figure 3.4 Comparison of NO_x projections and ceilings in 2010

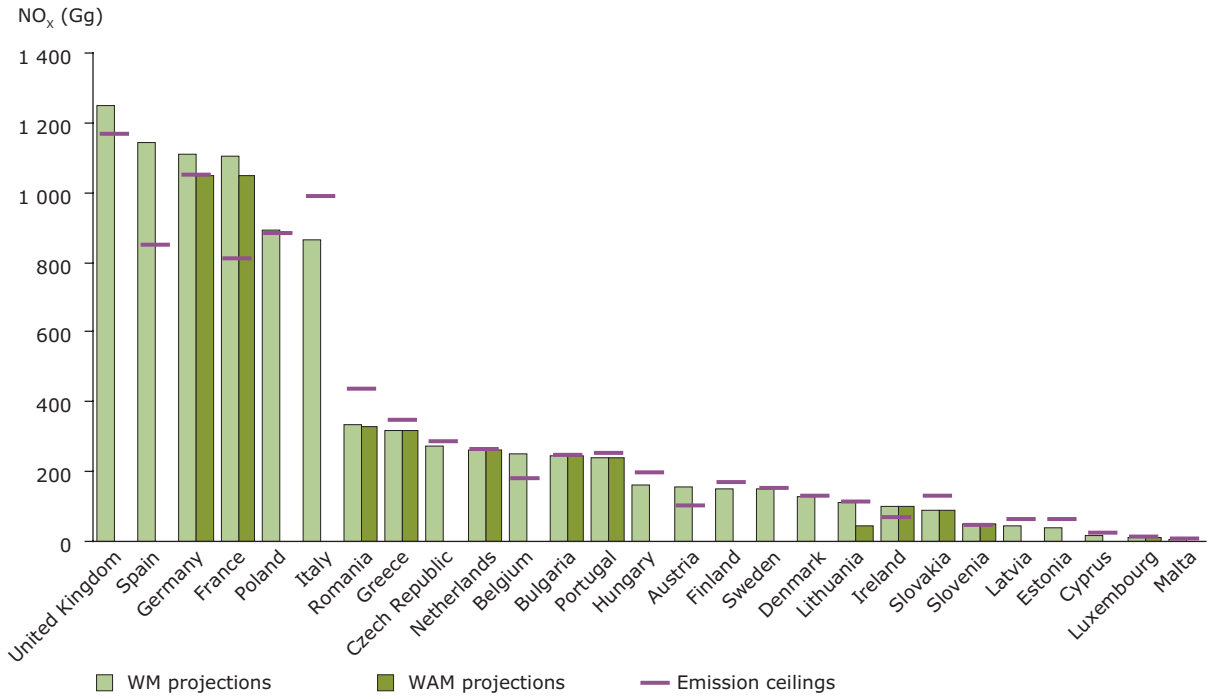
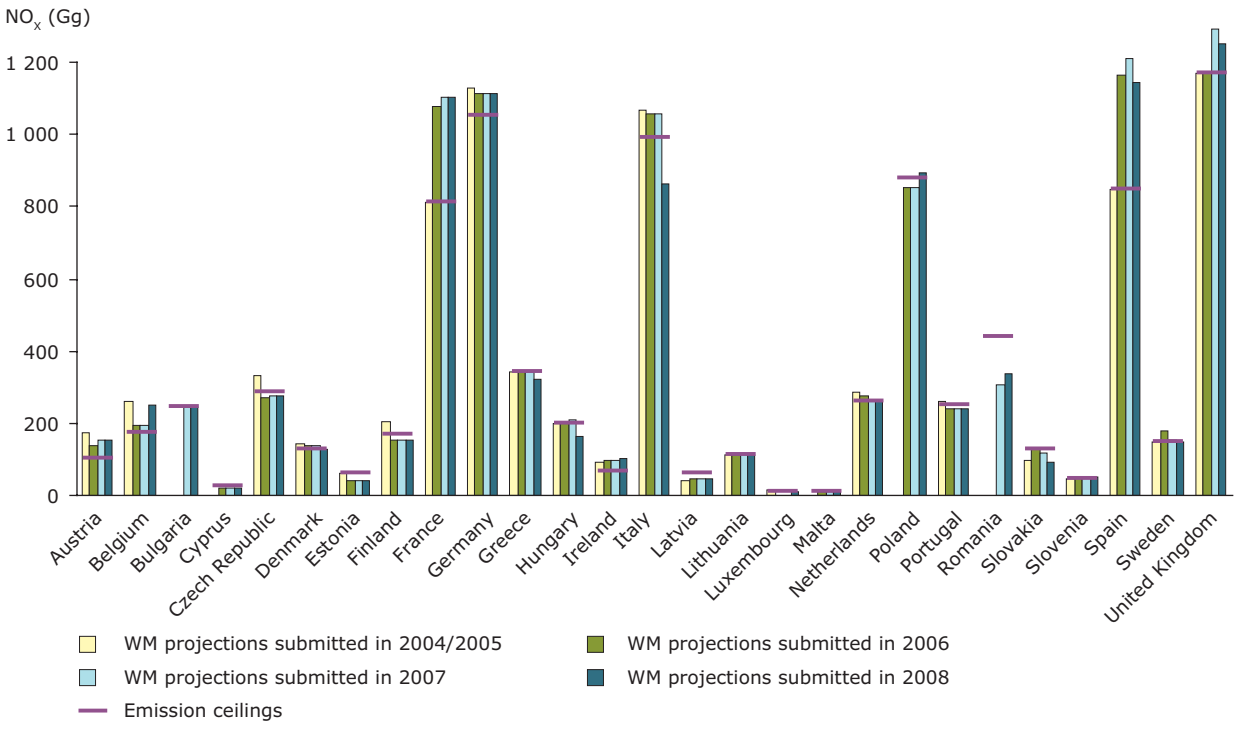


Figure 3.5 Comparison of NO_x projections (WM) submitted in 2005, 2006, 2007 and 2008, and ceilings in 2010



([22]) The changes in reported projections of France, Italy, Spain and the United Kingdom were greater than 100 Gg.

3.3 NMVOC

3.3.1 NMVOC emissions

Aggregated emissions for the EU-27 can only be given for the years 2005–2007 because not all Member States reported over the whole time series from 1990 to 2007 (Table 3.4). However, NMVOC emissions decreased significantly in all 19 Member States that submitted 1990 data. Four Member States achieved reductions of more than 50 %: Germany (66 %), the Netherlands (64 %), France (56 %) and Belgium (53 %) (Table 3.4).

Emissions between 2006 and 2007 also decreased slightly (by 3 %) in the EU-27 as whole and increased in Romania (12 %), Estonia (8 %), Luxembourg (2 %) and Sweden (0.5 %). As was the case for NO_x, the large reduction of emissions in Bulgaria (– 25 %) between 2006 and 2007 can not be explained because supporting information was not provided.

NMVOC emissions per GDP decreased in all 19 Member States that reported 2000 data, as illustrated in Figure 3.6. Significant decreases (more than 50 %) were reported in 10 Member States, the

Table 3.4 NMVOC emission trends for Member States, 1990–2007

NMVOCs (Gg)	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	Change 2006–2007 (%)	Change 1990–2007 (%)	Contribution to EU-27 in 2007 (%)
Austria	273	223	175	178	181	184	165	174	182	176	– 4	– 35	2
Belgium	308	258	201	195	181	173	161	154	149	144	– 3	– 53	2
Bulgaria	NE	NE	NE	NE	NE	NE	NE	147	159	120	– 25	NE	1
Cyprus	13	14	14	14	14	15	11	10	9	8	– 8.2	– 37	0.1
Czech Republic	NE	NE	213	204	197	193	192	176	179	179	– 0.3	NE	2
Denmark	179	159	131	123	121	116	113	111	106	103	– 3	– 43	1
Estonia	70	46	41	40	41	40	40	36	34	37	8	– 47	0.4
Finland	227	186	160	157	152	145	140	131	133	128	– 3	– 43	1
France	2 728	2 347	1 914	1 788	1 640	1 588	1 477	1 393	1 306	1 198	– 8	– 56	13
Germany	3 768	2 094	1 613	1 524	1 451	1 390	1 402	1 385	1 297	1 278	– 1	– 66	14
Greece	255	273	305	270	268	288	332	289	211	204	– 3	– 20	2
Hungary	205	NE	173	NE	NE	155	157	177	177	148	– 16	– 28	2
Ireland	88	78	65	64	61	59	57	56	56	56	– 1.4	– 36	1
Italy	2 032	2 023	1 544	1 456	1 346	1 299	1 263	1 207	1 174	1 135	– 3	– 44	13
Latvia	90	54	53	54	55	57	60	60	60	58	– 4	– 35	0.6
Lithuania	NE	NE	NE	NE	72	74	69	84	78	77	– 2	NE	1
Luxembourg	14	14	10	10	10	9	10	9	9	9	2	– 38	0.1
Malta	4	6	3	3	3	3	3	3	3	3	– 7	– 25	0.04
Netherlands	459	319	224	251	232	224	181	171	167	165	– 1	– 64	2
Poland	NE	NE	NE	NE	NE	585	896	885	911	896	– 2	NE	10
Portugal	312	312	300	299	301	297	297	293	290	290	– 0.3	– 7.2	3
Romania	NE	NE	362	NE	NE	NE	NE	320	353	397	12	NE	4
Slovakia	NE	NE	76	80	77	82	82	79	75	74	– 1	NE	1
Slovenia	NE	NE	NE	NE	48	46	46	42	41	39	– 5	NE	0.4
Spain	1 060	998	1 041	1 017	977	999	978	949	937	923	– 1	– 13	10
Sweden	352	247	199	187	185	186	185	182	177	178	0.5	– 50	2
United Kingdom	NE	NE	1 683	1 237	1 157	1 113	1 051	993	960	942	– 2	NE	11
EU-27	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**9 519**	**9 234**	**8 963**	**– 3**	**NE**	**100**

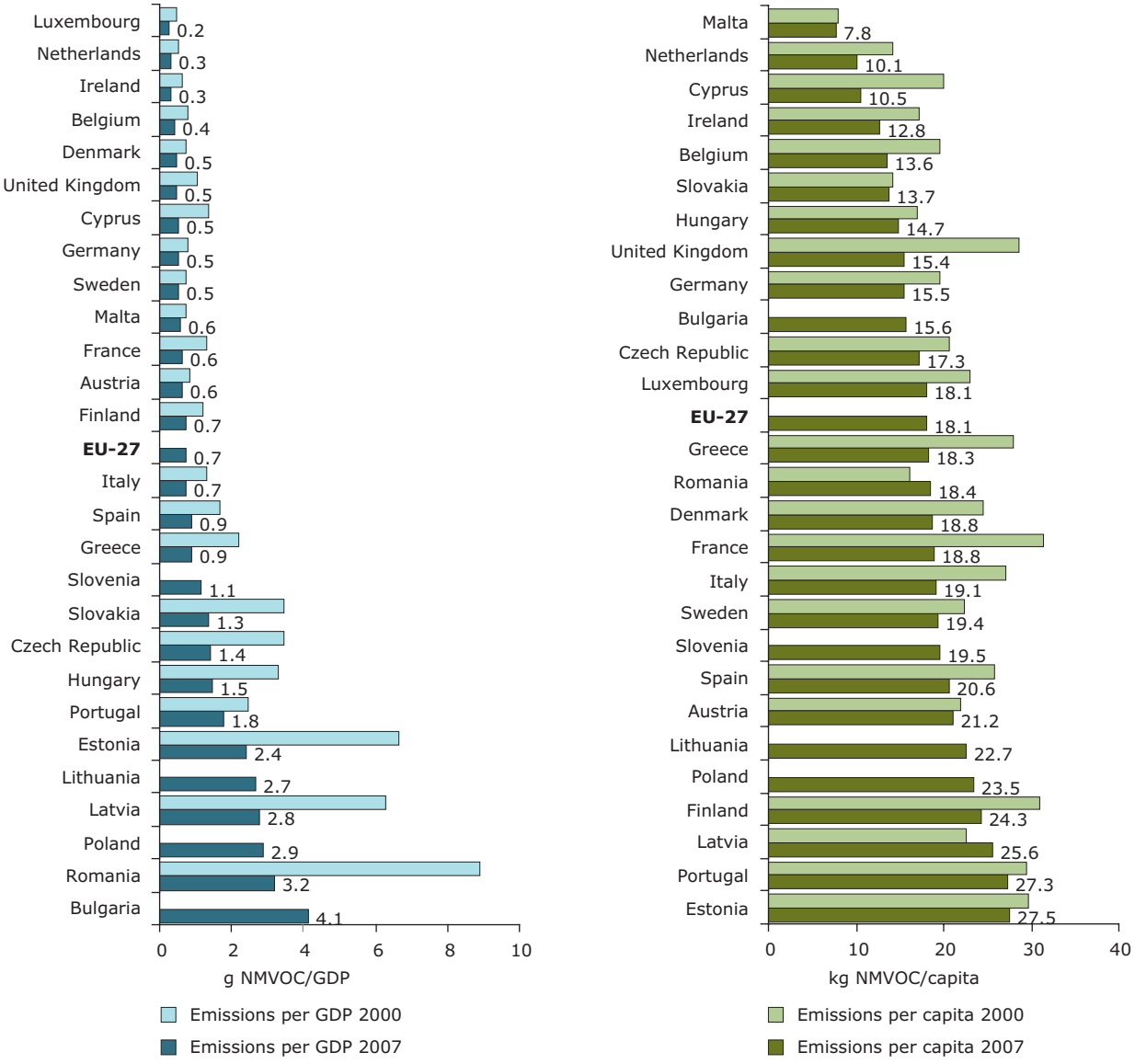
Note: NE denotes 'not estimated or not provided'.

highest ones occurring in Romania and Estonia (64 % each) followed by Cyprus (62 %) and Slovakia (61%). As a result, NMVOC emissions per GDP in 2007 for the EU-27 are relatively low (0.72 g/EUR of GDP).

NMVOC emissions per capita in EU-27 Member States during 2007 varied between 8 and 28 kg/cap, with the EU average at 18 kg/cap. Per capita emissions decreased in 21 Member States (from 23 which reported data), but increased in both Latvia and Romania by 14 % (Figure 3.6).

Figure 3.7 illustrates Member States' proximity to their respective emission ceilings. Within the EU-27, 17 Member States (compared to 12 in 2007)

Figure 3.6 NMVOC emissions per GDP (left) and per capita (right) in Member States in 2000 and 2007

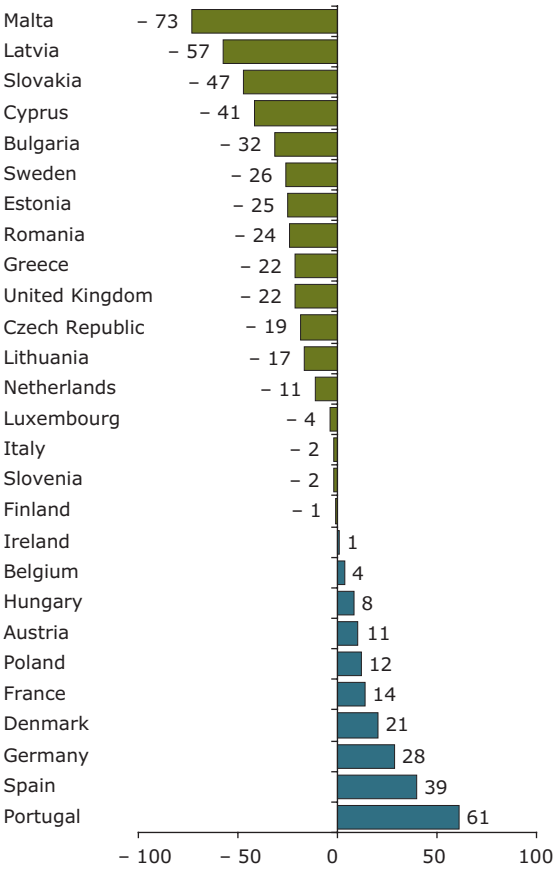


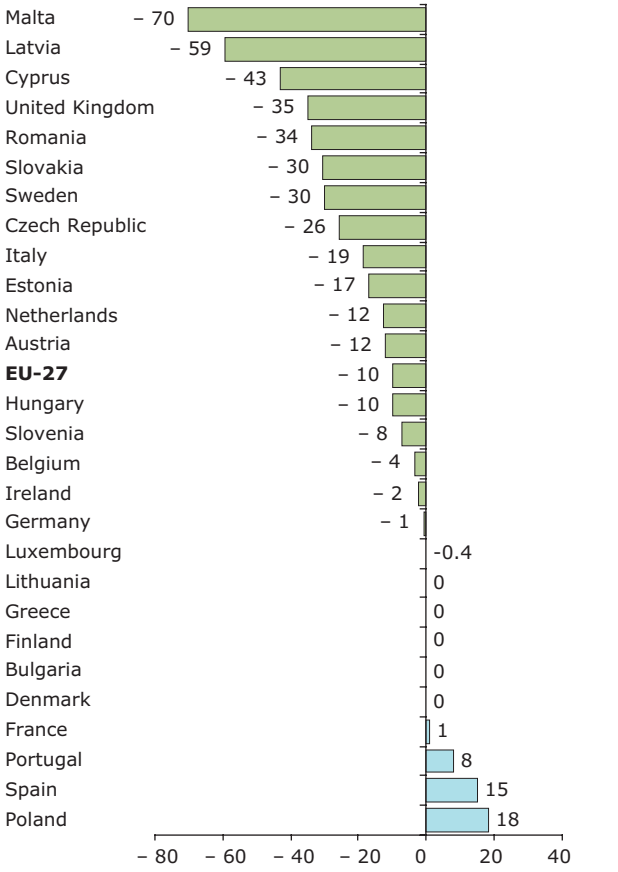
Note: Bulgaria, Lithuania, Slovakia, Slovenia and Poland did not report 2000 emissions.
GDP and population data from Eurostat http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home (accessed 06.05.2009).
GDP in current prices (EUR).
France: the population and GDP data include overseas departments.
Portugal: the population and GDP data include Madeira and the Azores.
Spain: the population and GDP data include the Canary Islands.

have already reached their ceilings, while all other countries are above. The greatest distance to the ceilings in relative terms is observed in Portugal (61 %), Spain (39 %), Germany (28 %) and Denmark (21 %). The country-specific profiles in Annex 1 provide additional details.

Nine Member States out of 19 that reported data in the period 1990–2007 recorded significant decreases of emissions (exceeding 40 %) (Table 3.4).

Figure 3.7 Proximity in 2007 to the 2010 NMVOC emission ceilings (left) and comparison of WM projections for 2010 reported by Member States with their respective 2010 ceilings (right)





3.3.2 NMVOC projections

Among EU-27 Member States, WM projected emissions from France, Poland, Portugal and Spain show these countries will all be above their NMVOC emission ceilings in 2010. In absolute terms the shortfall is largest for Poland (140 Gg) and Spain (177 Gg). However, in its 2010 NMVOC projection, Poland has included emissions from natural sources. Natural sources of emissions should not be included in national projections according to the reporting requirements of the NECD. Discounting the natural emissions, Poland presently anticipates meeting its 2010 NMVOC ceiling.

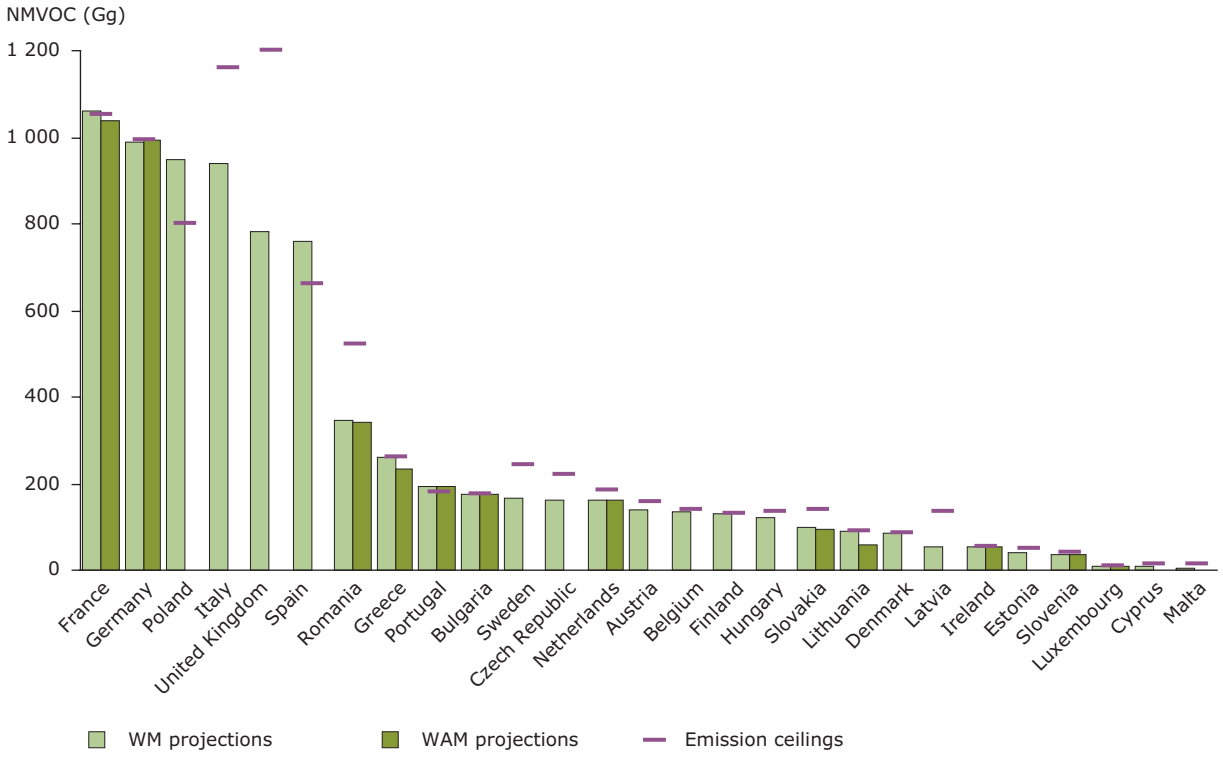
Bulgaria, Denmark, Finland, Greece, and Lithuania project that they will meet their ceilings exactly. As the emissions reported for 2007 for Bulgaria, Greece, Lithuania and Finland are already below their 2010 ceilings (by 32 %, 22 %, 17%, and 1% respectively) it seems likely that these Member States will indeed meet the 2010 NMVOC ceilings.

To meet its ceiling, Denmark would have to reduce 2007 emissions by 21% by 2010. Germany anticipates a 29 % reduction of NMVOC emissions from 2007 levels to reach its WM projections (which are 1 % below its ceiling) (Figure 3.7). France's emissions in 2007 lie 14 % above the ceiling and WM projections 1 % above. France plans to reach its NMVOC ceiling by implementing additional measures (Figure 3.8). From the limited information available under NECD reporting it is not clear whether such a large reduction in these Member States between 2007 and 2010 will be feasible.

A comparison of the emissions reported for 2007 with WM projections for 2010 shows that Portugal and Spain also plan significant reductions (33 %, and 18 %) of their NMVOC emissions by 2010. In this instance, however, these Member States still do not anticipate meeting their ceilings even with the foreseen reductions. A comparison of emissions and projections shows that Hungary, Italy and the United Kingdom plan reductions of a similar magnitude (approximately 17 % each) between 2007 and 2010 and anticipate meeting its ceilings.

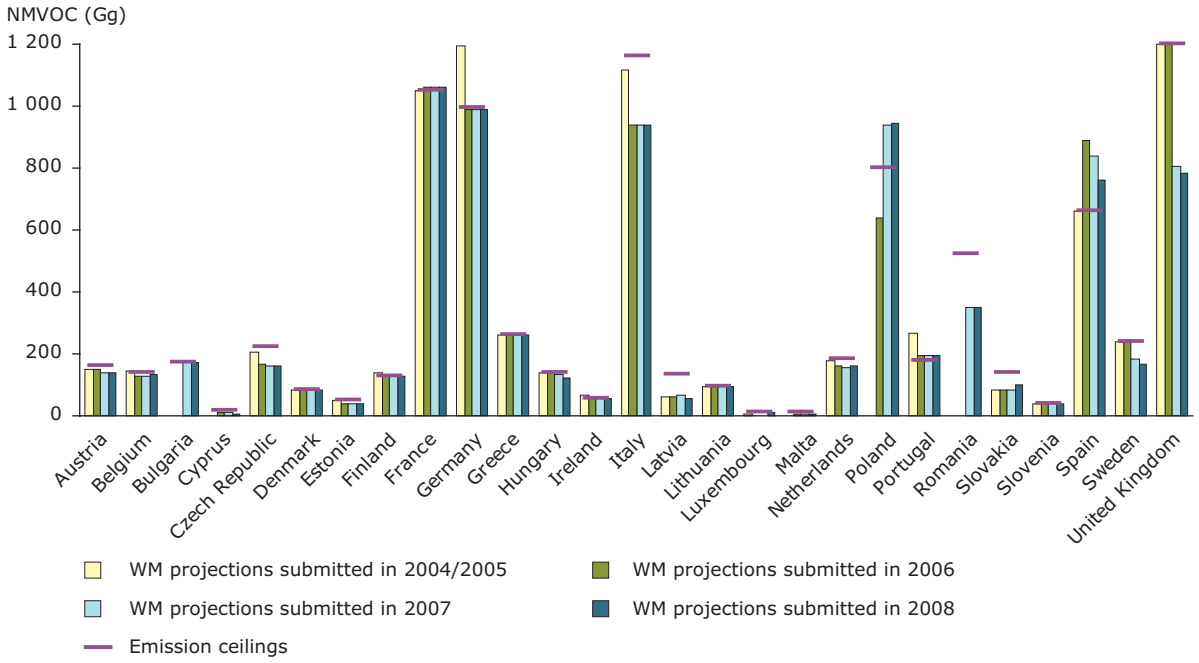
The aggregated EU-27 WM projections are estimated to be 10 % below the aggregated emission ceiling (calculated on the basis of the individual Member State ceilings from NECD) for 2010 but still, 5 % above the EU-27 ceiling (as shown in Annex 2).

Figure 3.8 Comparison of projected NMVOC emissions and ceilings in 2010



The comparison of NMVOC projections (WM) submitted in 2005, 2006, 2007 and 2008 show that almost all Member States have amended their projections, with the largest changes occurring in Germany, Italy, Poland, Spain, Sweden and the United Kingdom (Figure 3.9).

Figure 3.9 Comparison of NMVOC projections (WM) submitted in 2005, 2006, 2007 and 2008, and ceilings in 2010



3.4 SO_2

3.4.1 SO_2 emissions

EU-27 aggregated emissions for SO_2 can only be given for the years 2005–2007 as not all Member States reported over the whole time series stretching from 1990 to 2007 (Table 3.5). Over these three years, SO_2 emissions in the EU-27 decreased by 8 % but have increased in four Member States: Finland (18%), Estonia (14 %), Denmark (6%), and Malta and Romania (each by 3 %).

Between 1990 and 2007, all Member States reported a decrease in emissions except Greece, which recorded a 10 % increase. Reductions equal to or greater than 50 % were reported by 14 Member States (of the 19 that reported 1990 emissions). Reductions greater than 80 % were reported by Latvia (97 %), Luxembourg (93 %), Hungary (92 %), Germany (91 %), Denmark (87 %) and Italy (80 %). Such large reductions have been achieved through a combination of measures, including switching fuels from coal and oil to natural gas, economic restructuring in the new Member States and the

Table 3.5 SO_2 emission trends for Member States, 1990–2007

SO_2 (Gg)	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	Change 2006–2007 (%)	Change 1990–2007 (%)	Contribution to EU-27 in 2007 (%)
Austria	74	47	31	32	31	32	28	27	29	26	– 12	– 65	0.3
Belgium	362	262	171	167	157	154	157	144	134	126	– 6	– 65	2
Bulgaria	NE	NE	NE	NE	NE	NE	NE	900	877	854	– 3	NE	11
Cyprus	37	44	52	50	48	51	44	42	34	32	– 7.5	– 14	0.4
Czech Republic	NE	NE	291	291	284	283	227	218	211	216	2.3	NE	3
Denmark	178	137	29	27	25	32	25	22	26	23	– 9	– 87	0.3
Estonia	273	117	96	91	87	101	89	77	71	88	24	– 68	1.2
Finland	260	96	76	85	79	99	84	69	85	81	– 4	– 69	1
France	1 337	980	621	566	518	508	503	486	453	435	– 4	– 67	6
Germany	5 353	1 724	637	641	601	605	582	574	514	493	– 4	– 91	7
Greece	493	541	483	498	509	545	529	545	534	543	2	10	7
Hungary	1 010	NE	487	NE	NE	347	248	129	118	84	– 29	– 92	1
Ireland	183	162	140	135	102	79	71	70	60	54	– 9.4	– 70	1
Italy	1 795	1 320	753	708	632	528	496	417	389	367	– 6	– 80	5
Latvia	102	49	10	8	6	5	4	5	4	3	– 11	– 97	0.04
Lithuania	NE	NE	NE	NE	43	43	42	44	43	36	– 17	NE	0.5
Luxembourg	18	8	1	1	1	1	1	1	1	1	– 1	– 93	0.02
Malta	19	30	24	26	25	27	17	18	18	18	2	– 3	0.24
Netherlands	191	129	73	89	67	65	65	67	65	60	– 7	– 68	1
Poland	NE	NE	NE	NE	NE	1 375	1 241	1 222	1 203	1 129	– 6	NE	15
Portugal	320	334	307	296	296	202	214	214	192	185	– 3.5	– 42.2	2
Romania	NE	NE	720	NE	NE	NE	NE	727	863	752	– 13	NE	10
Slovakia	NE	NE	127	131	103	106	97	89	88	71	– 20	NE	1
Slovenia	NE	NE	NE	NE	71	66	54	41	18	14	– 20	NE	0.2
Spain	2 091	1 730	1 421	1 393	1 495	1 228	1 272	1 230	1 126	1 116	– 1	– 47	15
Sweden	105	68	44	42	42	43	38	37	37	33	– 8.5	– 68	0.4
United Kingdom	NE	NE	1 165	1 119	978	966	813	687	671	591	– 12	NE	8
EU-27	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**8 102**	**7 862**	**7 434**	**– 5**	**NE**	**100**

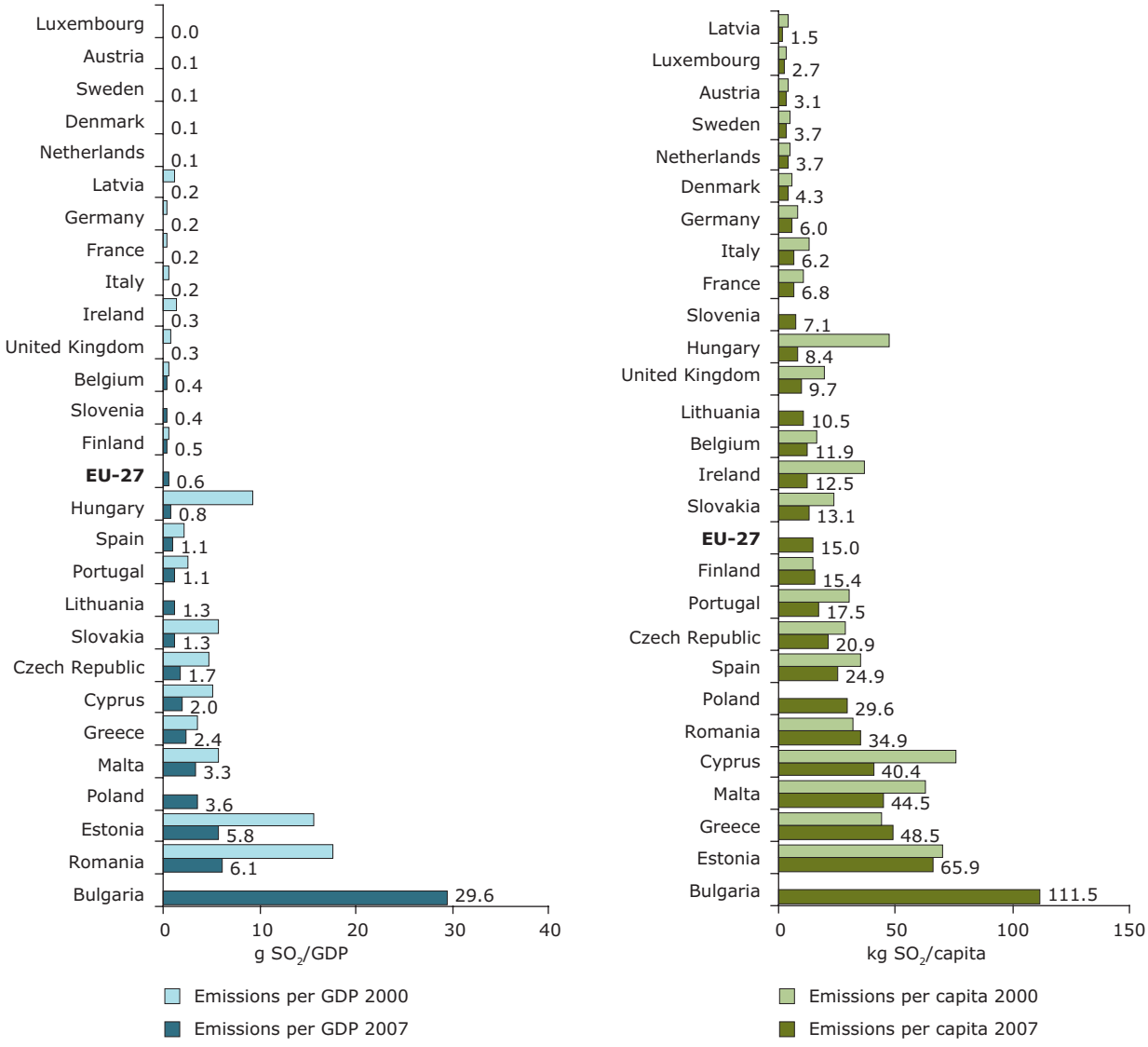
Note: NE denotes 'not estimated or not provided'.

introduction of flue gas desulphurisation in some power plants.

Since 2000, per capita emissions have decreased substantially in all Member States except for Greece (10 % increase), Romania (9 %) and Finland (4 %) (Figure 3.10). Average EU-27 emissions of SO_2 in 2007 were 15 kg/cap, ranging from 1.5 kg/cap in Latvia to 112 kg/cap in Bulgaria. This is the largest variability among Member States compared with the other NECD pollutants.

In the same period, per GDP SO_2 emissions have decreased even more significantly in all 19 Member States that reported 2000 emissions. The 2007 average in the EU-27 was 0.6 g/EUR of GDP. The values for individual Member States vary from 0.05 g SO_2/EUR Luxembourg to 6.1 g/EUR in Romania, with an outlier of 30 g/EUR estimated for Bulgaria. From the limited information available under NECD reporting it is again not possible to explain such significant differences between countries.

Figure 3.10 SO_2 emissions per GDP (left) and per capita (right) in Member States in 2000 and 2007



Note: Bulgaria, Lithuania, Slovakia, Slovenia and Poland did not report 2000 emissions.
GDP and population data from Eurostat http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home (accessed 06.05.2009).
GDP in current prices (EUR).
France: the population and GDP data include overseas departments.
Portugal: the population and GDP data include Madeira and the Azores.
Spain: the population and GDP data include the Canary Islands.

Figure 3.11 illustrates Member States' proximity to their respective emission ceilings. It can be seen that 17 Member States have already reported emissions below their ceilings, while all other Member States currently exceed them.

3.4.2 SO_2 projections

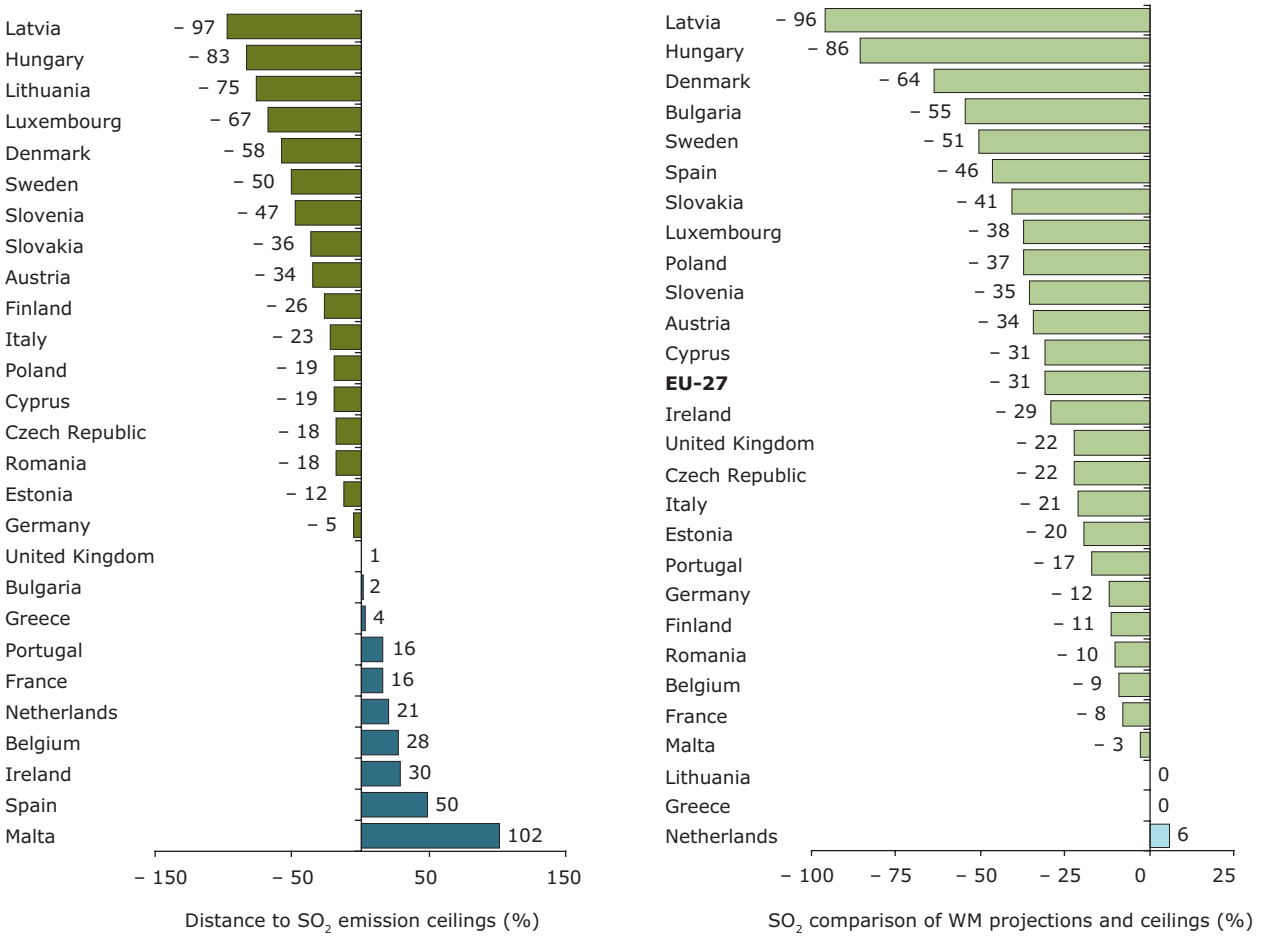
Under the WM scenario, only the Netherlands does not expect to meet its SO_2 ceiling by 2010, although it plans to achieve the reductions by implementing additional measures (Figure 3.11). The EU-27 as a whole is projected to be 31 % below the aggregate SO_2 ceiling and 27 % below the Annex II ceiling (Table 3.2).

Lithuania and Greece both project that they will meet their ceilings exactly. As Lithuanian emissions are already 75 % below the ceiling their WM projections seem feasible. The projected emission reduction for Greece also seem feasible given their 2007 emissions.

A comparison of the emissions reported for 2007 with the projections for 2010 shows a number of countries report WM projections that require significant SO_2 emission reductions between 2007 and 2010: Spain (64 %), Bulgaria (55 %), Malta (50 %), Ireland (44 %), Belgium (29 %), Portugal (28 %) and the United Kingdom (23 %). From the limited information available to EEA under NECD reporting it is not clear whether such significant reductions by 2010 are in fact feasible.

The comparison of SO_2 projections (WM) submitted in 2005, 2006 and 2007 shows more variability than any of the other pollutants. Greece, Hungary, Italy, Lithuania, Spain and the United Kingdom (Figure 3.13) display particularly large differences in the projections reported in successive years ([23]).

Figure 3.11 Proximity in 2007 to the 2010 SO_2 emission ceilings (left) and comparison of WM projections for 2010 reported by Member States with their respective 2010 ceilings (right)



([23]) Changes in the WM projections reported by Greece, Hungary and Spain over these years are larger than 200 Gg.

Figure 3.12 Comparison of projected SO_2 emissions and ceilings in 2010

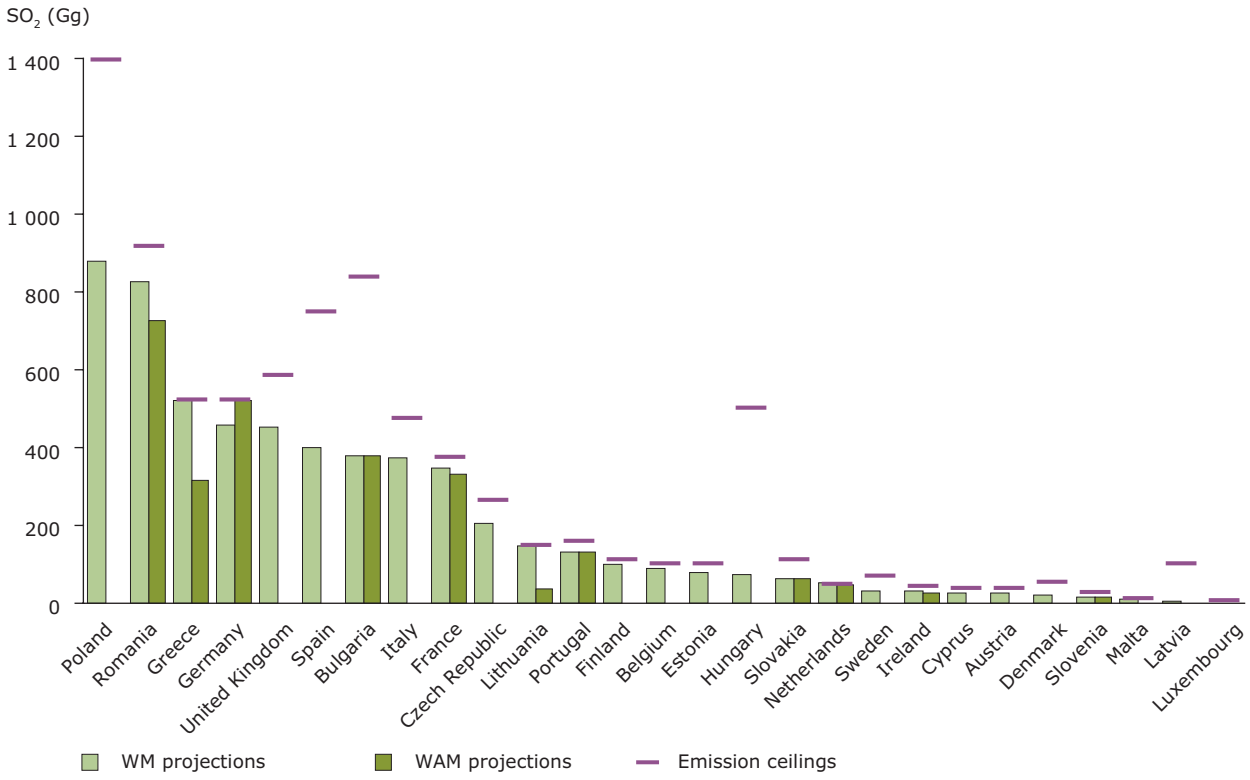
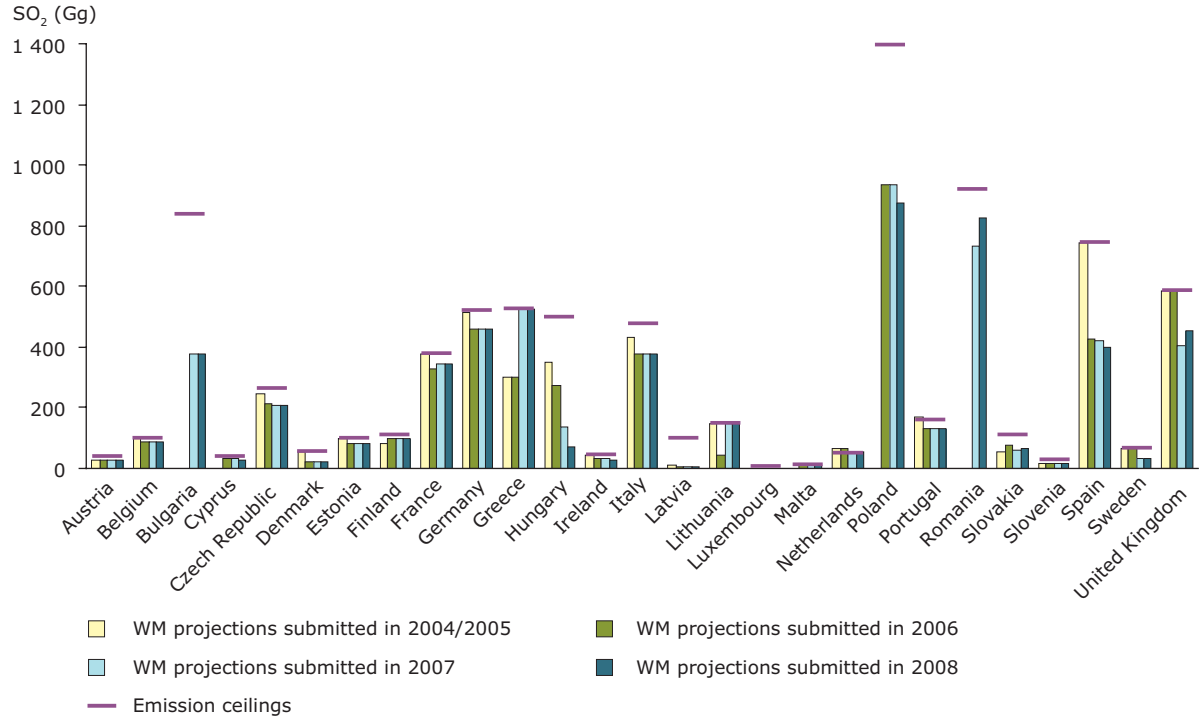


Figure 3.13 Comparison of SO_2 projections (WM) submitted in 2005, 2006, 2007 and 2008, and ceilings in 2010



3.5 NH_3

3.5.1 NH_3 emissions

EU-27 aggregated emissions for NH_3 can only be given for the years 2005–2007 as not all Member States reported over the whole time series stretching from 1990 to 2007 (Table 3.6).

Among the 19 Member States that provided emission estimates for 1990–2007, three report increases: Spain (25 %), Cyprus (12 %) and Italy (1 %). All other Member States reported decreases. Reductions of greater than 60 % were reported by Latvia (67 %) and Estonia (63 %).

The proximity to respective emission ceilings amongst the EU-27 is shown in Figure 3.15. It can be seen that 22 Member States already report emissions below the level of their respective ceilings, while Denmark, Finland, Germany, the Netherlands and Spain presently have emissions above their ceilings.

NH_3 emissions per GDP decreased in all 19 Member States that reported 2000 data (Figure 3.14). In relative terms this decrease was most significant

Table 3.6 NH_3 emission trends for Member States, 1990–2007

NH_3 (Gg)	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	Change 2006–2007 (%)	Change 1990–2007 (%)	Contribution to EU-27 in 2007 (%)
Austria	71	76	70	69	67	67	66	66	66	66	1	– 7	2
Belgium	127	121	91	88	85	82	75	74	73	70	– 4	– 45	2
Bulgaria	NE	NE	NE	NE	NE	NE	NE	57	55	58	6	NE	1
Cyprus	5	5	5	6	6	6	6	5	5	5	– 3.7	12	0.1
Czech Republic	NE	NE	74	67	65	74	70	66	64	63	– 1.5	NE	2
Denmark	106	91	88	88	86	77	77	73	70	70	– 1	– 34	2
Estonia	26	12	10	10	9	10	10	9	9	10	4	– 63	0.2
Finland	38	35	33	33	33	33	33	36	36	36	0	– 5	1
France	791	773	797	783	785	758	751	745	740	737	0	– 7	19
Germany	738	631	627	639	627	632	625	620	620	624	1	– 15	16
Greece	79	85	74	74	73	NE	NE	68	68	65	– 5	– 17	2
Hungary	124	NE	84	NE	NE	67	76	80	81	71	– 13	– 43	2
Ireland	110	115	121	115	113	111	110	110	110	105	– 3.8	– 4	3
Italy	405	417	425	434	435	433	426	413	408	411	1	1	10
Latvia	47	15	12	14	13	14	14	14	15	15	5	– 67	0.4
Lithuania	NE	NE	NE	NE	51	34	33	39	35	38	9	NE	1
Luxembourg	5	6	6	6	5	5	5	5	5	5	– 1	– 4	0.1
Malta	NE	NE	2	2	2	2	2	2	2	2	10	NE	0.05
Netherlands	250	193	152	142	136	130	134	133	130	133	2	– 47	3
Poland	NE	NE	NE	NE	NE	323	317	326	287	291	1	NE	7
Portugal	66	68	71	70	70	65	66	63	61	58	– 4.5	– 12.1	1
Romania	NE	NE	206	NE	NE	NE	NE	194	199	187	– 6	NE	5
Slovakia	NE	NE	30	31	31	29	27	27	27	32	22	NE	1
Slovenia	NE	NE	NE	NE	19	19	17	18	19	19	4	NE	0.5
Spain	339	338	408	409	406	420	420	402	414	422	2	25	11
Sweden	54	62	56	53	52	53	53	53	52	50	– 3.1	– 6	1
United Kingdom	NE	NE	297	337	326	298	303	297	297	289	– 3	NE	7
EU-27	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**3 996**	**3 948**	**3 935**	**– 0.3**	**NE**	**100**

Note: NE denotes 'not estimated or not provided'.

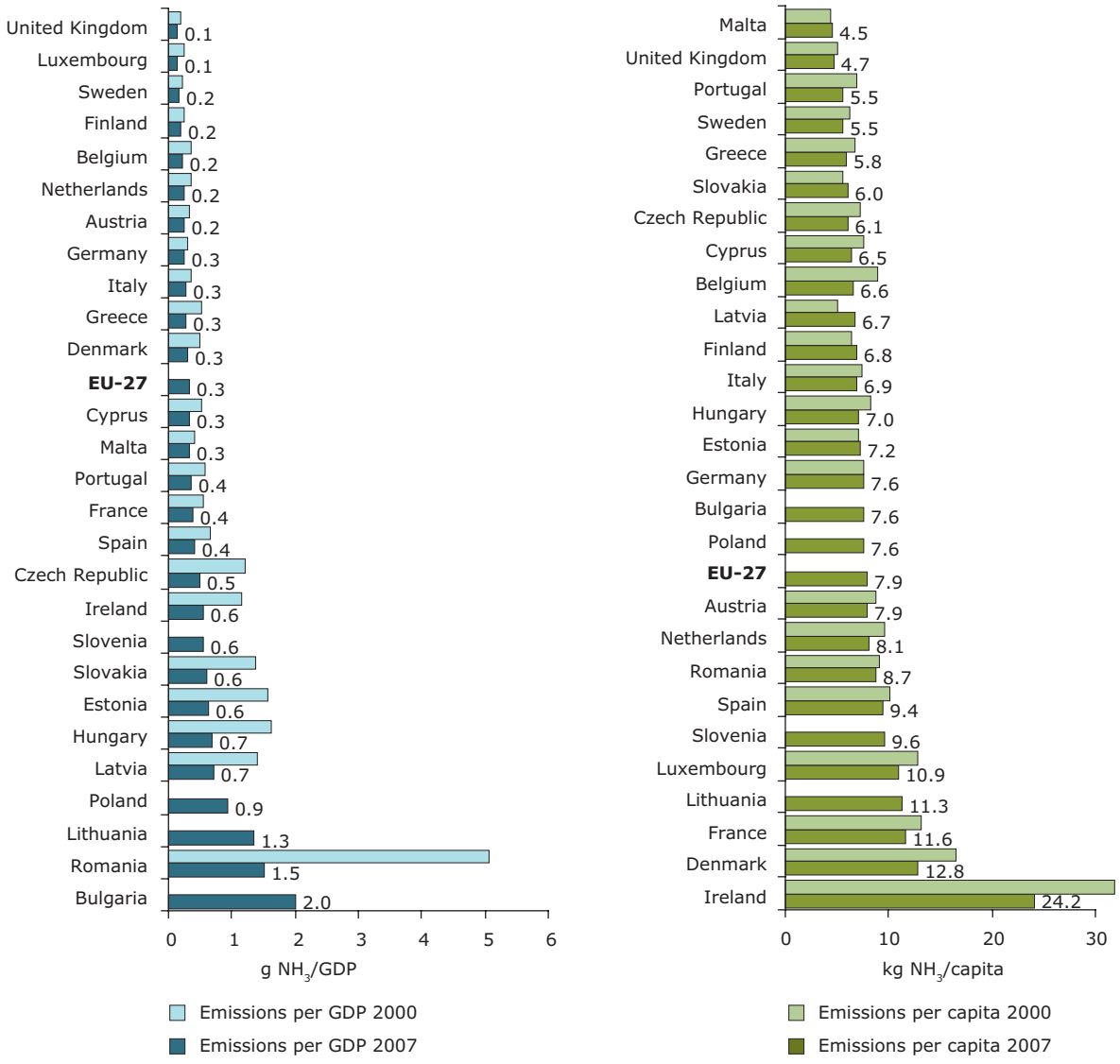
in Romania (70 %), followed by Estonia (60 %), the Czech Republic (59 %), Hungary and Slovakia (57 %) and Ireland (52 %). Nevertheless the actual NH_3 emissions per EUR of GDP in these countries were still above the EU average of 0.32 g/EUR in 2007 (Figure 3.14).

As NH_3 emissions are not closely linked to population but rather to the level of agricultural activity within a country, care should be taken when comparing the emissions per capita for different countries. The average in the EU-27 is 7.9 kg/cap (Figure 3.14).

3.5.2 NH_3 projections

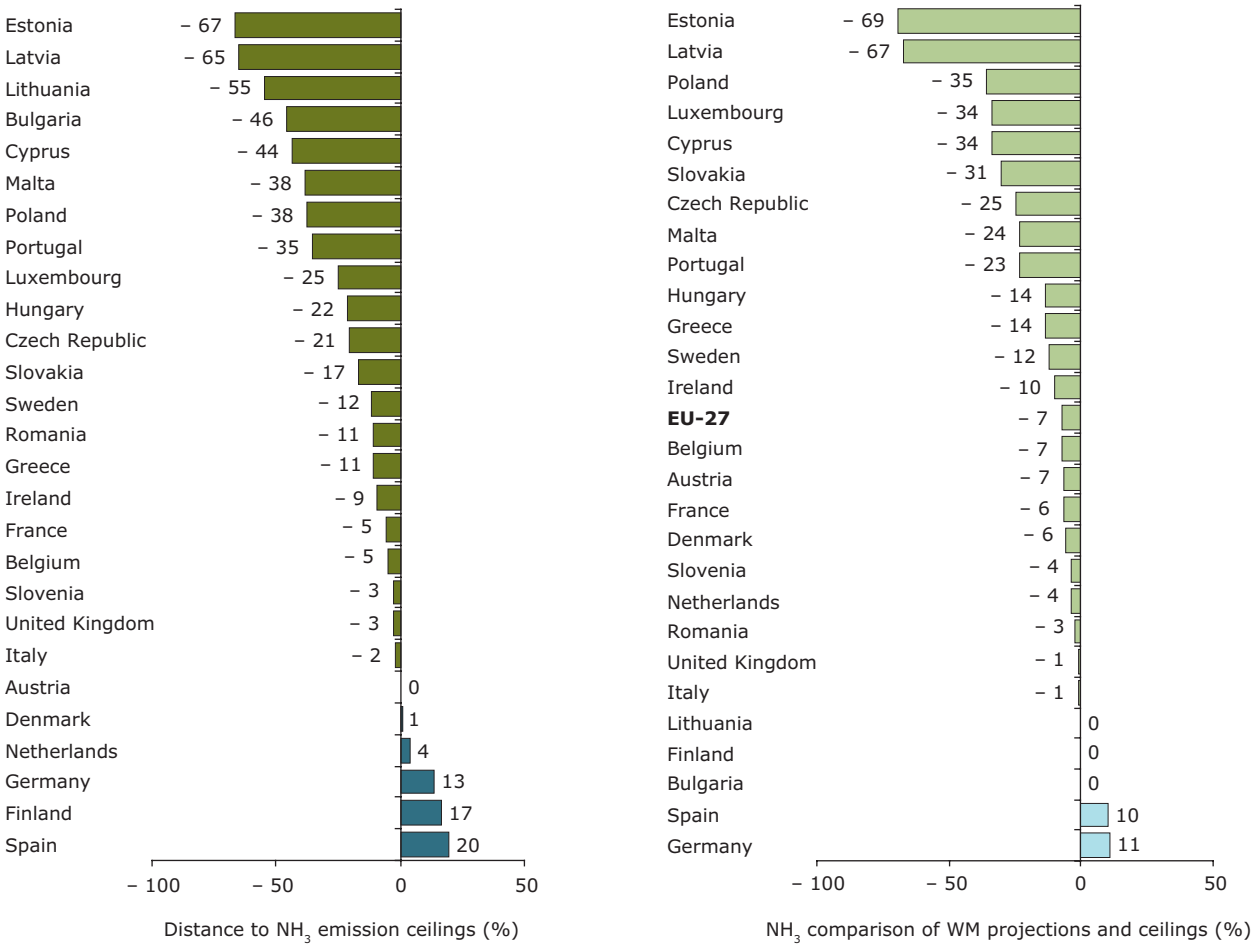
Of the EU-27 Member States, only Germany and Spain anticipate exceeding their emission ceilings in 2010. The NECD emission ceilings are projected to be exceeded by the largest amount in absolute values in Germany (60 Gg) and Spain (35 Gg) (Figure 3.15).

Figure 3.14 NH_3 emissions per GDP (left) and per capita (right) in Member States in 2000 and 2007



Note: Bulgaria, Lithuania, Slovakia, Slovenia and Poland did not report 2000 emissions.
GDP and population data from Eurostat http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home (accessed 06.05.2009)
GDP in current prices (EUR).
France: the population and GDP data include overseas departments.
Portugal: the population and GDP data include Madeira and the Azores.
Spain: the population and GDP data include the Canary Islands.

Figure 3.15 Proximity in 2007 to the 2010 NH_3 emission ceilings (left) and comparison of WM projections for 2010 reported by Member States with their respective 2010 ceilings (right)



Lithuania, Bulgaria, and Finland provided WM projections and Germany submitted WAM projections that exactly coincide with their NH_3 ceilings. Estonia's, Latvia' s and Lithuania's 2007 emissions were more than 50 % below their ceilings. It therefore seems likely that they will meet their NH_3 ceilings in 2010. For Finland and Germany, with 2007 emissions 17 % and 13 % above ceilings respectively, even a small increase of emissions above their WM/WAM projections would mean exceeding their NH_3 ceilings.

A comparison of the emissions reported for 2007 with the WM projections for 2010 shows that one more Member State anticipates to reduce actual emissions by more than 10 % between 2007 and 2010: Slovakia (15 %).

The NH_3 WM projections for the EU-27 are 7 % below the aggregated Annex I EU emission ceiling.

The comparison of NH_3 projections (WM) submitted in 2005, 2006, 2007 and 2008 is shown in Figure 3.17. Austria, Luxembourg, Poland and Slovakia (Figure 3.17) display particularly large variation in the projections reported in those years.

Figure 3.16 Comparison of projected NH_3 emissions and ceilings in 2010

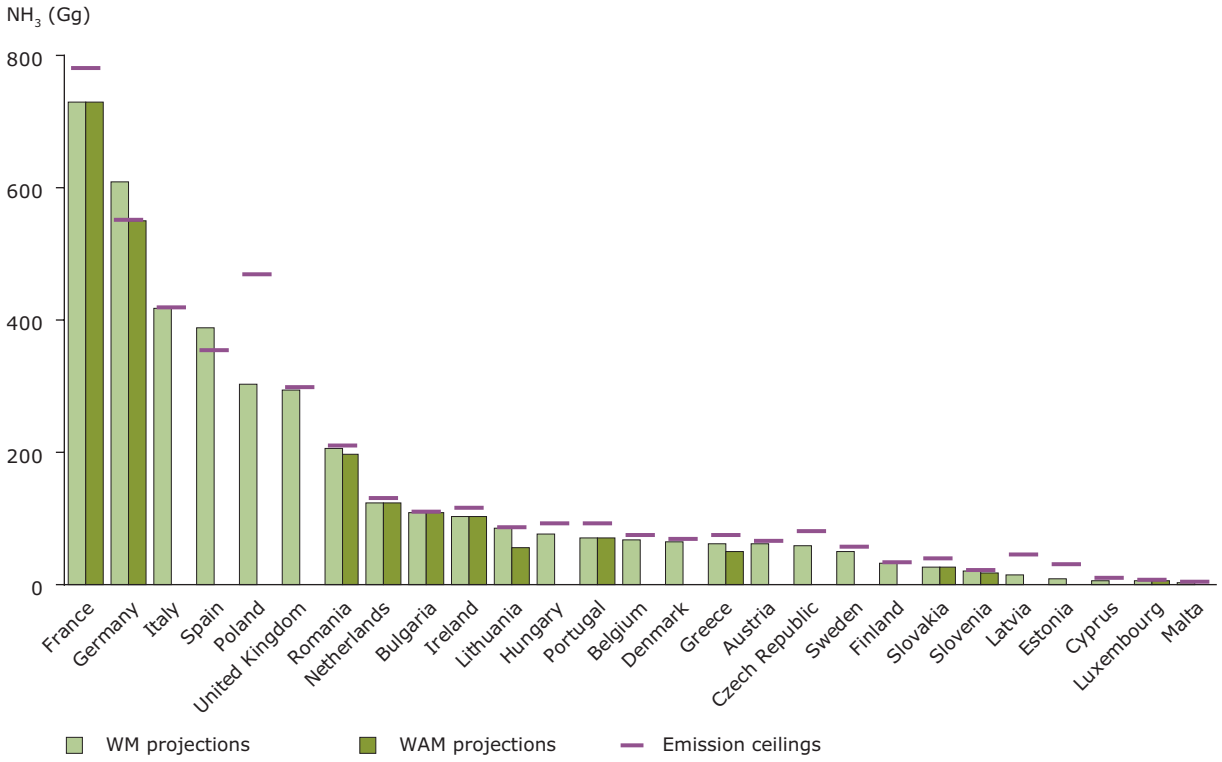
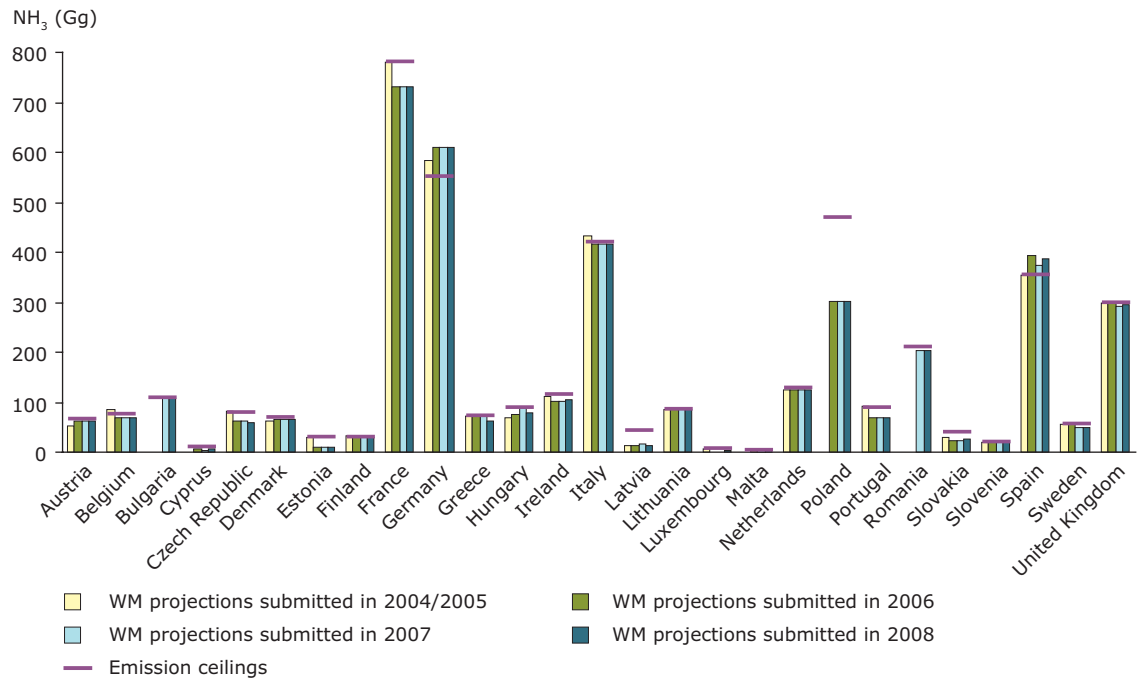


Figure 3.17 Comparison of NH_3 projections (WM) submitted in 2005, 2006, 2007 and 2008, and ceilings in 2010



4 Recalculations

The differences between data reported by Member States under NECD in 2008 and 2007 are presented in the tables below. A dash indicates that one of the two submissions did not contain any data and '0' indicates that recalculations were smaller than 0.5 Gg. 'NE' indicates that for the relevant year data is available from a previous reporting year but that no new data were reported in 2008.

In order to evaluate the officially reported emission data it is essential to identify inventory recalculations and to understand their origin. This is especially true when emission ceilings are expressed in absolute terms (as in NECD) rather than as percentage reduction targets (as under the Kyoto Protocol for greenhouse gases).

From a country perspective, in order to ensure comparable and consistent data it is considered good practice to recalculate the whole time-series when new information (i.e. activity or emission factor data) becomes available. The magnitude of recalculations also provides some indication of the general uncertainty of the emissions. However, as the Member States are not formally required to provide any explanation for recalculations, it is seldom clear why they have reported new data. In some instances (as encouraged by the European Commission and EEA), however, Member States have submitted an Informative Inventory Report together with their emission inventory data. Details of recalculations performed should be explained within these inventory reports.

In the following tables, a negative number indicates that the emissions reported for the respective year in the 2008 reporting round are lower than those previously reported. Conversely, a positive number indicates that the recalculation has led to an increase in the reported emissions.

4.1 NO_x recalculations

Major recalculations occurred in Austria, France, Germany, Greece and Portugal , with the largest (84 Gg) in France for 1991 and 1992 (Table 4.1). No explanatory information for NO_x recalculations was provided under NECD but in the IIR submitted under the LRTAP Convention in 2009 the United Kingdom mentioned a revision of NO_x emission factors using new speed-emission factor functions developed by the Transport Research Laboratory for the Department for Transport (IIR United Kingdom, 2009). Sweden, likewise, cited a revision of emissions from off-road vehicles and working machinery (IIR Sweden, 2009).

Table 4.1 Member State NO_x recalculations for 1990–2006

NO_x (Gg)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	– 21	– 19	– 19	– 19	– 20	– 19	– 19	– 21	– 19	– 18	– 15	– 15	– 14	– 12	– 11	– 10	– 7
Belgium	– 3	– 3	– 3	– 2	– 1	0	– 2	– 3	– 1	– 1	0	– 2	– 3	– 3	– 2	– 1	– 11
Bulgaria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	0
Cyprus	0	– 1	0	0	– 1	– 1	– 1	– 1	– 1	– 1	– 2	– 2	– 3	– 1	0	0	– 1
Czech Republic	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	NE	– 3
Denmark	– 1	– 2	– 2	– 2	– 2	– 2	– 2	– 3	– 3	– 6	– 5	– 5	– 4	– 5	– 5	– 5	– 5
Estonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finland	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0
France	82	84	84	62	65	69	60	58	58	57	59	53	51	48	48	44	39
Germany	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0	– 40
Greece	– 4	1	8	6	7	– 6	– 6	– 3	3	7	7	7	10	18	43	54	45
Hungary	NE	—	—	—	—	—	—	—	—	—	NE	—	—	NE	NE	NE	0
Ireland	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	– 26
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	0
Lithuania	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Luxembourg	1	0	0	0	0	0	– 1	– 1	– 1	1	0	– 1	0	0	0	0	0
Malta	NE	—	—	—	—	NE	—	—	—	—	0	1	1	1	3	3	3
Netherlands	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	– 10
Poland	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE
Portugal	11	12	12	11	12	12	13	14	13	14	14	15	16	16	17	11	0
Romania	—	—	—	—	—	—	—	—	—	—	NE	—	—	—	—	NE	26
Slovakia	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0	0	0
Slovenia	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Spain	0	0	0	0	0	0	1	0	1	2	1	2	2	3	4	3	2
Sweden	– 13	– 9	– 16	– 16	– 18	– 15	– 15	– 18	– 20	– 20	– 7	– 6	– 6	– 6	– 6	– 5	– 4
United Kingdom	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	– 11	– 3	2	2

Note: NE denotes 'not estimated or not provided'.

4.2 NMVOC recalculations

Major recalculations were undertaken by Austria, Belgium, France, Germany, Greece, Ireland, Romania, Sweden and the United Kingdom (Table 4.2). The largest recalculation occurred in Greece for 2006 (– 80 Gg). No explanatory information was provided by Member States.

Table 4.2 Member State NMVOC recalculations for 1990–2006

NMVOC (Gg)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	– 11	– 11	– 12	– 10	– 10	– 8	– 9	– 8	– 8	– 8	– 2	– 9	– 4	5	– 6	14	14
Belgium	– 51	– 44	– 48	– 44	– 50	– 53	2	4	5	3	– 44	– 55	– 56	– 58	– 45	1	– 1
Bulgaria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	0
Cyprus	– 1	– 1	– 1	– 1	– 1	– 1	– 1	– 1	– 1	– 1	– 2	– 2	– 2	– 1	– 1	– 1	– 2
Czech Republic	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	NE	7
Denmark	9	10	8	7	7	0	6	4	4	4	4	3	3	3	– 1	– 3	– 3
Estonia	0	0	0	0	0	0	0	0	0	0	0	6	3	0	0	0	– 1
Finland	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0
France	– 16	– 20	– 24	– 33	– 28	– 26	– 24	– 23	– 22	– 20	– 21	– 22	– 22	– 18	– 27	– 35	– 39
Germany	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0	– 52
Greece	– 25	– 35	– 35	– 32	– 34	– 32	– 25	– 23	– 22	– 16	6	– 24	– 21	0	0	0	– 80
Hungary	NE	—	—	—	—	—	—	—	—	—	NE	—	—	NE	NE	NE	– 2
Ireland	– 26	– 27	– 29	– 30	– 27	– 28	– 30	– 29	– 30	– 15	– 10	– 9	– 8	– 5	– 4	– 3	– 2
Italy	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	15
Latvia	– 5	– 5	– 4	– 3	– 5	– 5	– 6	– 7	– 6	– 6	– 3	– 1	– 2	– 2	0	– 3	– 5
Lithuania	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Luxembourg	– 3	– 3	– 4	– 3	– 3	– 3	– 3	– 2	– 2	– 2	– 2	– 2	– 2	– 2	– 2	– 2	– 2
Malta	NE	—	—	—	—	NE	—	—	—	—	1	0	– 1	– 1	– 1	– 1	0
Netherlands	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	1
Poland	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE
Portugal	5	6	5	5	1	0	– 1	6	7	7	8	4	6	2	0	– 5	– 22
Romania	—	—	—	—	—	—	—	—	—	—	NE	—	—	—	—	NE	54
Slovakia	—	—	—	—	—	—	—	—	—	—	—	—	– 5	– 4	– 6	– 3	– 3
Slovenia	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Spain	1	1	1	1	1	1	1	1	1	1	– 2	1	– 1	2	– 7	1	9
Sweden	– 21	– 20	– 21	– 21	– 22	– 21	– 21	– 22	– 22	– 22	– 21	– 21	– 21	– 21	– 18	– 18	– 18
United Kingdom	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	50	50	33	50

Note: NE denotes 'not estimated or not provided'.

4.3 SO_2 recalculations

Relatively minor recalculations were submitted for SO_2 emission data (Table 4.3). The maximum recalculation occurred in Germany in 2006 (– 44 Gg).

Table 4.3 Member State SO_2 recalculations for 1990–2006

SO_2 (Gg)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	– 1	– 1	– 1	– 1	– 1	0	0	0	0	0	0	0	0	0	1	1	0
Belgium	– 1	– 1	– 1	– 1	– 1	0	0	– 1	0	0	– 1	– 3	0	0	0	1	– 5
Bulgaria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	0
Cyprus	0	0	0	0	0	0	0	0	1	0	0	0	– 3	6	– 1	– 1	– 1
Czech Republic	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	NE	1
Denmark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finland	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	1
France	5	4	16	17	11	10	8	11	9	7	6	5	2	– 1	– 1	0	2
Germany	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0	– 44
Greece	6	7	3	3	5	5	2	3	1	– 4	– 10	– 4	– 4	0	0	0	– 2
Hungary	NE	—	—	—	—	—	—	—	—	—	NE	—	—	NE	NE	NE	– 1
Ireland	0	1	1	1	1	1	1	2	1	2	3	6	2	1	– 1	– 1	0
Italy	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	– 17
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Lithuania	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Luxembourg	4	3	2	3	2	0	0	0	– 1	– 2	– 1	– 2	– 1	– 1	– 1	– 1	– 1
Malta	NE	—	—	—	—	NE	—	—	—	—	0	0	0	0	5	5	5
Netherlands	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	– 1
Poland	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE
Portugal	3	3	3	0	2	3	3	3	3	3	3	2	2	2	2	– 1	2
Romania	—	—	—	—	—	—	—	—	—	—	NE	—	—	—	—	NE	31
Slovakia	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0	0	0
Slovenia	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Spain	– 2	– 3	– 3	– 4	– 3	– 4	– 1	– 3	0	– 1	– 1	– 4	– 4	– 3	– 2	1	– 8
Sweden	– 3	– 3	– 3	– 3	– 3	– 2	– 2	– 2	– 2	– 2	– 2	– 2	– 2	– 3	– 3	– 2	– 3
United Kingdom	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	– 1	0	– 1	– 5

Note: NE denotes 'not estimated or not provided'.

4.4 NH_3 recalculations

Recalculations performed for NH_3 emission data (Table 4.4) were negligible, with comparatively moderate maximum recalculations of – 18 Gg in Belgium for 1995 and in the United Kingdom for 2003–2004.

Table 4.4 Member State NH_3 recalculations for 1990–2006

NH_3 (Gg)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belgium	15	0	0	0	0	18	0	0	0	0	13	4	4	3	0	0	0
Bulgaria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	0
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Czech Republic	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	NE	1
Denmark	– 2	12	– 2	– 3	– 3	– 3	– 2	– 2	– 1	– 2	– 1	– 1	– 1	– 5	– 6	– 6	– 5
Estonia	0	0	0	0	0	0	0	0	0	0	0	0	– 1	0	0	0	0
Finland	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Germany	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0	– 1
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	—	—	—	—
Hungary	NE	—	—	—	—	—	—	—	—	—	NE	—	—	NE	NE	NE	9
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	– 4
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lithuania	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Luxembourg	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Malta	NE	—	—	—	—	NE	—	—	—	—	1	1	1	1	1	1	1
Netherlands	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	NE	– 3
Poland	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE
Portugal	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 5	– 6	– 10
Romania	—	—	—	—	—	—	—	—	—	—	NE	—	—	—	—	NE	12
Slovakia	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0	0	0
Slovenia	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	NE	0
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	– 2	– 1	– 7
Sweden	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	– 18	– 18	– 17	– 17

Note: NE denotes 'not estimated or not provided'.

5 Conclusions

This chapter summarises the overall emission trends in the Member States, problems encountered in the compiling inventory submissions and suggestions for improvements. The recommendations are directed towards improving the quality and transparency of national inventories and projections reported under the NECD. They also aim to ensure better harmonisation between submitted NECD national programmes and inventories. The objectives to be achieved are:

- *higher quality emission inventories and projections* enabling an accurate monitoring of progress towards the ceilings and an earlier and more accurate definition of any further emission reduction policies and measures, thus facilitating potentially lower costs for compliance solutions;

- *greater harmonisation of international reporting requirements,* thereby reducing the administrative burden for Member States and facilitating greater consistency in assumptions and relevant parameters.

5.1 Trends and projected emissions

Emissions of the four NECD pollutants have decreased since 1990 in most EU Member States. Several countries have already succeeded in reducing emissions below their 2010 emission ceilings in line with the requirements of NECD or are projected to do so before 2010 (see projections in Figures 3.3, 3.7, 3.11 and 3.15).

- NO_X emissions continue to pose the greatest challenge, with 12 Member States predicting they will miss their national ceilings. Projected emissions for the EU-27 are 6 % above the aggregated ceiling calculated as the sum of individual Member States' Annex I ceilings (and 16 % above the EU-27 Annex II NECD ceiling). Only 15 Member States (compared to 13 Member States in 2007) estimate that they will reach their emission ceilings by 2010. The shortfall to reach the NECD ceilings in absolute values is largest for Spain (298 Gg), France (295 Gg) and the United Kingdom (84 Gg), and in relative terms for Ireland 58 % (whose 2007 NO_X emissions are 75 % above the national ceiling), Austria (50 %) and Belgium (43 %). Germany reports to be able to reach the NO_X emission ceiling by implementing additional measures.

- Progress in reducing NMVOC emissions seems to have been more successful. Even if four Member States, according to their submitted projections, will not meet the ceilings in 2010, NMVOC projections for the EU-27 are 10 % below the aggregate ceiling, although 5 % above the Annex II ceiling. The largest shortfall in both relative and absolute values is 99 Gg (15 %) for Spain, 147 Gg (18 %) for Poland, and 19 Gg (8 %) for Portugal (whose 2007 NMVOC emissions lie 61 % above the ceiling). France's WM projections are only 1 % above the ceiling and by implementing additional measures France expects to comply with the NMVOC ceiling.

- Only the Netherlands does not expect to meet its SO_2 ceiling in 2010 according to WM projections, although it may reach that emissions ceiling by implementing additional measures. The EU-27 as a whole is projected to be 31 % below the aggregate ceiling. The Annex II ceiling for SO_2 should also be achieved (projected emissions are 27 % below). A comparison of the emissions reported for 2007 with projections for 2010 identifies several national SO_2 WM projections require significant emission reductions to be made between 2007 and 2010: Spain (64 %), Bulgaria (56 %), Malta (52 %), Ireland (45 %), Belgium (29 %), Portugal (28 %) and the United Kingdom (23 %). From the limited information available under NECD reporting it is not clear whether such significant reductions will be feasible.

- The NH_3 projections for the EU-27 are 7 % under the aggregate emission ceiling of Annex I of NECD. Twenty two Member States have already reduced ammonia emissions to below their ceilings and all other countries' WM projections foresee emissions reaching their respective ceilings by 2010 except for Germany (which expects to exceed the ceiling by 11 %) and Spain (10 %). However, Germany plans to implement additional measures to reduce NH_3 emissions.

Based on the WM projection data, it is clear that only 14 Member States (Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Romania and Slovakia) forecast that they will meet their ceilings for all pollutants. However, the WM projections data reported by a number of Member States (Bulgaria, Finland, Denmark, Greece, and Lithuania) are identical to the respective NECD ceilings for at least one of the four NECD pollutants.

While the assessments against the NECD ceilings have been conducted by referring to Member State WM projections, it is recognised that thirteen ([24]) Member States (Belgium, Bulgaria, France, Germany, Greece, Ireland, Lithuania, Luxembourg, Netherlands, Portugal, Romania, Slovakia and Slovenia) are considering implementing 'additional' measures to further reduce their emissions before 2010 (i.e. additional to the measures already included in their WM projections).

A comparison of projections (WM) submitted in 2005, 2006, 2007 and 2008 (Figures 3.5, 3.9, 3.13, and 3.17) shows that most Member States have made considerable changes to the projections data reported in these years. As Member States are not required to explain changes under NECD, the reasons for the past changes in the projections is generally not known.

5.2 Data reporting issues

5.2.1 Timeliness and completeness

The timeliness of Member State reporting has again improved in comparison to the previous NECD reporting cycle. This reporting round was the first instance since reporting began under NECD that all Member States submitted at least some of the information required. Twenty-two Member States provided inventories by the required deadline, compared to 18 in the previous cycle. All Member States except France submitted 2010 projections in the 2008 reporting round.

5.2.2 Consistency and comparability

Twenty Member States submitted inventories in a comparable and consistent format, using a standard spreadsheet template. The remaining seven Member States (compared to 18 Member States in 2007) submitted data using a mixture of formats. While this represents a good improvement, several countries still deliver data in non-standard formats. (e.g. modified spreadsheet files). Such approaches create processing problems when compiling submissions and in checking the consistency and completeness of data.

5.2.3 Transparency of submitted information

It is also not always clear from the submitted inventories how various Member States estimate emissions from combustion of fossil fuels ([25]) (e.g. whether the road transport estimates are based on fuel used or fuel sold). Additional information is therefore required from the Member States to determine the basis on which road transport emissions have been calculated. Such information could be included in an Informative Inventory Report if this were to become a mandatory part of reporting.

Only six Member States (Austria, Finland, Poland, Romania, Sweden and Slovakia) submitted an inventory report ([26]) together with the inventories. Finland, the Netherlands and Spain provided some limited explanatory information. Similarly, only a few Member States (Finland, Latvia, the Netherlands, Portugal and United Kingdom) reported key socio-economic assumptions used in the preparation of their projections, despite this being a formal requirement of the NECD. Sweden referred to the socio-economic information reported under the EU-MM.

5.2.4 Recalculations

The magnitude of reported recalculations is in general lower than in the 2007 submissions. Most of the recalculations occurred for NMVOC and NO_X data. Relatively major NO_X recalculations

([24]) WAM projections submitted by Bulgaria, Luxembourg, Portugal, Slovakia and Slovenia seem to be identical with WM projections.
([25]) Member States have flexibility in selecting whether to report their transport emissions on the basis of fuel used or fuel sold. See Table 1.4 with the summary of reporting obligations.
([26]) Provision of inventory reports is not mandatory under NECD.

of trends occurred in Austria, France, Germany, Greece and Portugal. NMVOC emission trends were recalculated in Austria, Belgium, France, Greece, Ireland, Slovakia, Sweden and partly the United Kingdom. The other countries, in general, reported either no recalculations or only minor ones. It was not possible to present an overall estimate of the recalculation for EU-27, as data for several Member States were missing both in the 2008 and the 2007 submissions.

5.3 Suggested future improvements

To help improve the transparency of the reported NECD data, part of the inventory reporting by the Member States could, in the future, involve submitting a short informative report. Such a report should include the explanatory information concerning the reported inventory, for example:

- whether countries report on the basis of fuel used or sold (to prevent double-counting or omissions when compiling the EU-27 inventory);
- all countries should clearly describe how the NECD national totals reflect the requirements of Article 4 as related to maritime traffic and aircraft emissions (landing and take-off (LTO) cycle or cruise);
- Member States such as France, Portugal and Spain should confirm which territory is covered in their submitted inventory ([27]);
- Member States are invited to provide updated information on their 1990 and 2000 emissions (national totals as a minimum) so as to enable better evaluation of trends. Similarly an overview of recalculations could be made (particularly with regard to the previous year's submission) including quantitative information and brief explanations for any recalculations performed.

The importance of providing inventories in *standardised formats* has been repeatedly stressed by the European Commission and the EEA in their communications with Member States (e.g. through the Eionet). The need each year for ETC/ACC to transfer reported data from some countries into standardised formats before it can be analysed is both time-consuming and a potential source of errors. NECD itself does not explicitly define a required reporting format for national inventories. A definition of inventory reporting formats should be considered for including in the revised NECD.

([27]) In the 2008 only Spain confirmed that Ceuta and Melilla are included, along with the Peninsula and Balearic Islands, while the Canary Islands are excluded in accordance with Article 2 c.

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Units and abbreviations

kg	1 kilogram = 10^3 g
t	1 tonne (metric) = 1 megagram (Mg) = 10^6 g
Mg	1 megagram =10^6 g = 1 tonne (t)
Gg	1 gigagram =10^9 g = 1 kilotonne (kt)
BAU	(projections) business as usual
cap	capita
CEIP	EMEP Centre on Emission Inventories and Projections
CDR	Eionet central data repository
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CLRTAP	LRTAP Convention
CLS	current legislation projections
CRP	current reduction projections
CRF	common reporting format
EC	European Community
EEA	European Environment Agency
Eionet	European environmental information and observation network of the EEA
EMEP	Cooperative programme for monitoring and evaluation of the long-range transmissions of air pollutants in Europe
ETC/ACC	European Topic Centre on Air and Climate Change
EU	European Union
GDP	gross domestic product
LRTAP Convention	UNECE Convention on Long-range Transboundary Air Pollution
IEO	interim environmental objective
LTO	aircraft landing and take-off cycle
NECD	National Emission Ceilings Directive
NFR	nomenclature for reporting
NH_3	ammonia
NMVOC	non-methane volatile organic compounds
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
PM	particulate matter
QA/QC	quality assurance/quality control
SO_2	sulphur dioxide
SO_x	sulphur oxides
TSP	total suspended particulate matter
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
VOCs	volatile organic compounds (non-methane)
WAM	(projections) with additional measures
WM	(projections) with measures
WOM	(projections) without measures

Appendix 1 Data sources

Table A1.1 Overview of emissions data sources used in the trend tables (Tables 3.3–3.6), as of 5 May 2009

Member State	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Austria	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Belgium	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Bulgaria																SUBM07	SUBM08	SUBM08
Cyprus	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Czech Republic											SUBM06	SUBM06	SUBM06	SUBM06	SUBM06	SUBM07	SUBM08	SUBM08
Denmark	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Estonia	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Finland (a)	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM03	SUBM03	SUBM03	SUBM05	SUBM06	SUBM07	SUBM08	SUBM08
France	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Germany	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM07	SUBM08	SUBM08	SUBM08
Greece	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Hungary	PROG05										PROG06			SUBM05	PROG06	SUBM07	SUBM07	SUBM08
Ireland	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Italy	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM05	SUBM06	SUBM07	SUBM08	SUBM08
Latvia	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Lithuania													SUBM04	SUBM04	SUBM07	SUBM07	SUBM08	SUBM08
Luxembourg	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Malta	PROG06					PROG06					SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Netherlands	SUBM08					SUBM08					SUBM08	SUBM03	SUBM04	SUBM05	SUBM06	SUBM07	SUBM08	SUBM08
Poland														PROG05	PROG06	SUBM06	SUBM07	SUBM08
Portugal	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Romania											PROG07					SUBM07	SUBM08	SUBM08
Slovakia											SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Slovenia													SUBM05	SUBM05	SUBM06	SUBM07	SUBM08	SUBM08
Spain	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
Sweden	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08
United Kingdom											SUBM03	SUBM06	SUBM07	SUBM08	SUBM08	SUBM08	SUBM08	SUBM08

Note to Table A1.1:

SUBM08 = inventory submission with the reporting deadline on 31 December 2008.

SUBM07 = inventory submission with the reporting deadline on 31 December 2007.

SUBM06 = inventory submission with the reporting deadline on 31 December 2006.

SUBM05 = inventory submission with the reporting deadline on 31 December 2005.

PROG06 = National Programme report with the reporting deadline on 31 December 2006.

PROG07 = National Programme submitted in 2007.

([a]) Finland submitted full time series for 1998–2007 but for the years 2000–2005 national totals were not included (only sectoral data) therefore data from pervious submissions are used in this report.

Table A1.2 Overview of Member State emission projections data sources, as of 5 May 2009

	NO_x	SO_2	NMVOC	NH_3	Source
Austria (b)	WM	WM	WM	WM	National programme
Belgium	WM	WM	WM	WM	NFR08,Table 2A
Bulgaria (b)	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Cyprus	WM	WM	WM	WM	NFR04,Table 1
Czech Republic (b)	WM	WM	WM	WM	NFR04,Table 1 modified
Denmark	WM	WM	WM	WM	Table 2a
Estonia	WM	WM	WM	WM	NFR08,Table 2A
Finland (b)	WM	WM	WM	WM	Table 2a
France (a)	WM,WAM	WM,WAM	WM,WAM	WM,WAM	National programme
Germany	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Greece	WM, WAM	WM, WAM	WM, WAM	WM, WAM	Table 2a
Hungary	WM	WM	WM	WM	NFR08,Table 2A
Ireland	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Excel file
Italy	WM	WM	WM	WM	Letter, Word table
Latvia	WM	WM	WM	WM	Table 2a
Lithuania (b)	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Luxembourg	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Malta (b)	WM	WM	WM	WM	Table-Excel
Netherlands	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Poland	WM	WM	WM	WM	NFR08, Table 2A
Portugal (b)	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Romania (b)	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Slovakia	WM,WAM	WM,WAM	WM,WAM	WM,WAM	NFR04, Table 1 modified
Slovenia	WM,WAM	WM,WAM	WM,WAM	WM,WAM	Table 2a
Spain	WM	WM	WM	WM	NFR08, Table 2A
Sweden	WM	WM	WM	WM	Table 2a
United Kingdom	WM	WM	WM	WM	Table 2a

Note:

'NFR' denotes 'nomenclature for reporting' — the sectoral classification system developed by UNECE/EMEP for reporting air emissions.

The table numbers in the 'Source' column refer to the table numbering of the NFR reporting template.

'WM' denotes '[projections] with measures'.

'WAM' denotes '[projections] with additional measures'.

'WOM' denotes '[projections] without measures'.

Definitions for WM, WAM and WOM projections are provided in chapter 3 of this report.

(a) France did not submit projections in the 2008 reporting round. Data used in this report were therefore taken from the previous 2007 submission.

(b) Austria , Bulgaria, Czech Republic, Finland, Lithuania, Malta, Portugal and Romania did not revise projections in 2008.

Appendix 2 Status of reporting

Table A2.1 NECD emissions and projections, 2008 reporting round (as of 5 May 2009)

Member State	Submission		Resub-missions	Years covered	Format	NO_x, NMVOC, SO_2, NH_3		Projections table
	Uploaded to CDR	to the EC				2006 final	2007 preliminary	
Austria	22.12.2008	05.01.2009		1990–2007	NFR08	x	x	–
Belgium	22.12.2008	22.12.2008		1990–2007	NFR08	x	x	2010
Bulgaria	29.12.2008	29.12.2008	11.06.2009	2006–2007	2006: NFR02; 2007: NFR08	x	x	2010, 2015, 2020
Cyprus	23.12.2008	23.12.2008		1990–2007	NFR02	x	x	2010
Czech Republic	05.01.2009	30.12.2008		2006–2007	NFR02	x	x	2010
Denmark	22.12.2008	22.12.2008		1980–2007	NFR01	x	x	2010, 2015, 2020
Estonia	30.12.2008			1990–2007	1990–2006: NFR02; 2007: NFR08	x	x	2010, 2015
Finland	12.12.2008	12.12.2008		1980–2007	1980–2005: flat file; 2006–2007 NFR08 + flat file	x	x	2010
France	19.12.2008	19.12.2008		1980–2007	NFR02	x	x	np
Germany	12.12.2008	12.12.2008		2006–2007	NFR08	x	x	2010, 2015, 2020
Greece	09.02.2009	31.03.2009	20.02.2009, 24.03.2009	1990–2007	1990–2000: nat. tot.; 2001–2003: NFR01; 2004–2005: NFR02; 2006–2007: NFR08	x	x	2010
Hungary	19.12.2008	20.12.2008	17.02.2009, 26.02.2009, 04.08.2009	2006, 2007	2006: NFR02; 2007: NFR08	x	x	2010
Ireland	23.12.2008	05.01.2009	09.01.2009	1990–2007	flat file	x	x	2010
Italy	30.12.2008	30.12.2008		2006–2007	NFR02	x	x	2010
Latvia	23.12.2008	29.12.2008	13.03.2009	1990–2007	NFR08	x	x	2010, 2015, 2020
Lithuania	29.12.2008	22.01.2009	21.01.2009, 22.01.2009	2006–2007	NFR02	x	x	2010
Luxembourg	17.04.2009	17.04.2009	23.04.2009	1990–2007	NFR02	x	x	2010
Malta	27.01.2009	27.01.2009		2000–2007	NFR02	x	x	2010
Netherlands	22.12.2008	21.01.2009	29.01.2009	1990, 1995, 2000, 2006–2007	NFR02	x	x	2010, 2015, 2020
Poland	22.01.2009	06.01.2009		2006–2007	2006: nat. tot., 2007: NFR08	x	x	2010
Portugal	31.12.2008	31.12.2008		1990–2007	NFR02	x	x	2010
Romania	24.12.2008	05.01.2009		2006–2007	NFR02	x	x	2010, 2020
Slovakia	15.01.2009	18.12.2008	04.08.2009	2000–2007	NFR08	x	x	2010
Slovenia	24.12.2008	24.12.2008		2006–2007	NFR02	x	x	2010, 2015, 2020
Spain	12.03.2009			1990–2007	1990–1999: nat. tot.; 2000–2007: NFR08	x	x	2010, 2015, 2020
Sweden	29.12.2008	29.12.2009		1980–2007	1980–1989: NFR02; 1990–2007: NFR08	x	x	2010, 2015, 2020
United Kingdom	18.12.2008	14.01.2009	15.01.2009, 16.01.2009	2003–2007	NFR08	x	x	2010, 2015, 2020

Note to Table A2.1:

'np' denotes 'not provided'.

'x' denotes 'provided'.

'NFR' denotes 'nomenclature for reporting' — the sectoral classification system developed by UNECE/EMEP for reporting air emissions.

The Czech Republic's emissions for the years 2000–2003 have been provided in an additional Excel file to their submission.

Greece did not report NH_3 emissions for the years 2003–2004 and for 1990–2000 submitted only national totals.

Poland submitted data for 2005 emissions only in PDF tables in the 2007 reporting round.

Romania — emissions for year 2000 have been provided as reference year emissions in Excel file 'Annex B' in the 2007 reporting round.

European Environment Agency

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