EEA Technical report

No 11/2011

Approximated EU GHG inventory:

Early estimates for 2010

7 October 2011

European Environment Agency

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Content

List of tables

List of figures

Abbreviations

AD	Activity data
AR	Activity rate
BP	British Petroleum
CH_4	Methane
CITL	Community independent transaction log
CO_2	Carbon dioxide
CO_2eq	Carbon dioxide equivalent
CRF	Common reporting format
E	Emission
EC	European Commission
EEA	European Environment Agency
ETS	Emissions Trading Scheme
EU	European Union
EU-15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.
EU-27	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
GDP	Gross domestic product
GHG	Greenhouse gas
IEA	International Energy Agency
IEF	Implied emission factor
IPCC	Intergovernmental Panel on Climate Change
IPCC GPG	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories
LULUCF	Land use, land-use change and forestry
MS	Member State
Mt	Million tons
N_2O	Nitrous oxide

QA/QC	Quality assurance and quality control
SF	Scaling factor
UNFCCC	United Nations Framework Convention on Climate Change

Acknowledgements

This report was prepared by the European Environment Agency's (EEA) Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM).

The coordinating authors were Anke Herold (Oeko) and Julia Busche (Oeko). Other authors were, in alphabetical order, Hauke Hermann (Oeko), Wolfram Jörß (Oeko) and Margarethe Scheffler (Oeko).

The EEA project manager was Ricardo Fernandez. He also acknowledges the input provided by other EEA colleagues, particularly Andreas Barkman, Martin Adams, François Dejean, Eva Goossens and John van Aardenne. The EEA also acknowledges the input and/or comments received from EU Member States and other EEA member countries.

• Summary

Objective of the report

The objective of this report is to provide an early estimate of greenhouse gas (GHG) emissions in the EU-15 and EU-27 for the year 2010. The official submission of 2010 data to the United Nations Framework Convention on Climate Change (UNFCCC) will occur in 2012.

In recent years, the EEA and its European Topic Centre on Air Pollution and Climate Change Mitigation have developed a methodology to estimate GHG emissions using a bottom up approach — based on data or estimates for individual countries, sectors and gases — to derive EU GHG estimates in the preceding year (t–1). For transparency, this report shows the country-level GHG estimates from which the EU estimates have been derived. The 2010 estimates are based on the latest activity data available at country level and assume no change in emission factors or methodologies as compared to the official 2011 submissions to UNFCCC (which relate to emissions in 2009).

Some Member States estimate and publish their own early estimates of GHG emissions for the preceding year. Where such estimates exist they are clearly referenced in this report in order to ensure complete transparency regarding the different GHG estimates available. Member State early estimates were also used for quality assurance and quality control of the EEA's GHG early estimates for 2010.

Finally, EEA has also used the early estimates of 2010 GHG emissions produced by EEA member countries to assess progress towards the Kyoto targets in its annual trends and projections report (due to be published alongside the present report). In that report, the EEA's early estimates for 2010 were only used for countries that lack their own early estimates to track progress towards national and EU targets.

Rationale for early GHG emissions estimates

The European Union (EU), as a Party to the UNFCCC, reports annually on GHG inventories within the area covered by its Member States (i.e. emissions occurring within its territory). National GHG inventories for EU Member States are only available with a delay of 1.5 years. Inventories submitted on 15 April of the year t therefore include data up to the year t–2.

The latest official EU data available (1990–2009) covering all countries, sectors and gases were released on 31 May 2011 (EEA, 2011a) in connection with the annual submission of the EU GHG inventory to the UNFCCC (EEA, 2011b). The inventory data include GHG emissions not covered by the Montreal Protocol — both from sectors covered by the EU Emission Trading Scheme (ETS) and from non-trading sectors. However, whereas UNFCCC emissions run on a year t–2 timeline, Kyoto registries and EU ETS information is available on a year t–1 timeline. As such, verified EU ETS emissions are already available for 2010 (EEA, 2011c).

There are clear advantages in generating early GHG estimates for all sectors. Under the Kyoto Protocol, the EU-15 took on a common commitment to reduce emissions by 8 % between 2008 and 2012 compared to emissions in the base year. Total emissions from sectors included in the EU ETS are capped for the period 2008–2012, meaning that EU compliance with the Kyoto targets will be largely determined by the performance of non-ETS sectors, i.e. those sectors for which data are only available on a t–2 timeline. An early estimate of the previous year's emissions can therefore improve tracking and analysis of progress towards Kyoto targets, as is done in the annual EEA report on greenhouse gas emission trends and projections in Europe. Member States seeking to determine whether they need to use Kyoto's flexible mechanisms to achieve their targets also benefit from access to early data.

In addition, the EU's 2009 Climate and Energy Package encourages trading and non-trading sectors to run on similar timelines. The Package represents the EU's initial response to limiting the global average temperature increase to no more than 2 °C above pre-industrial levels. To achieve this, Member States agreed to reduce total EU GHG emissions by 20 % compared to 1990 by 2020 (– 21 % and – 10 % for ETS and non-ETS sectors, respectively, compared to 2005). As with Kyoto, meeting the 2020 national targets will largely be determined by how countries reduce emissions in the non-trading sectors. Early GHG estimates can therefore help track progress towards the EU and national targets for 2020.

Finally, the Beyond GDP process (EU, 2011) likewise encourages authorities to generate environmental information in as timely a manner as socio-economic information.

Previous early GHG emission estimates for 2008 and 2009

At the end of August 2009 the EEA published its first early estimates of total greenhouse gas emissions in the preceding year (EEA, 2009). The actual reduction in greenhouse gas emissions in 2008, as officially reported to the UNFCCC in 2010, was within the confidence interval of the EEA's mean early estimates for the EU-15 and the EU-27.

In 2010, the EEA published its early emission estimates for 2009 — a year that witnessed the deepest economic recession since governments began reporting official GHG emission inventories to the UNFCCC (EEA, 2010). Again, the EEA's early estimates for EU-15 and EU-27 were accurate, with subsequent official UNFCCC emissions falling within the expected range of uncertainty. The main factors explaining the strong reduction in emissions in 2009 were further analysed in the 2011 EU GHG inventory submitted to the UNFCCC (EEA, 2011d).

Methodology for early GHG emission estimates

The present report sets out the estimated GHG emissions for 2010 for the EU Member States, the EU-15 and the EU-27 based on data sources that were published by mid-July of 2011. The estimates cover total GHG emissions as reported under the Kyoto Protocol and the UNFCCC excluding the land use, land-use change and forestry (LULUCF) sector.

Estimations are made for all major source categories in all sectors. For the most important source categories, data sources with updated activity or emission data for the year t–1 were identified and used to calculate emissions. For source categories for which no international datasets with updated activity data exist or which are too complex for such an approach, emissions were extrapolated from past trends (linear extrapolation) or emissions from the previous year were kept constant if historic data did not show a clear trend. On this basis, a detailed bottom-up approach was developed covering the full scope of emissions included in a GHG inventory submission.

The EEA estimates are based on publicly available datasets at the national, European and international levels, disaggregated by major source categories in all sectors reported under the

UNFCCC and the Kyoto Protocol. Some countries publish their own early greenhouse gas estimates (Austria, Denmark, Germany, Italy, Luxembourg, the Netherlands, Poland, Spain, the United Kingdom, Norway and Switzerland). Where relevant, the EEA used these estimates to assess current progress in relation to greenhouse gas emission targets better and to verify its own calculations.

Early GHG emission estimates for 2010

Compared to 2009, estimated 2010 GHG emissions increased by 2.3 % (+/– 0.7) in the EU-15 and by 2.4 % (+/– 0.3) in the EU-27. This implies that EU-15 greenhouse gas emissions were approximately 10.6 % below the 1990 level in 2010 ([1]) or 10.7 % below the base year level (EEA, 2011d). EU-27 emissions were 15.5 % below the 1990 level ([2]).

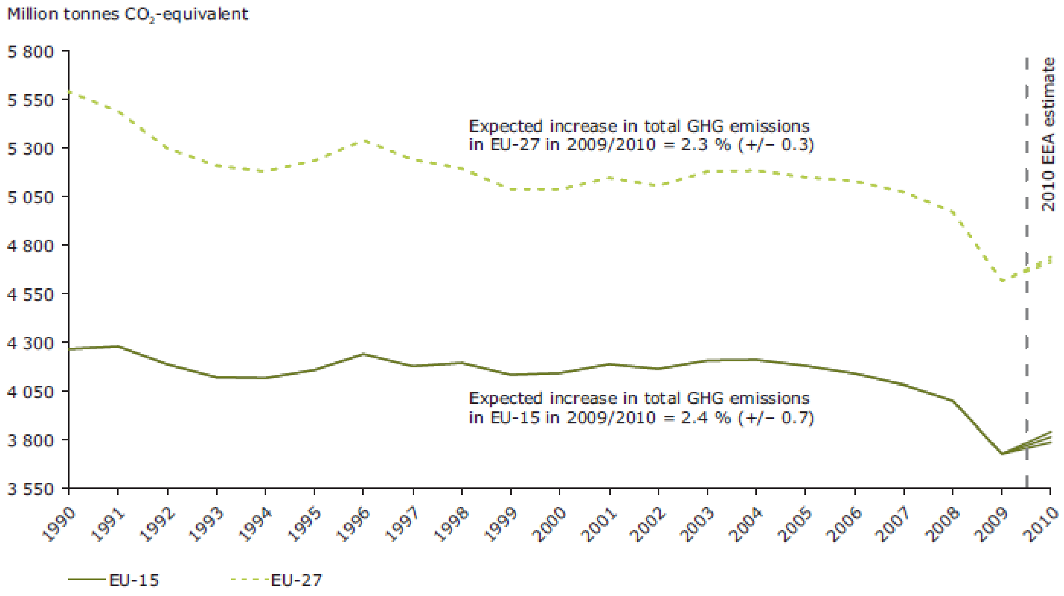
Figure ES.1 shows the emission trend for total GHG emissions without LULUCF in the period 1990–2010 ([3]). The emission increase in 2010 was partly due to recovery from economic recession in many European countries, which had caused substantial emission reductions in 2008 and 2009 in all Member States. In 2010 the winter was also colder than in the previous year, in particular in northern, central and eastern European countries, leading to increased demand for heating and higher emissions from the residential and commercial sectors.

[1] Under the Kyoto Protocol, the EU-15 has a common commitment to reduce emissions on average by 8 % between 2008 and 2012 compared to emissions in the 'base year'. The base-year emissions for the EU-15 have been fixed to 4 265.5 million tonnes CO_2-equivalents (UNFCCC, 2011).

[2] Unlike the EU-15, the EU-27 does not have a common target under the Kyoto Protocol and therefore the EU-27 does not have an applicable base-year against which to compare emission changes. Emission changes compared to 1990 are applicable to the EU-27 as it has made a unilateral commitment to achieve at least a 20 % reduction of greenhouse gas emissions by 2020 compared to 1990.

[3] This is not equivalent to the difference to base year emissions because of accounting rules such as the selection of the base year for F-gases and the continuing recalculations of GHG inventories.

Figure ES. 1 Trends in total greenhouse gas emissions excluding LULUCF in the EU-15 and the EU-27



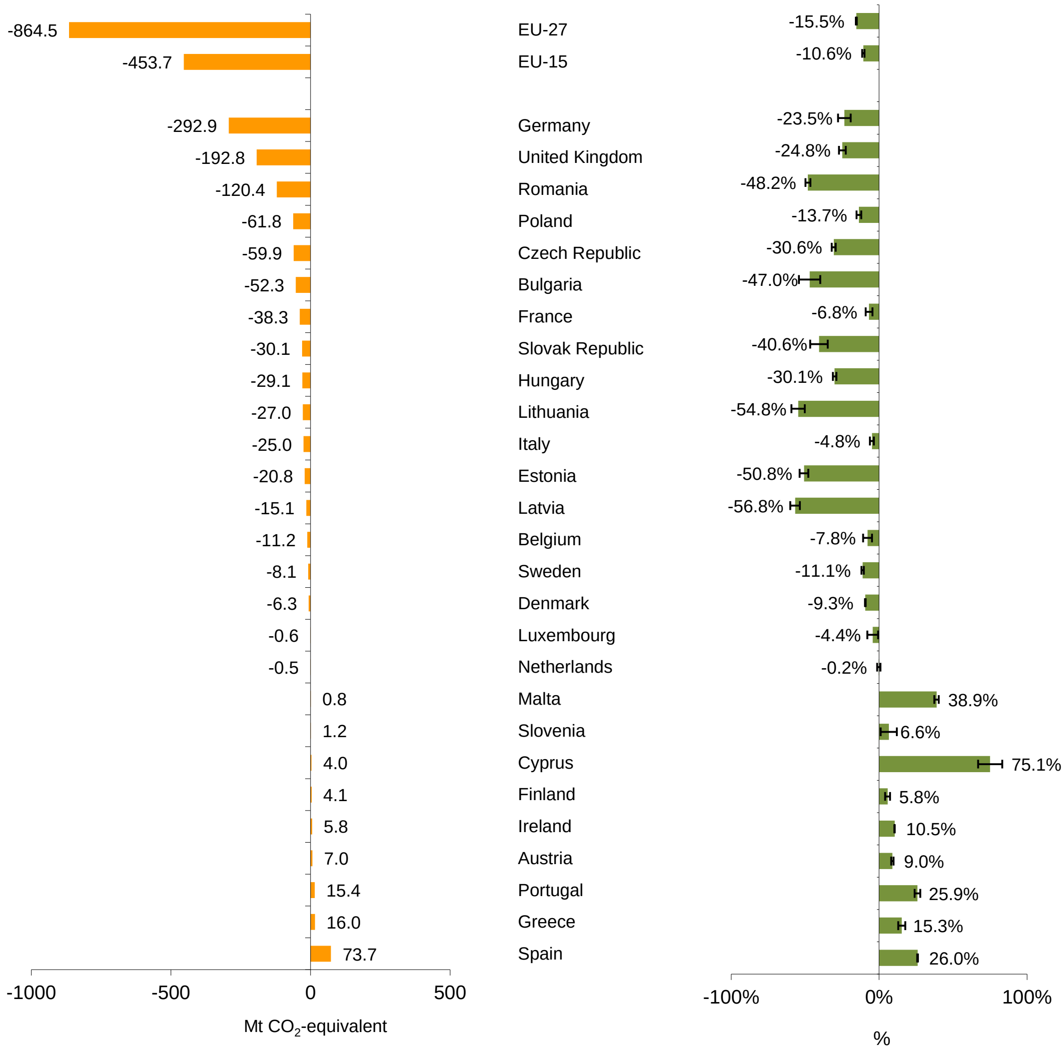
Source: EEA European Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM), based on the 2011 EU greenhouse gas inventory submitted to the UNFCCC for the years 1990-2009 and early estimates for 2010

Change in GHG emissions in the period 1990–2010

Figure ES.2 presents the estimated change in GHG emissions for each Member State between 1990 and 2010 ([4]). Leaving aside the 2009 economic recession, a wide range of factors and policies (climatic and non-climatic) have contributed to the long-term decline in GHG emissions in the EU, particularly for CO2. These include improvements in energy efficiency, the shift to less carbon-intensive fossil fuels and the strong increase in renewable energy use. Implementation of the EU's Climate and Energy Package should lead to further reductions in emissions. The direct effects of the Montreal Protocol in reducing emissions of ozone-depleting substances have also indirectly contributed to significant reductions in emissions of some potent greenhouse gases such as CFCs. Other EU policies such as the Nitrates Directive, the Common Agriculture Policy (CAP) and the Landfill Waste Directive have also been successful in indirectly reducing greenhouse gas emissions from non-CO2 gases such as methane and nitrous oxides.

[4] The percentage change cannot be directly compared to the emission reduction obligations under the Kyoto Protocol and the Effort Sharing Decision because Member State net balances under the EU Emission Trading Scheme (ETS) need to be taken into account and the fixed base-year emissions are not identical to the latest recalculation of 1990 emissions. Furthermore, Member State use of flexible mechanisms and LULUCF activities also contribute to compliance with the Kyoto targets.

Figure ES. 2 Change in total GHG emissions (without LULUCF) in the EU and its Member States, 1990–2010



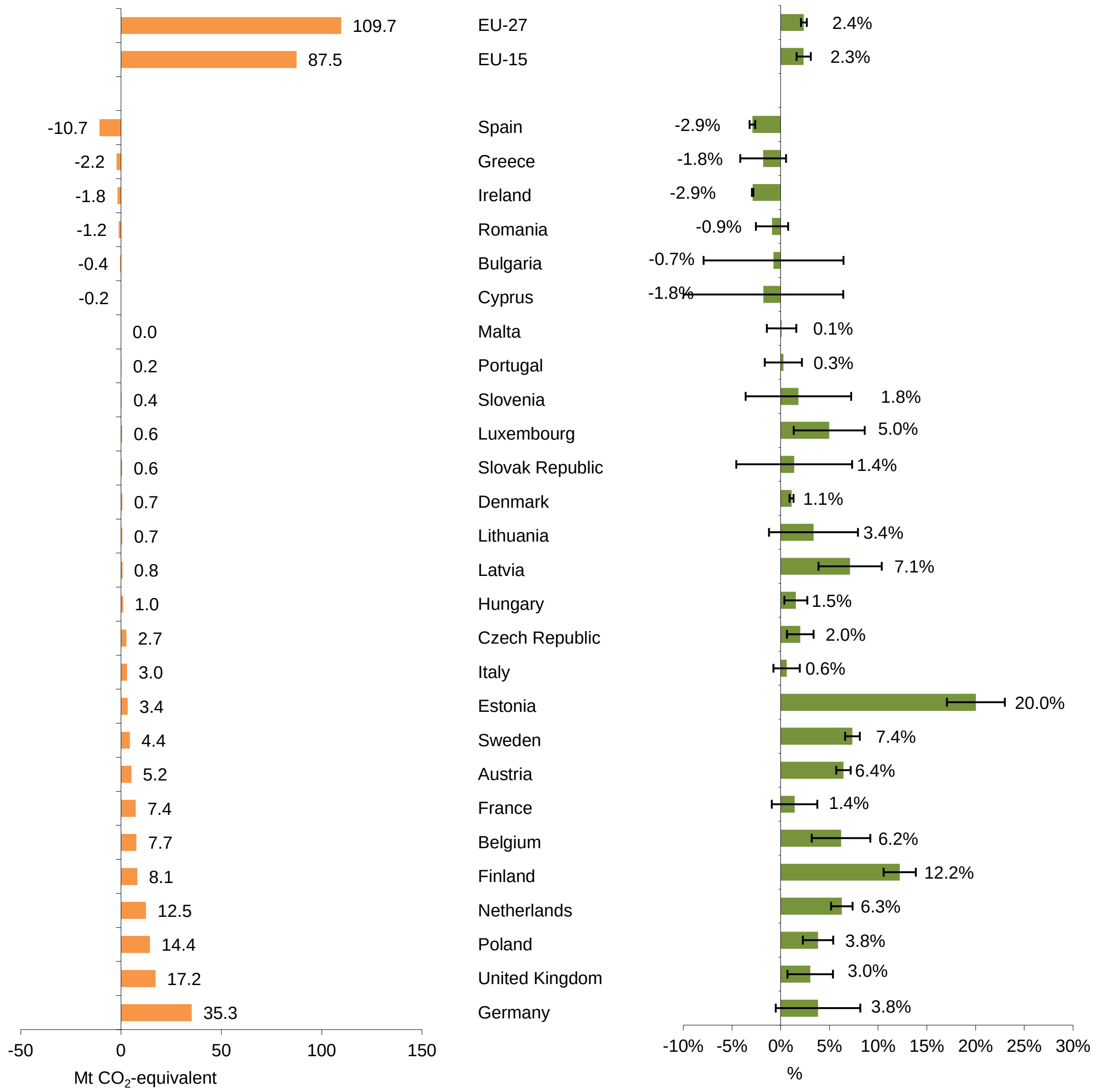
Note: Error bars are derived by doubling the deviations between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at Member States' level and for the EU on either side of the mean estimate.

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Change in GHG emissions in the period 2009–2010

The 2010 data partly reflect differences between the Member States in terms of their recovery from the economic recession. As Figure ES.3 illustrates, GHG emissions decreased in Spain, Greece and Ireland, partly due to the economic recession. The largest absolute growth in emissions occurred in Germany and in the United Kingdom. Estonia experienced the largest relative emission increase.

Figure ES. 3 Changes in total GHG emissions without LULUCF for the EU and its Member States, 2009–2010



Note: For two Member States – Denmark and the UK – inventories submitted to the UNFCCC are different to the inventories submitted under the EU Monitoring Mechanism Decision due to the fact that Kyoto inventories include non-EU territories. The comparison in this table refers to the EC GHG inventory as consistent with the inventory submitted under the EC Monitoring Mechanism Decision.

Error bars are derived by doubling the deviations between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at Member States' level and for the EU on either side of the mean estimate.

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Nine Member States have estimated and published their own early GHG emissions for 2010, which differ from the EEA data presented in Figure ES.3. Austria, Germany, Italy, Luxembourg, the Netherlands and Poland have estimated complete emissions in the form of CRF summary Table 2, similar to the approach in this report. Denmark, Spain and the United Kingdom have provided national-total emission estimates for 2010 but not for all the disaggregated subcategories of CRF summary Table 2. According to the country estimates, the expected change in GHG emissions in 2010 compared to 2009 is as follows: Austria (+ 5.4 %), Denmark (+ 0.7 %), Germany (+ 4.4 %), Italy (+ 0.5 %), Luxembourg (+ 4.6 %), the Netherlands (+ 5.9 %), Poland (+4.4 %), Spain (– 3.7 %) and the United Kingdom (+ 3.2 %).

The list below provides links to the early GHG estimates for 2010 that individual EEA member countries have published.

Germany

http://www.umweltbundesamt.de/uba-info-presse/2011/pd11-020_treibhausgase_deutlich_unter_dem_limit.htm

http://www.umweltbundesamt.de/uba-info-presse/2011/pdf/pd11-020_anhangthg_ab_1990. pdf

http://www.umweltbundesamt.de/uba-info-presse/2011/pdf/pd11-020_anhang_emissionsquellen.pdf

Finland (only CO_2 from energy)

http://www.stat.fi/til/ehkh/2010/04/ ehkh_2010_04_2011-03-29_tie_001_en.html

France (only mainland France without overseas departments)

http://www.citepa.org/emissions/nationale/Ges/ Emissions_FRmt_GES.pdf

The Netherlands

http://www.cbs.nl/nl-NL/menu/themas/natuur-milieu/publicaties/artikelen/archief/2011/2011-3453-wm.htm

Norway

http://www.ssb.no/english/subjects/01/04/10/ klimagassn_en/

Switzerland

http://www.bafu.admin.ch/dokumentation/
medieninformation/00962/index.html?lang=de&msg-id=40367

Spain

http://www.marm.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Avance_Inventario_Emisiones_GEI_2010__ tcm7-162704.pdf

The United Kingdom

http://www.decc.gov.uk/en/content/cms/ statistics/climate_stats/gg_emissions/uk_ emissions/2010_prov/2010_prov.aspx.

In terms of sectors, the largest absolute emission increase in the period 2009–2010 occurred in the energy sector, which recorded a growth of 77.3 Mt CO_2-equivalent for the EU-15 and 95.5 Mt CO_2-equivalent for the EU-27 — equivalent to a 2.6 % increase in emissions in each. This growth in energy sector emissions reflects the increase in gross inland energy consumption of fossil fuels in the EU-27 in 2010. EU-27 natural gas use increased by about 7.4 % in 2010 compared to 2009, rising in almost all Member States. Oil consumption showed a small decrease relative to 2009 in the EU-27 (– 1.2 %) and a more pronounced decline in the EU-15. The trend in solid fuel consumption between 2009 and 2010 varied considerably among Member States, with solid fuel use increasing by 3.8 % for EU-27 as a whole (BP, 2011).

In addition to the fossil fuel trend, EU-27 use of nuclear power and renewables increased in 2010. The use of renewable energy increased by 8.8 % (IEA/OECD, 2011a), whereas the use of nuclear power increased by 3.4 % (Eurostat, 2011) in the EU-27. Energy prices rose in 2010 by 4.5 % compared to 2009, almost reaching the same level as in 2008. However, gas prices in Europe decreased by 6.1 % (notwithstanding varying trends in individual Member States), while the oil price increased by 11.5 % and the coal price rose by 9.5 %, which also explains the higher growth of gas consumption compared to other fuels (IEA/OECD, 2011b).

In Europe as a whole, the winter in 2010 was colder than the preceding year, while summer 2010 was warmer (EEA, 2011e), leading to a higher demand for heating and cooling. Cooling degree days ([5])in several Member States in the third quarter of 2010 were higher than in the same period in 2009, especially in France, Greece, Hungary, Italy, Portugal, Romania and Spain (EC, 2011).

The second largest absolute increase in emissions occurred in the industrial processes sector with growth of 17.6 Mt CO_2-equivalent for the EU-15 (7.0 %) and 24.1 Mt CO_2-equivalent for the EU-27 (7.5 %). This rise in industrial emissions reflects increased emissions in cement production and the iron and steel industry, whereas the chemical industry recorded a slight decrease. Verified emissions from industrial installations (excluding combustion) covered under the ETS (activity codes 2–8) increased by 6 % for the EU-15 and by 5 % for the EU-27 during 2009 and 2010. The increase was particularly strong in the pig iron or steel sector, which recorded 22.1 % growth in the EU-15 and a 19 % increase in the EU-27 (EEA, 2011c). Economic recovery in many European countries led to significant increases in industrial output and emissions.

In the agricultural sector GHG emissions decreased by 4.9 Mt CO_2-equivalent or 1.3 % in the EU-15 and by 7.3 Mt CO_2-equivalent or 1.5 % in the EU-27. The enteric fermentation and agricultural soils sub-sectors recorded particularly large reductions. Based on data derived from Eurostat, Italy and France showed a slight decrease in the number of cattle, while in Romania cattle, swine and sheep numbers declined significantly. A lower number of cattle results in less manure applied to soils and thus lower emissions of N_2O from soils. In addition, as the annual consumption of synthetic fertiliser — and thus N_2O emissions from the N input to soils — is estimated based on crop areas and the fertiliser application rate, a decrease in total utilised agricultural area leads to a reduction in emissions.

Greenhouse gas emissions from the waste sector are estimated to have fallen by 2.3 % in the EU-15 in 2010 and by 1.8 % in the EU-27. Emissions mainly occur in the solid waste disposal on land sub-sector, where CH_4 emissions are largely determined by the amount of biodegradable waste going to landfills.

Emission reductions in recent years are partly due to the (early) implementation of the Landfill Directive (EC, 1999) and similar legislation in the Member States. The Landfill Directive requires the Member States to reduce the amount of biodegradable waste that goes untreated to landfills and to install landfill gas recovery at all new sites. Linear extrapolation of the trend of previous years therefore implied a continued fall in GHG emissions from waste.

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[5]Cooling degree days are defined as follows: the higher the outdoor temperature, the higher the number of cooling degrees days. On those days, when the daily average outdoor temperature is higher than 21°C, cooling degrees days values are in the range of positive numbers, otherwise they equal zero.

Uncertainty in early GHG emissions estimates

There is always a degree of uncertainty in estimating greenhouse gas emissions. Uncertainty increases if there is a lack of up-to-date activity data for some source categories, or there are changes in implied emission factors or in the methodologies used by Member States.

The early 2010 estimates are based on the national methodologies and emission factors used by Member States in their 2011 official submissions to the UNFCCC. Current quality improvements in Member State inventories due to take effect in next year's official submissions to the UNFCCC are therefore a source of uncertainty for the proxy inventory.

The uncertainty ranges presented for the early 2010 estimates are derived from comparing the official national data submitted to the UNFCCC for 2009 to the EEA early estimates for that year. However, by assessing the early greenhouse gas estimates that several Member States have produced for 2010 (Austria, Denmark, Germany, Italy, Luxembourg, the Netherlands, Poland, Spain and the United Kingdom), the EEA was able to verify the most suitable methodology for calculating emissions (see also Section 4.1.1), resulting in a reduced uncertainty range.

Official 2010 greenhouse gas emissions for the EU will be available in end-May or early-June 2012, when the EEA publishes the EU greenhouse gas inventory 1990–2010 and inventory report 2012 for submission to the UNFCCC.

References

BP, 2011, BP Statistical Review of World Energy 2011 (http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2011/STAGING/local_assets/pdf/statistical_review_of_world_energy_full_report_2011.pdf) accessed 24 September 2011.

EC, 1999, Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, OJ L 182, 16.7.1999.

EC, 2004, 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 49, 19.2.2004.

EC, 2011, European Commission – Directorate-General for Energy 2011 — quarterly report on European electricity markets (http://ec.europa.eu/ energy/observatory/electricity/doc/qreem_2010_ quarter3.pdf) accessed 2 October 2011.

EEA, 2009, 'New estimates confirm the declining trend in EU greenhouse gas emissions' (http://www.eea.europa.eu/highlights/new-estimates-confirm-the-declining-trend-in-eu-greenhouse-gas-emissions) accessed 24 September 2011.

EEA, 2010, 'Recession accelerates the decline in EU greenhouse gas emissions' (http://www.eea.europa. eu/highlights/recession-accelerates-the-decline-in) accessed 24 September 2011.

EEA, 2011a, 'EEA greenhouse gas data viewer' (http://dataservice.eea.europa.eu/PivotApp/pivot. aspx?pivotid=475) accessed 24 September 2011.

EEA, 2011b, *Annual European Union greenhouse gas inventory 1990–2009 and inventory report 2011,* EEA Technical Report No 2/2011 (http:// www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2011) accessed 24 September 2011.

EEA, 2011c, 'European Union Emissions Trading Scheme (EU ETS) data viewer' (http://dataservice. eea.europa.eu/PivotApp/pivot.aspx?pivotid=473) accessed 24 September 2011.

EEA, 2011d, Why did greenhouse gas emissions fall in the EU in 2009? EEA analysis in brief (http://www.eea. europa.eu/publications/european-union-greenhouse-gas-inventory-2011/why-did-greenhouse-gas-emissions) accessed 24 September 2011.

EEA, 2011e, 'Global and European temperature (CSI 012/CLIM 001) — Assessment published May 2011' (http://www.eea.europa.eu/data-and-maps/ indicators/global-and-european-temperature/global-and-european-temperature-assessment-4) accessed 24 September 2011.

EU, 2009, Council adopts climate energy legislative package (http://www.consilium.europa.eu/uedocs/ cms_data/docs/pressdata/en/misc/107136.pdf) accessed 24 September 2011.

EU, 2011, Beyond GDP — Measuring progress, true wealth and the well-being of nations (http://www. beyond-gdp.eu/) accessed 24 September 2011.

Eurostat, 2011, 'Energy — Database' (http://epp. eurostat.ec.europa.eu/portal/page/portal/energy/data/ database) accessed 24 September 2011.

IEA/OECD, 2011a, *Renewables Information 2011*, International Energy Agency and Organisation for Economic Co-operation and Development.

IEA/OECD, 2011b, *End-use energy prices database, 2011*, International Energy Agency and Organisation for Economic Co-operation and Development.

UNFCCC, 2011, 'Kyoto Protocol base year data', (http://unfccc.int/ghg_data/kp_data_unfccc/base_ year_data/items/4354.php) accessed 24 September 2011.

• Background and objective

The objective of this report is to provide an early estimate of greenhouse gas (GHG) emissions in the EU-15 and EU-27 for the year 2010. The national GHG (greenhouse gas) inventories of the EU-27 Member States under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol are available for policy and market analysis at a delay of normally 16 to 18 months.[6] The next official GHG inventory submissions to UNFCCC will occur in April/May 2012.

There are clear advantages in generating early GHG estimates for all sectors. Under the Kyoto Protocol, the EU-15 took on a common commitment to reduce emissions by 8 % between 2008 and 2012 compared to emissions in the base year. When Member States set national emission caps for installations under the ETS for the period 2008–2012, they allocated part of their Kyoto emission budget (Kyoto Assigned Amounts) to the EU ETS and fixed the overall contribution of the ETS sectors towards reaching Kyoto national targets. ETS information runs on a year t-1 timeline but success in reducing emissions from sectors not covered by the EU ETS (running on a year t-2 timeline) will determine whether governments need to use Kyoto flexible mechanisms to achieve their targets. Therefore, an early estimate of the previous year's emissions can improve tracking and analysis of progress towards Kyoto targets, as it is done in the annual EEA report on greenhouse gas emission trends and projections in Europe.

In addition, the 2009 EU's Climate and Energy Package encourages trading and non-trading sectors to run on similar timelines. The Package represents the EU's response to limiting the rise in global average temperature to no more than 2 °C above pre-industrial levels. To achieve this Member States agreed to reduce total EU GHG emissions by 20 % compared to 1990 by 2020. Both ETS and non-ETS sectors will contribute to the 20 % objective. Minimising overall reduction costs to reach the 20 % objective implies a 21 % reduction in emissions from EU ETS compared to 2005 by 2020 and a reduction of approximately 10 % compared to 2005 by 2020 for non-trading sectors. From 2013, there will be an EU-wide cap on emissions from ETS installations (instead of national allocation plans as under Kyoto) and national targets for the non-trading sectors. As with Kyoto, meeting the 2020 national targets will by and large be determined by how countries reduce emissions in the non-trading sectors. Early GHG estimates can therefore help tracking progress to towards EU and national targets for 2020.

Finally, the Beyond GDP process (EU, 2011) likewise encourages authorities to generate environmental information in as timely a manner as socio-economic information.

In recent years, the EEA and its European Topic Centre on Air Pollution and Climate Change Mitigation have developed a methodology to estimate GHG emissions using a bottom up approach — based on data or estimates for individual countries, sectors and gases — to derive EU GHG estimates in the preceding year (t–1). In 2007 a feasibility study was conducted to identify appropriate data sources and methodologies for providing a more recent estimate for GHG

[6] In terms of the delivery to the European Commission, the delay is 3 months shorter.

emissions of the past year. In 2008 these methodologies were applied for the first year resulting in approximated GHG estimates.

The EEA published its first early estimates of greenhouse gas emissions for 2008 at the end of August 2009[7]. The actual reduction in greenhouse gas emissions in 2008, as officially reported to UNFCCC earlier this year, was captured by the confidence interval around the estimates for EU-15 and EU-27 a year earlier. The significant reduction in GHG emissions in 2009 as indicated by Member States with their GHG inventories submitted under UNFCCC in 2011 was again captured by the confidence interval of the EEA estimates (see section .2).

In the present report the methodological approach from 2009 is repeated with several improvements reflecting experiences from the previous report and the use of additional data sources. The 2010 emission results for Member States and EU as well as the methodologies used are presented in the following sections of this report for transparency reasons, as this is how EU estimates have been derived. The 2010 estimates are based on the latest activity data available at country level and assume no change in emission factors or methodologies as compared to the official 2011 submissions to UNFCCC (which relate to emissions in 2009).

The approximated GHG inventory for 2010 covers total GHG emissions as reported under the Kyoto Protocol, excluding the LULUCF sector. For the most important source categories, data sources with updated activity or emission data for 2010 were identified, which were then used to calculate emissions. For source categories for which no international datasets with updated activity data exists or which are too complex for such an approach from a methodological point of view, emissions were extrapolated from past trends (linear extrapolation) or emissions from the previous year were held constant if historic data did not show a linear trend. On this basis, a detailed bottom-up approach was developed that covers the full scope of emissions of a GHG inventory submission.

Some Member States estimate and publish their own early estimates of GHG emissions for the preceding year. Where such estimates exist they are clearly referenced in this report in order to ensure complete transparency regarding the different GHG estimates available. The EEA has used the early estimates of 2010 GHG emissions produced by EEA member countries to assess progress towards the Kyoto targets in its annual trends and projections report (due to be published alongside the present report). In that report, the EEA's early estimates for 2010 were only used for countries that lack their own early estimates to track progress towards national and EU targets. Countries' early emission estimates were also used for quality assurance and quality control of the EEA's GHG early estimates for 2010.

In essence, this report aims at providing greenhouse gas estimates at EU level one year before the official submission of national greenhouse gas inventories to UNFCCC. The estimates are

[7] New estimates confirm the declining trend in EU greenhouse gas emissions http://www.eea.europa.eu/highlights/new-estimates-confirm-the-declining-trend-in-eu-greenhouse-gas-emissions

based on a bottom-up approach with country specific sources and country-specific methods. The calculations make use of publicly available verified EU ETS emissions for 2010 (t-1) and published (t-1) activity data (at national, European and international levels) disaggregated by major source category in all sectors reported under the UNFCCC and the Kyoto Protocol. Some countries are producing and/or publishing their own early greenhouse gas estimates. These have been used by the EEA to better assess current progress in relation to greenhouse gas emission targets and also as a QA/QC and verification of own calculations.

• General results

.1 European GHG emissions in 2010

The 2010 EEA estimates indicate that after a decreasing trend of EU greenhouse gas emissions for five consecutive years, GHG emissions increased for the EU-15, the EU-27 and for most Member States (except for Bulgaria, Cyprus, Greece, Ireland, Romania and Spain) between 2009 and 2010. Compared to the 2009 official emissions published earlier this year, the annual increase in emissions is estimated to be about 2.3 % (+/-0.7 %) for the EU-15 and 2.4 % (+/-0.3 %) for the EU-27 (total emissions without LULUCF). Based on these 2010 estimates, total EU-15 emissions in 2010 would be –10.6 % below the 1990 level and -10.6 % below base year level. For EU-27, total GHG emissions in 2010 are estimated to be almost -15.5 % below 1990 emissions.

The emission increase in 2010 was partly due to the recovery from economic recession which, together with the strong growth in renewable energy use, had led to substantial emission reductions between 2008 and 2009 in all Member States. Following the significant drop in, GDP of -4.2 % in the EU-27 in 2009, official GDP data for 2010 indicate a GDP increase of 1.8 % in 2010.[8] In 2010 the winter was colder than in the previous year, in particular in Northern, Central and Eastern European countries, leading to a higher heating demand and higher emissions from the residential and commercial sector. In addition the 2010 summer was warmer than the previous year leading to a higher cooling demand[9].

The 2010 data partly reflect differences in the emission trend between those Member States that recovered from the economic recession and those with continued economic difficulties.

Figure 1 illustrates that greenhouse gas emissions decreased in Spain (-2.9 % compared to 2009), Greece (-1.8 %) and Ireland (-2.9 %). The largest absolute growth in emissions occurred in Germany (35.3 Mt CO_2eq) and the United Kingdom (17.2 Mt CO_2eq). Estonia experiences the largest relative emission increase of 20 %. Finland follows with a rise in total GHG emissions of 12.2 %.

In Germany, the largest EU economy and GHG emitter, the increase in GHG emissions is due to a favourable economic situation and higher industrial production: In 2010 GDP increased by 3.6 % and production in manufacturing industries by 10 %. Energy intensive industries such as steel production grew by 34 %, metal production by 20 % and chemical production by 17.5 %[10]. Coal and lignite consumption increased in the German power production. In addition, the cold winter in 2010 resulted in higher energy consumption for heating[11].

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8 Real GDP growth rate of GDP volume - percentage change on previous year http://epp.eurostat.ec.europa.eu/tgm/table.do;jsessionid=9ea7974b30dd8549af6fd90a4215b5a4bd09638f55ac.e34SbxiPb3uSb40Lb34LaxqRb30Ne0?tab=table&plugin=1&language=en&pcode=tsieb020

9 European Commission – Directorate-General for Energy 2011

10 Ziesing 2011

11 Umweltbundesamt 2011

The increase in CO_2 emissions between 2009 and 2010 in UK resulted primarily from a rise in residential gas use. Between 2009 and 2010 there was a 13 per cent increase in emissions from this sector[12]. 2010 was, on average, the coldest year since 1987 in the UK. This increased the demand for space heating in 2010, which resulted in a significant increase in emissions from residential gas use. The energy supply sector was the second biggest contributor to the increase in CO_2 emissions between 2009 and 2010 in the UK. The increase in emissions from this sector since 2009 can almost entirely be attributed to power stations. Due to maintenance outages at some nuclear power stations, there was less nuclear power available for electricity generation, and more coal and gas were used instead. Generation from nuclear sources fell by 10 %, from 69 TWh in 2009 to 62 TWh in 2010, due to maintenance outages at several stations, including the largest nuclear station, Sizewell B, offline for six months.[13]

In Spain GHG emissions decreased despite an increase in net electricity production due to a higher use of renewable energies and nuclear energy.[14] The continued economic recession in Spain was a one factor for the emission decrease although primary consumption of renewables continued growing at high rates[15]. Low temperatures in the first and fourth quarter 2010 led to higher emissions in the residential and service sector due to higher gas use. Transport emissions in Spain decreased by 3 % due to lower fuel consumption and higher shares of biofuels. The gross consumption of biogasoline and biodiesel increased by 53 % and by 31 % in 2009/2010, respectively. Data available from Eurostat suggest that annual road freight transport in Spain is decreasing for the third consecutive year since 2007: during 2009 and 2010, annual road freight transport decreased by 8 %.[16]

The strongest relative emission increase of 20 % between 2009 and 2010 occurred in Estonia which is driven by a similar high raise in final energy consumption. The ETS emissions in Estonia even grew by 40 % in the same period. The increase in energy production was mainly caused by a growing demand for energy induced by more active manufacturing as well as by

12 DECC 2011a

13 DECC 2011b

14 Ministerio de Medio Ambiente y Medio Rural y Marino 2011

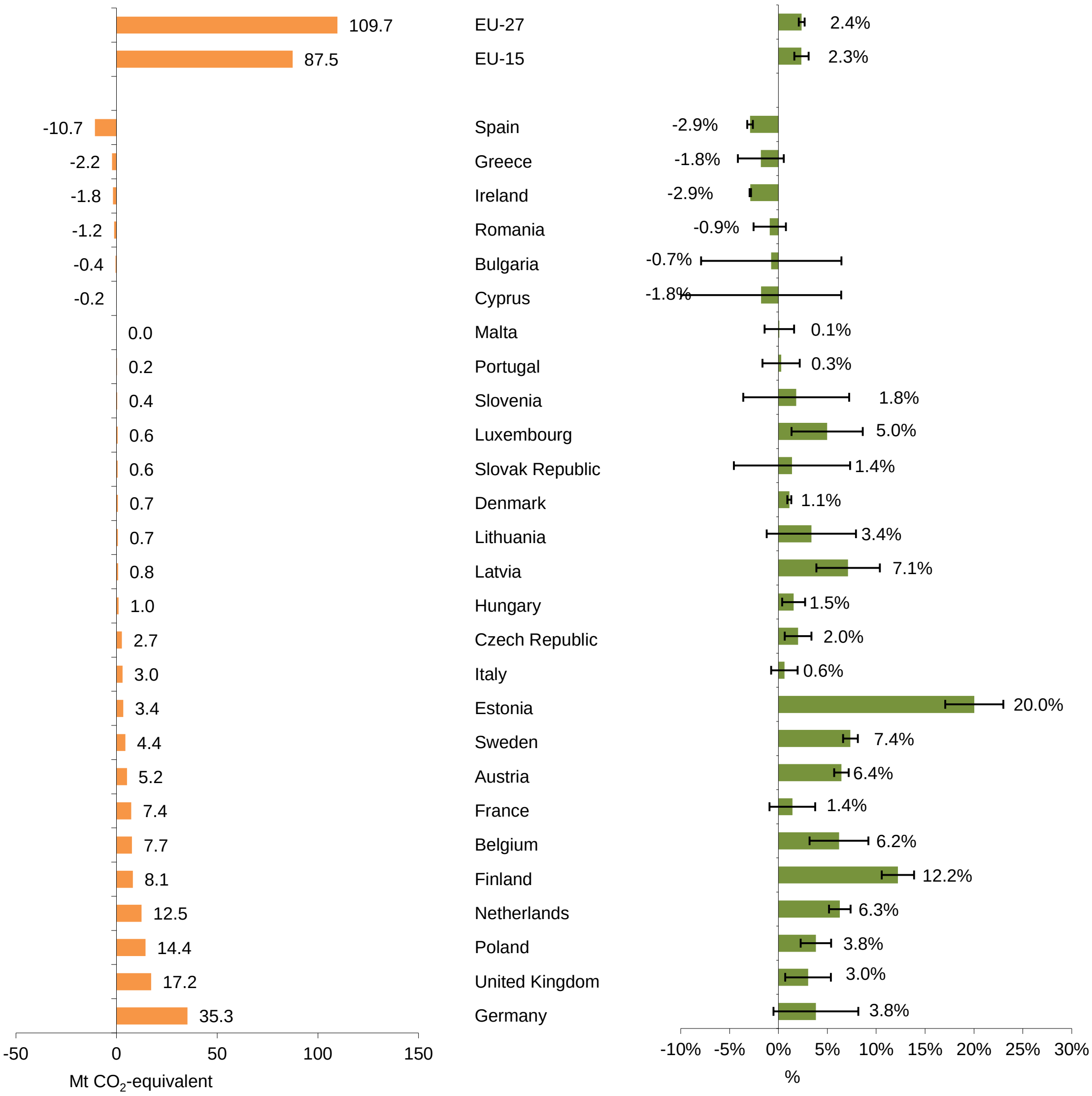
15 Both renewables and the economic recession were the main reasons for the decrease in GHG emissions in EU Member States in 2009 http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2011/resolveuid/0847dce05c7f4f7b7c17cc45f917f3ba Renewables continue to be a main driver of lower-than-otherwise GHG emissions in 2010. Already in 2008, Spain accounted for about one third of the EU-27 net reduction in GHG emissions because of less use of (high carbon content) coal in electricity generation, more use gas and more use of renewable energy, as well as improved efficiency in the transformation of energy http://www.eea.europa.eu/pressroom/newsreleases/why-did-greenhouse-gas-emissions The strong growth in renewable energy consumption continued in Spain in 2009, and based on preliminary data, is expected to continue in 2010 despite the economic recession. Other factors contributing to lower GHG emissions will be analyzed in 2012, when the full energy balances and official GHG inventories become available.

16 IEA/OECD Renewables Information 2011 for data on biodiesel and biofuels, Eurostat database for annual road transport

the growth in the exports of electricity. According to Statistics Estonia, in 2010 the production of industrial enterprises grew by 23 % compared to the previous year.[17] Electricity exports increased by 48 % and imports dropped by 64 % compared to 2009. The electricity was exported to Finland (43 %), Latvia (32 %) and Lithuania (25 %). Due to a high demand and higher electricity prices in Finland a record electricity export volume was reached via the Estlink cable. Because of the closure of the Ignalina power plant in Lithuania, more electricity was exported to Lithuania and Latvia.

[17] Statistics Estonia 2011

Figure 1 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 2009-2010[18]

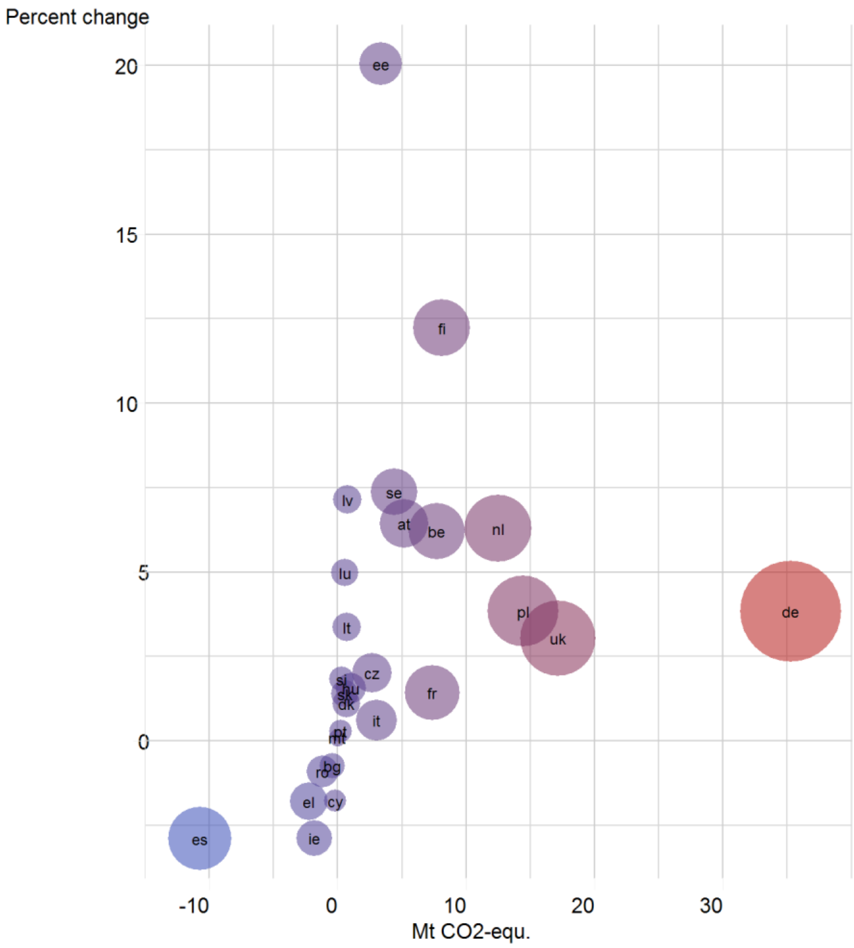


Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Note: Error bars are derived by doubling the deviations between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at Member States' level and for the EU (cf. Table 4) on either side of the mean estimate.

[18] For two Member States – Denmark and the UK – GHG inventories submitted to the UNFCCC are different to the inventories submitted under the EU Monitoring Mechanism Decision, as their Kyoto inventories include non-EU territories. The comparison in this table refers to the EU GHG inventory consistent with the inventory submitted by these countries under the EU Monitoring Mechanism Decision.

Figure 2 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 2009-2010 (This figure presents the same data as Figure 4, but in a different graphical layout)



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

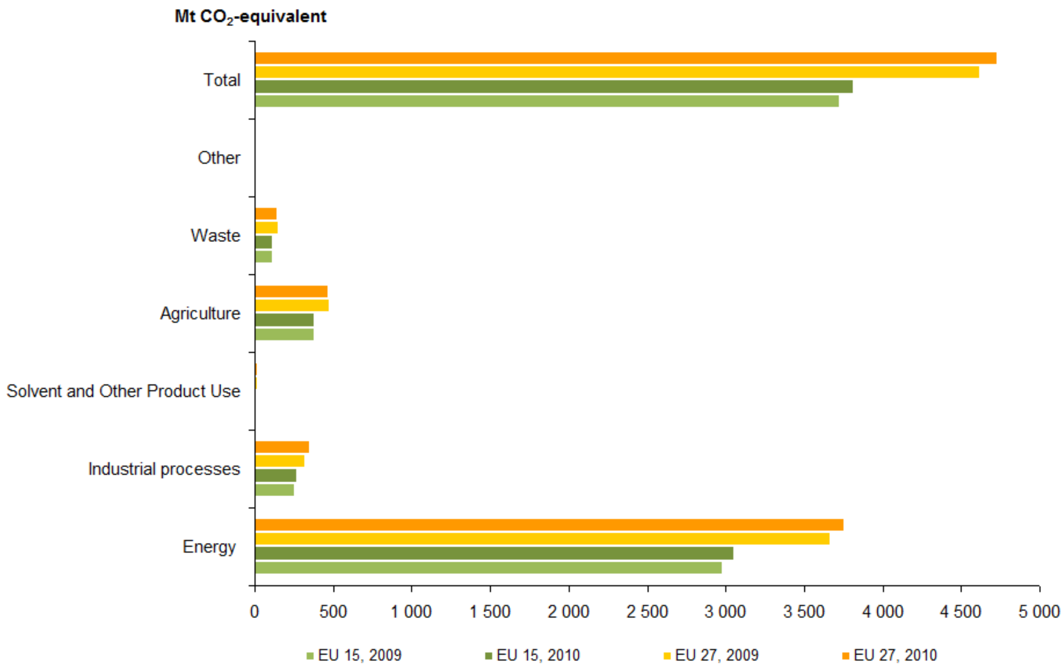
Table 1 and Figure 3 show the changes between 2009 and 2010 at sectoral level for the EU-15 and the EU-27.

Table 1 Change in GHG emissions between 2009 and 2010 at sectoral level in absolute and relative terms

Sector All	**Change 2009/10**			
	EU-15		**EU-27**	
	Mt CO_2eq	**%**	**Mt CO_2eq**	**%**
Energy	77.3	2.6%	95.5	2.6%
Industrial processes	17.6	7.0%	24.1	7.5%
Solvent and Other Product Use	0.0	-0.3%	0.0	-0.3%
Agriculture	-4.9	-1.3%	-7.3	-1.5%
Waste	-2.5	-2.3%	-2.6	-1.8%
Other	NE,	NE,	NE,	NE,
Total	***87.5***	***2.35%***	***109.7***	***2.38%***

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Figure 3 Change in GHG emissions between 2009 and 2010 at sectoral level



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

The 2nd largest emission increase from 2009 to 2010 happened in Finland where total energy consumption in 2010 grew by 9 %[19]. Energy consumption increased due to the recovery of industrial production and for heating of buildings. The use of fossil fuels grew by 11 % and peat use increased by over 30 % in Finland. The consumption of hard coal also grew by 23 per cent. Energy produced with nuclear energy went down by three per cent, which was caused by longer maintenance shutdowns in the nuclear power plants. The use of natural gas increased by over ten per cent. Nearly 12.4 per cent more electricity than in the previous year was also produced for exports to the Nordic market. The increase in electricity exports can partly be explained by the lower than average water supply in the Nordic countries, particularly in Sweden and Norway, which has reduced the production of electricity with hydro power. The cold winter increased the need for heating.

On a sectoral basis, the largest absolute emission increase occurs in the Energy sector, which shows a growth of 77.3 Mt CO_2eq for the EU-15 and 95.5 Mt CO_2eq for the EU-27 – equivalent to an increase in emissions of 2.6 %, respectively. This growth in emissions in the Energy sector reflects the increase of gross inland energy consumption in the EU-27 in 2010. Natural gas use increased by about 7.4 % in 2010 compared to 2009 in the EU-27 and in almost all Member States. Oil consumption showed a small decrease relative to 2009 at EU level (-1.2 %) which is more pronounced for EU-15. The trend in solid fuel consumption between 2009 and 2010 varied considerably in different Member States and solid fuel use increased by 3.0 % for EU-27.[20] Energy prices overall rose in 2010 by 4.5 % compared to 2009 and achieved an almost similar level as in 2008. However, gas prices in Europe generally decreased by 6.1 % (however individual MS show different trends), while the oil price increased by 11.5 % and the coal price by 9.5 % which also explains the higher growth of gas consumption compared to other fuels[21]. Carbon prices remained relatively stable during 2010[22].

Weather conditions in 2010 had different influences in different European regions on the energy sector. In Europe as a whole, the 2010 winter was colder than 2009's and the 2010 summer was warmer[23]. The number of actual heating degree days (i.e. Eurostat's indicator to estimate changes in heat demand) increased by about 7 % on average in the European Union between the 2009 and 2010 winters. Increases in heating degree days[24] were in particular high in Northern, Central and Eastern European countries leading to a higher heating demand. But also the number of cooling degree day (an indicative measure for residential power demand for cooling during

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19 Statistics Finland 2011

20 BP's Statistical Review of World Energy 2011

21 Price index development in real terms for industry and households for OECD Europe retrieved from IEA 2011

22 Carbonprices: http://www.pointcarbon.com/

23 Core set indicator 'Global and European temperature', EEA http://www.eea.europa.eu/data-and-maps/indicators/global-and-european-temperature/global-and-european-temperature-assessment-3

24 Heating degree days (monthly data): http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_esdgr_m&lang=en

the summer period; the higher the outdoor temperature, the higher the number of cooling degrees days) in the third quarter of 2010 were higher than in the same period in 2009, especially in South Eastern Europe (France, Greece, Hungary, Italy, Portugal, Spain and Romania)[25].

The second largest absolute increase in emissions occurred in the Industrial Processes sector with 17.6 Mt CO_2eq for the EU-15 (7.0 %) and 24.1 Mt CO_2eq for the EU-27 (7.5 %). This rise in industrial emissions reflects an increase in emissions in the cement production and iron and steel industry, whereas emissions from chemical industry show a slight decrease in non-CO_2 emissions. Economic recovery in many European countries led to significant increases in the iron and steel production in nearly all Member States in 2010 (except for Greece and the UK), e.g. crude steel production increased by more than 40 % in Belgium, Romania and Sweden, blast furnace iron production increased by more than 40 % in Germany, Italy and Belgium compared to 2009[26]. This trend is also given by referring to the verified emissions data from non-combustion installations covered under the ETS. CO_2 emissions from activity code 5 (pig iron or steel) in 2010 increased by more than 40 % for Belgium, Italy and Sweden and by 28 % in Germany compared to the previous year (see chapter .2.2)[27]. In the cement sector the EU-27 production increased slightly in 2010 compared to 2009.

In the agricultural sector GHG emissions show a decrease of -4.9 Mt CO_2eq or -1.3 % and for the EU-15 and a decrease of -1.5 % or -7.3 Mt CO_2eq for the EU-27. This decrease was mainly due to emission reductions in the sub-sectors Enteric Fermentation and Agricultural Soils that resulted from a lower number of cattle in France, Italy and Romania. Based on results of statistical survey on livestock and animal production, the Romanian National Institute of Statistics found that animal production in Romania decreased in 2010 compared to 2009[28]. A lower number of cattle resulted in a lower amount of manure applied to soils and thus less emissions of N_2O from soils. In addition, a reduced total utilised agricultural area and an associated minor annual consumption of synthetic fertilizer led to a reduction in emissions in the UK[29].

The Waste sector is expected to show a rather small decrease of –2.3 % for the EU-15 and -1.8 % for the EU-27. GHG emissions decreased mainly in the sub-sector Solid Waste Disposal on Land where the amount of biodegradable waste going to landfills – as the main driving force of CH4 emissions – gradually decreased in most Member States since several years. To fulfil targets laid down in the Landfill Directive that was adopted in 1999, Member States are required to reduce the amount of biodegradable waste disposed untreated to landfills and to install landfill gas

[25] European Commission – Directorate-General for Energy 2011

[26] Based on crude steel production and blast furnace iron production from IISI

[27] European Union Emissions Trading System (EU ETS) data viewer, EEA http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=473

[28] National Institute of Statistics Bulgaria 2011

[29] DEFRA 2011

recovery at all new sites[30]. Thus, linear extrapolation of the trend of previous years led to continuously decreasing GHG emissions from Waste.

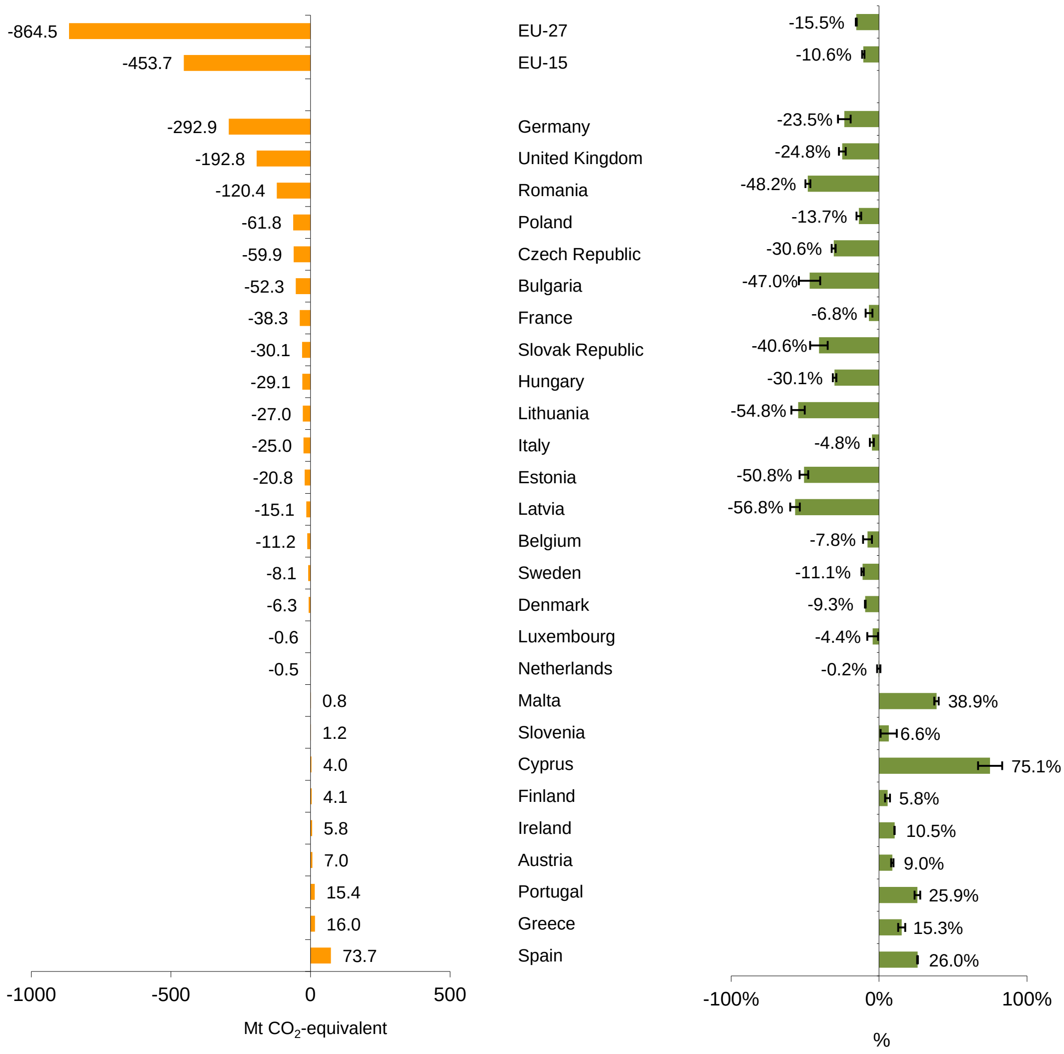
Figure 4 shows the emission trend for total GHG emissions without LULUCF between the years 1990 and 2010. According to these estimates, total EU-15 emissions in 2010 will be -10.6 % below the 1990 level and -10.6 % below base year level. For EU-27, total GHG emissions in 2010 are estimated to be almost -15.5 % below 1990 emissions.

It should be borne in mind, however, that the percentage reduction trends shown in Figure 4 cannot be directly compared to the emission reduction obligations under the Kyoto Protocol and the Effort Sharing Decision for reasons of scope:

The emissions and emission trends in this report do not contain the information whether a Member State has a positive or negative net balance under EU Emission Trading System. In order to assess a Member State's performance with regard to the Kyoto targets, the physical emissions would need to be corrected for that ETS balance. Moreover, the 1990 emission as reported by the Member States in their latest GHG inventory submissions are not necessarily identical to the base year emissions as fixed after UNFCCC review of initial reports under the Kyoto Protocol. Furthermore, Member States have the option to influence their performance in regard to the Kyoto targets by taking action in the LULUCF (Land use, land use change and forestry) sector or by making use of the flexible mechanisms under the Kyoto Protocol. In addition, regarding the EU-15's progress to its joint Kyoto targets as whole, it must not neglected that overachievements by single Member States might not be available to compensate other Member States' failure to achieve their own targets. A detailed analysis of Member States' and the EU-15's progress towards the Kyoto targets is presented in the EEA report "Tracking progress towards Kyoto and 2020 targets in Europe".

[30] Directive 1999/31/EC

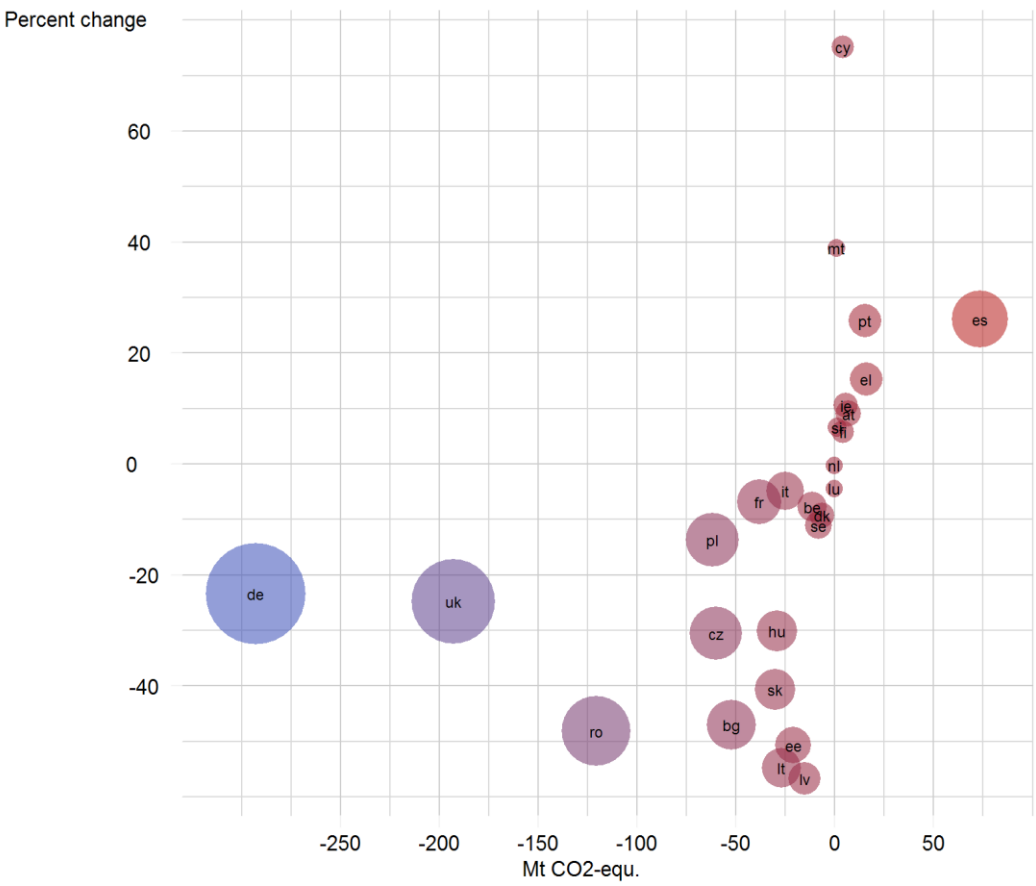
Figure 4 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 1990-2010



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Note: Error bars are derived by doubling the deviations between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at Member States' level and for the EU (cf. Table 4) on either side of the mean estimate.

Figure 5 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 1990-2010 (This figure presents the same data as Figure 7, but in a different graphical lay-out)



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Annex 2 includes summary tables for 2010 for the EU-27, EU-15 and for each Member State. Table 2 and Table 3 show the detailed results for the EU-15 and the EU-27.

Table 2 *Summary table of approximated GHG emissions for 2010 for EU-15 (total emissions without LULUCF)*

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
EU-15

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3 156 139.1**	**305 515.4**	**274 583.4**	**67 299.6**	**1 865.5**	**5 781.8**	**3 811 184.9**
1. Energy	**2 978 562.5**	**42 485.9**	**29 091.0**				**3 050 139.4**
A. Fuel Combustion (Sectoral Approach)	2 960 012.2	12 728.7	28 985.6				3 001 726.5
1. Energy Industries	1 037 268.3	2 683.6	8 795.1				1 048 746.9
2. Manufacturing Industries and Construction	494 041.6	1 518.5	6 125.6				501 685.7
3. Transport	798 428.1	1 163.7	7 751.1				807 342.9
4. Other Sectors	IE	IE	IE				IE,
5. Other	630 274.2	7 362.8	6 313.9				643 950.9
B. Fugitive Emissions from Fuels	18 550.3	29 757.3	105.3				48 412.9
1. Solid Fuels	745.3	7 678.4	IE				8 423.7
2. Oil and Natural Gas	17 805.0	22 078.9	IE				39 883.9
2. Industrial Processes	**169 390.4**	**606.3**	**22 963.7**	**67 299.6**	**1 865.5**	**5 781.8**	**267 907.4**
A. Mineral Products	91 741.6	6.8	NE				91 748.4
B. Chemical Industry	29 852.4	440.3	22 856.0				53 148.8
C. Metal Production	47 457.7	117.0	21.8		IE	IE	47 596.4
D. Other Production	32.0	6.2	79.4				117.6
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	306.7	36.1	6.5	IE	IE	IE	349.3
3. Solvent and Other Product Use	**5 786.0**		**3 532.5**				**9 318.5**
4. Agriculture		**166 651.4**	**207 297.9**				**373 949.2**
A. Enteric Fermentation		122 352.7					122 352.7
B. Manure Management		41 431.3	21 307.7				62 739.0
C. Rice Cultivation		2 447.5					2 447.5
D. Agricultural Soils(3)		8.7	185 895.7				185 904.4
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		411.2	94.5				505.7
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**2 400.2**	**95 771.7**	**11 698.4**				**109 870.4**
A. Solid Waste Disposal on Land	11.3	83 528.8	1.2				83 541.3
B. Waste-water Handling		10 043.9	10 467.3				20 511.1
C. Waste Incineration	2 359.8	484.9	270.1				3 114.8
D. Other	29.1	1 714.1	959.9				2 703.2
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	3 811 184.9
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Table 3 *Summary table of approximated GHG emissions for 2009 for EU-27 (total emissions without LULUCF)*

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
EU-27

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3 881 124.7**	**408 603.8**	**351 318.6**	**74 481.0**	**2 440.1**	**6 178.6**	**4 724 146.7**
1. Energy	**3 639 003.8**	**81 988.3**	**34 302.1**				**3 755 294.2**
A. Fuel Combustion (Sectoral Approach)	3 619 999.5	18 579.9	34 196.3				3 672 775.6
1. Energy Industries	1 398 250.7	2 863.5	10 371.0				1 411 485.2
2. Manufacturing Industries and Construction	576 904.7	1 715.3	6 574.0				585 194.1
3. Transport	917 147.8	1 450.0	9 822.7				928 420.5
4. Other Sectors	IE	IE	IE				IE,
5. Other	727 696.2	12 551.1	7 428.5				747 675.8
B. Fugitive Emissions from Fuels	19 004.3	63 408.4	105.8				82 518.6
1. Solid Fuels	827.8	23 579.4	IE				24 407.2
2. Oil and Natural Gas	18 176.5	39 829.0	IE				58 005.5
2. Industrial Processes	**231 961.6**	**1 104.7**	**28 686.0**	**74 481.0**	**2 440.1**	**6 178.6**	**344 851.9**
A. Mineral Products	116 366.6	10.4	NE				116 377.1
B. Chemical Industry	39 093.3	762.6	28 565.1				68 421.0
C. Metal Production	74 286.9	289.5	34.9		IE	IE	74 611.4
D. Other Production	40.6	6.2	79.4				126.2
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	2 174.1	36.1	6.5	IE	IE	IE	2 216.6
3. Solvent and Other Product Use	**7 086.8**		**4 323.3**				**11 410.1**
4. Agriculture		**198 850.4**	**269 856.5**				**468 706.9**
A. Enteric Fermentation		145 815.5					145 815.5
B. Manure Management		49 944.5	30 770.1				80 714.6
C. Rice Cultivation		2 563.7					2 563.7
D. Agricultural Soils(3)		8.7	238 940.2				238 948.9
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		517.9	146.2				664.2
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**3 072.6**	**126 660.3**	**14 150.7**				**143 883.6**
A. Solid Waste Disposal on Land	11.3	109 386.3	1.2				109 398.8
B. Waste-water Handling		14 961.0	12 772.7				27 733.6
C. Waste Incineration	3 032.1	485.7	291.8				3 809.6
D. Other	29.1	1 827.2	1 085.1				2 941.5
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	4 724 146.7
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

.2 Uncertainties

National GHG inventories are required to fulfil certain principles as laid out in the UNFCCC reporting guidelines for GHG inventories: inventories must be transparent, consistent, comparable, complete and accurate (TCCCA). The IPCC Good Practice Guidance recommends Parties to perform QA/QC procedures that are important information to enable continuous improvement to inventory estimates. Through the quantification of uncertainties at the source level and for the inventory as a whole, improvements can be prioritised.

Thus Parties may change methodologies in order to improve their greenhouse gas estimates at source level (e.g. moving from Tier 2 to Tier 3). Such methodological changes at MS level cannot be captured in the calculation of the approximated GHG inventory for the EU. On-going quality improvements in Member States' inventories to take effect in next year's official submissions to UNFCCC are therefore a source of uncertainty for the proxy inventory.

For the approximated GHG inventory uncertainties were estimated on the basis of the deviation of Member States' real GHG inventories in 2009 as submitted to UNFCCC by end of May 2011 with the approximated GHG inventory estimated for 2009. This deviation is shown for the EU-15, the EU-27 and the individual Member States in Table 4.

For the EU-15 the approximated GHG emissions were -0.7 % (-27.2 Mt CO_2eq) lower than the real GHG inventory submissions and for the EU-27 -0.3 % (-14 Mt CO_2eq). Compared to last year's analysis, the deviations between the approximated GHG inventory and the real inventory submissions could be reduced for the EU estimates. While for 2008, the approximated GHG inventory overestimated the emissions, for 2009 an underestimation of GHG emissions occurred. This is partly due to large recalculations by Member States in 2010 that resulted in higher emissions (especially in Germany and France). The national improvements of methodologies could not been considered for the calculation of the approximated GHG inventory, as the estimates for the proxy inventory have been based on the national methodologies used for 2009 inventory submissions. This is especially the case for those source categories for which linear trend extrapolation was performed, in particular for the source categories Solvent and Other Product Use and subcategories in the sector Agriculture and Waste (see below).

By referring to GHG inventory data submitted in 2011, the proxy estimates of the reduction of greenhouse gas emissions 2008/2009 amounted to -7.5 % (-301.5 Mt CO_2eq) for the EU-15 and to -7.4 % (-368.6 Mt CO_2eq) for the EU-27[31]. Greenhouse gas emissions in 2008 and 2009, as officially reported to UNFCCC in 2011, showed a reduction of emissions of -6.9 % (-274.3 Mt CO_2eq) for the EU-15 and -7.1 % (-354.5 Mt CO_2eq) for the EU-27. Even though the proxy estimates last year overestimated the average reductions officially reported to UNFCCC this year, the latter average reductions were captured by the upper and lower confidence limits around the mean proxy estimates estimated last year (+/-0.8 % for the EU-15, +/-0.6 % for the EU-27).

[31] The decrease in GHG emissions 2008/2009 of 6.9 % both or EU-15 and EU-27 as given with the proxy estimates last year and as published by EEA in 2010 (http://www.eea.europa.eu/pressroom/highlights/recession-accelerates-the-decline-in) was based on the GHG inventory submission in 2010 (for the year 2008). With the GHG inventory submissions in 2011, all Member States carried out recalculations of their data for the year 2008, resulting in a different decrease as published before (see Table 4).

Table 4 Deviation between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at Member States' level and for the EU

MS	UNFCCC 2008 (Submission 2010)	UNFCCC 2008 (Submission 2011)	UNFCCC 2009 (Submission 2011)	Proxy 2009	Change 2008-2009 Proxy (Submission 2010)	Change 2008-2009 Proxy (Submission 2011)	Change 2008-2009 UNFCCC (Submission 2011)	Deviation 2009	
	Gg CO_2eq				%			Gg CO_2eq	%
AT	86 641.2	86 960.7	80 058.9	80 650.2	-6.9%	-7.3%	-7.9%	**591.4**	**0.7%**
BE	133 252.9	135 155.1	124 439.9	128 178.0	-3.8%	-5.2%	-7.9%	**3 738.1**	**3.0%**
BG	73 467.7	69 028.8	59 493.0	63 766.3	-13.2%	-7.6%	-13.8%	**4 273.2**	**7.2%**
CY	10 219.6	10 181.8	9 400.7	10 172.4	-0.5%	-0.1%	-7.7%	**771.7**	**8.2%**
CZ	141 411.9	141 130.8	132 925.4	131 101.5	-7.3%	-7.1%	-5.8%	**-1 823.9**	**-1.4%**
DE	958 060.7	981 111.6	919 698.2	879 760.3	-8.2%	-10.3%	-6.3%	**-39 937.8**	**-4.3%**
DK	63 845.0	63 654.2	60 984.8	60 862.0	-4.7%	-4.4%	-4.2%	**-122.8**	**-0.2%**
EE	20 253.6	20 071.4	16 836.9	17 335.8	-14.4%	-13.6%	-16.1%	**498.9**	**3.0%**
EL	126 887.5	128 550.0	122 543.3	119 655.8	-5.7%	-6.9%	-4.7%	**-2 887.5**	**-2.4%**
ES	405 740.3	404 770.5	367 548.4	366 475.8	-9.7%	-9.5%	-9.2%	**-1 072.6**	**-0.3%**
FI	70 138.7	70 420.3	66 336.3	67 431.5	-3.9%	-4.2%	-5.8%	**1 095.2**	**1.7%**
FR	527 026.4	539 177.9	517 247.9	505 194.3	-4.1%	-6.3%	-4.1%	**-12 053.6**	**-2.3%**
HU	73 138.7	73 028.1	66 659.8	67 445.8	-7.8%	-7.6%	-8.7%	**785.9**	**1.2%**
IE	67 439.3	67 817.1	62 394.8	62 354.9	-7.5%	-8.1%	-8.0%	**-39.9**	**-0.1%**
IT	541 485.4	541 748.9	491 119.6	497 761.5	-8.1%	-8.1%	-9.3%	**6 641.9**	**1.4%**
LT	24 327.0	24 033.4	21 608.7	22 596.7	-7.1%	-6.0%	-10.1%	**988.0**	**4.6%**
LU	12 493.9	12 259.8	11 684.4	12 109.6	-3.1%	-1.2%	-4.7%	**425.2**	**3.6%**
LV	11 904.6	11 918.2	10 722.7	11 071.0	-7.0%	-7.1%	-10.0%	**348.2**	**3.2%**
MT	2 952.1	3 008.7	2 866.3	2 822.8	-4.4%	-6.2%	-4.7%	**-43.5**	**-1.5%**
NL	206 910.8	204 601.2	198 871.6	201 077.9	-2.8%	-1.7%	-2.8%	**2 206.3**	**1.1%**
PL	395 558.5	395 724.2	376 659.2	382 506.4	-3.3%	-3.3%	-4.8%	**5 847.2**	**1.6%**
PT	78 381.1	77 935.4	74 582.6	76 007.7	-3.0%	-2.5%	-4.3%	**1 425.1**	**1.9%**
RO	145 915.9	153 418.6	130 828.3	128 670.6	-11.8%	-16.1%	-14.7%	**-2 157.7**	**-1.6%**
SE	63 963.1	63 569.9	59 993.8	59 541.5	-6.9%	-6.3%	-5.6%	**-452.3**	**-0.8%**
SI	21 284.8	21 285.6	19 339.1	20 386.6	-4.2%	-4.2%	-9.1%	**1 047.4**	**5.4%**
SK	48 831.1	48 188.0	43 426.1	46 010.1	-5.8%	-4.5%	-9.9%	**2 584.1**	**6.0%**
UK	628 206.4	620 257.0	566 210.0	579 436.5	-7.8%	-6.6%	-8.7%	**13 226.5**	**2.3%**
EU-15	3 970 472.7	3 997 989.6	3 723 714.4	3 696 497.5	-6.9%	-7.5%	-6.9%	**-27 216.9**	**-0.7%**
EU-27	4 939 738.1	4 969 007.3	4 614 480.7	4 600 383.6	-6.9%	-7.4%	-7.1%	**-14 097.1**	**-0.3%**
EU-10	956 093.6	957 827.2	878 499.2	890 890.7	-6.8%	-7.0%	-8.3%	**12 391.5**	**1.4%**

Source: EEA's ETC ACM based on the 2010 and 2011 EU greenhouse gas inventories to UNFCCC for 2008 and 2009

Note: Deviation for EU-15 and EU-27 is based on the sum of absolute values from Member States.

Thus, the use of the data sources and methodologies for the early estimates published last year and the results mirrored rather well the decreasing trend in official emissions as reported to the UNFCCC this year.

The deviations given in Table 1 arise from several factors: the less precise methodologies and data used for the approximated GHG inventories (compared to official GHG inventories); the lack of updated (t-1) activity data for some key emission sources; and, from Member States' own recalculations of GHG estimates and methodological improvements which cannot be reflected in the approximated data where constant methodologies and emission factors are assumed.

The largest discrepancies in relative terms occurred for Cyprus (Proxy 8.2 % higher), followed by Bulgaria (Proxy 7.2 % higher) and Slovakia (Proxy 6 % higher). In absolute terms the discrepancies were highest for Germany (underestimation by Proxy of 40 Mt CO_2eq), France (underestimation by Proxy of 12 Mt CO_2eq) and the UK (overestimation by Proxy of 13 Mt CO_2eq). By comparing the percentage changes in emission levels 2008/2009 as derived from the Proxy inventory on the one hand and from official GHG inventory submissions to UNFCCC on the other, the deviations are in the same order of magnitude, see Figure 6. Whilst the emission reduction 2008/2009 as given by the approximated GHG inventory estimated for 2009 amount to -7.4 % for the EU-27, this reduction only amount to -7.1 % by using the official GHG inventory submission to UNFCCC (cf. Table 4). The difference of 0.3 % equals the deviation between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission.

Figure 6 Deviation between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission and deviation between percentage change in emission levels 2008/2009 derived from the approximated GHG inventory and from official GHG inventory submissions for Member States, EU-15 and EU-27

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 2008 and 2009

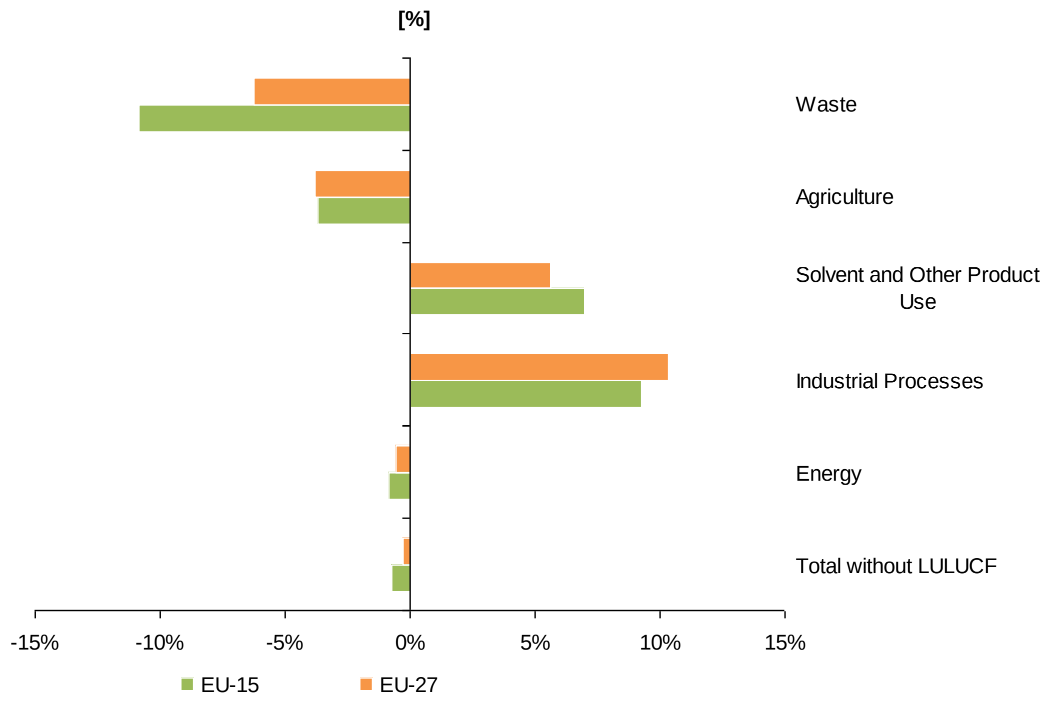
Compared to the approximated GHG emissions that have been calculated last year, deviations could be reduced by 23 of 27 Member States. For five Member States the deviations were lower than 1 % (Austria, Denmark, Spain, Ireland, and Sweden), whereas for nine Member States the deviations were higher than 3 % (Belgium, Bulgaria, Cyprus, Germany, Latvia, Lithuania, Luxembourg, Slovakia and Slovenia). New Member States still show larger percentage deviations, because in particular for the small Baltic countries the available data basis used is not very accurate).

Member States' recalculations of GHG estimates and methodological improvements played a key role for the differences for Germany and France where recalculations resulted in a large increase of GHG emissions. In the following sections the country-specific deviations are further explained:

- Germany: The underestimation of the German GHG emissions occurred mainly in the energy sector (-35.9 Mt CO_2eq in Manufacturing Industries and Construction and -8.3 Mt CO_2eq in Energy Industries), in the industrial processes sector (20.2 Mt CO_2eq from Metal Production and -6.4 Mt CO_2eq from Chemical Industry), in the agricultural sector (-14.8 Mt CO_2eq from Agricultural Soils) and in the waste sector (-1.6 Mt CO_2eq from Solid Waste Disposal on Land). Two-thirds of the overrated GHG emissions could be explained by changes in methodologies and thus recalculations which Germany performed due to recommendations from the in-country review of the annual GHG submission in 2010.
- France: The underestimation of the French GHG emissions occurred mainly in the Waste sector (-11.9 Mt CO_2eq in Solid Waste Disposal on Land) and in the agricultural sector (-1.9 Mt CO_2eq from Enteric Fermentation). Almost the entire amount of overestimated GHG emissions could be explained by changes in methodologies.
- UK: The overestimation of the British GHG emissions (13.2 Mt CO_2eq) occurred mainly in the Energy sector (6.3 Mt CO_2eq from Transport), in the Waste sector (4.2 Mt CO_2eq in Solid Waste Disposal on Land and 0.5 Mt CO_2eq from Waste-water Handling), in the Industrial Processes sector (1.1 Mt CO_2eq from Metal Production and 1 Mt CO_2eq from Chemical Industry). Almost three-quarter of the overestimated GHG emissions could be explained by changes in methodologies and thus recalculations in the 2010 inventory.

Figure 7 presents the deviations for 2009 at sectoral level for the EU-15 and for the EU-27.

Figure 7 Deviation between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at sectoral level for EU-15 and EU-27

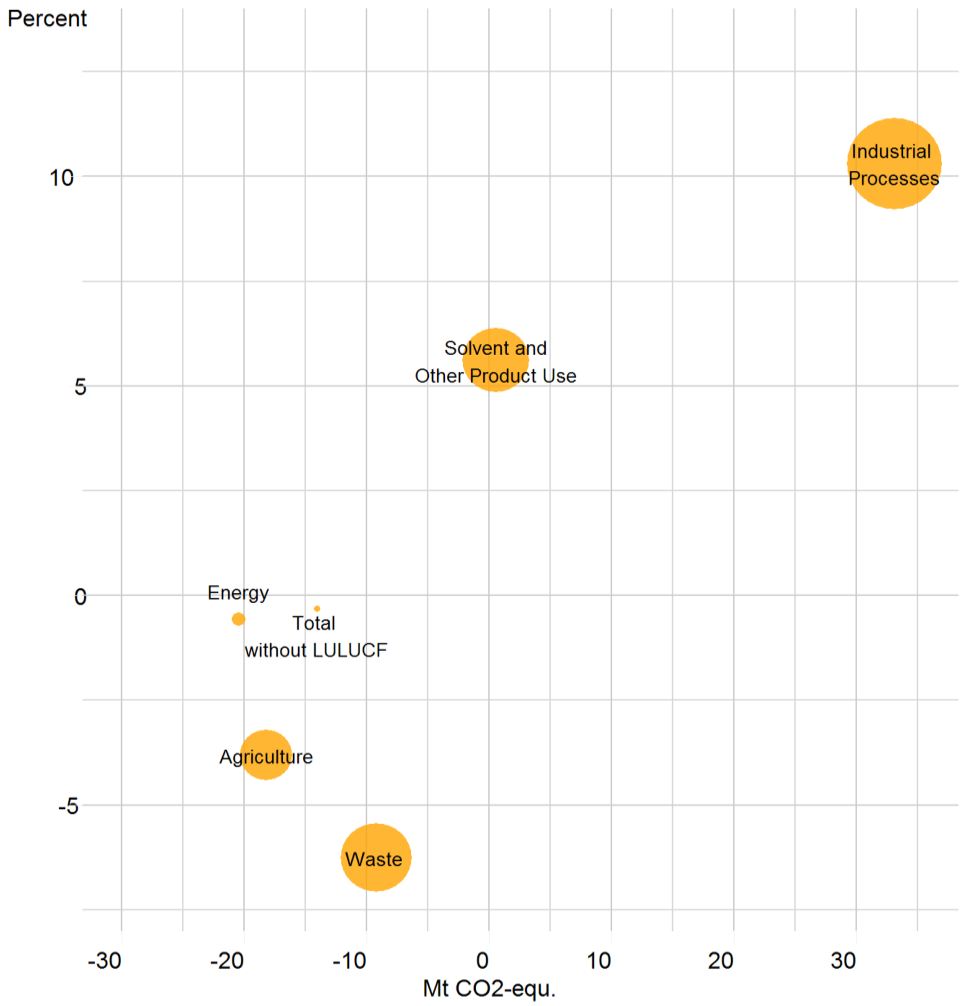


Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 2009

The largest relative deviation occurred in the Waste sector (Solid Waste Disposal on Land) – for the EU-15 the approximated GHG emissions were 10.9 % (-12.2 Mt CO_2eq) lower than the real GHG emissions as contained in the inventory submissions. Emissions from this source category, by using the proxy methodologies, were underestimated especially for France and Germany. The deviation that was identified for France (-11.5 Mt CO_2eq) was almost in the same order of magnitude as the French recalculations that were due to the non-consideration of methane recovery (10.1 Mt CO_2eq) based on recommendations by the Expert Review Team (ERT) after the In-country review in 2010 (FCCC/ARA/2010/FRA, paras 147-160). GHG emissions were overestimated especially for Bulgaria (2.8 Mt CO_2eq), thus a lower deviation could be found for the EU-27 (6.3 %) than for the EU-15. However, the deviation of the approximated GHG emission estimates in this sector could be explained by recalculations of Bulgaria: Following the recommendations from the In-county review in 2010 (FCCC/ARA/2010/BRG, paras 162 and 163), the MS recalculated the CH_4 emissions from Solid Waste Disposal on Land, resulting in a decrease of emissions of 2.6 Mt CO_2eq).

A detailed analysis of the deviations at source category level showed that the approximated results matched rather well for 1A Fuel Combustion (0.8 % lower) and 1A1 Energy Industries (0.3 % lower).

Figure 8 Deviation between the approximated GHG inventory estimated for 2009 and the real 2009 inventory submission at sectoral level for EU-27 (This figure presents the same data as Figure 7, but in a different graphical layout)



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 2009

The results for 1A2 Manufacturing Industries (11.4 % lower for the EU-15, 8.3 % lower for the EU-27) showed rather strong deviations for some large MS such as Germany (35 %) and UK (25 %). The large deviation for Germany was mostly due to major recalculations for that sector (see above). Nevertheless, for some Member States the deviations could not entirely be explained by recalculations.

In the Industrial Processes sector, the estimates for 2C Metal Production were the cause for the large deviation in the source category Industrial Processes. The underlying reason for the large difference (21 Mt CO_2eq) is the recalculation in the German GHG inventory (as explained above).

Differences also occurred for 2B Chemical Industry (-3.8 Mt CO_2eq). For these emissions no recent data sources are available for the approximated GHG inventory and emissions were extrapolated from past trends. Extrapolation methods cannot reflect the sudden changes that can occur in these source categories due to technological improvements and more drastic changes in production levels than in other source categories. For example, Portugal's only fertilizer plant manufacturing ammonia has stopped its activity 2009 and relocated the ammonia production to India (EU NIR 2011). Extrapolations for the source category 2.B.1 thus resulted in an overestimation of GHG emissions for Portugal. 2010 activity data for Chemical Industry does not become available timely enough for the approximated GHG inventory or only at very high cost. The methodologies in 2010 were refined in the way that extrapolations are now performed at a more disaggregate level than in 2009, but it is likely that differences between the approximated GHG inventory estimated the real inventory submission will remain in the 2010 data for the reasons mentioned above. Recalculations in this source category thus have a large impact on the accuracy of emission estimates. The difference (3.8 Mt CO_2eq) can indeed be explained by recalculations in the German inventory; CO_2 quantities from the recovery were included in CO_2 emissions from Ammonia Production and an error in the estimation of N_2O emissions from Nitric Acid Production was corrected.

For Mineral Products estimates matched rather well except for several new Member States Cyprus (23.9 %), Estonia (44.5 %), Hungary (14.9 %), Lithuania (9 %), Malta (-21.4 %), Romania (14.1 %) and Slovakia (-12.2 %). For all these countries the deviations could not be explained by recalculations. Despite the use of CITL data in 2010, it is likely that differences will remain in the 2010 estimates.

In the agricultural sector the difference between the approximated EU-15 GHG inventory and real EU-15 inventory data amounted to 13.9 Mt CO_2eq and derive from deviations in several subsectors: 4A Enteric Fermentation (-2.6 % for the EU-15 and -2.8 % for the EU-27), 4D Agricultural Soils (-5.4 % for the EU-15 and -5.3 % for the EU-27) and 4F Field Burning of Agricultural Residues (6.8 % for the EU-15 and -5.3 % for the EU-27). Discrepancies were largely due to recalculations of Member States' data:

Among total agricultural emissions, the difference for 4D Agricultural Soils in absolute terms was highest (-10.1 Mt CO_2eq) and deviations were mainly due to recalculations in Germany (4D.2.3, see above). Deviations in the subcategory 4A Enteric Fermentation (-3.2 Mt CO_2eq) can also be explained mainly by recalculations in Germany (see above) and in France. France corrected the CH_4 EF for dairy cows which resulted in an increase of CH_4 emissions of 1.2 Mt CO_2eq. The differences in 4F Field Burning of Agricultural Residues were minor in absolute terms (0.03 Mt CO_2eq) and are due to recalculations in Spain, where emissions from field burning of stubbles and residues from agricultural crops have been recalculated in 2008, due to the availability of new information on crop surface and yields in that year.

.3 Member States' activities and results related to preliminary 2010 GHG emissions

Nine Member States also calculated preliminary GHG inventories or at least some parts of the GHG emissions for the year 2010 and made these results available to the authors of this report. Austria, Germany, Italy, Luxembourg, the Netherlands and Poland estimated complete emissions in the form of CRF summary table 2, similar to the approach in this report. Denmark, Spain and the UK provided emission estimates for 2010 as national total only and not for all disaggregated subcategories. Some Member States published their own approximated greenhouse gas emissions for 2010 and the list below provides the links to these sources for individual EEA member countries:

- Germany:
  http://www.umweltbundesamt.de/uba-info-presse/2011/pd11-020_treibhausgase_deutlich_unter_dem_limit.htm
  http://www.umweltbundesamt.de/uba-info-presse/2011/pdf/pd11-020_anhangthg_ab_1990.pdf
  http://www.umweltbundesamt.de/uba-info-presse/2011/pdf/pd11-020_anhang_emissionsquellen.pdf
- Finland (only CO_2 from energy):
  http://www.stat.fi/til/ehkh/2010/04/ehkh_2010_04_2011-03-29_tie_001_en.html
- France (only mainland France without overseas departments):
  http://www.citepa.org/emissions/nationale/Ges/Emissions_FRmt_GES.pdf
- Netherlands:
  http://www.cbs.nl/nl-NL/menu/themas/natuur-milieu/publicaties/artikelen/archief/2011/2011-3453-wm.htm
- Norway:
  http://www.ssb.no/english/subjects/01/04/10/klimagassn_en/
- Switzerland:
  http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=de&msg-id=40367
- Spain:
  http://www.marm.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Avance_Inventario_Emisiones_GEI_2010__ tcm7-162704.pdf
- UK:
  http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/2010_prov/2010_prov.aspx

These preliminary data estimated by Member States were very useful for QA/QC purposes of the approximated EU inventory and for the refinement of methodologies. For almost all Member States there was a rather large discrepancy for emissions from fuel combustion in the Manufacturing Industries and Energy Industries, in Metal Production and Waste sector. For other sectors the comparison of the estimates presented in this report with Member States' own estimates match relatively well with mostly below 0.5 % deviation except for Austria and Spain where the approximated data differ by 1.0 % and 0.8 %, respectively (Table 5).

Table 5 Deviation of approximated GHG inventories calculated in this report from MS own preliminary emission estimates for 2010 (total GHG emissions without LULUCF)

Member State	Proxy 2010 estimates	MS 2010 own estimates	Difference [%]			Changes 2009-2010	
	Gg CO_2eq.		Proxy 2008	Proxy 2009	Proxy 2010	Proxy 2010	MS proxy
Austria	85,218	84,414	1.7%	0.7%	1.0%	6.4%	5.4%
Denmark	61,664	61,387	-1.0%	-0.2%	0.5%	1.1%	0.7%
Germany	954,973	960,100	-0.8%	-4.3%	-0.5%	3.8%	4.4%
Italy	494,140	493,581	-0.2%	1.4%	0.1%	0.6%	0.5%
Luxembourg	12,267	12,227	1.9%	3.6%	0.3%	5.0%	4.6%
Netherlands	211,357	210,654	1.2%	1.1%	0.3%	6.3%	5.9%
Poland	391,107	393,266	-2.1%	1.6%	-0.5%	3.8%	4.4%
Spain	356,854	353,949	4.6%	-0.3%	0.8%	-2.9%	-3.7%
UK	583,375	584,500	1.2%	2.3%	-0.2%	3.0%	3.2%
EU-15	3,811,185	–	0.8%	-0.7%	–	2.3%	–
EU-27	4,724,147	–	0.6%	-0.3%	–	2.4%	–

Source: Member States' preliminary data provided to EEA for the purposes of this report, own calculations

Note: Negative values indicate that the proxy inventory is lower than the MS' own estimates; positive values indicate that the proxy inventory is higher.

.4 Methodologies and data sources

For the estimation of approximated emissions, the following data sources for emissions or activities in the year 2010 were used:

- BP's Statistical Review of World Energy 2010[32];
- verified emissions reported under the EU-ETS and recorded in the CITL[33];
- Eurostat Monthly Oil and Gas Questionnaires and Monthly Coal Questionnaires
- Eurostat monthly data on crude oil production (indicator code 100100, product code 3100);
- Eurostat monthly total consumption data for natural gas (indicator code 100900, product code 4100);

32 http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2008/STAGING/local_assets/2010_downloads/statistical_review_of_world_energy_full_report_2010.pdf

33 EEA, 2011c: http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=473. The verified emissions in 2008 were corrected for the change in scope of the EU ETS between 2007 and 2008 based on a detailed analysis of all installation data.

- Eurostat production data for natural gas (indicator code 100100, product code 4100);
- Eurostat annual data for the final energy consumption of motor spirit, automotive diesel oil and kerosene/jet fuels;
- Eurostat monthly data for the internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels;
- Monthly production data for crude steel production and blast furnace iron production of the World Steel Association (previously IISI International Iron and Steel Institute) [34];
- Annual production data for crude steel production for UK from ISSB Limited[35];
- Eurostat annual statistics on livestock population for dairy cattle, non-dairy cattle, swine, sheep, goats.
- National preliminary energy balance data or energy statistics
    - Bulgaria: Monthly statistics for liquid, solid and gaseous fuels, retrieved from http://www.nsi.bg/otrasalen.php?otr=37
    - Czech Republic: Primary energy sources, retrieved from http://www.mpo.cz/dokument87231.html
    - Denmark: Monthly energy statistics, retrieved from http://www.ens.dk/en-US/Info/FactsAndFigures/Energy_statistics_and_indicators/Monthly%20Statistic/Sider/Forside.aspx
    - Estonia: Energy balances derived from http://pub.stat.ee/px-web.2001/I_Databas/Economy/07Energy/02Energy_consumption_and_production/01Annual_statistics/01Annual_statistics.asp
    - Finland: Energy consumption data, retrieved from http://www.stat.fi/til/ehkh/2010/04/ehkh_2010_04_2011-03-29_tie_001_en.html
    - France: Monthly energy statistics gas, oil and coal, retrieved from http://developpement-durable.bsocom.fr/statistiques/ReportFolders/reportFolders.aspx
    - Germany: Quarterly energy consumption data, retrieved from http://www.ag-energiebilanzen.de/viewpage.php?idpage=62 and
      Official Petroleum Data for Germany, retrieved from http://www.mwv.de/index.php/daten/statistikeninfoportal
    - Ireland: Energy balances, retrieved from http://www.seai.ie/Publications/Statistics_Publications/Energy_Balance/

[34] Available at http://www.worldsteel.org

[35] Available at http://www.issb.co.uk/uk.html

- Latvia: Monthly data on natural gas, solid fuels and oil products, retrieved from http://data.csb.gov.lv/DATABASEEN/vide/Short%20term%20statistical%20data/Energy/Energy.asp
- Lithuania: Energy statistics, retrieved from http://db1.stat.gov.lt/statbank/default.asp?w=1280
- Netherlands: Annual energy balances, retrieved from http://statline.cbs.nl/StatWeb/dome/?LA=EN
- Slovenia: Annual balance of liquid, solid and gaseous fuels, retrieved from http://pxweb.stat.si/pxweb/Database/Environment/18_energy/04_18180_fuels/04_18180_fuels.asp
- Sweden: Quarterly energy balances, retrieved from http://www.ssd.scb.se/databaser/makro/MainTable.asp?yp=tansss&xu=C9233001&omradekod=EN&omradetext=Energi&lang=1 and
  Monthly data on liquid fuel use, retrieved from http://www.ssd.scb.se/Databaser/makro/MainTable.asp?yp=bergman&xu=scb&omradekod=EN&omradetext=Energi&lang=2&langdb=1
- United Kingdom: Energy trends. Quarterly data, retrieved from http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/total/total.aspx

Based on these data sources, 2010 emission estimates were made for the following source categories:

- Energy
  - 1.A Fuel Combustion
    - 1.A.1 Energy Industries
    - 1.A.2 Manufacturing Industries and Construction
    - 1.A.3 Transport
  - 1.B Fugitive Emissions
    - 1.B.1 Solid Fuels
    - 1.B.2.a Oil and Natural Gas, Oil
    - 1.B.2.b Oil and Natural Gas, Natural Gas
    - 1.B.2.c Oil and Natural Gas, Venting and Flaring
- Industrial Processes
  - 2.A Mineral Products
  - 2.C Metal Production
- Agriculture
  - 4.A Enteric Fermentation

- 4.B Manure Management

The alternative sources of AD and emissions listed above were only used if the resulting emissions matched well with real inventories for past years. If large discrepancies occurred for individual Member States, different approaches (trend extrapolation, constant values from previous year) were used.

For the Waste sector and all other inventory source categories not listed above, no 2010 activity data was available that could be combined with IEFs from GHG inventories. These categories were extrapolated from 2011 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2009 and by following the gap filing rules in accordance with the implementing provisions under Council Decision 280/2004/EC. Constant values were used when past trends were inconsistent and strongly fluctuating; trend extrapolation was used when historic time series showed good correlations with a linear trend.

Based on the analysis of deviations of the approximated GHG emissions for 2009 compared to final Member States emissions estimates submitted to the UNFCCC for 2009 (see section .2) a number of methodological changes were introduced or further applied (2B) for the estimation in this report compared to the approach for 2009:

- 1A Fuel Combustion: Four different approaches were used based on BP data, Eurostat monthly energy data and available national energy balance data for 2010;
- 2B Chemical Production: Extrapolation was undertaken at more disaggregate level for all subcategories;
- 2C1 Iron and Steel: Due to a lack of correlation of the used approach a country-specific method was introduced for UK that improved the correlation of emission estimates from iron and steel with the production trend in the iron and steel industry.

Annex 1 provides a detailed overview of methods and data sources used for each source category and Member State.

The estimation of the approximated GHG inventories for European Member States was delayed in 2009 as the latest data source (CITL) became available only late in July[36], but could be provided more timely in this report. The timing of future releases will depend on the release of the underlying data sources used for the estimation. The availability of data sources is shown in Table 6.

The latest data sources that became available in 2010 was the BP statistical review of World Energy which is published annually by 15 June. In July of each year updated verified emissions in the CITL have been available in recent years. In 2011 CITL data became available sooner than in 2010. Member States' national energy statistics are released at different point in times and the

[36] Experiences with CITL data releases in 2006-2008 have shown that before July of each year CITL data were not yet complete for all Member States and delays occurred for some countries while data was being consolidated in July.

national websites do not always indicate the publication data and whether the publication is regularly made available at the same date.

Table 6 Time of data availability of data sources used for the approximated inventory

Data source	Availability
CITL verified emissions	March April, later updates depending on MS data. Data as of 24 May 2011 was used.
BP Statistical Review of World Energy	15 June
Eurostat monthly production data for hard coal and lignite	3 month after reporting period
Eurostat monthly production data on crude oil input to refineries	3 month after reporting period
Eurostat monthly production data for crude oil	3 month after reporting period
Eurostat monthly production data for natural gas	3 month after reporting period
IISI monthly production data for crude steel production	two months after reporting
IISI monthly production data for blast furnace iron production	two months after reporting
Eurostat annual statistics on livestock population for dairy cattle, non-dairy cattle, swine, sheep and goats	April
CRF inventory submissions	End of May (final submitted changes)
ISSB Limited (annual Iron and steel data)	publication date not indicated
Member States' national energy balances and national energy statistics	different publication dates

• Sectoral results

.1 Energy

.1.1 1.A Energy - Fuel combustion

2010 emissions in source category 1.A (Energy - Fuel Combustion) are estimated independently of the estimates for categories 1.A.1 (Energy Industries – chapter .1.2), 1.A.2 (Manufacturing Industries and Construction – chapter .1.3) and 1.A.3 (Transport – chapter .1.4).

.1.1.1 Methods and data sources used

In 2010 five different approaches for CO_2 emissions from Fuel Combustion based on different data sources and methods were calculated for each Member State as presented in Table 7. Subsequently, the approach that led to emission estimates closest to the Member States' inventory estimation in past years was chosen as the final value for each Member State.

Table 7 Overview of approaches used for the estimation of CO_2 emissions from 1A fuel combustion

	Approach A	**Approach B**	**Approach C**	**Approach D**	**Approach E**
Data sources	BP energy review	Eurostat monthly energy statistics	Eurostat monthly energy statistics	CITL data, Eurostat data for transport	Member States' national energy statistics
Method	2010 consumption trend for solid, liquid and gaseous fuels applied to inventory data for 2009	2010 activity data combined with emission factors from most recent GHG inventory	2010 consumption trend for solid, liquid and gaseous fuels applied to inventory data for 2009	detailed estimation for inventory source categories 1A1, 1A2, 1A3, constant emissions for 1A4 and 1A5	2010 consumption trend for solid, liquid and gaseous fuels applied to inventory data for 2009

Source: Öko-Institut

In the previous years, the main source for the estimation of CO_2 emissions from source category 1.A (Energy - Fuel Combustion) used to be the most recent BP Statistical Review of World Energy, which contains individual data for 20 EU Member States and combined data for Belgium and Luxembourg. No data are published for Cyprus, Estonia, Latvia, Malta and Slovenia in this source. The share of these (small) countries in energy consumption amounts to less than 1 % of total EU emissions, with some differences regarding individual energy sources. The BP data refer to primary energy consumption and covers only commercially traded fuels.

In order to further improve the CO_2 emission estimation, next to BP data (Approach A) additional data sources and estimation approaches were explored and used for 2010 emissions:

- Eurostat monthly energy statistics; i) absolute energy consumption (Approach B) & ii) energy consumption trend (Approach C) based on Member States' submissions of monthly Oil and Gas Questionnaires and monthly Coal Questionnaires to Eurostat..
- Early national energy statistics (Approach E): For a considerable number of Member States, preliminary energy statistics were available (cf. chapter .4). Fuel consumption data were (if necessary) converted in energy units and aggregated to solid, liquid & gaseous fuel categories.

CO_2 emissions reported in source category 1A (Fuel Combustion) are split up in the CRF by the fuel categories solid fuels, liquid fuels, gaseous fuels and other fuels. CO_2 emissions from other fuels cover mostly municipal or industrial waste incineration or co-incineration of secondary waste-type fuels. CO_2 emissions from the biomass fuel category are not accounted for in CRF category 1A (Fuel Combustion) and were consequently not included in the estimation.

All data sources were used in order to derive specific information for the development of CO_2 emissions from the fuel categories solid, liquid and gaseous fuels, as defined in the CRF with source category 1A (Fuel Combustion). For each of those fuel categories a fuel consumption trend 2009 to 2010 was derived from the respective data sources (this applies to approaches A (BP), C (Eurostat trend) and E (national energy statistics)). 2010 CO_2 emissions per fuel category were then estimated by multiplying the CO_2 emissions in that fuel category of the previous year by the fuel category specific consumption trend. In the case of approach B (Eurostat absolute figures) a detailed reference approach calculation of apparent fuel consumption based on monthly Eurostat data, combined with the emission parameters (net calorific values, carbon emission factor, carbon stored and fraction of carbon oxidized) taken from the most recent inventory submission was performed. None of the data sources provided information on the development of CO_2 emissions from the other fuels category. Thus 2010 CO_2 emissions from other fuels in source category 1A (Fuel Combustion) were approximated using the respective emissions as reported by the Member States in 2009[37]. For some Member States country-specific adjustments were made for other fuels, e.g. for Finland reporting peat under 'other fuels' which is included under solid fuels in BP or Eurostat statistics. The general approach to the CO_2 emission calculation for 1A (Fuel combustion) is depicted in Equation 1 (applies to approaches A (BP), C (Eurostat trend) and E (national energy statistics)):

[37] In the case of Finland, CO_2 emissions from other fuels have an extraordinary high share in total 1A CO_2 emissions (15 % in 2009). This is due to the fact that Finland reports emissions from peat combustions in the other fuels category. For of all used data sources, however, peat would be classified as a solid fuel. Thus, Finnish CO_2 emissions from peat combustion in the past years were identified from theCRF submissions and transferred from "other fuels" to "solid fuels" in order to arrive at improved overall CO_2 emission estimates for category 1A Fuel Combustion.

Equation 1

$$E^{Y}_{1A,CO2} = \frac{C^{Y}_{solid}}{C^{Y-1}_{solid}} \cdot E^{Y-1}_{solid,CO2} + \frac{C^{Y}_{liquid}}{C^{Y-1}_{liquid}} \cdot E^{Y-1}_{liquid,CO2} + \frac{C^{Y}_{gaseous}}{C^{Y-1}_{gaseous}} \cdot E^{Y-1}_{gaseous,CO2} + E^{Y-1}_{other\ fuels,CO2}$$

with

$E^{Y}_{1A,CO2}$ *CO2 emissions in source category 1A*

$C^{Y}_{solid/liquid/gaseous}$ *consumption of solid/liquid/gaseous fuels*

$C^{Y-1}_{solid/liquid/gaseous}$ *consumption of solid/liquid/gaseous fuels in the previous year*

$E^{Y-1}_{...,CO2}$ *CO2 emissions in the respective fuel category in the previous year*

In the case of approach B (Eurostat absolute figures) the calculation approach is as follows:

Equation 2

$$E^{Y}_{1A,CO2} = \sum_{allfuels} \left[\left(\left((ApparentConsumption)^{y}_{fuel} \bullet ConvFactor_{fuel} \bullet CC_{fuel} \right) \bullet 10^{-3} - Excluded\,Carbon\%_{fuel} \right) \bullet COF_{fuel} \bullet 44/12 \right]$$

E^{Y}_{1A,CO_2} *CO_2 emissions in source category 1A*

Apparent consumption = production + imports - exports - international bunkers - stock change

ConversionFactor = conversion factor for the fuel to energy units (TJ) on a net calorific value basis

CC = carbon content (tonne C/TJ)

Excluded carbon = carbon in feedstocks and non-energy use excluded from fuel combustion (ratio of 2009 total amount of C stored applied)

COF = carbon oxidation factor

44/12 = molecular weight ratio of CO_2 to C

All approaches were calculated for the years 2009 and 2010, for BP data longer time series were available and were compared with Member States' final inventory emissions. Based on the analysis of the data source time series and an expert judgment of the validity of the provisional Eurostat and Member States' energy statistics, a specific approach was chosen for each Member State:

The BP data source (approach A) was chosen for Austria, Belgium, Germany, Greece, Hungary, Poland, Portugal, Romania, the Slovak Republic, Spain and the United Kingdom. Early national energy statistics data (approach E) were chosen for Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Ireland, Latvia, Lithuania, the Netherlands, Slovenia and Sweden. The Eurostat approach using absolute figures (approach B) was chosen for Cyprus and for Luxembourg the trend of Eurostat monthly data was used.

For Malta, neither BP data nor provisional energy balances were available nor the Eurostat monthly figures deemed to be sufficiently reliable. Therefore, the bottom-up approach (approach D) was used to estimate CO_2 emissions from 1.A Fuel Combustion for this Member

State. This was also the case for Austria and Italy. Here, 2010 CO_2 emissions for source category 1.A Fuel Combustion were estimated by summing up the 2010 CO_2 emission estimates for categories 1.A.1 (chapter .1.2), 1.A.2 (chapter .1.3) and 1.A.3 (chapter .1.4) and adding the reported CO_2 emissions for categories 1.A.4 (Other sectors) and 1.A.5 (Other Fuel Combustion) from the previous year (approach D – Equation 3):

Equation 3

$$E^{Y}_{1A,CO2} = E^{Y}_{1A1,CO2} + E^{Y}_{1A2,CO2} + E^{Y}_{1A3,CO2} + E^{Y-1}_{1A4,CO2} + E^{Y-1}_{1A,5CO2}$$

with

$E^{Y}_{1A,CO2}$ — CO_2 emissions in source category 1A

$E^{Y}_{1A1/1A2/1A3,CO2}$ — CO_2 emission estimates in source category 1A1 / 1A2 / 1A3

$E^{Y-1}_{1A4/1A5,CO2}$ — CO_2 emissions in source category 1A4 / 1A5 in the previous year

Member States' own proxy inventories were used for QA/QC purposes and for verification of the approximated GHG estimates: For countries submitting own proxy calculations, results for 1A were compared and the method that fitted best to Member States' own proxy calculations was selected for these countries. Thus for Austria and Italy approach D (bottom up) was chosen and for Germany BP data (approach A) instead of national statistics were used. For Luxembourg approach C (Eurostat Trend) was used.

The estimation for CH_4 emissions from source category 1.A (Fuel Combustion) is based on the approximated trend of CO_2 emissions and depicted in Equation 4:

Equation 4

$$E^{Y}_{1A,CH4} = \left(\frac{E^{Y}_{1A,CO2}}{E^{Y-1}_{1A,CO2}}\right) \cdot E^{Y-1}_{1A,CH4}$$

with

$E^{Y}_{1A,CH4}$ — CH_4 emissions for source category 1A

$E^{Y}_{1A,CO2}$ — CO_2 emissions for source category 1A as estimated in this report

$E^{Y-1}_{1A,CO2}$ — CO_2 emissions for source category 1A from previous year

$E^{Y-1}_{1A,CH4}$ — CH_4 emissions for source category 1A from previous year

The estimation for N_2O emissions from source category 1.A (Fuel Combustion) is similar to CH_4 (Equation 5):

Equation 5

$$E^{Y}_{1A,N2O} = \left(\frac{E^{Y}_{1A,CO2}}{E^{Y-1}_{1A,CO2}}\right) \cdot E^{Y-1}_{1A,N2O}$$

with

$E^{Y}_{1A,N2O}$ — *N_2O emissions for source category 1A*

$E^{Y}_{1A,CO2}$ — *CO_2 emissions for source category 1A as estimated in this report*

$E^{Y-1}_{1A,CO2}$ — *CO_2 emissions for source category 1A from previous year*

$E^{Y-1}_{1A,N2O}$ — *N_2O emissions for source category 1A from previous year*

.1.1.2 Results for 2010

The CO_2 emissions in category 1 A (Fuel Combustion) account for approx. 75 % of overall greenhouse gas emissions (without LULUCF) in the EU-27. As mentioned above, 2010 CO_2 emissions in this category are based on five different approximation approaches. Table 8 shows the calculation results for all Member States and highlights the approaches chosen per Member State.

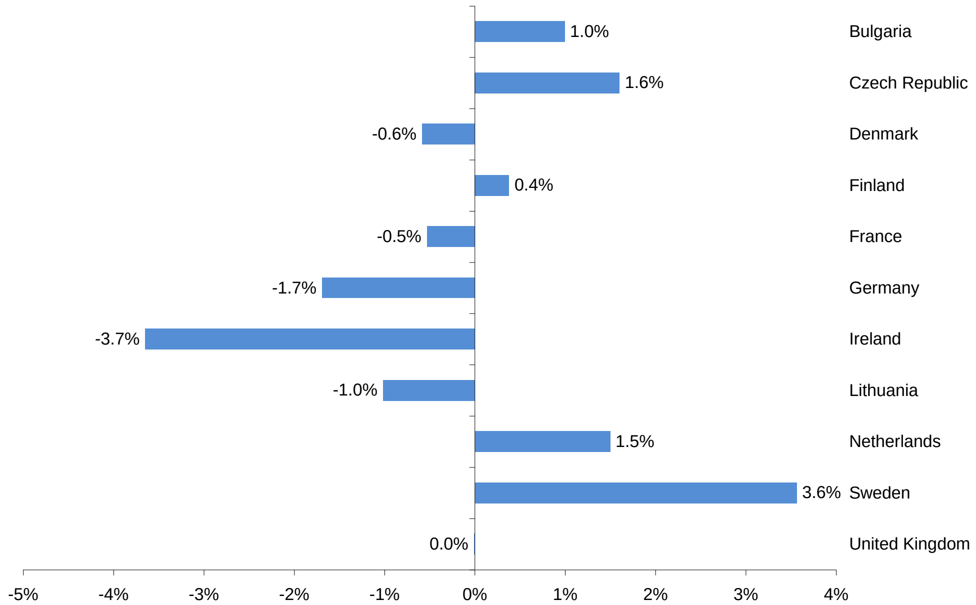
Table 8 *2010 CO_2 emissions for source category 1A Fuel combustion in various approximation approaches*

Gg CO2	Approach A BP (Trend)	Approach B Eurostat monthly (absolute)	Approach C Eurostat monthly (trend)	Approach D Bottom up: 1A1+1A2+1A3+ $(1A4+1A5)_{Y-1}$	Approach E preliminary national energy statistics (trend)
AT	59 895	67 019	64 889	63 316	not available
BE	107 585	89 504	89 787	104 722	not available
BG	41 702	43 434	42 393	42 787	42 116
CY	not available	7 117	7 022	7 302	not available
CZ	103 478	109 029	102 746	103 706	105 134
DE	769 953	733 160	751 921	767 726	756 936
DK	47 796	47 507	49 039	46 648	47 517
EE	not available	17 129	16 019	18 688	17 268
ES	264 637	265 588	256 855	256 379	not available
FI	58 752	58 784	59 838	59 023	58 976
FR	359 188	346 345	347 108	353 717	357 284
UK	475 480	503 637	482 208	467 537	475 425
GR	96 024	84 393	86 471	90 987	not available
HU	48 563	47 690	47 967	46 525	not available
IE	41 233	37 450	38 612	40 193	39 728
IT	400 557	382 705	398 400	396 935	not available
LT	12 200	13 144	12 132	12 381	12 076
LU	10 827	10 507	10 670	10 471	not available
LV	not available	6 796	7 019	7 539	7 225
MT	not available	2 546	5 304	2 507	not available
NL	171 984	179 200	173 633	165 014	174 560
PL	302 570	300 928	294 210	300 693	not available
PT	51 737	46 064	44 004	47 025	not available
RO	72 811	80 731	77 636	72 943	not available
SE	44 040	46 573	50 744	46 927	45 610
SI	not available	14 478	15 740	15 253	15 598
SK	27 002	32 484	25 961	27 915	not available

Note: The result for the approach chosen as the best guess per Member State is highlighted in colour.
Source: EEA's ETC ACM

Figure 9 shows the deviations between 2010 CO_2 emissions results for category 1A (Fuel Combustion) using the national energy balance approach vs. the BP approach for those Member States where both datasets were available. In most cases, differences were rather small, i.e. below 2 %.

Figure 9 Relative deviation of the 2010 CO_2 emissions results for category 1A (Fuel combustion) using the national energy balance approach vs. the BP approach



Source: EEA's ETC ACM

Table 9, Table 10 and Table 11 show the results for the proxy inventory in 2010 compared to the inventory time series for the EU and all Member States for CO_2, CH_4 and N_2O emissions respectively.

Table 9 CO_2 emissions for source category 1A Fuel Combustion

Source Category	1A	Fuel Combustion (Sectoral Approach)							
Gas	CO2								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010
	Gg								
AT	54 076	56 235	57 841	70 579	67 471	64 349	63 540	59 213	63 316
BE	109 883	114 147	114 631	114 157	110 261	106 312	109 375	100 773	107 585
BG	73 325	53 297	41 704	46 166	47 704	50 970	49 066	42 854	42 116
CY	3 521	4 771	6 919	7 084	7 266	7 421	7 679	7 265	7 117
CZ	145 817	117 953	114 438	112 774	112 597	112 735	107 893	103 410	105 134
DE	977 264	869 291	827 226	802 254	807 491	785 265	787 788	739 913	769 953
DK	51 043	58 697	50 992	48 600	56 534	51 758	48 779	47 017	47 517
EE	35 202	17 025	14 536	15 758	15 201	17 880	16 291	13 950	17 268
ES	203 236	231 983	278 592	334 689	324 848	334 561	308 502	275 902	264 637
FI	52 941	54 509	52 951	52 504	63 659	61 655	53 617	51 745	58 976
FR	361 040	362 414	380 157	392 252	378 882	370 150	364 094	349 410	357 284
UK	562 123	523 986	527 813	532 075	530 257	520 575	509 939	462 507	475 480
GR	75 171	78 541	94 407	103 983	102 771	105 377	101 636	97 963	96 024
HU	66 522	57 125	54 190	56 190	55 038	53 121	52 021	47 144	48 563
IE	30 194	33 081	41 784	45 082	44 690	44 825	45 161	40 857	39 728
IT	401 975	414 840	435 096	459 378	454 553	444 871	437 209	393 619	396 935
LT	32 987	13 760	10 460	12 450	12 596	12 782	12 489	11 327	12 076
LU	10 248	8 136	8 036	11 484	11 308	10 713	10 629	10 130	10 670
LV	18 408	8 841	6 789	7 495	7 931	8 265	7 858	6 704	7 225
MT	1 846	2 186	2 320	2 611	2 628	2 697	2 652	2 510	2 507
NL	149 895	161 641	161 754	167 044	163 707	163 532	166 937	161 982	174 560
PL	348 407	347 123	301 829	296 128	306 716	303 327	299 133	290 387	302 570
PT	39 147	47 252	57 530	61 249	56 764	54 163	52 929	51 267	51 737
RO	148 406	110 753	81 916	89 444	92 859	90 925	88 988	74 933	72 811
SE	51 136	52 798	48 232	47 379	46 613	45 416	43 447	41 851	45 610
SI	13 618	14 093	14 247	15 519	15 659	15 764	16 790	15 240	15 598
SK	53 493	36 695	32 344	31 695	30 981	29 189	29 692	27 211	27 002
EU-15	3 129 372	3 067 551	3 137 042	3 242 709	3 219 810	3 163 521	3 103 583	2 884 148	2 960 012
EU-25	3 849 194	3 687 123	3 695 113	3 800 413	3 786 424	3 726 702	3 656 080	3 409 294	3 505 072
EU-27	4 070 925	3 851 173	3 818 733	3 936 024	3 926 988	3 868 598	3 794 134	3 527 081	3 619 999
EU-10	719 823	619 571	558 071	557 704	566 614	563 181	552 497	525 146	545 060
EU-2	221 731	164 050	123 620	135 611	140 564	141 895	138 054	117 787	114 927

Table 10 CH_4 emissions for source category 1A Fuel Combustion

Source Category	1A	Fuel Combustion (Sectoral Approach)							
Gas	CH4								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010
	Gg								
AT	22.0	20.4	15.0	13.9	12.2	11.6	11.7	11.4	12.2
BE	21.8	19.4	16.7	14.6	14.7	13.5	13.9	12.6	13.5
BG	16.8	11.9	11.6	12.8	13.7	12.8	12.7	11.8	11.6
CY	0.4	0.5	0.6	0.7	0.7	0.7	0.8	0.8	0.8
CZ	69.6	32.9	20.7	24.6	28.7	26.4	25.1	25.4	25.9
DE	220.7	89.9	71.2	89.4	101.2	110.9	120.6	120.2	125.1
DK	8.9	21.8	26.5	24.7	23.5	22.0	21.5	19.2	19.5
EE	3.0	1.9	1.8	1.7	1.6	1.7	1.7	1.7	2.1
ES	60.7	59.6	63.1	78.1	77.7	75.9	74.4	71.6	68.7
FI	14.6	14.2	13.6	14.4	14.8	14.6	14.1	14.7	16.7
FR	233.6	218.5	166.0	126.8	109.6	100.5	95.9	88.1	90.1
UK	128.6	93.3	78.9	57.7	55.8	56.5	57.1	52.2	53.6
GR	9.6	9.5	11.1	9.6	9.9	9.7	9.3	8.8	8.6
HU	34.3	17.8	10.9	14.4	15.1	9.7	10.3	10.7	11.0
IE	20.3	14.1	10.8	9.8	9.5	9.2	9.6	9.8	9.5
IT	65.5	72.2	64.2	57.1	57.7	62.1	62.2	61.8	62.3
LT	10.5	7.0	8.1	7.6	7.9	7.6	7.6	7.3	7.8
LU	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.9
LV	12.5	13.5	11.3	13.1	12.7	12.7	11.7	12.8	13.8
MT	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NL	34.7	43.8	43.4	44.0	48.2	58.6	76.7	77.3	83.3
PL	114.4	188.4	120.0	125.5	139.3	130.2	135.8	138.0	143.8
PT	22.4	20.8	20.4	20.2	19.9	19.8	19.6	19.5	19.6
RO	21.0	51.0	36.4	42.3	40.4	41.7	50.6	49.1	47.8
SE	19.9	21.2	18.0	19.6	19.3	19.2	19.9	20.7	22.6
SI	7.8	7.5	6.7	5.5	5.4	5.3	5.3	5.2	5.3
SK	21.8	13.6	11.3	12.6	11.9	10.4	17.3	8.6	8.6
EU-15	884.6	719.9	620.1	580.9	575.0	584.9	607.3	588.7	606.1
EU-25	1 159.1	1 003.2	811.6	786.8	798.6	789.7	823.0	799.5	825.4
EU-27	1 196.9	1 066.2	859.6	841.9	852.6	844.2	886.4	860.4	884.8
EU-10	274.5	283.3	191.5	205.9	223.5	204.8	215.7	210.8	219.3
EU-2	37.8	62.9	48.0	55.1	54.0	54.5	63.4	61.0	59.4

Table 11 N_2O emissions for source category 1A Fuel Combustion

Source Category	1A	Fuel Combustion (Sectoral Approach)							
Gas	N2O								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010
	Gg								
AT	1.8	2.1	2.4	2.6	2.5	2.5	2.4	2.3	2.5
BE	2.1	2.5	3.0	2.7	2.7	2.1	2.0	2.0	2.2
BG	1.1	0.9	0.8	0.9	0.9	0.9	0.9	0.8	0.8
CY	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CZ	2.4	2.2	2.7	3.7	3.7	3.9	3.7	3.8	3.8
DE	24.4	22.8	21.5	20.5	20.9	20.9	20.1	18.8	19.6
DK	1.0	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.2
EE	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3
ES	5.0	6.9	9.4	8.7	8.7	8.8	8.6	7.8	7.5
FI	3.2	3.2	3.1	3.1	3.4	3.3	3.1	2.9	3.3
FR	11.8	13.5	14.2	15.5	15.2	15.0	15.2	14.1	14.4
UK	19.5	19.3	17.7	17.0	17.0	16.4	15.4	14.0	14.4
GR	2.4	2.7	2.8	2.9	3.0	2.9	2.8	2.4	2.3
HU	0.9	0.9	1.2	1.8	1.7	1.6	1.7	1.7	1.7
IE	0.8	1.0	1.2	1.4	1.4	1.3	1.3	1.2	1.2
IT	14.3	16.0	17.1	16.5	16.7	16.6	15.9	15.1	15.3
LT	1.1	0.5	0.3	0.4	0.4	0.4	0.5	0.4	0.4
LU	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.3
LV	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	1.6	2.4	2.4	2.5	2.5	2.4	2.5	2.5	2.7
PL	6.2	6.8	6.2	6.2	6.3	6.3	6.4	6.4	6.7
PT	1.4	1.9	2.0	2.0	1.9	1.9	2.0	2.0	2.0
RO	1.1	1.5	1.1	1.2	1.3	1.3	1.4	1.3	1.2
SE	4.2	4.5	4.2	4.2	4.3	4.2	4.2	4.2	4.6
SI	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6
SK	0.9	0.7	0.5	0.6	0.6	0.5	0.6	0.5	0.5
EU-15	93.8	100.2	102.5	101.2	101.8	99.9	97.1	91.0	93.5
EU-25	106.8	112.6	114.7	115.3	116.0	114.2	111.7	105.2	108.2
EU-27	109.0	115.0	116.6	117.4	118.2	116.5	114.0	107.3	110.3
EU-10	12.9	12.4	12.2	14.1	14.2	14.3	14.5	14.2	14.7
EU-2	2.2	2.4	1.9	2.1	2.2	2.3	2.3	2.1	2.1

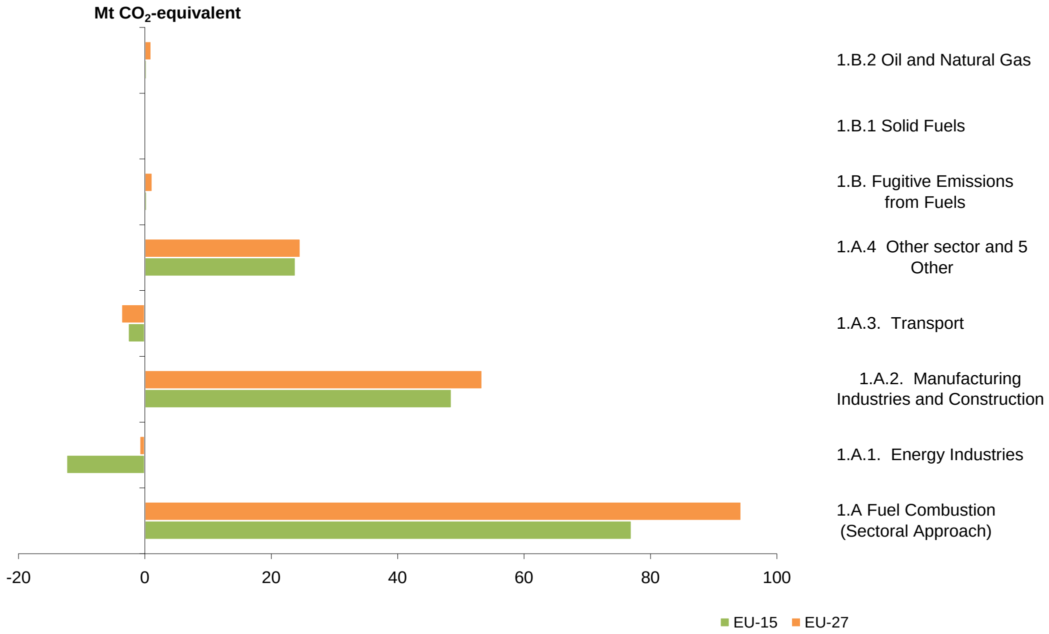
The results in the energy sector show an increase of GHG emissions by 77.3 Mt CO_2eq or 2.6 % for EU-15 between 2009 and 2010. Table 12 indicates the sub-sectors contribution to this rise in emissions. Emissions from sub-sectors are estimated separately applying different methodologies as explained later. The largest increase in emissions occurred in the Manufacturing Industries while emissions from Energy Industries decreased. The emission reduction from Energy Industries is more pronounced in the EU-15 than in the EU-27 and in particular in those MS that still suffer from economic recession especially in Spain (-16.7 Mt CO_2eq), Greece (-3 Mt CO_2eq) and Italy (-2.4 Mt CO_2eq). In 2010 also transport emissions decreased slightly in EU-15 and EU-27 despite the general positive economic trend.

Table 12 Change in GHG emissions between 2009 and 2010 for main source categories in the energy sector

Sector Energy	Change 2009/10			
	EU-15		EU-27	
	Mt CO_2eq	%	Mt CO_2eq	%
1.A Fuel Combustion (Sectoral Approach)	77.0	2.6%	94.4	2.6%
1.A.1. Energy Industries	-12.4	-1.2%	-0.8	-0.1%
1.A.2. Manufacturing Industries and Construction	48.5	10.7%	53.4	10.0%
1.A.3. Transport	-2.6	-0.3%	-3.7	-0.4%
1.A.4 Other sector and 5 Other	23.8	3.8%	24.6	3.4%
1.B. Fugitive Emissions from Fuels	0.3	0.7%	1.2	1.5%
1.B.1 Solid Fuels	-0.1	-0.9%	0.1	0.2%
1.B.2 Oil and Natural Gas	0.3	0.7%	1.0	1.8%

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Figure 10 Change in GHG emissions between 2009 and 2010 for main source categories in the Energy sector

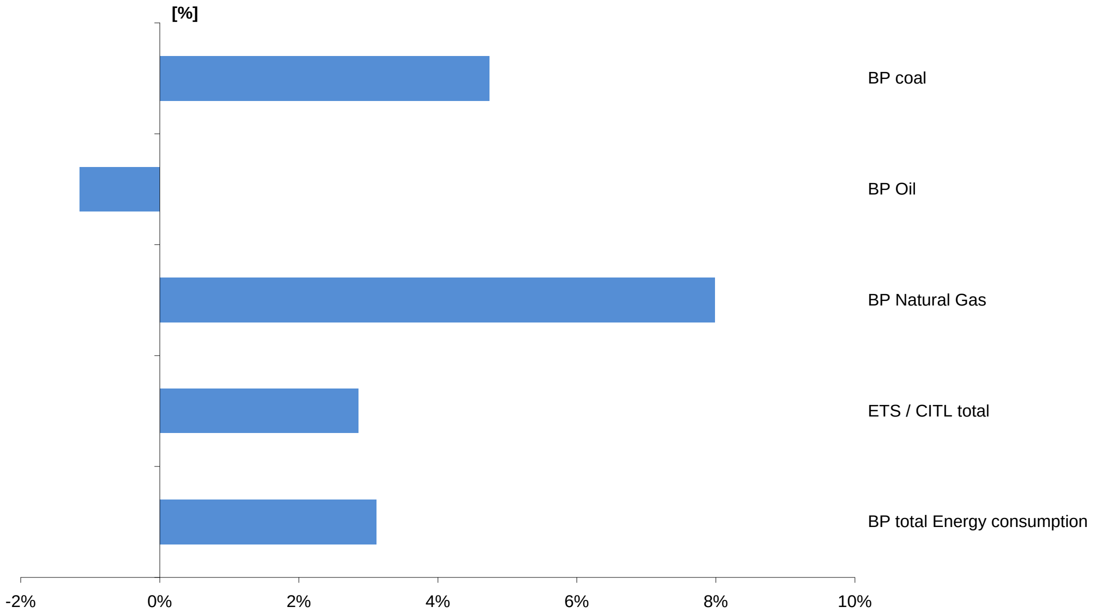


Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

According to BP data CO_2 emissions from energy consumption in the EU-27 rose by almost 3.1 % in 2010 compared to 2009. The emissions of all installations covered by the EU ETS indicate an increase of roughly 2.9 % in the EU-27 in the same period. After the sharp decline in emissions in 2008 and 2009, an increase of both energy use and emissions can be observed due to the economic recovery.

Emissions from coal consumption, being most CO_2 intensive, rose by 4.7 % compared to gas (8 %) and oil (- 1.2 %) consumption according to BP energy statistics. The majority of the coal is used by installations covered by the EU ETS, especially in power generation. Around 75 % of CO_2 emissions from 1A1a are from combustion of solid fuels. Thus, it may be concluded that the stronger increase in ETS / CITL emissions is due to the high share of solid fuel inputs in the EU ETS (see Figure 11).

Figure 11 Development of CO_2 emissions from energy consumption for the EU-27 between 2009 and 2010



Source: BP energy statistics and CITL data

.1.2 1.A.1 Energy Industries

.1.2.1 Methods and data sources used

The GHG emissions for source category 1.A.1 (Energy Industries) were estimated on the basis of a separate analysis of the following source categories

- Public Electricity and Heat Production (1.A.1.a)
- Petroleum Refining (1.A.1.b)
- Manufacture of Solid Fuels and Other Energy Industries (1.A.1.c)

The main data source for the estimation of CO_2 emissions from source category 1.A.1.a (Public Electricity and Heat Production) is an analysis of the verified emissions data reported by installations covered under the EU ETS and recorded in the CITL. Öko-Institut undertook a supplementary analysis on an installation-by-installation basis to separate the electricity generation installations from industrial combustion installations which are both reported under main activity code 1 in the ETS data (Combustion installations with a rated thermal input exceeding 20 MW combustion installations with a capacity of more than 20 MW). Based on these data the emissions were calculated as follows:

Equation 6

$E^{Y}_{1A1a,CO2} = \frac{E^{Y}_{CITL(1power)}}{E^{Y-1}_{CITL(1power)}} \cdot E^{Y-1}_{1A1a,CO2}$	
with	
$E^{Y}_{1A1a,CO2}$	CO_2 emissions for source category 1A1a
$E^{Y-1}_{1A1a,CO2}$	CO_2 Emissions for source category 1A1a from previous year
$E^{Y}_{CITL(...)}$	CITL emissions for electricity generation installations
$E^{Y-1}_{CITL(...)}$	CITL emissions for electricity generation installations from previous year

For Cyprus sufficient and consistent data was not available in the CITL data. Therefore, the inventory data from the last available submission was used.

Two different approaches were used for CH_4 emissions from source category 1.A.1.a (Public Electricity and Heat Production):

1. For the Member States with no strong correlation between CO_2 and CH_4 emissions in the previous years the average 2007-2009 of the CH_4 emission data from the last inventory submissions were used.
2. For the Member States with a significant correlation for the trends of CO_2 and CH_4 emissions in the previous years, the projection of CH_4 emissions is based on the following equation:

Equation 7

$E^{Y}_{1A1a,CH4} = \frac{E^{Y}_{1A1a,CO2}}{E^{Y-1}_{1A1a,CO2}} \cdot E^{Y-1}_{1A1a,CH4}$	
with	
$E^{Y}_{1A1a,CH4}$	CH_4 emissions for source category 1A1a
$E^{Y-1}_{1A1a,CH4}$	CH_4 emissions for source category 1A1a from previous year
$E^{Y}_{1A1a,CO2}$	CO_2 emissions for source category 1A1a (see above)
$E^{Y-1}_{1A1a,CO2}$	CO_2 emissions for source category 1A1a from previous year

The first option was used for Austria, Belgium, the Czech Republic, Denmark, Estonia, Spain, Finland, United Kingdom, Hungary, Lithuania, Luxembourg, Poland, Portugal, Slovenia and Slovak Republic. For all other EU-27 Member States, the CH_4 emissions were estimated on the basis of the trend dynamics for CO_2 emissions (option 2).

For N_2O emissions from source category 1.A.1.a (Public Electricity and Heat Production), two different approaches were used

1. For the Member States with no strong correlation between CO_2 and N_2O emissions in the previous years, the average 2007-2009 of the N_2O emission data from the last inventory submission were used.
2. For the Member States with a significant correlation for the trends of CO_2 and N_2O emissions in the previous years, the projection of N_2O emissions is based on the following formula:

Equation 8

$$E_{1A1a,N2O}^{Y} = \frac{E_{1A1a,CO2}^{Y}}{E_{1A1a,CO2}^{Y-1}} \cdot E_{1A1a,N2O}^{Y-1}$$

with

$E_{1A1a,N2O}^{Y}$	N_2O emissions for source category 1A1a
$E_{1A1a,N2O}^{Y-1}$	N_2O emissions for source category 1A1a from previous year
$E_{1A1a,CO2}^{Y}$	CO_2 emissions for source category 1A1a (see above)
$E_{1A1a,CO2}^{Y-1}$	CO_2 emissions for source category 1A1a from previous year

The first option was used for Austria, Belgium, Estonia, Spain, Finland, Hungary, Ireland, Italy, Lithuania, Luxembourg and the Slovak Republic. For all other EU-27 Member States, the N_2O emissions were estimated on the basis of trend dynamics for CO_2 emissions (option 2).

The main source for the estimation of CO_2 emissions from source category 1.A.1.b (Petroleum Refining) is CITL data. For Bulgaria, Lithuania, Portugal and the Slovak Republic sufficient and consistent data were not available. Therefore the average of the CO_2 emissions of the years 2007-2009 from the last inventory submission were used for these countries. For all other countries the emissions were calculated as follows:

Equation 9

$$E^{Y}_{1A1b,CO2} = \frac{E^{Y}_{CITL\,ref-inp}}{E^{Y-1}_{CITL\,ref-inp}} \cdot E^{Y-1}_{1A1b,CO2}$$

with

$E^{Y}_{1A1b,CO2}$ CO_2 emissions for source category 1A1b

$E^{Y-1}_{1A1b,CO2}$ CO_2 Emissions for source category 1A1b from previous year

$E^{Y}_{CITL\,ref-inp}$ CITL emissionsfrominput to refineries

$AR^{Y-1}_{CITL\,ref-inp}$ CITL emissions from input to refineries for previous year

For CH_4 emissions from source category 1.A.1.b (Petroleum Refining) two different approaches were used

1. For the Member States with no strong correlation between CO_2 and CH_4 emissions in the previous years, the CH_4 emission data from the last inventory submission were used.
2. For the Member States with a significant correlation for the trends of CO_2 and CH_4 emissions in the previous years, the projection of CH_4 emissions is based on the following formula:

Equation 10

$$E^{Y}_{1A1b,CH4} = \frac{E^{Y}_{1A1b,CO2}}{E^{Y-1}_{1A1b,CO2}} \cdot E^{Y-1}_{1A1b,CH4}$$

with

$E^{Y}_{1A1b,CH4}$ CH_4 emissions for source category 1A1b

$E^{Y-1}_{1A1b,CH4}$ CH_4 emissions for source category 1A1b from previous year

$E^{Y}_{1A1b,CO2}$ CO_2 emissions for source category 1A1b (see above)

$E^{Y-1}_{1A1b,CO2}$ CO_2 emissions for source category 1A1b from previous year

The first option was used for Denmark and Slovenia. For all other EU-27 Member States that report CH_4 emissions, emissions were estimated on the basis of the trend dynamics for CO_2 emissions (option 2).

Two different approaches were used for N_2O emissions from source category 1.A.1.b (Petroleum Refining):

1. For the Member States with no strong correlation between CO_2 and N_2O emissions in the previous years the N_2O emission data from the last inventory submission were used.

2. For the Member States with a significant correlation for the trends of CO_2 and N_2O emissions in the previous years, the projection of N_2O emissions is based on the following formula.

Equation 11

$$E^{Y}_{1A1b,N2O} = \frac{E^{Y}_{1A1b,CO2}}{E^{Y-1}_{1A1b,CO2}} \cdot E^{Y-1}_{1A1b,N2O}$$

with

$E^{Y}_{1A1b,N2O}$	*N2O emissions for source category 1A1b*
$E^{Y-1}_{1A1b,N2O}$	*N2O emissions for source category 1A1b from previous year*
$E^{Y}_{1A1b,CO2}$	*CO2 emissions for source category 1A1b (see above)*
$E^{Y-1}_{1A1b,CO2}$	*CO2 emissions for source category 1A1b from previous year*

The first option was used for Austria, Belgium, Bulgaria, the Netherlands, Portugal, Slovenia, and the Slovak Republic. For all other EU-27 Member States that report N_2O emissions, the N_2O emissions were estimated on the basis of the trend dynamics for CO_2 emissions (option 2).

For the source category 1.A.1.c (Manufacture of Solid Fuels and Other Energy Industries) for CO_2, CH_4 as well as N_2O the data from the last inventory submission were used.

The total greenhouse gas emissions for source category 1.A.1 (Energy Industries) were calculated as the sum of the estimates for the source categories 1.A.1.a, 1.A.1.b and 1.A.1.c (see above).

.1.2.2 *Results for 2010*

Table 13, Table 14 and Table 15 show the results for the proxy inventory in 2010 for 1A1 Energy Industries compared to the inventory time series for the EU and all Member States for CO_2, CH_4 and N_2O emissions respectively.

Table 13 CO_2 emissions for 1.A.1 Energy Industries

Source Category	1A1	1. Energy Industries								
Gas	CO2									
Member	**Inventory data**									**Proxy**
State	**1990**	**1995**	**2000**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
	Gg									
AT	13 792	12 919	12 239	16 114	16 096	15 161	13 856	13 649	12 649	13 766
BE	29 826	29 234	28 152	29 551	29 175	27 688	27 418	25 342	26 359	24 538
BG	38 652	27 181	24 028	26 843	27 024	27 335	30 775	31 899	29 553	31 658
CY	1 781	2 206	2 987	3 339	3 472	3 653	3 802	3 967	3 992	3 992
CZ	57 707	56 621	59 616	63 280	63 851	63 327	66 025	62 001	58 652	60 227
DE	423 418	365 317	356 812	380 105	371 656	373 008	382 684	362 143	338 535	347 599
DK	25 952	32 046	25 414	25 766	22 566	30 463	25 827	23 705	23 698	23 207
EE	28 571	14 156	11 911	13 160	12 392	11 688	13 754	12 409	10 721	15 362
ES	77 354	86 052	104 935	115 484	125 202	116 325	122 260	105 160	89 066	72 267
FI	19 057	23 922	21 899	32 634	21 653	32 523	30 475	23 927	25 120	29 777
FR	65 005	56 564	62 657	61 686	67 268	64 005	64 197	62 234	59 838	58 356
UK	234 194	200 277	195 507	209 432	209 792	214 383	210 082	204 272	179 979	182 898
GR	42 993	44 770	54 629	57 145	57 974	55 787	59 251	57 619	54 620	51 585
HU	22 060	23 736	23 396	20 239	18 558	19 458	20 317	19 425	16 212	16 636
IE	11 159	13 317	16 050	15 284	15 657	14 907	14 407	14 495	12 926	12 327
IT	136 503	139 841	151 894	159 962	160 133	161 510	161 140	157 278	132 368	129 950
LT	13 960	6 577	5 202	5 502	5 754	5 303	4 821	4 870	4 894	5 697
LU	33	91	179	1 273	1 252	1 321	1 181	1 007	1 155	1 201
LV	6 268	3 418	2 476	2 057	2 048	2 073	1 944	1 917	1 872	2 455
MT	1 350	1 582	1 665	1 924	1 961	1 976	2 017	1 976	1 858	1 839
NL	52 501	61 416	63 630	69 943	67 313	62 409	65 129	65 204	64 234	64 396
PL	228 318	190 870	176 566	180 453	178 693	183 606	181 102	173 546	166 693	171 716
PT	15 948	19 308	20 887	21 812	24 848	21 911	19 810	19 650	19 505	13 907
RO	97 771	67 169	46 657	49 000	46 269	48 788	48 438	47 410	39 146	36 122
SE	9 569	10 859	8 423	11 158	10 274	10 016	9 571	9 504	9 897	11 494
SI	6 239	5 601	5 473	6 286	6 297	6 350	6 567	6 356	6 056	6 176
SK	16 108	11 937	12 247	12 864	11 843	11 167	10 286	10 792	9 808	9 101
EU-15	1 157 305	1 095 933	1 123 309	1 207 347	1 200 860	1 201 418	1 207 287	1 145 190	1 049 950	1 037 268
EU-25	1 539 667	1 412 635	1 424 849	1 516 452	1 505 727	1 510 020	1 517 921	1 442 449	1 330 709	1 330 471
EU-27	1 676 090	1 506 985	1 495 535	1 592 295	1 579 021	1 586 143	1 597 134	1 521 757	1 399 408	1 398 251
EU-10	382 362	316 703	301 540	309 105	304 868	308 602	310 634	297 259	280 759	293 202

Table 14 CH_4 emissions for 1.A.1 Energy Industries

Source Category	1A1	1. Energy Industries							
Gas	CH4								
Member State	Inventory data								Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	0.16	0.16	0.16	0.27	0.25	0.29	0.30	0.31	0.33	0.31
BE	0.79	0.73	1.09	0.65	0.65	0.69	1.02	0.82	0.96	0.99
BG	0.54	0.34	0.27	0.29	0.30	0.30	0.33	0.35	0.34	0.37
CY	0.07	0.08	0.11	0.13	0.14	0.14	0.15	0.15	0.15	0.15
CZ	0.67	0.70	0.73	1.09	0.99	1.01	1.11	1.15	1.23	1.16
DE	13.54	14.67	16.81	40.29	45.50	55.00	66.51	74.61	75.67	78.03
DK	0.50	11.39	14.64	14.08	12.40	11.49	9.57	10.17	8.87	9.53
EE	0.36	0.30	0.31	0.40	0.44	0.37	0.35	0.40	0.46	0.40
ES	3.08	2.84	3.63	6.27	7.09	7.54	7.55	8.04	7.08	7.18
FI	0.39	0.62	0.73	1.18	0.97	1.19	1.09	1.03	0.96	1.03
FR	3.68	2.88	2.05	2.22	2.26	2.18	2.21	2.03	2.03	1.99
UK	9.61	11.30	12.51	13.64	13.17	11.29	11.72	11.59	11.84	11.79
GR	0.60	0.65	0.79	0.80	0.83	0.84	0.90	0.89	0.79	0.75
HU	0.64	0.60	0.52	0.63	1.09	0.83	1.01	1.16	1.21	1.13
IE	0.26	0.31	0.44	0.36	0.37	0.35	0.35	0.35	0.32	0.30
IT	9.27	8.63	6.85	6.21	6.34	6.17	5.72	5.65	5.15	5.03
LT	0.40	0.21	0.18	0.32	0.32	0.34	0.34	0.38	0.43	0.38
LU	0.04	0.03	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.07
LV	0.27	0.23	0.22	0.21	0.18	0.20	0.19	0.19	0.19	0.25
MT	0.04	0.06	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07
NL	2.78	3.82	4.39	5.05	5.97	5.23	4.80	4.82	5.29	5.31
PL	3.22	2.32	2.15	2.39	2.67	2.84	2.92	3.24	3.68	3.68
PT	0.21	0.25	0.30	0.35	0.39	0.38	0.35	0.38	0.38	0.36
RO	1.95	1.33	0.88	0.92	0.83	0.96	0.79	0.79	0.66	0.61
SE	1.05	1.80	2.19	3.10	3.41	3.54	3.55	3.94	4.23	5.11
SI	0.09	0.08	0.06	0.07	0.08	0.09	0.09	0.14	0.11	0.11
SK	0.27	0.26	0.25	0.29	0.25	0.24	0.24	0.28	0.31	0.25
EU-15	45.97	60.09	66.62	94.55	99.68	106.27	115.70	124.70	123.96	127.79
EU-25	52.00	64.92	71.22	100.15	105.92	112.41	122.18	131.86	131.81	135.38
EU-27	54.49	66.59	72.37	101.37	107.06	113.67	123.31	133.00	132.81	136.36
EU-10	6.03	4.83	4.60	5.61	6.24	6.15	6.48	7.17	7.85	7.59
EU-2	2.49	1.67	1.15	1.22	1.13	1.26	1.12	1.14	1.00	0.98

Table 15 N_2O emissions for 1.A.1 Energy Industries

Source Category	1A1	1. Energy Industries								
Gas	N2O									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	0.15	0.16	0.16	0.24	0.27	0.28	0.30	0.32	0.31	0.31
BE	0.66	0.66	0.80	0.76	0.50	0.47	0.46	0.43	0.56	0.59
BG	0.42	0.32	0.29	0.33	0.33	0.34	0.39	0.40	0.36	0.39
CY	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
CZ	0.81	0.79	0.83	0.93	0.93	0.93	0.98	0.94	0.90	0.93
DE	14.25	12.59	12.02	12.63	12.34	12.60	13.08	12.31	11.55	11.89
DK	0.27	0.36	0.36	0.38	0.35	0.42	0.37	0.36	0.36	0.36
EE	0.07	0.05	0.05	0.07	0.09	0.08	0.07	0.08	0.09	0.08
ES	0.91	1.80	2.03	2.28	2.42	2.34	2.38	2.37	2.11	2.26
FI	0.39	0.61	0.66	1.00	0.82	1.08	1.06	0.97	0.93	0.99
FR	1.94	1.80	2.15	2.28	2.41	2.24	2.32	2.23	2.18	2.14
UK	6.51	5.34	4.93	5.10	5.27	5.47	5.07	4.73	4.26	4.31
GR	0.50	0.51	0.60	0.63	0.63	0.59	0.62	0.60	0.59	0.55
HU	0.23	0.24	0.23	0.23	0.26	0.22	0.25	0.26	0.26	0.26
IE	0.24	0.25	0.26	0.30	0.34	0.36	0.39	0.45	0.45	0.43
IT	1.67	1.67	1.67	1.91	1.90	1.89	1.87	1.85	1.65	1.66
LT	0.09	0.04	0.04	0.07	0.07	0.07	0.06	0.07	0.08	0.07
LU	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
LV	0.05	0.04	0.03	0.03	0.02	0.03	0.03	0.02	0.03	0.03
MT	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01
NL	0.45	0.54	0.63	0.73	0.78	0.77	0.78	0.80	0.83	0.83
PL	3.32	2.79	2.56	2.59	2.62	2.70	2.68	2.61	2.59	2.68
PT	0.20	0.25	0.40	0.44	0.48	0.45	0.41	0.43	0.44	0.30
RO	0.71	0.61	0.43	0.49	0.47	0.53	0.51	0.52	0.44	0.41
SE	1.06	1.13	1.00	1.32	1.30	1.35	1.30	1.35	1.46	1.75
SI	0.08	0.08	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09
SK	0.20	0.11	0.11	0.13	0.13	0.12	0.10	0.13	0.10	0.11
EU-15	29.19	27.68	27.67	29.99	29.82	30.32	30.42	29.21	27.69	28.37
EU-25	34.06	31.86	31.64	34.15	34.07	34.59	34.73	33.47	31.86	32.66
EU-27	35.19	32.79	32.36	34.97	34.87	35.45	35.63	34.39	32.67	33.45
EU-10	4.87	4.17	3.97	4.16	4.24	4.27	4.31	4.27	4.18	4.29
EU-2	1.13	0.93	0.72	0.82	0.80	0.87	0.90	0.92	0.80	0.80

.1.3 1.A.2 Manufacturing Industries and Construction

.1.3.1 Methods and data sources used

The main source for the estimation of CO_2 emissions from source category 1.A.2 (Manufacturing Industries and Construction) are the verified emissions data from the CITL. To calculate CO_2 emissions from 1A2, total verified emissions without power installations and refineries are used.

Based on these data the emissions were calculated as follows:

Equation 12

$$E^{Y}_{1A2,CO2} = \frac{E^{Y}_{CITL(...)}}{E^{Y-1}_{CITL(...)}} \cdot E^{Y-1}_{1A2,CO2}$$

with

$E^{Y}_{1A2,CO2}$	*CO_2 emissions for source category 1A2*
$E^{Y-1}_{1A2,CO2}$	*CO_2 emissions for source category 1A2 from previous year*
$E^{Y}_{CITL(...)}$	*CITL emissions for installations reported under different main activities*
$E^{Y-1}_{CITL(...)}$	*CITL emissions for installations reported under different main activities from previous year*

For Cyprus and for Malta the inventory data from the last available submission was used.

For CH_4 emissions from source category 1.A.2 two different approaches were used

1. For the Member States with no strong correlation between CO_2 and CH_4 emissions in the previous years, the average 2007-2009 of the CH_4 emission data from the last inventory submission were used.
2. For the Member States with a significant correlation for the trends of CO_2 and CH_4 emissions in the previous years, the projection of CH_4 emissions is based on the following formula:

Equation 13

$$E^{Y}_{1A2,CH4} = \frac{E^{Y}_{1A2,CO2}}{E^{Y-1}_{1A2,CO2}} \cdot E^{Y-1}_{1A2,CH4}$$

with

$E^{Y}_{1A2,CH4}$	*CH_4 emissions for source category 1A2*
$E^{Y-1}_{1A2,CH4}$	*CH_4 emissions for source category 1A2 from previous year*
$E^{Y}_{1A2,CO2}$	*CO_2 emissions for source category 1A2 (see above)*
$E^{Y-1}_{1A2,CO2}$	*CO_2 emissions for source category 1A2 from previous year*

The first option was used for Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Greece, Italy, Lithuania, Latvia, Malta, Sweden and the Slovak Republic. For all other EU-27 Member States the CH_4 emissions were estimated on the basis of the trend dynamics for CO_2 emissions (option 2).

Two different approaches were used for N_2O emissions from source category 1.A.2:

1. For the Member States with no strong correlation between CO_2 and N_2O emissions in the previous years the average 2007-2009 of the N_2O emission data from the last inventory submission were used.

2. For the Member States with a significant correlation for the trends of CO_2 and N_2O emissions in the previous years, the projection of N_2O emissions is based on the following formula.

Equation 14

$$E^{Y}_{1A2,N2O} = \frac{E^{Y}_{1A2,CO2}}{E^{Y-1}_{1A2,CO2}} \cdot E^{Y-1}_{1A2,N2O}$$

with

$E^{Y}_{1A2,N2O}$	*N_2O emissions for source category 1A2*
$E^{Y-1}_{1A2,N2O}$	*N_2O emissions for source category 1A2 from previous year*
$E^{Y}_{1A2,CO2}$	*CO_2 emissions for source category 1A2 (see above)*
$E^{Y-1}_{1A2,CO2}$	*CO_2 emissions for source category 1A2 from previous year*

The first option was used for Belgium, Bulgaria, Luxembourg, Latvia, Malta, the Netherlands, Romania and Slovenia. For all other EU-27 Member States the N_2O emissions were estimated on the basis of the trend dynamics for CO_2 emissions (option 2).

.1.3.2 *Results for 2010*

Table 16, Table 17 and Table 18 show the results for the proxy inventory in 2010 for 1A2 Manufacturing Industries and construction compared to the inventory time series for the EU and all Member States for CO_2, CH_4 and N_2O emissions respectively.

Table 16 CO_2 emissions from 1A2 Manufacturing Industries and Construction

Source Category	1A2	2. Manufacturing Industries and Construction								
Gas	CO2									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	12 682	13 483	13 717	14 829	16 210	15 981	15 799	15 815	14 270	16 594
BE	32 231	32 129	32 728	29 933	28 204	28 240	27 092	27 494	19 239	22 363
BG	20 588	17 818	10 017	9 754	9 465	9 842	10 129	6 943	3 606	3 277
CY	680	990	2 059	1 098	1 138	1 123	1 045	1 068	671	671
CZ	46 616	32 766	28 185	18 576	18 975	17 708	16 845	15 994	15 614	15 942
DE	175 635	134 373	117 692	108 170	112 091	116 845	120 430	117 528	101 804	119 950
DK	5 412	5 829	5 953	5 736	5 438	5 563	5 389	4 905	3 915	4 082
EE	2 258	793	572	658	714	717	1 183	1 058	607	668
ES	46 279	52 895	57 949	70 421	71 327	69 633	69 663	65 868	57 759	56 609
FI	13 172	11 957	11 735	11 436	11 150	11 443	11 290	10 635	8 189	10 322
FR	82 224	79 091	80 888	76 888	76 350	74 480	73 101	70 690	62 748	67 939
UK	99 942	92 643	92 201	83 257	83 332	81 827	80 425	78 138	67 392	70 100
GR	9 566	9 216	9 722	8 492	10 171	10 384	10 102	9 255	7 412	6 866
HU	14 256	10 478	8 039	7 651	8 297	6 958	6 724	6 562	5 408	5 550
IE	3 943	4 304	5 567	5 806	5 908	5 798	6 029	5 684	4 525	5 273
IT	86 480	86 023	83 699	84 478	80 392	78 958	75 731	72 785	56 433	64 029
LT	5 954	1 564	1 010	1 170	1 265	1 463	1 434	1 232	993	1 110
LU	6 278	3 344	1 607	1 818	1 722	1 750	1 540	1 422	1 144	1 173
LV	3 742	1 866	1 167	1 140	1 164	1 205	1 223	1 131	883	1 139
MT	59	60	57	59	123	84	106	102	67	67
NL	33 027	28 871	27 375	27 620	27 398	27 713	27 992	27 543	24 941	27 813
PL	42 958	62 869	47 479	38 061	31 782	33 096	34 913	33 010	30 192	33 013
PT	9 153	10 168	11 883	10 660	10 366	9 912	9 993	9 611	8 279	9 505
RO	31 958	26 695	17 614	21 691	20 679	19 303	18 498	17 224	11 848	12 946
SE	11 698	13 217	12 296	11 701	11 052	11 284	10 787	9 902	8 237	11 424
SI	3 085	2 587	2 240	2 242	2 450	2 550	2 311	2 269	1 888	1 837
SK	19 712	12 292	8 480	7 380	7 326	8 558	7 657	7 031	6 311	6 644
EU-15	627 723	577 542	565 011	551 244	551 111	549 812	545 364	527 274	446 286	494 042
EU-25	767 045	703 808	664 299	629 281	624 346	623 273	618 806	596 730	508 920	560 682
EU-27	819 591	748 321	691 931	660 727	654 490	652 418	647 433	620 896	524 374	576 905
EU-10	139 321	126 265	99 288	78 037	73 234	73 461	73 442	69 455	62 634	66 640
EU-2	52 546	44 513	27 632	31 446	30 144	29 145	28 627	24 167	15 454	16 223

Table 17 CH_4 emissions from 1A2 Manufacturing Industries and Construction

Source Category	1A2	2. Manufacturing Industries and Construction							
Gas	CH4								
Member State	**Inventory data**								**Proxy**
	1990	**1995**	**2000**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
	Gg									
AT	0.34	0.39	0.44	0.56	0.61	0.62	0.61	0.65	0.63	0.63
BE	3.80	3.05	3.50	3.60	3.16	3.48	3.13	3.69	2.40	3.07
BG	1.17	1.11	0.61	0.71	0.71	0.74	0.77	0.58	0.36	0.57
CY	0.02	0.03	0.07	0.04	0.04	0.04	0.04	0.04	0.03	0.04
CZ	4.31	3.30	3.03	1.81	2.00	1.93	1.87	1.80	1.78	1.81
DE	11.27	6.60	6.47	7.24	7.46	8.32	7.86	7.64	6.67	7.86
DK	0.40	0.47	1.19	1.14	1.06	0.92	0.70	0.74	0.69	0.71
EE	0.04	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.01	0.02
ES	3.90	7.32	17.10	28.18	30.97	30.91	29.59	28.67	26.44	25.91
FI	0.61	0.69	0.72	0.69	0.65	0.71	0.66	0.62	0.52	0.60
FR	11.53	10.50	10.85	11.16	9.66	7.90	9.84	8.19	6.12	8.05
UK	15.45	15.55	15.22	13.39	13.11	13.27	13.03	12.27	10.30	10.71
GR	0.43	0.42	0.48	0.42	0.49	0.46	0.45	0.49	0.42	0.45
HU	1.16	0.84	0.69	0.67	0.78	0.72	0.74	0.73	0.58	0.60
IE	0.27	0.24	0.34	0.39	0.45	0.43	0.42	0.39	0.34	0.39
IT	6.82	7.02	5.72	5.76	6.28	6.24	6.53	6.25	4.18	5.65
LT	0.35	0.11	0.10	0.23	0.23	0.24	0.24	0.21	0.16	0.21
LU	0.16	0.10	0.08	0.09	0.11	0.12	0.11	0.10	0.08	0.10
LV	0.26	0.17	0.16	0.23	0.26	0.29	0.27	0.28	0.33	0.29
MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NL	2.76	2.74	3.03	2.64	2.64	2.67	2.65	2.67	2.58	2.87
PL	3.23	5.91	4.24	3.61	3.18	3.56	3.71	3.36	3.33	3.64
PT	1.85	2.19	2.52	2.63	2.64	2.67	2.79	2.68	2.67	3.07
RO	2.24	2.30	1.52	1.79	1.69	1.62	1.65	1.42	1.09	1.19
SE	2.19	2.72	2.02	2.11	2.07	2.34	2.24	2.25	2.23	2.24
SI	0.36	0.26	0.22	0.34	0.37	0.35	0.30	0.30	0.26	0.25
SK	1.77	1.23	0.89	0.80	0.81	0.83	0.84	0.77	0.67	0.76
EU-15	61.76	59.99	69.68	80.01	81.35	81.04	80.60	77.29	66.25	72.31
EU-25	73.26	71.87	79.09	87.76	89.04	89.03	88.64	84.81	73.40	79.92
EU-27	76.67	75.27	81.23	90.26	91.44	91.40	91.06	86.81	74.84	81.68
EU-10	11.50	11.87	9.41	7.75	7.68	7.99	8.04	7.52	7.15	7.61
EU-2	3.41	3.41	2.13	2.50	2.41	2.36	2.41	1.99	1.45	1.76

Table 18 N_2O emissions from 1A2 Manufacturing Industries and Construction

Source Category	1A2	2. Manufacturing Industries and Construction								
Gas	N2O									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	0.26	0.31	0.43	0.40	0.47	0.49	0.51	0.52	0.48	0.56
BE	0.19	0.19	0.19	0.24	0.24	0.27	0.40	0.36	0.31	0.36
BG	0.16	0.14	0.09	0.11	0.10	0.10	0.11	0.07	0.04	0.07
CY	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CZ	0.58	0.42	0.37	0.22	0.24	0.23	0.22	0.21	0.22	0.22
DE	4.56	3.24	2.57	2.51	2.64	2.81	2.72	2.71	2.43	2.87
DK	0.17	0.14	0.14	0.13	0.12	0.14	0.13	0.12	0.10	0.10
EE	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
ES	1.34	1.51	1.72	2.05	2.07	2.07	2.08	1.94	1.71	1.67
FI	0.56	0.54	0.61	0.59	0.55	0.53	0.50	0.48	0.40	0.50
FR	2.46	2.49	2.61	2.58	2.69	2.82	2.73	2.72	2.52	2.73
UK	5.25	4.82	4.35	4.37	4.32	4.34	4.36	4.17	3.60	3.74
GR	0.14	0.16	0.17	0.14	0.15	0.15	0.15	0.15	0.13	0.12
HU	0.10	0.08	0.06	0.06	0.06	0.07	0.07	0.07	0.06	0.06
IE	0.04	0.04	0.05	0.06	0.07	0.06	0.06	0.06	0.05	0.06
IT	4.93	4.52	4.66	5.03	5.02	5.05	4.98	4.64	3.98	4.52
LT	0.04	0.01	0.01	0.03	0.03	0.03	0.03	0.02	0.02	0.02
LU	0.05	0.05	0.08	0.14	0.13	0.12	0.08	0.06	0.04	0.04
LV	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.03
MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NL	0.10	0.08	0.07	0.07	0.07	0.08	0.08	0.10	0.10	0.09
PL	0.79	1.11	0.78	0.68	0.61	0.66	0.68	0.67	0.68	0.74
PT	0.22	0.24	0.29	0.30	0.30	0.30	0.32	0.32	0.30	0.34
RO	0.18	0.17	0.13	0.16	0.15	0.16	0.16	0.13	0.10	0.13
SE	1.70	1.92	1.69	1.59	1.58	1.68	1.61	1.59	1.48	2.06
SI	0.08	0.07	0.08	0.09	0.09	0.12	0.09	0.10	0.08	0.09
SK	0.19	0.12	0.08	0.08	0.08	0.08	0.07	0.07	0.06	0.07
EU-15	21.96	20.24	19.64	20.22	20.42	20.90	20.72	19.93	17.63	19.76
EU-25	23.78	22.08	21.06	21.40	21.57	22.13	21.94	21.13	18.79	21.01
EU-27	24.12	22.39	21.28	21.67	21.82	22.39	22.21	21.32	18.93	21.21
EU-10	1.82	1.84	1.42	1.18	1.15	1.22	1.22	1.19	1.17	1.25
EU-2	0.34	0.31	0.22	0.27	0.26	0.26	0.27	0.19	0.13	0.20

.1.4 1.A.3 Transport

.1.4.1 Methods and data sources used

The main sources for the estimation of CO_2 emissions from source category 1.A.3 (Transport) are the following Eurostat data, extracted from Eurostat's database:

- Monthly data for the internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels;
- Few amendments were made to that data source in order to fill data gaps and replace mismatching data (for details cf. Table 54 in Annex I, p. 132).

Based on these data source three slightly different options to calculate the CO_2 emissions were developed. Out of these, the most suitable approach was chosen for each Member State taking into account the performance of the respective approximation approaches to reproduce the reported emissions of previous years, Option 1 for calculating CO_2 emissions (Equation 15) was chosen for the majority of Member States (Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Slovakia, Slovenia, Spain and Sweden):

Equation 15

$$E^{Y}_{1A3,CO2} = \left(\frac{E^{Y}_{MS,CO2} + E^{Y}_{AD,CO2}}{E^{Y-1}_{MS,CO2} + E^{Y-1}_{AD,CO2}}\right) \cdot E^{Y-1}_{1A3b,c,d,e,CO2} + \frac{E^{Y}_{K,CO2}}{E^{Y-1}_{K,CO2}} \cdot E^{Y-1}_{1A3a,CO2}$$

with

$E^{Y}_{1A3,CO2}$	*CO_2 emissions for source category 1A3*
$E^{Y}_{MS,CO2}$	*CO_2 emissions motor spirit (monthly total of internal market deliveries) x CO_2 factor*
$E^{Y}_{AD,CO2}$	*CO_2 emissions automotive diesel (monthly total of internal market deliveries) x CO_2 factor*
$E^{Y-1}_{MS,CO2}$	*CO_2 emissions motor spirit (monthly total of internal market deliveries) x CO_2 factor*
$E^{Y-1}_{AD,CO2}$	*CO_2 emissions automotive diesel (monthly total of internal market deliveries) x CO_2 factor*
$E^{Y-1}_{1A3b,c,d,e,CO2}$	*CO_2 emissions for source category 1A3b,c,d,e from previous year*
$E^{Y}_{K,CO2}$	*CO_2 emissions kerosene (monthly total of internal market deliveries) x CO_2 factor*
$E^{Y-1}_{K,CO2}$	*CO_2 emissions kerosene (monthly total of internal market deliveries) x CO_2 factor*
$E^{Y-1}_{1A3a,CO2}$	*CO_2 emissions for source category 1A3a from previous year (civil aviation)*

Country-specific CO_2 factors are calculated using net calorific values and implied emission factors based on the CRF submissions of the previous year

Option 2 (Equation 16) was chosen for Bulgaria, Cyprus, Czech Republic, Estonia, Poland, Portugal and the United Kingdom:

Equation 16

$$E^{Y}_{1A3,CO2} = Fw_{t} \cdot E^{Y-1}_{1A3,CO2}$$

with

$E^{Y}_{1A3,CO2}$ *CO_2 emissions for source category 1A3*

Fw_{t} *Weighted Factor*

$E^{Y-1}_{1A3,CO2}$ *CO_2 emissions for source category 1A3 from previous year*

$$Fw_{t} = \frac{C^{Y}_{\text{motor spirit}}}{C^{Y-1}_{\text{motor spirit}}} \cdot S^{Y}_{\text{t, motor spirit}} + \frac{C^{Y}_{\text{automotive diesel}}}{C^{Y-1}_{\text{automotive diesel}}} \cdot S^{Y}_{\text{t, automotive diesel}} + \frac{C^{Y}_{\text{kerosene}}}{C^{Y-1}_{\text{kerosene}}} \cdot S^{Y}_{\text{t, kerosene}}$$

with

$C^{Y}_{\text{motor spirit}}$ *Consumption of motor spirit (monthly total of internal market deliveries)*

$C^{Y-1}_{\text{motor spirit}}$ *Consumption of motor spirit (monthly total of internal market deliveries) previous year*

$S^{Y}_{\text{t, motor spirit}}$ *Share (mass) of motor spirit in total consumption of regarded fuels*

$C^{Y}_{\text{automotive diesel}}$ *Consumption of automotive diesel (monthly total of internal market deliveries)*

$C^{Y-1}_{\text{automotive diesel}}$ *Consumption of automotive diesel (monthly total of internal market deliveries) previous year*

$S^{Y}_{\text{t, automotive diesel}}$ *Share (mass) of automotive diesel in total consumption of regarded fuels*

C^{Y}_{kerosene} *Consumption of kerosene (monthly total of internal market deliveries)*

$C^{Y-1}_{\text{kerosene}}$ *Consumption of kerosene (monthly total of internal market deliveries) previous year*

$S^{Y}_{\text{t, kerosene}}$ *Share (mass) of kerosene in total consumption of regarded fuels*

Option 3 for calculating CO_2 emissions (Equation 17) was finally chosen for Austria, Greece, Hungary and Romania:

Equation 17

$$E^{Y}_{1A3,CO2} = Fw_{m} \cdot E^{Y-1}_{1A3b,c,d,e,CO2} + \frac{C^{Y}_{kerosene}}{C^{Y-1}_{kerosene}} \cdot E^{Y-1}_{1A3a,CO2}$$

with

$E^{Y}_{1A3,CO2}$	CO_2 *emissions for source category 1A3*
Fw_{m}	*Weighted Factor*
$E^{Y-1}_{1A3b,c,d,e,CO2}$	CO_2 *emissions for source category 1A3b,c,d,e from previous year*
$C^{Y}_{kerosene}$	*Consumption of kerosene (monthly total of internal market deliveries)*
$C^{Y-1}_{kerosene}$	*Consumption of kerosene (monthly total of internal market deliveries) previous year*
$E^{Y-1}_{1A3a,CO2}$	CO_2 *emissions for source category 1A3a from previous year (civil aviation)*

$$Fw_{m} = \frac{C^{Y}_{motor spirit}}{C^{Y-1}_{motor spirit}} \cdot S^{Y}_{m, motor spirit} + \frac{C^{Y}_{automotive diesel}}{C^{Y-1}_{automotive diesel}} \cdot S^{Y}_{m, automotive diesel}$$

with

$C^{Y}_{motor spirit}$	*Consumption of motor spirit (monthly total of internal market deliveries)*
$C^{Y-1}_{motor spirit}$	*Consumption of motor spirit (monthly total of internal market deliveries) previous year*
$S^{Y}_{m, motor spirit}$	*Share (mass) of motor spirit in total consumption of motor spirit and automotive diesel*
$C^{Y}_{automotive diesel}$	*Consumption of automotive diesel (monthly total of internal market deliveries)*
$C^{Y-1}_{automotive diesel}$	*Consumption of automotive diesel (monthly total of internal market deliveries) previous year*
$S^{Y}_{m, automotive diesel}$	*Share (mass) of automotive diesel in total consumption of motor spirit and automotive diesel*

The estimation for CH_4 emissions from source category 1.A.3 (Transport) is based on the approximated trend of CO_2 emissions and depicted in Equation 18:

Equation 18

$$E^{Y}_{1A3,CH4} = \left(\frac{E^{Y}_{1A3,CO2}}{E^{Y-1}_{1A3,CO2}}\right) \cdot E^{Y-1}_{1A3,CH4}$$

with

$E^{Y}_{1A3,CH4}$	CH_4 *emissions for source category 1A3*
$E^{Y}_{1A3,CO2}$	CO_2 *emissions for source category 1A3 as approximated using* CO_2 *options* $1-3$ *respectively*
$E^{Y-1}_{1A3,CO2}$	CO_2 *emissions for source category 1A3 from previous year*
$E^{Y-1}_{1A3,CH4}$	CH_4 *emissions for source category 1A3 from previous year*

The estimation for N_2O emissions from source category 1.A.3 (Transport) is similar to CH_4 (Equation 19):

Equation 19

$$E^{Y}_{1A3,N2O} = \left(\frac{E^{Y}_{1A3,CO2}}{E^{Y-1}_{1A3,CO2}}\right) \cdot E^{Y-1}_{1A3,N2O}$$

with

$E^{Y}_{1A3,N2O}$ N_2O *emissions for source category 1A3*

$E^{Y}_{1A3,CO2}$ CO_2 *emissions for source category 1A3 as approximated using* CO_2 *options* $1-3$ *respectively*

$E^{Y-1}_{1A3,CO2}$ CO_2 *emissions for source category 1A3 from previous year*

$E^{Y-1}_{1A3,N2O}$ N_2O *emissions for source category 1A3 from previous year*

.1.4.2 Results for 2010

Table 19, Table 20 and Table 21 show the results for the proxy inventory in 2010 for 1A3 Transport compared to the inventory time series for the EU and all Member States for CO_2, CH_4 and N_2O emissions respectively.

Table 19 CO_2 emissions for source category 1A3

Source Category	1A3	3 Transport							
Gas	CO2								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010
					Gg				
AT	13 755	15 658	18 796	24 634	23 358	23 530	22 264	21 391	22 053
BE	20 099	22 014	24 122	25 736	25 186	25 067	27 341	26 490	29 135
BG	6 578	4 370	5 486	7 565	8 183	8 010	8 403	8 108	6 266
CY	761	1 150	1 284	2 049	2 054	2 194	2 269	2 204	2 241
CZ	7 547	9 754	12 159	17 233	17 572	18 506	18 045	17 762	16 155
DE	161 917	175 092	180 363	159 769	155 832	153 040	152 792	152 183	152 786
DK	10 617	11 940	12 173	13 166	13 544	14 161	13 929	13 109	13 063
EE	2 450	1 553	1 655	2 120	2 319	2 443	2 309	2 134	2 170
ES	54 283	64 658	82 626	99 238	102 373	105 790	100 261	93 475	91 900
FI	12 483	11 735	12 592	13 480	13 668	14 039	13 384	12 708	13 197
FR	118 076	127 993	136 183	138 741	137 792	136 445	130 152	128 808	129 407
UK	113 795	115 338	121 302	126 010	126 207	127 186	122 734	117 819	117 222
GR	14 487	16 504	19 060	21 709	22 574	23 366	22 378	25 322	21 926
HU	8 019	6 817	8 537	11 788	12 266	12 422	12 453	12 260	11 075
IE	5 039	6 107	10 513	12 792	13 483	14 144	14 058	12 977	12 165
IT	101 269	111 445	120 101	125 825	127 145	127 209	122 252	117 873	116 011
LT	7 379	3 788	3 317	4 321	4 579	5 330	5 284	4 368	4 502
LU	2 600	3 301	4 596	6 790	6 501	6 357	6 515	6 005	6 271
LV	2 895	2 011	2 109	2 986	3 294	3 730	3 523	2 726	2 722
MT	341	436	493	479	517	521	525	539	555
NL	26 009	29 178	32 410	34 674	35 565	35 212	35 494	34 073	34 072
PL	24 859	28 478	32 202	35 918	38 144	39 636	43 483	43 772	46 236
PT	9 917	13 014	18 825	19 367	19 437	19 011	18 736	18 636	18 766
RO	7 646	8 254	9 351	11 821	12 284	12 828	14 604	14 475	14 411
SE	18 778	19 091	19 434	21 143	20 952	21 037	20 518	20 160	20 452
SI	2 672	3 636	3 646	4 342	4 555	5 128	6 044	5 243	5 189
SK	4 892	4 259	4 125	6 170	5 695	6 461	6 621	6 120	7 199
EU-15	683 124	743 067	813 095	843 072	843 619	845 593	822 808	801 029	798 428
EU-25	744 938	804 948	882 623	930 478	934 613	941 963	923 363	898 158	896 470
EU-27	759 163	817 571	897 459	949 864	955 080	962 801	946 369	920 741	917 148
EU-10	61 815	61 881	69 528	87 406	90 994	96 371	100 554	97 129	98 042
EU-2	14 224	12 624	14 837	19 386	20 467	20 838	23 007	22 583	20 677

Table 20 CH_4 emissions for source category 1A3

Source Category	**1A3**	**3 Transport**							
Gas	**CH4**								
Member State	**Inventory data**								**Proxy**
	1990	**1995**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
	Gg								
AT	3.06	3.07	1.91	1.33	1.15	1.01	0.85	0.76	0.79
BE	5.49	5.31	3.59	2.44	2.19	1.07	0.87	0.76	0.84
BG	3.56	1.98	1.12	0.88	1.01	0.91	0.84	0.82	0.64
CY	0.27	0.31	0.33	0.40	0.43	0.44	0.46	0.48	0.49
CZ	1.38	1.75	1.77	1.65	1.56	1.57	1.45	1.45	1.32
DE	61.13	30.83	16.10	9.08	8.45	7.59	6.93	6.54	6.57
DK	2.55	2.40	1.82	1.27	1.18	1.07	0.91	0.76	0.76
EE	0.84	0.47	0.43	0.34	0.34	0.32	0.28	0.24	0.24
ES	14.87	14.74	11.78	7.86	7.05	6.48	5.53	5.10	5.01
FI	4.73	3.90	3.15	2.41	2.24	2.12	1.91	1.84	1.91
FR	40.45	32.68	23.91	15.76	13.52	12.25	11.31	10.15	10.20
UK	30.21	23.80	15.19	8.69	7.97	7.22	6.38	4.49	4.46
GR	4.52	4.56	5.00	4.81	4.72	4.51	4.22	3.95	3.42
HU	2.42	1.83	1.45	1.36	1.37	1.30	1.12	1.06	0.96
IE	1.73	1.79	1.67	1.23	1.18	1.13	1.09	1.00	0.93
IT	34.52	38.32	28.65	18.76	17.73	16.71	15.64	14.98	14.74
LT	1.05	0.62	0.51	0.60	0.64	0.74	0.72	0.61	0.62
LU	0.84	0.76	0.70	0.52	0.44	0.37	0.33	0.29	0.30
LV	0.78	0.58	0.49	0.39	0.37	0.34	0.28	0.21	0.21
MT	0.06	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09
NL	7.51	5.09	3.56	3.02	2.95	2.87	2.86	2.73	2.73
PL	6.16	7.60	5.52	5.28	5.49	5.38	5.56	5.53	5.84
PT	3.76	3.45	3.00	2.07	1.89	1.71	1.54	1.44	1.45
RO	1.22	1.61	1.54	1.87	1.83	1.98	2.03	2.02	2.01
SE	4.99	4.07	2.65	1.78	1.62	1.48	1.35	1.29	1.31
SI	1.46	1.77	1.15	0.69	0.62	0.57	0.57	0.48	0.47
SK	1.03	1.14	0.84	0.80	0.63	0.66	0.68	0.64	0.75
EU-15	220.37	174.76	122.69	81.03	74.28	67.59	61.71	56.07	55.42
EU-25	235.82	190.90	135.27	92.62	85.82	78.99	72.90	66.84	66.40
EU-27	240.59	194.49	137.93	95.37	88.66	81.88	75.77	69.68	69.05
EU-10	15.44	16.14	12.58	11.60	11.54	11.40	11.19	10.77	10.99
EU-2	4.78	3.59	2.66	2.74	2.84	2.89	2.87	2.84	2.65

Table 21 N_2O emissions for source category 1A3

Source Category	1A3	3 Transport							
Gas	N2O								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010
	Gg								
AT	0.63	0.88	0.99	1.07	1.00	0.95	0.85	0.78	0.81
BE	0.82	1.18	1.49	1.51	1.50	0.74	0.75	0.70	0.77
BG	0.41	0.36	0.30	0.31	0.35	0.33	0.33	0.31	0.24
CY	0.06	0.08	0.10	0.15	0.17	0.18	0.19	0.19	0.19
CZ	0.49	0.79	1.28	2.22	2.25	2.35	2.27	2.32	2.11
DE	2.19	4.84	5.01	3.93	3.73	3.54	3.29	3.18	3.20
DK	0.37	0.48	0.50	0.47	0.47	0.48	0.47	0.43	0.43
EE	0.06	0.05	0.06	0.07	0.06	0.06	0.06	0.05	0.05
ES	1.70	2.56	4.53	3.01	3.09	3.19	3.09	2.85	2.80
FI	0.56	0.57	0.59	0.59	0.59	0.58	0.56	0.56	0.58
FR	3.23	4.93	5.13	5.63	5.62	5.66	5.80	5.00	5.02
UK	4.49	6.20	5.85	5.14	5.04	4.95	4.43	4.12	4.10
GR	0.54	0.93	0.88	0.93	0.98	0.98	0.95	0.86	0.75
HU	0.33	0.42	0.76	1.30	1.25	1.23	1.31	1.27	1.15
IE	0.19	0.30	0.54	0.56	0.56	0.54	0.41	0.40	0.37
IT	2.91	4.69	5.50	3.66	3.94	3.89	3.57	3.45	3.40
LT	0.88	0.39	0.20	0.23	0.24	0.28	0.28	0.23	0.23
LU	0.09	0.17	0.21	0.26	0.24	0.23	0.24	0.22	0.23
LV	0.27	0.15	0.15	0.20	0.19	0.20	0.19	0.15	0.15
MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NL	0.88	1.58	1.55	1.44	1.46	1.43	1.41	1.39	1.39
PL	1.02	1.11	1.28	1.33	1.42	1.52	1.74	1.78	1.88
PT	0.25	0.60	0.73	0.64	0.63	0.63	0.63	0.63	0.64
RO	0.06	0.07	0.08	0.10	0.10	0.11	0.12	0.12	0.12
SE	0.47	0.61	0.68	0.58	0.55	0.53	0.51	0.52	0.52
SI	0.15	0.27	0.30	0.27	0.27	0.28	0.31	0.27	0.27
SK	0.39	0.33	0.21	0.25	0.23	0.24	0.23	0.24	0.28
EU-15	19.32	30.50	34.19	29.43	29.40	28.30	26.96	25.10	25.00
EU-25	22.97	34.10	38.53	35.48	35.49	34.65	33.55	31.60	31.33
EU-27	23.45	34.53	38.90	35.89	35.94	35.09	34.00	32.03	31.69
EU-10	3.66	3.60	4.34	6.05	6.09	6.35	6.59	6.50	6.32
EU-2	0.48	0.43	0.37	0.41	0.45	0.43	0.45	0.43	0.36

.1.5 1.A.4 Other Sectors and 1.A.5 Other Fuel Combustion

No near-term data were identified which could be used to develop a real-time projection for the source categories 1A4 (Other Sectors) and 1A5 (Other Fuel Combustion) based on activity or emission data.

Therefore, the only option was to calculate approximated emissions for the total of source category 1A4 (which represents a significant share in total emissions) and 1A5 (which represents only a minor share in total emissions) by a subtraction approach. Based on the real-time projection for the source categories 1A, 1A1, 1A2 and 1A3, the emissions for the total of source categories 1A4 and 1A5 were calculated based on the following formula:

Equation 20

$$E_{1A4+5}^{Y} = E_{1A}^{Y} - E_{1A1}^{Y} - E_{1A2}^{Y} - E_{1A3}^{Y}$$

with

E_{1A4+5}^{Y} *Emissions for source category 1A4 and 1A5*

E_{i}^{Y} *Emissions for source category i*

Thus, the approximated emissions from these source categories cannot be further disaggregated and are not based on real data for 2010. For Estonia and Malta, no separate emission estimate for category 1A Fuel Combustion (i.e. independent from subcategories 1A1, 1A2 etc.) is available (cf. chapter .1.1.1). Here, the emissions of the previous year in categories 1A4 and 1A5 were used. This approach is also used for Italy, as results for 1A fit best to Italy's own proxy calculations.

As a result, the emissions from 1A4 and 1A5 have higher uncertainties than the other source categories in the energy sector.

.1.6 1.B Fugitive Emissions from Fuels

.1.6.1 Methods and data sources used

The CO_2 and CH_4 emissions for source category 1.B (Fugitive Emissions from Fuels) were estimated on the basis of a separate analysis of the following source categories:

- Solid Fuels (1.B.1);
- Oil and Natural Gas, Oil (1.B.2.a);
- Oil and Natural Gas, Natural Gas (1.B.2.b);
- Oil and Natural Gas, Venting and Flaring (1.B.2.c).

For the CO_2 emissions for source category 1.B.1 (Solid Fuels) the inventory data from the last submission were used. To overcome the strong fluctuations between 2008 and 2009 the average value for 2007-2009 was used.

The estimates for CH_4 emissions for source category 1.B.1 (Solid Fuels) are based on the monthly production data for hard coal and lignite from Eurostat.

Equation 21

$$E^{Y}_{1B1,CH4} = \frac{AR^{Y}_{coal-prod}}{AR^{Y-1}_{coal-prod}} \cdot E^{Y-1}_{1B1,CH4}$$

with

$E^{Y}_{1B1,CH4}$	*CH4 emissions for source category 1B1*
$E^{Y-1}_{1B1,CH4}$	*CH4 emissions for source category 1B1 from previous year*
$AR^{Y}_{coal-prod}$	*Hard coal or lignite production*
$AR^{Y-1}_{coal-prod}$	*Hard coal or lignite productionfor previous year*

For the countries in which hard coal production is the main determinant for CH_4 emissions from source category 1.B.1 (Poland and the United Kingdom), the primary hard coal production (Eurostat indicator code 100100, Eurostat product code 2111) was used for the projection of CH_4 emissions arising from this source category. Even for Germany and the Czech Republic the primary hard coal production was used, as the 2009 data for lignite production did not correlate with CRF emissions. For countries with a dominant lignite production (Bulgaria, Greece, Romania, Slovenia and the Slovak Republic), the primary production data for lignite (Eurostat indicator code 100100, Eurostat product code 2210) were used. For all other Member states that report CH_4 emissions from 1B1, the inventory data, average 2007-2009, from the last available submission were used.

For calculating CO_2 and CH_4 emissions from 1B2a, 1B2b, 1B2c the correlation of several trends has been reviewed.

- Eurostat crude oil production (Indicator code 100100, product code 3100);
- Eurostat gas consumption (Indicator code 100900, product code 4100);
- Eurostat gas production (Indicator code 100100, product code 4100);
- CITL main activity code 2 (refineries):

For the Member States with a significant correlation of CO_2 or CH_4 emissions with one of the trends in the previous years, the projection of emissions is based on the following formula.

Equation 22

$$E^{Y}_{1B2\,a,b,c\;CO2\,or\,CH4} = \frac{E^{Y}_{CITL}\ or\ AR^{Y}_{Eurostat}}{E^{Y\text{-}1}_{CITL}\,AR^{Y-1}_{Eurostat}} \cdot E^{Y-1}_{1B2a,b,c\;CO2\,or\,CH4}$$

with

$E^{Y}_{1B2a,b,c\;CO2\,or\,CH4}$ — CO_2 or CH_4 *emissions for source category 1B2a,b,c*

$E^{Y-1}_{1B2a,b,c\;CO2\,or\,CH4}$ — CO_2 or CH_4 *emissions for source category 1B2a,b,c from previous year*

$AR^{Y}_{Eurostat}$ — *Crude oil production, Gas production or Gas consumption*

$AR^{Y-1}_{Eurostat}$ — *Crude oil production, Gas production or Gas consumption for previous year*

For Member States with no strong correlation between one of the trends and CO_2 or CH_4 emissions in the previous years, the emission data from the last inventory submission were used.

Table 22: Best fit trends for calculating CO_2 and CH_4 emissions from 1B2a, 1B2b and 1B2c

	1B2a CO2	1B2a CH4	1B2b CO2	1B2b CH4	1B2c venting CO2	1B2c venting CH4	1B2c flaring CO2
Crude Oil Production	BG, IT, PL, RO	AT, DK, HU, IT, RO			LT	LT	LT
CITL Refineries	CZ, DE, FI, FR	DE, ES, FI, PL, PT, SE					CZ, DE
Gas Production			DE				
Gas Consumption			BE, IT, NL, PL	DE, EE, NL, PL, RO, SI			

For all other member states that report CO_2 and CH_4 emissions from 1B2 the average of 2007-2009 CO_2 or CH_4 emissions from the last inventory submission was used. For the CH_4 emissions for source category 1.B.2c flaring the inventory data from the last submission were used.

For all N_2O emissions from source category 1.B (Fugitive Emissions from Fuels) the emissions data from the last inventory submissions were used.

.1.6.2 *Results for 2010*

Table 23 and Table 24 show the results for the proxy inventory in 2010 for 1B1 Fugitive Emissions from Solid Fuels compared to the inventory time series for the EU and all Member States for CO_2 and CH_4 emissions respectively.

Table 23 CO_2 emissions from 1B1 Fugitive Emissions from Solid Fuels

Source Category	1B1	1. Solid Fuels								
Gas	CO2									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
BE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BG	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
CY	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
CZ	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE
DE	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
DK	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
EE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ES	17.63	13.38	15.27	72.80	89.91	124.94	93.55	2.06	1.18	1.18
FI	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
FR	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
UK	856.42	225.84	102.36	168.08	111.98	138.77	197.58	236.17	150.05	194.60
GR	NO	NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
HU	6.76	2.41	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
IE	NE,NO	NE,NO	NO	NO	NO	NO	NO	NO	NO	NO
IT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LU	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LV	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NL	402.67	516.87	421.71	508.82	652.42	591.23	334.03	777.99	512.71	541.57
PL	1.83	1.19	1.11	1.28	1.03	1.34	1.41	1.44	1.18	1.34
PT	8.65	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
RO	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE
SE	5.18	5.99	5.53	7.30	5.33	5.22	4.60	4.45	14.72	7.92
SI	98.38	86.20	78.99	86.25	81.28	80.99	81.83	81.77	79.85	81.15
SK	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
EU-15	1 290.54	762.08	544.88	757.01	859.63	860.16	629.76	1 020.66	678.65	745.27
EU-25	1 397.50	851.88	624.98	844.55	941.93	942.49	713.00	1 103.87	759.68	827.77
EU-27	1 397.50	851.88	624.98	844.55	941.93	942.49	713.00	1 103.87	759.68	827.77
EU-10	106.96	89.79	80.10	87.54	82.30	82.33	83.24	83.21	81.04	82.49
EU-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 24 CH_4 emissions from 1B1 Fugitive Emissions from solid Fuels

Source Category	1B1	1. Solid Fuels								
Gas	CH4									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	0.52	0.28	0.27	0.05	0.00	0.00	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
BE	15.70	0.83	0.63	0.57	0.56	0.57	0.50	0.30	0.19	0.33
BG	74.14	70.43	63.05	63.21	58.47	61.40	67.82	68.61	64.61	69.68
CY	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
CZ	361.90	276.61	239.00	222.00	221.44	236.18	217.46	212.35	190.98	202.71
DE	963.81	706.35	590.51	310.58	274.05	234.59	193.56	183.75	135.53	127.71
DK	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
EE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ES	86.55	69.96	59.41	47.22	44.71	44.27	42.07	32.96	29.70	34.91
FI	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
FR	193.59	198.06	114.42	28.15	15.59	10.87	2.88	2.90	2.47	2.75
UK	870.94	599.65	333.43	234.90	194.72	180.42	126.20	132.97	136.55	139.18
GR	52.16	57.95	64.21	70.39	69.74	64.84	66.80	66.05	65.22	56.58
HU	31.39	16.31	14.83	5.58	1.04	1.02	1.00	0.93	0.66	0.87
IE	NE,NO	NE,NO	NO	NO	NO	NO	NO	NO	NO	NO
IT	5.79	3.07	3.48	3.05	3.27	2.56	4.00	3.45	2.12	3.19
LT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LU	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LV	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NL	1.44	1.45	1.06	1.10	1.12	1.08	1.09	1.04	0.84	0.99
PL	628.54	601.85	525.16	472.48	459.04	442.11	410.39	387.21	350.08	339.70
PT	3.14	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
RO	174.34	187.20	127.06	122.88	118.73	123.74	127.57	129.09	115.87	116.72
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SI	14.42	12.96	12.01	12.89	12.17	12.12	12.12	12.11	11.87	11.87
SK	27.20	29.70	28.82	19.77	16.17	14.67	13.52	15.95	16.92	15.65
EU-15	2 193.64	1 637.61	1 167.42	696.00	603.75	539.20	437.09	423.41	372.62	365.64
EU-25	3 257.10	2 575.03	1 987.23	1 428.73	1 313.62	1 245.29	1 091.58	1 051.97	943.12	936.43
EU-27	3 505.58	2 832.66	2 177.34	1 614.81	1 490.82	1 430.43	1 286.96	1 249.67	1 123.60	1 122.83
EU-10	1 063.46	937.43	819.81	732.72	709.86	706.09	654.48	628.56	570.50	570.80
EU-2	248.48	257.63	190.11	186.09	177.20	185.14	195.39	197.70	180.48	186.39

Table 25 and Table 26 show the results for the proxy inventory in 2010 for 1B1 Fugitive Emissions from Oil and Natural Gas compared to the inventory time series for the EU and all Member States for CO_2 and CH_4 emissions respectively.

Table 25 CO_2 emissions from 1B2 Fugitive Emissions from Oil and Natural Gas

Source Category	1B2	2. Oil and Natural Gas							
Gas	CO2								
Member	Inventory data								Proxy
State	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	102.09	127.15	164.65	210.15	205.15	232.16	237.16	212.16	265.16	238.16
BE	84.44	84.11	165.18	102.24	104.23	130.53	114.77	116.55	117.20	116.17
BG	5.47	6.86	4.12	26.15	40.35	39.09	23.03	17.41	3.09	14.51
CY	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO
CZ	4.02	11.19	12.86	23.42	24.14	20.46	19.12	18.68	17.10	18.38
DE	1 715.10	2 101.12	2 198.55	2 153.02	2 099.07	2 073.55	1 921.27	1 772.08	1 658.04	1 476.48
DK	299.88	414.81	662.36	684.08	498.63	478.27	418.10	375.96	257.69	350.58
EE	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.00
ES	1 656.24	1 800.40	2 113.60	2 087.03	2 061.64	2 188.90	2 391.63	2 157.82	2 191.03	2 246.83
FI	218.85	170.68	127.93	114.53	127.11	114.10	131.52	140.25	115.48	128.55
FR	4 508.44	4 413.99	4 407.71	4 038.73	3 980.88	4 235.06	4 038.48	4 214.89	3 893.57	3 626.22
UK	5 777.84	8 429.61	5 633.01	5 112.20	5 759.08	4 894.07	5 055.59	4 273.03	4 599.43	4 642.68
GR	70.23	38.73	24.15	11.47	9.46	9.11	6.96	5.33	7.52	6.60
HU	172.52	157.08	105.49	94.93	129.43	103.30	102.21	96.56	100.10	99.62
IE	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
IT	3 343.55	3 177.58	2 587.83	2 154.25	2 116.94	2 193.67	2 180.77	2 264.33	2 170.10	2 331.02
LT	1.05	10.35	26.04	24.85	17.84	14.96	12.71	10.55	9.51	9.60
LU	0.03	0.03	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.07
LV	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MT	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO
NL	774.75	441.31	267.06	998.52	1 074.12	1 068.42	1 128.28	919.66	1 065.76	1 037.95
PL	45.49	80.63	178.33	240.86	231.06	217.11	196.38	208.24	187.69	203.50
PT	155.56	566.03	520.85	695.12	631.41	653.92	726.12	760.83	645.68	711.15
RO	47.64	40.72	36.10	33.02	31.52	29.19	27.69	27.43	25.61	25.86
SE	303.75	298.58	350.14	308.14	311.11	853.42	892.29	887.92	897.55	892.59
SI	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NO
SK	0.15	0.15	0.18	0.18	0.17	0.17	0.15	0.15	0.24	0.00
EU-15	19 010.75	22 064.13	19 223.06	18 669.56	18 978.90	19 125.23	19 243.01	18 100.86	17 884.28	17 805.05
EU-25	19 233.98	22 323.54	19 545.97	19 053.81	19 381.53	19 481.25	19 573.58	18 435.05	18 198.92	18 136.14
EU-27	19 287.09	22 371.12	19 586.19	19 112.98	19 453.40	19 549.52	19 624.30	18 479.90	18 227.62	18 176.51
EU-10	223.23	259.41	322.91	384.25	402.63	356.02	330.57	334.18	314.64	331.10
EU-2	53.10	47.58	40.22	59.17	71.87	68.28	50.72	44.85	28.69	40.37

Table 26 CH_4 emissions from 1B2 Fugitive Emissions from Oil and Natural Gas

Source Category	1B2	2. Oil and Natural Gas							
Gas	CH4								
Member State	Inventory data								Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	9.41	10.47	9.88	10.92	11.22	11.69	12.09	12.23	13.03	12.50
BE	25.01	24.72	21.35	18.77	19.54	19.39	19.29	18.27	18.47	18.70
BG	35.65	29.53	24.45	23.43	28.01	28.08	27.84	26.34	16.86	23.66
CY	0.02	0.03	0.04	0.01	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO
CZ	42.74	31.87	33.11	27.09	32.38	33.09	33.14	30.32	32.26	31.89
DE	362.85	377.22	370.21	364.98	365.96	362.56	354.60	352.53	349.67	368.62
DK	2.07	3.33	3.97	5.11	5.11	6.41	6.08	6.05	5.55	5.33
EE	37.67	17.80	20.27	23.77	24.49	24.80	24.67	23.62	15.97	16.27
ES	29.24	37.37	34.96	36.77	40.70	26.87	24.03	24.36	25.24	24.35
FI	0.53	3.80	2.62	2.62	3.05	2.64	2.44	2.33	2.19	2.30
FR	73.96	63.51	60.43	58.58	55.71	55.48	56.11	56.52	49.63	53.96
UK	491.57	463.09	379.35	287.44	275.81	259.73	270.57	250.83	250.77	257.20
GR	4.36	2.64	6.54	6.99	6.90	7.42	7.62	7.93	8.19	7.90
HU	73.21	93.47	97.50	97.51	97.49	98.04	98.35	96.54	98.71	97.61
IE	6.25	5.45	4.07	3.15	2.71	2.25	2.85	2.46	1.69	2.33
IT	347.54	324.64	302.41	270.00	268.62	242.94	234.73	238.13	233.60	234.80
LT	7.11	8.64	10.67	11.16	11.69	11.77	11.72	12.01	12.40	11.92
LU	0.77	1.00	1.20	2.15	2.11	2.22	2.07	1.98	2.00	2.02
LV	13.05	10.43	7.94	6.21	6.94	5.04	5.16	5.30	5.02	5.08
MT	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE
NL	78.24	77.89	38.58	34.20	36.16	33.49	36.41	37.97	36.39	39.42
PL	147.39	151.76	168.38	200.52	205.65	207.51	207.62	209.59	205.21	213.94
PT	2.46	2.98	9.86	20.66	8.38	8.38	9.92	22.33	31.33	21.09
RO	1 019.35	695.14	513.97	511.50	486.46	477.72	445.05	434.30	385.81	407.84
SE	0.77	0.86	0.91	0.91	0.86	0.88	0.81	0.93	0.86	0.87
SI	2.76	2.60	2.06	1.60	1.57	1.52	1.49	1.47	1.40	1.45
SK	24.45	29.13	34.06	34.32	31.96	32.13	35.45	34.91	37.77	35.59
EU-15	1 435.03	1 398.95	1 246.33	1 123.26	1 102.84	1 042.34	1 039.64	1 034.85	1 028.61	1 051.38
EU-25	1 783.44	1 744.68	1 620.37	1 525.45	1 515.02	1 456.23	1 457.25	1 448.60	1 437.34	1 465.12
EU-27	2 838.43	2 469.35	2 158.78	2 060.38	2 029.49	1 962.04	1 930.14	1 909.23	1 840.01	1 896.62
EU-10	348.41	345.72	374.04	402.19	412.18	413.89	417.60	413.75	408.73	413.75
EU-2	1 054.99	724.67	538.42	534.94	514.47	505.81	472.90	460.64	402.67	431.50

.2 Industrial processes

.2.1 2.A Mineral Products

.2.1.1 Methods and data sources used

The emissions from 2.A Mineral products are based on CO_2 emission data for Cement (2.A.1), Lime (2.A.2) and Glass Production (2.A.7) from the CITL data which were used as an index of the evolution of the emissions from the production of cement clinker, lime or glass production. In this approach CO_2 emissions from mineral products were calculated as follows:

Equation 23

$$E_{2A}^{Y} = \frac{E_{CITL}^{Y}}{E_{CITL}^{Y-1}} \cdot E_{2A}^{Y-1}$$

with

E_{2A}^{Y} *Emissions for source category 2A*

E_{2A}^{Y-1} *Emissions for source category 2A from previous year*

E_{CITL}^{Y} *CITL emissions for the production of cement clinker lime or glass production*

E_{CITL}^{Y-1} *CITL emissions for the production of cement clinker, lime or glass production from previous year*

For Malta and Cyprus 2010 verified emissions were not available, therefore emissions have been kept constant.

.2.1.2 *Results for 2010*

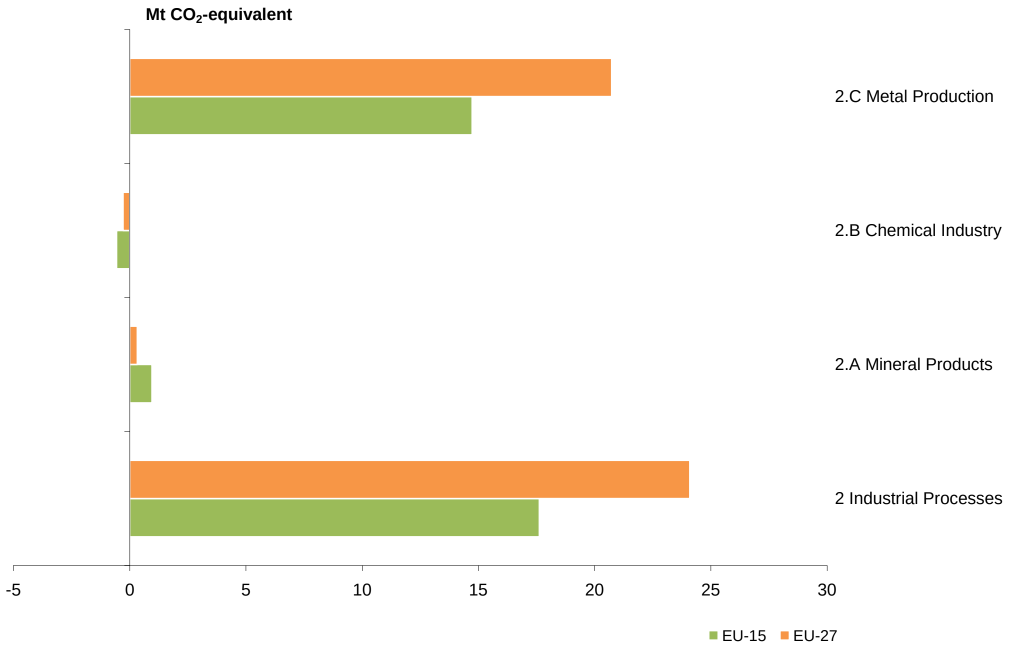
GHG emissions from Industrial Processes increased by 17.6 Mt CO_2eq for the EU-15 and by 24.1 Mt CO_2eq for the EU-27 in 2010 compared to 2009. Table 27 indicates the sub-sector contribution to this trend in emissions.

Table 27 Change in GHG emissions between 2009 and 2010 for Industrial Processes emissions

Sector Industrial Processes	**Change 2009/10**			
	EU-15		**EU-27**	
	Mt CO_2eq	**%**	**Mt CO_2eq**	**%**
2 Industrial Processes	17.6	7.0%	24.1	7.5%
2.A Mineral Products	1.0	1.1%	0.3	0.3%
2.B Chemical Industry	-0.6	-1.1%	-0.3	-0.4%
2.C Metal Production	14.7	44.8%	20.7	38.5%

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Figure 12 Change in GHG emissions between 2009 and 2010 for Industrial Processes emissions



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Table 28 CO_2 emissions from 2A Mineral Products

Source Category	2A	Mineral Products								
Gas	CO2									
Member	Inventory data									Proxy
State	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	3 274	2 863	2 966	3 178	3 133	3 307	3 518	3 531	2 918	2871
BE	5 330	5 696	5 804	5 523	5 431	5 735	5 606	5 574	4 584	4743
BG	3 907	3 240	2 120	2 595	2 809	2 940	3 460	3 474	2 216	1749
CY	667	599	805	882	890	905	896	893	720	720
CZ	4 830	3 602	4 166	3 909	3 856	3 975	4 364	4 130	3 449	3404
DE	22 928	23 356	22 457	20 866	19 701	20 127	21 431	20 494	18 075	18648
DK	1 069	1 405	1 616	1 644	1 544	1 607	1 606	1 320	881	844
EE	628	367	401	408	415	463	648	647	282	307
ES	15 404	15 857	19 091	21 249	21 875	22 042	21 865	18 788	14 675	14488
FI	1 254	913	1 106	1 256	1 198	1 284	1 294	1 256	876	1048
FR	16 394	13 806	13 721	14 253	14 058	14 284	14 359	13 553	11 512	11865
UK	10 151	9 231	9 285	8 622	8 513	8 569	8 800	7 783	5 800	5947
GR	6 676	7 073	7 380	7 245	7 738	7 474	7 336	6 958	5 315	4878
HU	3 278	2 317	2 263	2 283	2 262	2 356	2 391	2 270	1 615	1370
IE	1 117	1 084	1 909	2 507	2 553	2 539	2 580	2 302	1 485	1290
IT	21 265	20 933	21 393	23 710	23 358	23 412	23 934	21 647	17 498	17616
LT	2 141	424	359	430	448	600	599	521	307	321
LU	623	519	580	513	505	501	496	466	440	451
LV	586	155	165	353	238	266	282	280	242	436
MT	0	1	0	0	0	0	0	0	0	0
NL	923	1 432	1 165	1 154	1 135	1 140	1 152	1 128	1 042	1001
PL	8 460	9 031	8 310	7 136	7 786	8 930	10 169	9 851	8 443	8931
PT	3 475	3 934	4 444	4 655	4 714	4 614	4 837	4 721	3 839	4027
RO	8 902	6 442	5 308	6 219	6 165	6 669	7 846	7 577	5 093	4615
SE	1 722	1 763	1 879	1 918	2 029	2 179	2 107	2 160	1 836	2024
SI	699	572	635	658	714	768	806	840	608	547
SK	2 690	2 120	2 244	2 507	2 651	2 715	2 822	2 991	2 286	2225
EU-15	111 605	109 865	114 795	118 292	117 486	118 812	120 921	111 682	90 777	91 742
EU-25	135 584	129 053	134 144	136 858	136 745	139 790	143 898	134 104	108 728	110 003
EU-27	148 393	138 735	141 572	145 671	145 719	149 399	155 205	145 155	116 036	116 367
EU-10	23 980	19 188	19 348	18 566	19 260	20 978	22 978	22 422	17 951	18 261
EU-2	12 809	9 682	7 428	8 813	8 974	9 609	11 306	11 051	7 308	6 364

.2.2 2C Metal Production

.2.2.1 Methods and data sources used

The estimates for CO_2 emissions for source category 2.C (Metal Production) are based on separate estimates for source category 2.C.1 (Iron and Steel Production) and the remaining subcategories of source category 2.C.

For calculating CO_2 emissions from 2.C.1 the correlation of several trends has been analysed. The estimates are based on monthly production data from the International Iron and Steel Institute (IISI) or on CITL data. The following trends have been used:

1. Crude steel production data from the International Iron and Steel Institute (IISI);
2. Blast furnace iron production data from the International Iron and Steel Institute (IISI);
3. CITL main activity code 3 (Coke ovens) and 5 (Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting) and including those power plants in the CITL that where identified to use waste gases from the iron and steel industry;
4. CITL main activity code 3 (Coke ovens), 4 and 5 (Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting) and including

those power plants in the CITL that where identified to use waste gases from the iron and steel industry;

The estimates for CO_2 emissions for source category 2.C.1 (Iron and Steel Production) are based on the formula:

Equation 24

$$E_{2C1,CO2}^{Y} = \frac{AR_{steel}^{Y}}{AR_{steel}^{Y-1}} \cdot E_{2C1,CO2}^{Y-1}$$

with

$E_{2C1,CO2}^{Y}$	CO_2 emissions for source category 2C1
$E_{2C1,CO2}^{Y-1}$	CO_2 emissions for source category 2C1 from previous year
AR_{steel}^{Y}	Crude steel production
AR_{steel}^{Y-1}	Crude steel production for previous year

This equation and the IISI monthly crude steel production data was used for Austria, Hungary, Sweden and Slovenia. For Belgium, the Czech Republic, Poland and the Slovak Republic the IISI monthly blast furnace iron production data was used. For Spain, Finland, Greece and the Netherlands emission trends from CITL data were used for the calculation.

For Member States with no strong correlation between one of the trends and CO_2 emissions in the previous years, the emission data average 2007-2009 from the last inventory submission were used. This includes Bulgaria, Germany, France, Lithuania, Luxembourg, Latvia, Portugal and Romania.

For the UK a specific approach was developed in 2011 which is different to the other Member States. The UK inventory reports a large share of process emissions from Iron and Steel Production in the Energy sector and the main emissions reported under 2.C.1 are fugitive emissions from blast furnace gas losses which are not used for energy purposes. These emissions do not correlate at all with iron and steel production trends. Therefore the reported energy emissions in category 1.A.2.a Iron and Steel in the UK inventory were split into energy and process emissions based on the energy consumption for iron and steel indicated in the UK energy balance (which is much lower than the energy consumption indicated in the inventory). The process related emissions were added to the emissions reported under 2.C.1. This new aggregate for 2.C.1 correlates well with the iron and steel production trend for 2000 to 2009. To avoid double counting of emissions for UK, the reallocated emissions were subtracted from 1A Fuel Combustion emissions.

The total CO_2 emissions for source category 2.C (Metal Production) were calculated from the estimates for source category 2.C.1 (Iron and Steel Production) and the CO_2 emission data from all other sub-categories of source category 2.C from the last inventory submissions.

.2.2.2 *Results for 2010*

Table 29 shows the CO_2 emissions for the proxy inventory in 2010 for 2C Metal Production compared to the inventory time series for the EU and all Member States.

Table 29 CO_2 emissions from 2C Metal Production

Source Category	2C	C. Metal Production								
Gas	CO2									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	3 725	3 942	4 221	4 463	5 014	5 212	5 502	5 824	4 429	5 632
BE	2 434	2 452	2 164	2 055	2 020	2 086	1 925	2 008	938	1 435
BG	2 073	2 680	2 132	1 961	1 819	1 793	1 602	698	79	786
CY	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
CZ	12 533	8 659	7 086	7 798	6 687	7 572	7 757	7 151	5 298	6 064
DE	24 153	19 225	21 152	23 299	21 821	22 078	20 023	19 929	12 076	17 509
DK	28	39	41	NA,NO	16	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
EE	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
ES	3 386	2 250	2 923	3 094	3 524	3 819	3 538	3 502	2 608	3 223
FI	1 936	2 047	2 351	2 541	2 372	2 438	2 460	2 524	1 942	2 478
FR	4 377	5 486	4 173	4 869	4 534	4 133	4 101	3 869	3 343	3 747
UK	2 309	1 938	1 983	2 053	2 458	2 126	2 659	3 063	1 193	6 215
GR	947	969	953	1 176	1 210	1 200	1 263	1 114	688	1 080
HU	550	296	303	314	311	270	290	272	180	217
IE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
IT	3 878	3 403	1 754	1 670	1 922	1 942	1 925	1 875	1 307	1 620
LT	21	6	7	7	7	7	7	5	4	5
LU	985	465	146	152	153	210	203	169	129	154
LV	13	4	8	13	12	13	15	9	10	11
MT	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
NL	2 909	2 184	1 765	1 777	2 022	1 871	2 187	1 540	1 278	1 502
PL	7 370	5 073	5 194	4 722	7 158	8 386	8 565	9 207	5 940	7 422
PT	19	24	34	21	21	22	23	24	21	23
RO	10 857	9 293	5 852	6 934	7 357	8 600	8 871	6 030	3 994	6 325
SE	3 075	3 349	3 155	3 375	3 097	2 956	3 104	2 981	1 684	2 841
SI	285	211	186	271	276	263	256	190	85	188
SK	5 772	5 120	5 682	6 596	6 188	6 201	6 132	5 609	4 735	5 811
EU-15	54 160	47 773	46 814	50 545	50 183	50 092	48 912	48 422	31 635	47 458
EU-25	80 704	67 142	65 280	70 265	70 822	72 804	71 932	70 865	47 887	67 176
EU-27	93 634	79 115	73 265	79 161	79 998	83 196	82 405	77 593	51 961	74 287
EU-10	26 543	19 369	18 466	19 720	20 638	22 711	23 020	22 442	16 252	19 718
EU-2	12 930	11 973	7 985	8 896	9 176	10 392	10 473	6 728	4 074	7 111

.2.3 Other source categories covering industrial processes

For all other source categories covering industrial processes, 2010 activity data from alternative data sources are lacking. These categories were extrapolated from 2009 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2009. Constant values were used when past trends were inconsistent and strongly fluctuating and trend extrapolation were used when the historic time series showed good correlations with a linear trend.

Annex 1 provides a detailed overview of methods and data sources used for each source category and Member State.

.3 Agriculture

.3.1 4.A Enteric fermentation

.3.1.1 Methods and data sources used

Emissions from the source category 4A were calculated using activity rates and (implied) emission factors. Activity rates were obtained from the Eurostat annual statistics on agriculture and fisheries with data on animal production as well as from the annual inventory data in CRF format and the National Inventory Reports (NIR) submitted to the EU and to the UNFCCC. Annual animal population data provided by Eurostat were used for the following animal categories: dairy cattle, non-dairy cattle, swine, sheep and goats. Livestock surveys do not include poultry as Eurostat only provides livestock surveys for laying hens without broilers and hens. Buffalo, horses, mules and asses are also not covered by Eurostat animal production data. Therefore, the emissions of the corresponding animal categories were updated using data of previous years via trend extrapolation of UNFCCC inventory data submitted in 2011. The proxy CH_4 emissions for source category 4A were calculated based on the following equation:

Equation 25

$$E_{4A}^{Y} = \sum_{i} AF_i^{Y-1} \cdot IEF_i^{Y-1} \cdot AR_i^{Y} + E_{other}^{Y-1}$$

with

E_{4A}^{Y}	*Emissions for source category 4A*
AF_i^{Y-1}	*Adjustment factor for animal category i from previous year(s)*
IEF_i^{Y-1}	*Implied emission factor for animal category i from previous year(s)*
AR_i^{Y}	*Activity rate (livestock) for animal category i*
E_{other}^{Y-1}	*Emissions for other animals for source category 4A from previous year(s)*

Activity rates provided by Eurostat encompass two animal livestock surveys in May/June and in December for the year Y-1. For each Member State how well the respective livestock surveys correspond with the data used in national GHG inventories was analysed. The results of the best fits differed for each MS and also for animal categories. For the estimation of approximated 2010 emissions, the animal population surveys were chosen which best corresponded with the livestock data reported in GHG inventories for past years. For some Member States and animal categories Eurostat livestock population tended to show a constant deviation over the time series compared to the animal population reported in GHG inventories. In such cases, a scaling factor was applied to achieve a 2009 data set comparable to animal population reported in GHG inventories (see Table 30). The scaling factor was derived on the basis of the most recent inventory data and the best fitting Eurostat dataset.

Table 30 Data from animal livestock surveyed by Eurostat in May/June (June) and December (Dec) used for proxy methodology and including application of a scaling factor if necessary (+SF).

	Dairy cattle	Non-dairy cattle	Swine	Sheep	Goats
AT	Dec	Dec	Dec	Dec	Dec
BE	Dec	June	June	June + SF	June
BG	Dec	Dec	Dec	Dec	Dec
CY	Dec	Dec	Dec	Dec + SF	Dec + SF
CZ	Dec + SF	Dec + SF	Dec	Dec + Extrap.	Dec + Extrap.+ SF
DE	June	June	Dec + SF	June	Dec + Extrap.
DK	June	Dec	June	Dec + Extrap.+ SF	no data
EE	Dec	Dec	Dec	Dec + Extrap.+ SF	Dec + Extrap.+ SF
ES	June	Dec	Dec	Dec	Dec
FI	Dec	Dec	Dec	Dec + Extrap.+ SF	Dec + Extrap.
FR	Dec	June	June + SF	Dec	Dec
GR	Dec	Dec	Dec + SF	Dec	Dec
HU	Dec	Dec	Dec	Dec	Dec + SF
IE	Dec	June + SF	June	June	June
IT	Dec	June	Dec	Dec	Dec
LT	Dec	Dec	Dec	Dec	Dec
LU	Dec + SF	Dec	Dec	Dec	Dec
LV	Dec	Dec	Dec	Dec	Dec + Extrap.
MT	Dec	Dec	Dec	Dec	Dec
NL	June	Dec	June	Dec	Dec + SF
PL	June	Dec	Dec	Dec + SF	Dec
PT	Dec	Dec	Dec	Dec	Dec
RO	Dec	Dec	Dec	Dec	Dec
SE	June	June	June	Dec + SF	no data
SI	Dec	Dec	Dec	Dec + Extrap.	Dec + Extrap.
SK	Dec + SF	Dec + SF	Dec	Dec	Dec
UK	June	June	June	Dec + SF	no data

Note: (–): No data available for the last four years, thus no estimation of GHG emissions by using the approach as described above could be done. Emissions from goats as derived from UNFCCC inventories have been extrapolated for these Member States.

Implied emission factors for each animal category were derived from the national inventory data, which Member States submitted to the EU and the UNFCCC for the year Y-2 (Table 31).

Table 31 Implied emission factors from national UNFCCC inventories in 2009 used for the calculation of CH_4 emissions from Enteric Fermentation (4A, left) and Manure Management (4B, right) for 2010.

4A	Dairy cattle	Non-dairy cattle	Swine	Sheep	Goats	4B	Dairy cattle	Non-dairy cattle	Swine	Sheep	Goats
	IEF [kg CH_4/head/year]						IEF [kg CH_4/head/year]				
AT	115.7	56.2	1.5	8.0	5.0	AT	8.6	4.0	1.1	0.2	0.1
BE	123.8	45.3	1.5	8.0	5.0	BE	16.3	2.6	9.7	0.6	0.8
BG	109.8	51.9	1.5	6.7	5.0	BG	30.2	15.0	9.2	0.1	0.1
CY	100.0	58.0	1.5	8.0	5.0	CY	42.0	21.0	19.0	0.4	0.3
CZ	117.5	51.6	1.5	8.0	5.0	CZ	14.0	6.0	3.0	0.2	0.1
DE	128.2	46.0	1.2	8.0	5.0	DE	29.1	5.7	4.6	0.2	0.2
DK	133.8	43.1	1.0	17.2	13.1	DK	33.1	10.5	2.1	2.8	2.4
EE	136.1	47.8	0.8	8.0	5.0	EE	10.6	3.3	3.2	0.2	0.1
ES	102.6	55.4	0.9	8.8	5.0	ES	16.1	1.2	9.5	0.2	0.2
FI	126.4	47.9	1.5	8.4	5.0	FI	14.8	3.3	3.8	0.2	0.1
FR	117.0	52.8	1.1	9.8	11.8	FR	18.3	19.8	20.9	0.3	0.2
GR	116.6	55.3	1.5	9.1	5.0	GR	9.3	1.7	7.0	0.3	0.2
HU	132.7	57.4	1.5	8.0	5.0	HU	7.7	2.1	10.9	0.2	0.1
IE	107.5	54.6	1.1	5.9	5.0	IE	20.4	11.2	12.7	0.2	0.1
IT	113.0	44.6	1.5	8.0	5.0	IT	12.7	6.6	6.7	0.2	0.1
LT	102.5	56.7	1.2	8.0	5.0	LT	20.9	10.6	15.3	0.2	0.1
LU	117.9	42.6	1.5	8.0	5.0	LU	36.7	8.7	19.5	0.2	0.1
LV	116.5	52.2	1.5	8.0	5.0	LV	10.3	4.0	4.0	0.2	0.1
MT	100.0	48.0	1.5	8.0	5.0	MT	44.0	20.0	10.0	0.3	0.2
NL	127.0	35.7	1.5	8.0	5.0	NL	41.7	7.5	4.4	0.2	0.4
PL	97.0	48.9	1.5	8.2	5.0	PL	10.5	4.9	6.5	0.2	0.1
PT	125.0	55.4	1.4	9.1	8.0	PT	6.8	1.4	21.4	1.7	1.8
RO	92.4	56.0	1.5	8.0	5.0	RO	19.0	13.0	7.0	0.3	0.2
SE	132.4	54.5	1.5	8.0	5.0	SE	20.2	6.7	3.3	0.2	0.1
SI	102.8	50.5	1.6	8.0	5.0	SI	55.9	21.6	14.3	0.2	0.1
SK	105.6	54.3	1.5	9.8	5.0	SK	4.0	3.8	4.0	0.2	0.1
UK	109.4	43.1	1.5	4.6	5.0	UK	26.9	4.2	7.1	0.1	0.1

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 2009

.3.1.2 Results for 2010

Compared to 2009, GHG emissions from agriculture decreased in 2010 by -1.3 % for the EU-15 and by -1.5 % for the EU-27. Figure 13 indicates the sub-sector contribution.

Table 32 Change in GHG emissions between 2009 and 2010 in the agricultural sector

Sector Agriculture	hange 2009/10			
	EU-15		EU-27	
	Mt CO_2eq	%	Mt CO_2eq	%
4 Agriculture	-4.9	-1.3%	-7.3	-1.5%
4.A Enteric Fermentation	-2.0	-1.6%	-3.3	-2.2%
4.B Manure Management	-0.5	-0.7%	-0.9	-1.1%
4.D Agricultural Soils	-2.5	-1.3%	-3.2	-1.3%

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Note: The sub-sectors does not sum up to the total for Agriculture as sub-sector 4.C Rice Cultivation is not considered for the analysis of the results. GHG emissions from Rice Cultivation are reported only by Bulgaria, France, Greece, Hungary, Italy, Portugal, Romania and Spain. The estimated change in GHG emissions in this minor source category amounts to 10.5 Gg CO_2eq for the EU-15 and 3.4 Gg CO_2eq for the EU-27 from 2009 to 2010.

The decrease was dominated by the reduction of N_2O emissions in the source category Agricultural Soils, especially in Sweden (-0.8 Mt CO_2) and the UK (-0.9 Mt CO_2eq). Compared to 2009, the total utilised agricultural area in the UK decreased slightly by 0.5 %[38]. As the annual consumption of synthetic fertilizer is estimated based on crop areas and fertilizer application rate, a reduced area might contribute to the reduction of N_2O emissions from agricultural soils in the UK. In Sweden, the number of cattle decreased by 1 % during 2009 and 2010[39], resulting in a decreased rate of manure applied to soil and thus less emissions of N_20.

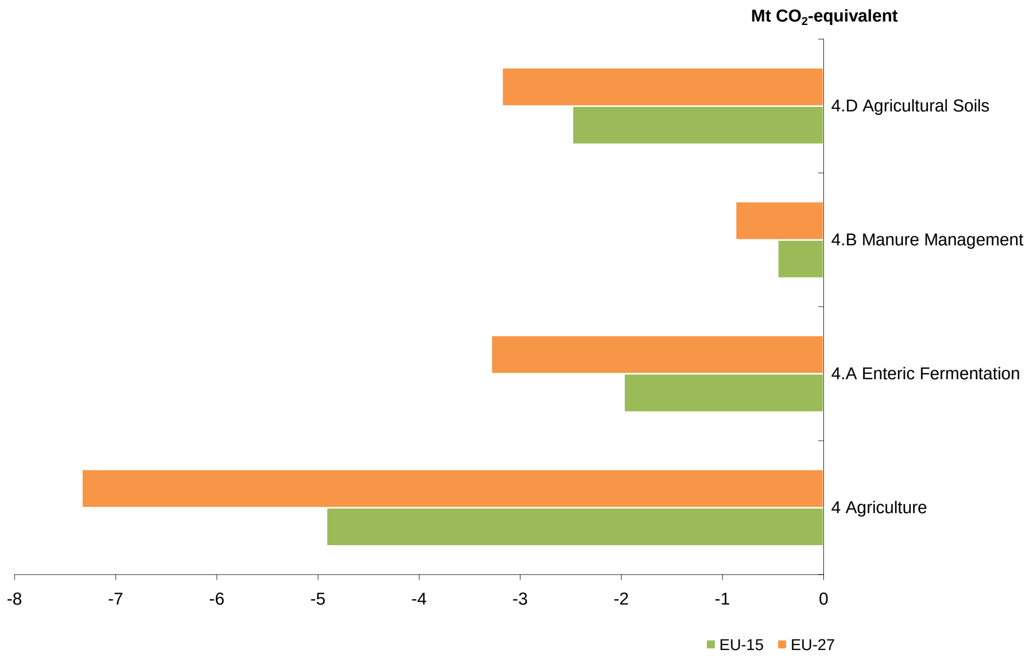
The reduction of CH_4 emissions from Enteric Fermentation also contributed to the decrease of GHG emissions from Agriculture. Among EU-15 Member States, based on data derived from Eurostat, Italy and France showed a slight decrease in the number of cattle. For the new EU Member States, Romania had the largest emission reductions from Enteric Fermentation (minus 0.9 Mt CO_2eq) due to a significant decline in the numbers of cattle, swine and sheep numbers (except for goats), resulting in minor CH_4 emissions from Enteric Fermentation and Manure Management (minus 0.2 Mt CO_2eq). Accordingly, based on results of statistical survey on „Livestock and animal production in 2010", the Romanian National Institute of Statistics found that animal production in Romania decreased in 2010 compared to 2009[40].

38 DEFRA 2011

39 SverigesOfficiellaStatistik 2011

40 National Institute of Statistics Bulgaria 2011

Figure 13 Change in GHG emissions from 2009 and 20010 in the agricultural sector



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

Table 33 presents the CH_4 emissions for the proxy inventory in 2010 for 4A Enteric Fermentation compared to the inventory time series for the EU and all Member States.

Table 33 CH4 emissions from 4A Enteric Fermentation

Source Category	4A	A. Enteric Fermentation								
Gas	CH4									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	178.73	172.08	162.71	155.69	153.74	153.23	153.84	153.52	155.49	154.87
BE	196.74	196.64	183.49	169.85	167.71	166.20	168.86	167.90	168.96	169.49
BG	185.62	93.25	84.74	77.10	75.04	73.06	68.74	67.48	64.04	61.30
CY	8.21	9.25	9.05	9.43	9.17	8.80	8.95	8.99	7.84	8.13
CZ	231.88	144.39	122.72	113.80	113.97	111.84	112.94	114.84	112.19	109.49
DE	1 299.70	1 139.70	1 072.07	1 005.70	1 001.33	979.17	983.54	998.76	997.65	990.20
DK	154.69	148.51	135.80	129.52	129.08	129.17	132.34	133.15	136.14	141.19
EE	52.36	26.77	20.80	21.14	21.31	21.40	21.02	21.08	20.78	20.85
ES	551.41	561.89	623.65	638.43	628.85	621.80	632.46	603.72	596.60	588.05
FI	92.05	80.80	78.92	76.90	76.33	76.38	75.34	74.80	75.25	74.31
FR	1 527.01	1 490.35	1 479.13	1 402.19	1 402.89	1 402.42	1 404.07	1 420.77	1 403.99	1 364.96
UK	871.98	859.35	809.08	759.15	768.18	752.50	748.72	730.99	718.73	721.24
GR	154.58	151.58	154.31	156.12	156.48	156.17	155.32	154.78	154.07	155.04
HU	155.71	93.03	90.37	82.33	81.81	79.27	79.24	77.95	76.89	73.64
IE	452.88	459.71	453.60	441.25	438.49	436.38	421.98	420.20	414.30	399.68
IT	579.93	584.15	579.30	515.89	516.24	506.01	524.93	520.04	513.30	490.63
LT	149.22	71.40	55.60	60.05	59.65	61.90	64.21	64.82	60.87	61.41
LU	12.45	12.23	11.84	11.10	11.09	10.98	11.38	11.63	11.73	11.41
LV	102.29	41.51	30.89	31.11	32.10	31.75	33.21	32.04	31.79	31.76
MT	1.60	1.70	1.79	1.75	1.74	1.67	1.71	1.61	1.52	1.42
NL	359.04	348.59	307.93	298.88	298.16	297.47	301.41	307.43	309.34	311.44
PL	742.75	513.11	463.07	417.40	426.14	436.59	443.16	444.65	437.83	424.94
PT	125.58	133.39	142.59	143.13	144.25	144.25	141.48	140.84	136.27	126.66
RO	492.72	328.32	270.81	276.54	280.24	287.85	283.20	304.38	292.81	251.83
SE	145.62	147.38	137.00	134.50	133.04	133.02	130.29	129.43	128.42	127.14
SI	31.23	30.79	33.06	30.98	31.52	31.60	33.05	32.33	32.08	31.73
SK	94.77	66.90	50.16	44.85	45.53	44.79	44.51	43.13	41.20	40.78
EU-15	6 702.40	6 486.35	6 331.43	6 038.29	6 025.87	5 965.14	5 985.98	5 967.98	5 920.23	5 826.32
EU-25	8 272.42	7 485.20	7 208.94	6 851.12	6 848.81	6 794.76	6 827.97	6 809.42	6 743.22	6 630.47
EU-27	8 950.77	7 906.78	7 564.49	7 204.76	7 204.10	7 155.67	7 179.91	7 181.28	7 100.08	6 943.60
EU-10	1 570.02	998.85	877.51	812.83	822.94	829.61	841.99	841.44	822.99	804.15
EU-2	678.34	421.57	355.55	353.64	355.29	360.91	351.94	371.86	356.85	313.13

.3.1.3 Results for past trends

The use of Eurostat data results in small deviations of emissions for the actual inventory year 2009. Table 34 shows the percentage differences between emissions from proxy inventory calculations and the emissions derived from UNFCCC inventory submissions. As only data for dairy cattle, non-dairy cattle, sheep, goats and swine was available from Eurostat, comparison was done for the aggregate emissions of these categories. For several countries the proxy methodology results in slightly higher (positive deviation) or lower values (negative deviation) than the reported emissions. Most of the Member States exhibit only slight discrepancies in underlying animal numbers thus resulting in similar levels of emissions. The deviations between both approaches are higher for early years of the time series from 1990-2009 (in particular for new Member States), but increasing consistency between both data sources could be observed for nearly all countries in the most recent years.

Table 34 Difference between emissions data obtained from inventory submissions to UNFCCC in 2009 and own calculation with Eurostat data for Enteric Fermentation from dairy cattle, non-dairy cattle, sheep, goats and swine in percent, 1990-2009

	1990	1995	2000	2001	2002	2003 [%]	2004	2005	2006	2007	2008	2009
AT	NE	6.6%	3.3%	2.6%	2.4%	1.7%	0.8%	0.5%	0.2%	-0.1%	0.0%	0.0%
BE	7.7%	3.4%	9.4%	7.5%	6.3%	5.9%	5.8%	4.6%	4.6%	2.2%	1.3%	0.3%
BG	-3.0%	-2.7%	-11.4%	0.5%	3.7%	0.8%	-0.3%	-4.3%	-0.9%	0.6%	-3.4%	-2.0%
CY	-6.2%	-5.9%	-9.5%	-5.7%	-8.2%	-4.4%	-2.5%	-6.3%	-2.4%	-1.3%	-6.7%	6.7%
CZ	-95.5%	27.6%	15.9%	9.3%	6.4%	6.3%	5.1%	5.1%	6.3%	3.3%	-0.3%	0.0%
DE	-33.6%	5.8%	2.8%	1.7%	1.8%	1.2%	1.2%	0.4%	0.0%	-0.7%	0.1%	-0.1%
DK	9.9%	7.0%	16.4%	1.9%	0.1%	-0.7%	-2.6%	-3.9%	7.2%	2.0%	3.6%	2.5%
EE	21.0%	30.8%	16.7%	11.9%	11.6%	11.6%	9.0%	7.6%	4.2%	3.5%	0.9%	-0.1%
ES	11.2%	4.7%	4.8%	3.2%	4.0%	1.9%	4.2%	4.2%	2.3%	3.2%	-1.2%	0.5%
FI	NE	21.2%	9.7%	8.9%	6.8%	4.1%	2.8%	3.1%	1.4%	-0.5%	-0.2%	-1.3%
FR	7.2%	4.6%	0.5%	1.8%	1.5%	1.4%	1.2%	0.1%	-1.0%	-1.0%	-1.4%	-2.1%
GR	16.2%	6.8%	0.9%	-0.2%	-1.1%	1.5%	0.8%	-2.2%	0.6%	0.5%	-2.5%	0.4%
HU	0.7%	7.9%	1.9%	3.4%	3.3%	1.3%	2.3%	-0.2%	0.0%	-1.0%	-0.9%	-1.5%
IE	-12.6%	-2.3%	-2.7%	-1.6%	-1.9%	-1.6%	-1.5%	-2.3%	-3.2%	-3.1%	-1.1%	-0.2%
IT	16.6%	0.1%	-10.1%	4.7%	3.6%	2.9%	2.7%	1.0%	3.0%	-0.1%	1.0%	2.8%
LT	17.5%	27.3%	17.3%	14.8%	14.1%	13.6%	12.7%	13.0%	11.2%	2.5%	-0.8%	3.1%
LU	4.5%	-3.2%	-3.4%	-4.2%	-5.4%	-4.9%	-4.1%	-3.8%	0.9%	-3.3%	-1.3%	-2.4%
LV	11.0%	17.6%	8.6%	7.2%	7.7%	5.1%	5.0%	3.8%	3.0%	1.6%	0.5%	-0.3%
MT	-94.4%	-94.6%	NE	-0.4%	0.0%	-0.1%	-0.2%	-0.2%	-0.5%	-0.3%	-0.4%	0.0%
NL	2.3%	-3.4%	-3.8%	-5.0%	-3.1%	-3.2%	-2.9%	-2.7%	-4.4%	-4.7%	-4.3%	1.1%
PL	-90.5%	-92.7%	0.7%	1.2%	1.0%	1.6%	1.8%	1.5%	-0.1%	-2.0%	-1.9%	-1.9%
PT	14.0%	11.0%	3.0%	1.3%	1.0%	1.3%	2.0%	0.6%	-1.9%	-0.1%	-4.5%	-2.6%
RO	-71.5%	-68.3%	-71.9%	14.1%	13.1%	-72.9%	10.6%	11.9%	10.5%	11.8%	0.5%	0.6%
SE	NE	2.8%	5.3%	4.7%	4.4%	4.4%	3.9%	4.9%	3.3%	5.7%	3.0%	0.0%
SI	-96.4%	-96.0%	4.0%	2.8%	1.6%	1.4%	3.4%	-0.1%	-1.1%	-0.8%	-1.2%	0.0%
SK	-89.7%	-88.9%	14.0%	6.6%	8.6%	9.0%	6.7%	3.1%	0.4%	-0.8%	-0.7%	0.0%
UK	6.8%	3.7%	4.2%	4.3%	4.3%	3.9%	2.9%	1.0%	1.7%	0.6%	-0.3%	0.0%

For the past 5 years deviations between both approaches were

- below ± 3 % for Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Germany, Spain, Finland, France, Greece the UK, Hungary, Ireland, Italy, Luxembourg, Latvia, Malta, the Netherlands, Poland, Portugal, Slovenia and Slovakia;
- below ± 5 % for Estonia and Sweden;
- below ± 10 % for Romania, Lithuania;

for none of the Member States deviations of more than ± 10 % could be found

Detailed information about underlying causes for deviations is provided in Table 35 and Table 36

Table 35 Causes for high deviations and outliers in data between Eurostat and UNFCCC inventories for Enteric Fermentation for EU-15 Member States.

AT	1990-1992: Eurostat does not provide activity data for non-dairy cattle. 1990-1993: No acitivity data for swine. 1990: No activity data for dairy cattle, goats, sheep.
BE	1990-1997: No activity data for swine from Eurostat available. 1990-2001, 2004-2005: No activity data for goats, sheep from Eurostat available. Difference in activity data available from Eurostat for sheep is larger than 10%. Activity data for dairy cattle provided by UNFCCC and Eurostat differ by more than 10% during 2004 and 2007. Difference in activity data available from Eurostat for goats is larger than 10% in 2002 and 2003. Lower IEF for 4A, dairy cattle in 1990 than in 2009.
DE	1990: Eurostat does not provide activity data for non-dairy cattle. 1990: No activity data for swine; difference in activity data available from Eurostat for swine is larger than 10% throughout the time series. 2009, 2010: Eurostat does not provide activity data for goats. IEFs for 4A and 4B, dairy cattle and swine are lower in 1990 than in 2009.
DK	provided by UNFCCC and Eurostat differ by more than 10%, by more than 20% in 1990, 2002, 2004, 2006-2008 and by more than 30% in 2005. 1990-1999, 2001-2005: Eurostat does not provide any activity data for swine.
ES	Acitivty data for goats provided by UNFCCC and Eurostat differ by more than 10% in 1995 and by more than 20% in 2008. Lower IEF for 4A, dairy cattle in 1990 than in 2009.
FI	1990: Eurostat does not provide any activity data for dairy cattle. 1990-1992: Eurostat does not provide any activity data for non-dairy cattle. 1990-1991, 2009-2010: Eurostat does not provide any activity data for goats. 1992, 1997-1999, 2001, 2005, 2007: Activity data for goats provided by UNFCCC and Eurostat differ by more than 10%, by more than 20% in 1994, 2000, 2002-2003 and my more than 30% in 2004. 1990: Eurostat does not provide any activity data for sheep. 1995-1996, 1998-2000, 2002, 2006-2009: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 20%, by more than 30% in 1993, 1994, 1997, 2001, 2003-2004 and by more than 40% in 1991-1992. 1990-1993: Eurostat does not provide activity data for swine. 1999-2001: Activity data for swine provided by UNFCCC and Eurostat differ by more than 10%. Increasing IEF for 4A, dairy cattle and swine during 1990 and 2009.
FR	1990-2000: Activity data for goats provided by UNFCCC and Eurostat differ by more than 10%. 1990-1997: Eurostat does not provide activity data for swine. Activity data for swine provided by UNFCCC and Eurostat differ by more than 40% during 1998-1999, by more than 30% 2000, 2004-2005 and by more than 20% in 2001-2003, 2006-2009.
GR	1994, 1999: Activity data for non-dairy cattle provided by UNFCCC and Eurostat differ by more than 10%. 1990-1993: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 10%. 1990: Activity data for goats provided by UNFCCC and Eurostat differ by more than 10% and by more than 20% in 2008. 1990, 1993, 2006-2009: Activity data for swine provided by UNFCCC and Eurostat differ by more than 10%.
IE	1990-1998 and 2001-2009: Activity data for non-dairy cattle provided by UNFCCC and Eurostat differ by more than 10%. 1990, 1991: Eurostat does not provide activity data for sheep. 1990-1999, 2009, 2010: Eurostat does not provide activity data for goats. 1990-1997: Eurostat does not provide activity data for
IT	2000: Activity data for dairy cattle provided by UNFCCC and Eurostat differ by more than 10%. 1990: Activity data for non-dairy cattle provided by UNFCCC and Eurostat differ by more than 10%. 1990-1993: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 20% and by more than 30% in 2000. Activity data for goats provided by UNFCCC and Eurostat differ by more than 10% in 1994 and by more than 30% in 2000. Lower IEF for 4B, dairy cattle, non-dairy cattle and swine in 2009 than in 1990.
LU	2000, 2006-2008: Difference between activity data (UNFCCC and Eurostat) is larger than 10% in 2006 and 2008-2009. 1997-2001, 2005-2007: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 10% and by more than 20% in 1991, 1994, 2003-2004. 1990-2007: Activity data for goats provided by UNFCCC and Eurostat differ by more than 20%. 2005, 2009: Activity data for swine provided by UNFCCC and Eurostat differ by more than 10%.
NL	1990, 1992, 1995-1997, 1999: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 10%, by more than 20% in 1994, 2003, 2005-2008 and by more than 30% in 1993 and 2004. 1992-1994, 2009: Activity data for goats provided by UNFCCC and Eurostat differ by more than 10% and by more than 20% in 1990. 1990-2008: No activity data for swine.
PT	1992, 1994-1995, 1997-1998, 2000, 2004-2006: Activity data for goats provided by UNFCCC and Eurostat differ by more than 10%. 1990-1993: Eurostat does not provide activity data for swine.
SE	1990-1991: Eurostat does not provide activity data for dairy cattle and non-dairy cattle. 1990: Eurostat does not provide activity data for sheep. 2009: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 40%. 1990, 2006-2010: Eurostat does not provide activity data for goats. 1990-1997: Eurostat does not provide activity data for swine.
UK	2002, 2003, 2006-2010: Eurostat does not provide activity data for goats. 1990-2009: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 30%. 1990-1996: Eurostat does not provide activity data for swine.

Table 36 Causes for high deviations and outliers in data between Eurostat and UNFCCC inventories for Enteric Fermentation for EU-12 Member States

BG	1992, 1998: Activity data for dairy cattle provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% 1993-1994. 1991, 1995-1996, 1998, 2002: Activity data for non-dairy cattle provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% 1992-1994. 1991, 1996-1997: Activity data for sheep provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% 1992-1994 and 2000. 1990-1995, 1996-1997, 2000, 2008: Activity data for goats provided by Eurostat and UNFCCC differ by more than 10%. 1994, 1997-1998, 2002: Activity data for swine provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% 1991-1993, 1996 and 2000.
CY	2007: Activity data for sheep provided by Eurostat and UNFCCC differ by more than 10% and by more than 30% in 2009. 2006: Activity data for goats provided by Eurostat and UNFCCC differ by more than 20% and by more than 50% 2009.
CZ	1990-1994: Eurostat does not provide activity data for dairy cattle. 1996-1997, 1999-2001: Activity data for dairy cattle provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% in 2002-2008 and by more than 30% in 2009. 1990-1994: Eurostat does not provide activity data for non-dairy cattle. 2003, 2005-2009: Activity data for non-dairy cattle provided by Eurostat and UNFCCC differ by more than 10%. 1994-1995, 2003, 2005-2006: Activity data for sheep provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% in 1991-1993, 1997 and 2004. 2000, 2004, 2006: Activity data for goats provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% in 2001, 2005 and 2009.1990: No activity data for swine. 2009, 2010: Eurostat does not provide activity data for goats.
EE	2009, 2010: Eurostat does not provide activity data for sheep. 2009, 2010: Eurostat does not provide activity data for goats. Activity data for goats provided by UNFCCC and Eurostat differ by more than 20% in 2000. IEFs for 4A and 4B, dairy cattle are lower in 1990 than in 2009.
HU	1990: Activity data for dairy cattle provided by Eurostat and UNFCCC differ by more than 10%. 1992: Activity data for non-dairy cattle provided by Eurostat and UNFCCC differ by more than 10%. 1993, 1994: Activity data for sheep provided by Eurostat and UNFCCC differ by more than 10%. No activity data for goats 1990-1999. Acitivty data for goats provided by UNFCCC and Eurostat differ by more than 10% in 2000-2004, 2006 and 2009. 1992-1994: Activity data for swine provided by Eurostat and UNFCCC differ by more than 10% and by more than 20% in 1991. Lower IEF for 4A, dairy cattle in 1990 than in 2009.
LT	2007, 2008: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 10%. IEFs for 4A and 4B, dairy cattle and non-dairy cattle are lower in 1990 than in 2009.
LV	2009 and 2010: Eurostat does not provide activity data for sheep and goats. IEF for 4A and 4B, dairy cattle are lower in 1990 than in 2009.
MT	1990-2000: Eurostat does not provide activity data for dairy cattle, non-dairy cattle, sheep and goats. 2001: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 20%. 2001: Activity data for goats provided by UNFCCC and Eurostat differ by more than 30% and by more than 10% in 2008. 1990, 1993, 1996: Activity data for swine provided by UNFCCC and Eurostat differ by more than 10%. No activity data for swine in 1999, 2000.
PL	1990-1997: Eurostat does not provide activity data for dairy cattle and non-dairy cattle. 1994, 1995, 2008: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 10% and by more than 20% in 1991-1993, 2009. 1990-1995, 1997, 2001-2005: Eurostat does not provide activity data for goats.
RO	1990-2000, 2003: Eurostat does not provide activity data for dairy cattle and non-dairy cattle. 1992: Activity data for sheep and goats provided by UNFCCC and Eurostat differ by more than 10%. 1992, 1994, 1997: Activity data for swine provided by UNFCCC and Eurostat differ by more than 10%. IEFs for 4A and 4B, sheep in 2008 and 2009 are higher than in previous years.
SI	1990-1996: Eurostat does not provide activity data for dairy cattle and non-dairy cattle. 1997: Eurostat does not provide activity data for sheep. 1993, 1995: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 20% and by more than 30% in 1994, 1996. 1990-1991, 1997: Eurostat does not provide activity data for goats. 1993: Activity data for goats provided by UNFCCC and Eurostat differ by more than 10% and by more than 20% in 1992 and 1996.
SK	1990-1996: Eurostat does not provide activity data for dairy cattle and non-dairy cattle. 2000-2009: Activity data for dairy cattle provided by UNFCCC and Eurostat differ by more than 10%. 2005-2009: Activity data for non-dairy cattle provided by UNFCCC and Eurostat differ by more than 10%. 1992: Activity data for sheep provided by UNFCCC and Eurostat differ by more than 10%. 1990-1992: Activity data for goats cattle provided by UNFCCC and Eurostat differ by more than 20%. 1990-2003: Activity data for swine provided by UNFCCC and Eurostat differ by more than 20%.

.3.2 4.B Manure Management

.3.2.1 Methods and data sources used

For the estimation of CH_4 emissions from Manure Management the same Eurostat data were used as for the calculation of CH_4 emissions from Enteric Fermentation. Data from livestock surveys provided by Eurostat were used according to Table 30. The emission estimation follows a similar equation than the one for 4.A because of the same proxy methodology:

Equation 26

$$E_{4B}^{Y} = \sum_{i} AF_i^{Y-1} \cdot IEF_i^{Y-1} \cdot AR_i^{Y} + E_{other}^{Y-1}$$

with

E_{4B}^{Y}	*Emissions for source category 4B*
AF_i^{Y-1}	*Adjustment factor for animal category i from previous year(s)*
IEF_i^{Y-1}	*Implied emission factor for animal category i from previous year(s)*
AR_i^{Y}	*Activity rate (livestock) for animal category i*
E_{other}^{Y-1}	*Emissions for other animals for source category 4B from previous year(s)*

Implied emission factors for each animal category for category 4.B were derived from the national inventory data submitted to the EU and the UNFCCC for the year Y-2, see Table 31.

.3.2.2 Results for 2010

Table 37 presents the CH_4 emissions for the proxy inventory in 2010 for 4B Manure Management compared to the inventory time series for the EU and all Member States.

Table 37 CH_4 emissions from 4B Manure Management

Source Category	4B	B. Manure Management								
Gas	CH4									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	20.53	19.43	17.16	15.70	15.56	15.34	15.38	14.99	15.26	15.20
BE	82.27	87.60	83.29	75.01	74.35	74.51	76.09	76.41	77.17	77.51
BG	104.87	55.52	43.56	42.84	41.00	41.70	40.09	37.76	36.10	33.95
CY	7.81	10.19	10.53	11.61	10.86	11.17	11.12	11.42	11.34	11.38
CZ	48.07	32.07	27.88	24.57	23.64	23.35	23.35	22.47	20.71	20.06
DE	315.13	291.51	287.97	278.96	282.83	276.64	280.66	284.24	287.04	286.09
DK	46.47	50.74	53.69	58.25	56.83	55.61	59.33	58.03	58.47	60.07
EE	6.99	3.59	2.67	2.80	2.80	2.79	2.88	2.83	2.80	2.83
ES	193.92	214.73	251.67	263.44	259.92	273.93	279.40	265.51	266.28	272.33
FI	11.76	12.92	13.56	14.15	14.57	14.55	14.52	14.72	14.13	13.84
FR	656.12	649.85	662.17	657.34	659.48	659.61	672.53	673.02	657.32	645.91
UK	170.76	168.15	153.27	140.84	142.57	140.78	138.53	135.16	133.33	131.51
GR	16.07	15.96	15.81	15.75	15.80	15.73	15.58	15.59	15.56	15.63
HU	112.54	66.61	67.30	59.83	55.03	54.01	54.81	50.74	45.84	44.70
IE	111.11	112.18	110.20	107.71	107.45	106.56	102.99	102.80	101.88	98.19
IT	164.86	156.48	156.10	150.14	149.93	144.20	145.43	140.99	137.41	136.70
LT	63.35	32.26	22.99	27.32	28.03	28.52	28.95	27.42	26.53	26.59
LU	3.79	4.46	4.99	4.54	4.72	4.64	4.35	4.43	4.50	4.61
LV	13.04	5.11	3.72	3.98	4.02	4.01	4.12	4.23	4.48	4.54
MT	1.36	1.28	1.58	1.52	1.45	1.44	1.49	1.34	1.30	1.30
NL	142.77	149.16	135.42	123.87	123.69	123.60	124.71	127.66	137.49	138.37
PL	160.94	169.76	159.15	162.80	170.54	178.01	173.78	156.29	147.94	149.32
PT	56.27	58.85	58.36	59.11	59.28	60.13	60.19	60.25	60.26	54.87
RO	180.64	114.51	84.87	95.47	97.39	99.71	96.29	101.16	95.78	85.01
SE	16.62	19.81	18.58	21.39	23.01	22.56	22.51	22.12	22.13	22.09
SI	22.70	20.39	20.55	20.31	20.50	20.90	21.58	20.15	20.48	20.02
SK	17.56	13.25	9.52	7.84	7.66	7.49	6.84	5.85	5.94	5.69
EU-15	2 008.47	2 011.82	2 022.26	1 986.19	1 989.97	1 988.38	2 012.19	1 995.94	1 988.23	1 972.92
EU-25	2 462.83	2 366.33	2 348.13	2 308.78	2 314.50	2 320.06	2 341.12	2 298.67	2 275.61	2 259.35
EU-27	2 748.34	2 536.36	2 476.57	2 447.08	2 452.89	2 461.48	2 477.50	2 437.58	2 407.49	2 378.31
EU-10	454.36	354.51	325.88	322.59	324.53	331.68	328.93	302.73	287.38	286.43
EU-2	285.51	170.03	128.43	138.30	138.39	141.41	136.38	138.91	131.88	118.96

.3.2.3 *Results for past trends*

The calculation with Eurostat data shows good estimates of emissions for the present inventory year 2010. Table 38 provides an overview of the percentage differences between calculated emissions from manure management based on the proxy methodology and the emissions from the same category reported in the 2011 national GHG inventory submission.

As for category 4.A the proxy methodology shows slightly higher (positive deviation) or lower values (negative deviation) than the reported emissions. Although the same activity data were used for both categories 4.A and 4.B, the deviances between the data obtained from our own calculations and from the UNFCCC differ due to the different implied emission factors (IEF) used for sub-categories 4.A and 4.B. The share of emissions from swine in category 4.B, for example, is larger than in category 4.A due to the higher IEF, ranging in the same order of magnitude as for non-dairy cattle. Therefore, lacking activity data for swine which result in deviances of emissions is more relevant for this category. This is the case for Belgium, France, Sweden and Ireland (1990-1997), Portugal, Finland and Austria (1990-1993), Germany (1990), Denmark (1990-1999 and 2001-2005) the Netherlands (1990-2008) and the UK (1990-1996), but especially for Member States whose emission profile for Manure Management is dominated by the number of swine, e.g. Denmark and the Netherlands.

Small discrepancies in underlying animal numbers result in only slight differences in emissions for most of the Member States. Thus, similar levels of emissions could be found for recent years. Going backwards in the time series, however, results in an increasing difference due to different animal numbers provided by UNFCCC inventories and Eurostat for most Member States, lack of data for some livestock categories as well as higher IEFs in the early nineties (whereas the IEF derived from 2009 GHG inventories was used to calculate emission estimates).

Table 38 Difference between emissions data obtained from inventory submissions to UNFCCC in 2009 and own calculation with Eurostat data for Manure Management from dairy cattle, non-dairy cattle, sheep, goats and swine in percent, 1990-2009.

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
						[%]						
AT	NE	-7.8%	-5.1%	-4.7%	-3.9%	-3.0%	-2.2%	-2.2%	-1.4%	-0.7%	0.3%	0.0%
BE	-75.7%	-79.3%	7.4%	4.3%	4.6%	4.3%	4.1%	3.9%	2.8%	0.0%	-0.6%	-0.9%
BG	0.9%	3.0%	-16.7%	3.2%	9.0%	4.6%	0.5%	-0.8%	1.4%	-0.8%	-3.4%	-2.3%
CY	-0.3%	-0.3%	0.5%	-0.3%	-0.5%	0.3%	1.1%	-0.3%	-0.1%	3.2%	-0.3%	0.2%
CZ	-69.7%	10.0%	5.4%	1.5%	2.1%	1.3%	-1.6%	0.1%	1.4%	-1.4%	-4.6%	-0.9%
DE	-37.4%	8.1%	3.9%	3.1%	3.1%	2.5%	3.2%	2.0%	2.1%	1.0%	0.9%	0.0%
DK	-8.2%	-22.0%	18.3%	-37.3%	-40.8%	-42.3%	-46.1%	-45.4%	8.9%	1.9%	1.3%	1.7%
EE	18.1%	19.3%	10.9%	6.5%	5.3%	5.9%	7.0%	5.4%	2.0%	-0.1%	0.4%	0.0%
ES	-1.6%	-4.1%	-2.8%	2.2%	1.8%	1.4%	2.5%	3.7%	2.4%	-0.1%	5.1%	1.1%
FI	NE	39.0%	29.1%	26.2%	18.4%	10.4%	8.6%	4.6%	2.8%	0.0%	-1.9%	-1.6%
FR	-30.4%	-31.2%	6.6%	4.6%	3.7%	3.6%	2.0%	0.8%	-0.6%	-2.1%	-1.9%	-1.2%
GR	8.0%	-8.7%	-8.0%	-11.8%	-4.3%	-5.1%	-5.5%	-8.2%	-1.6%	-1.4%	-1.7%	-0.1%
HU	-8.1%	-0.6%	-4.4%	-0.1%	0.1%	-2.4%	-6.7%	-3.9%	1.0%	-3.9%	-7.1%	-0.2%
IE	-25.9%	-25.3%	-3.6%	-2.9%	-3.3%	-1.8%	-1.8%	-1.9%	-2.3%	-2.0%	-1.7%	-1.0%
IT	-10.0%	-15.3%	-15.5%	-12.6%	-9.9%	-10.3%	-9.5%	-9.3%	-5.6%	-5.4%	-1.4%	1.7%
LT	13.8%	16.6%	14.5%	11.2%	10.6%	11.0%	10.1%	9.5%	9.1%	-5.3%	-2.6%	1.4%
LU	24.3%	-1.9%	-11.1%	-11.8%	-12.0%	-11.2%	-8.7%	-12.0%	-3.2%	1.0%	-0.9%	2.4%
LV	21.3%	31.2%	26.0%	24.2%	23.6%	20.8%	21.3%	20.4%	19.3%	18.0%	7.9%	-0.1%
MT	-54.6%	-49.9%	NE	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.1%	-0.1%	0.0%
NL	-20.5%	-32.4%	-35.3%	-33.5%	-34.2%	-32.0%	-33.4%	-33.2%	-34.7%	-35.2%	-34.8%	0.9%
PL	-8.5%	-13.5%	9.4%	11.8%	1.1%	-0.6%	1.9%	2.5%	-0.7%	-2.6%	-5.8%	-0.8%
PT	-80.1%	9.3%	6.6%	7.0%	4.4%	1.2%	4.7%	4.1%	0.4%	2.5%	-1.1%	-1.1%
RO	-50.1%	-47.3%	-56.2%	1.2%	1.3%	-54.8%	1.5%	1.4%	1.5%	1.5%	0.4%	0.5%
SE	NE	3.2%	40.3%	24.4%	23.9%	15.5%	15.1%	5.6%	4.1%	4.8%	2.7%	0.0%
SI	-61.6%	-57.6%	19.8%	16.7%	11.6%	8.8%	9.8%	7.5%	6.1%	4.5%	2.4%	0.0%
SK	-37.2%	-31.2%	0.4%	0.3%	0.4%	0.2%	0.4%	0.4%	0.3%	0.2%	0.2%	0.0%
UK	-24.6%	-27.8%	7.0%	6.8%	5.8%	5.9%	4.7%	-0.3%	0.4%	0.0%	0.2%	-1.1%

For the past 5 years deviations between both approaches were

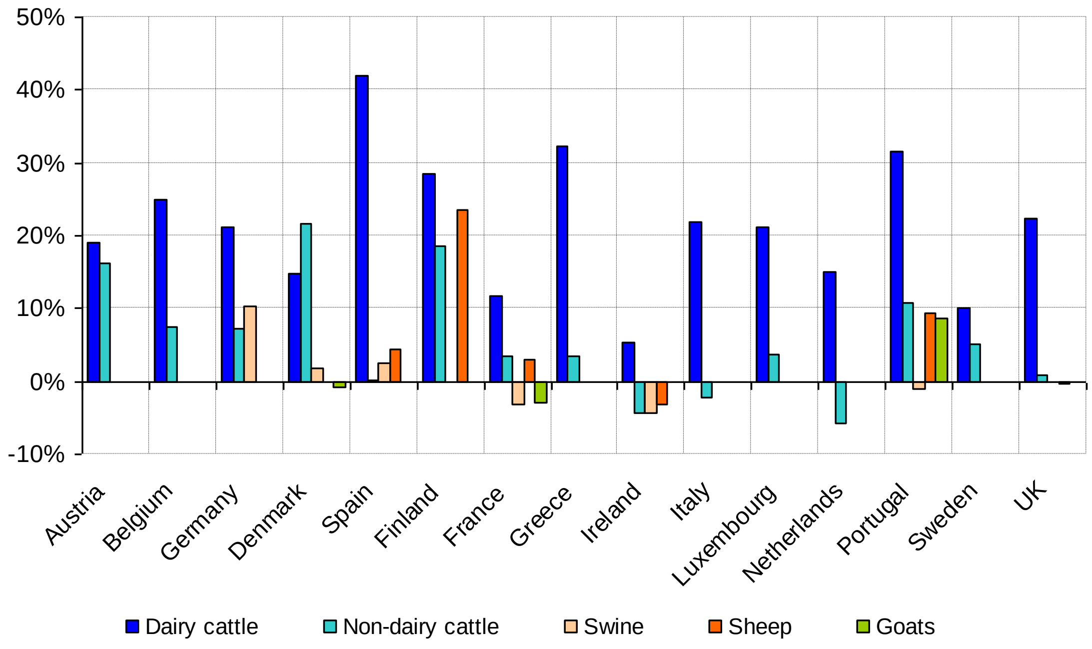
- below ± 3 % for Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Estonia, Spain, Germany, Finland, France, the UK, Hungary, Ireland, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, and Slovakia;
- below ± 5 % for, Italy, Slovenia and Sweden;
- below ± 10 % for Denmark;
- above ± 10 % for Latvia and the Netherlands: The Latvian IEF for dairy cattle increased by 30 % during 2007 and 2008. Thus, the estimation of CH_4 emissions for recent years by using the 2009 IEF results in an overestimation of emissions for the period 1990-2007. For the Netherlands, the large deviations since 1990 to 2008 could be explained by the Dutch emissions profile for 4B. Besides dairy cattle, swine is the second largest emission source for this

sub-category. As Eurostat does not provide data for swine for the years 1990-2008, the lack of data results in a large deviation compared to UNFCCC estimates.

Inconsistencies in time series are caused by a lack of data or an update of IEFs. Especially for the new Member States, Eurostat animal surveys lack data for dairy cattle in the early 1990s (the Czech Republic (1990-1994), Malta (1990-2000), Poland (1990-1997), Romania (1990-2000, 2003), Slovenia and Slovak Republic (1990-1996)). But also for some EU-15 Member States, no activity data for dairy cattle could be obtained from Eurostat for 1990 (Austria (1990-1992), Finland (1990) and Sweden (1990-1992)).

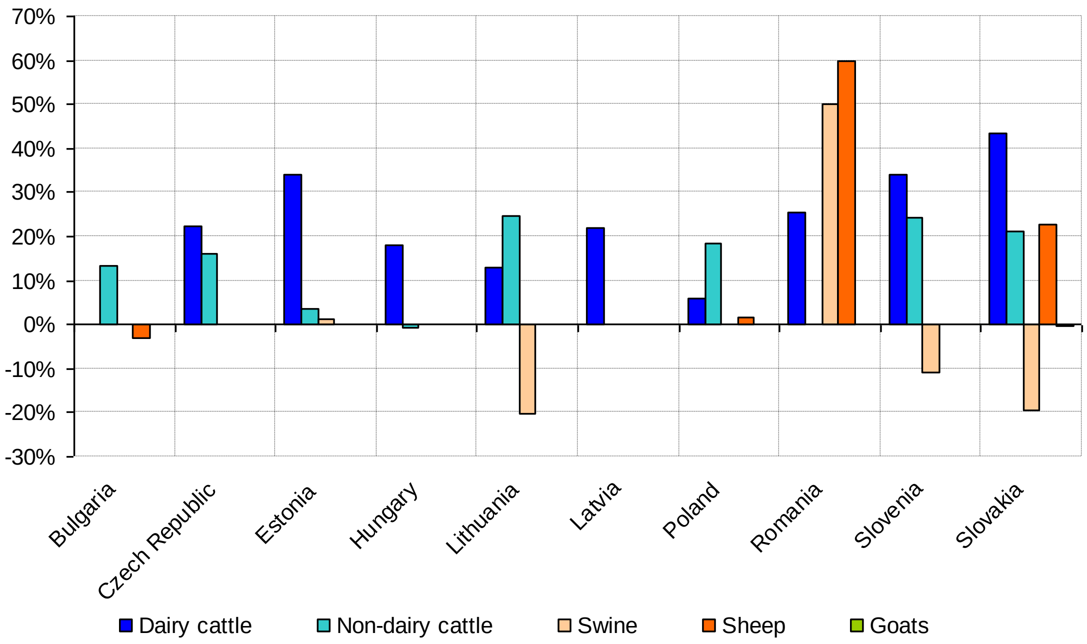
The reported IEFs for the relevant animal category in UNFCCC time series changed over the time series whereas the proxy methodology uses constant recent IEFs for all years. This is another important reason for larger differences in the past. Except for Cyprus and Malta, for all EU-27 Member States an increase of IEFs for dairy cattle and non-dairy cattle could be found, resulting in an overestimation of CH_4 emissions for those countries with increasing IEF in the early nineties. An increase of the IEF follows the increasing trend in milk production during the observed period which is a result of an increase in feed intake and a change in nutrient composition, affecting digestibility and the methane conversion factor (1996 IPCC Guidelines). Figure 14 and Figure 15 illustrate the change of IEF for sub-category 4.A during 1990 and 2009 for EU-15 and EU-10 Member States.

Figure 14 Change of IEF for enteric fermentation during 1990 and 2009 for EU-15 Member States



Source: 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009

Figure 15 Change of IEF for enteric fermentation during 1990 and 2009 for EU-10 Member States



Source: 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009

Country-specific information about underlying causes for deviances is provided in Table 36.

.3.3 4.D Agricultural Soils

.3.3.1 Methods and data sources used

Consumption estimates of manufactured fertilizers from Eurostat that are obtained from Fertilizer Europe were not available for the compilation of this report. No activity rates for the estimation of emissions from the source category 4.D.1 could be obtained but only fertilizer forecasts for EU-15 and EU-27 in 2010. Thus, in order to calculate emissions from Agricultural Soils the sub-sectors 4.D.1.1 Synthetic Fertilizers, 4.D.1.2 Animal Manure applied to Soils, 4.D.1.3 N-fixing crops, 4.D.1.4 Crop residue 4.D.1.5 Cultivation of Histosols and 4.D.1.6 Other Direct Emissions were extrapolated from 2009 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2009. Constant values were used when past trends were inconsistent and strongly fluctuating and trend extrapolation were used when the historic time series showed good correlations with a linear trend. These source categories were then added to derive emissions from 4.D.1.

The emissions of the other categories 4.D.2 to 4.D.6 were updated using data of previous years via trend extrapolation of UNFCCC inventory data submitted in 2011.

.3.3.2 Results for 2010

Table 39 presents the N_2O emissions for the proxy inventory in 2010 for 4D Agricultural Soils compared to the inventory time series for the EU and all Member States.

Table 39 N_2O emissions from 4D Agricultural Soils

Source Category	4D	D. Agricultural Soils								
Gas	N2O									
Member State	Inventory data									Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010
	Gg									
AT	11.06	12.04	10.30	9.41	9.46	9.61	9.75	10.23	9.99	9.88
BE	15.36	15.29	13.81	12.66	12.31	12.32	12.19	11.82	11.85	11.85
BG	28.94	13.03	10.93	12.08	11.13	10.72	10.42	11.25	11.17	11.14
CY	0.73	0.80	0.86	0.89	0.80	0.73	0.78	0.49	0.38	0.38
CZ	30.19	18.42	16.36	16.40	15.54	15.30	15.81	16.46	15.41	15.50
DE	161.47	141.53	149.29	144.80	142.59	139.42	137.77	146.25	140.30	140.28
DK	24.36	21.55	18.67	17.14	16.89	16.47	16.88	17.19	16.41	16.34
EE	4.81	2.02	2.00	1.99	1.89	1.97	2.11	2.44	2.20	2.23
ES	61.47	55.41	71.69	65.92	60.10	61.98	63.83	55.19	56.34	55.75
FI	12.86	11.73	11.19	11.09	11.13	11.16	11.27	11.71	11.10	11.20
FR	180.45	165.32	171.36	159.26	157.49	152.72	152.64	158.97	149.68	149.10
UK	103.52	98.96	93.84	87.79	86.76	82.87	80.68	80.77	80.34	77.60
GR	24.04	20.56	19.24	18.70	17.71	17.22	18.09	15.95	15.85	15.81
HU	22.92	13.82	15.28	17.34	16.08	16.73	16.89	16.88	15.69	15.22
IE	22.78	24.39	24.04	22.64	22.22	21.71	20.73	20.35	20.28	20.16
IT	62.84	62.66	62.39	60.34	58.39	57.89	57.79	54.45	49.87	48.75
LT	15.22	5.35	6.53	7.64	7.54	8.92	8.04	7.62	8.03	7.84
LU	1.17	1.14	1.12	1.06	0.99	0.98	0.97	0.99	0.99	1.00
LV	9.57	3.56	3.44	3.83	4.05	4.07	4.24	4.24	4.36	4.41
MT	0.07	0.09	0.09	0.07	0.07	0.08	0.07	0.06	0.06	0.06
NL	34.42	33.66	27.27	23.34	22.88	22.91	21.77	21.19	20.48	20.23
PL	75.14	54.77	52.68	52.69	52.58	55.74	58.27	60.10	58.46	57.53
PT	11.03	10.72	11.86	10.27	9.51	9.16	9.86	9.41	9.37	9.37
RO	83.53	58.59	43.41	46.96	52.04	51.35	43.89	49.92	49.86	49.32
SE	16.46	16.21	15.40	15.20	14.91	14.97	14.84	14.94	14.80	12.34
SI	2.41	2.46	2.62	2.42	2.42	2.46	2.47	2.29	2.39	2.33
SK	11.71	6.06	5.46	5.43	5.42	5.35	5.78	5.61	5.33	5.14
EU-15	743.30	691.15	701.46	659.63	643.32	631.38	629.08	629.40	607.67	599.66
EU-25	916.07	798.50	806.77	768.31	749.70	742.74	743.54	745.60	719.99	710.31
EU-27	1 028.54	870.12	861.11	827.35	812.87	804.81	797.85	806.77	781.03	770.77
EU-10	172.77	107.35	105.31	108.68	106.37	111.36	114.46	116.20	112.32	110.65
EU-2	112.47	71.62	54.34	59.04	63.17	62.07	54.30	61.17	61.03	60.46

.3.4 Other source categories in the agricultural sector

No near-term data were identified which could be used to develop a real-time projection for the other source categories in the agricultural sector, or at least not for all parts necessary for the emission estimation. Therefore, simple approaches were chosen for all remaining agricultural source categories. Either a linear trend extrapolation was used if the past data showed a rather consistent linear trend. If the past trend was fluctuating, the emissions from the latest year were kept constant. The detailed methodologies used are documented in the tables in Annex I.

.4 Waste

.4.1 6.A Solid Waste Disposal

The most important source category in the waste sector is CH_4 emissions from source category 6.A. Solid Waste Disposal. For this source category, most Member States use higher tier methods, i.e. a first order decay approach that uses a number of activity data on certain types of waste deposited on landfills and a number of country-specific parameters. For the EU inventory 2011, among all 27 EU Member States Cyprus and Romania only still used Tier 1 methodologies to estimate emissions from this source category (EU NIR 2011). The first order decay approach is challenging for the proxy estimation because an estimation method would not only need to use updated activity data, but would also need to mirror the chosen model approach for CH_4 emissions from landfills in each MS. The original idea in the feasibility study was the development of approximate first order decay models for each Member State based on submitted inventory data since 1990.[41] Such a model with specific results for each Member State was already developed by the European Topic Centre on Resource and Waste Management; however results were checked for 2007 and were less accurate than the extrapolation approach used in 2007 because a number of parameters are harmonized in this model that reflect MS estimates in a less accurate way.

In the absence of a detailed approach reflecting the first order decay assumptions, a simple approach was used to estimate CH_4 emissions from Solid Waste Disposal on land. A linear extrapolation of the trend of previous years was used if the past data tended to show a consistent linear trend. If the past trend was fluctuating, the emissions from the latest year were kept constant. The detailed approach for each Member State is provided in Table 101.

.4.1.1 *Results for 2010*

GHG emissions from the Waste sector decreased by -2.5 Mt CO_2eq for the EU-15 and by -2.6 Mt CO_2eq for the EU-27 in 2010 compared to 2009. Table 40 indicates the sub-sector contribution to this trend in emissions.

Table 40 Change in GHG emissions from 2009 and 2010 in the Waste sector

Sector Waste	Change 2009/10			
	EU-15		EU-27	
	Mt CO_2eq	%	Mt CO_2eq	%
6 Waste	-2.5	-2.3%	-2.6	-1.8%
6.A Solid Waste Disposal on Land	-2.2	-2.6%	-2.3	-2.1%
6.B Waste-water Handling	-0.2	-0.8%	-0.2	-0.6%
6.C Waste Incineration	-0.2	-5.5%	-0.2	-4.2%
6.D Other	0.0	0.2%	0.0	0.1%

Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2009 and early estimates for 2010

.4.2 Other categories in the waste sector

The other source categories in the Waste sector are not very significant for total GHG emissions in the EU. Total emissions from 6.B. Wastewater Handling were 0.55 % of EU-15 total emissions in 2009 and total emissions from 6.C Waste Incineration contributed to 0.09 % to total EU-15 emissions in that year.

Therefore, simple approaches were chosen for these source categories. Either a linear trend extrapolation was used if the past data tended to show a consistent linear trend. If the past trend

41 Matthes, F. C., Herold, A., Ziesing, H.J. 2007

was fluctuating, the emissions from the latest year were kept constant. This approach was used for CO_2 emissions from 6.A. Solid waste disposal on land, for N_2O and CH_4 emissions from 6.B. Wastewater handling and for CO_2, CH_4 and N_2O emissions from 6.C Waste incineration as well as for emissions from 6.D Other.

.5 Other source categories

For all other source categories, no 2010 activity data was available that could be combined with IEFs from GHG inventories. These categories were extrapolated from 2009 GHG inventories, either by trend extrapolation or by taking the constant values of 2009. Constant values were used when past trends were inconsistent and strongly fluctuating; trend extrapolation was used when historic time series showed good correlations with a linear trend.

For some source categories, updated data was only partly available, but the inventory estimation methodology was too complex to be replicated in an approximated way, e.g. for N_2O emissions from soils.

Annex 1 provides a detailed overview of methods and data sources used for each source category and Member State.

• References

- BP, 2011, BP Statistical Review of World Energy 2011 (http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publica-tions/statistical_energy_review_2011/STAGING/local_assets/pdf/statistical_review_of_world_energy_full_report_2011.pdf) accessed 24 September 2011.
- DECC (Department of Energy and Climate Change), 2011a, 'UK climate change sustainable development indicator: 2010 greenhouse gas emissions, provisional figures and 2009 greenhouse gas emissions, final figures by fuel type and end-user' Statistical release, 31 Match 2011.(http://www.decc.gov.uk/assets/decc/Statistics/climate_change/1515-statrelease-ghg-emissions-31032011.pdf) accessed 6 October 2011.
- DECC (Department of Energy and Climate Change), 2011b; Digest of United Kingdom energy statistics (DUKES). (http://www.decc.gov.uk/assets/decc/11/stats/publications/dukes/2307-dukes-2011-chapter-5-electricity.pdf) accessed 6 October 2011.
- DEFRA (Department for Environment Food and Rural Affairs), 2011, 'Agriculture in the United Kingdom' (http://www.defra.gov.uk/statistics/files/defra-stats-foodfarm-crosscutting-auk-auk2010-110525.pdf) accessed 6 October 2011.
- EC, 1999, Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, OJ L 182, 16.7.1999.
- EEA, 2009, 'New estimates confirm the declining trend in EU greenhouse gas emissions' (http:// www.eea.europa.eu/highlights/new-estimates-confirm-the-declining-trend-in-eu-greenhouse-gas-emissions) accessed 24 September 2011.
- EC, 2011, European Commission – Directorate-General for Energy 2011 — quarterly report on European electricity markets (http://ec.europa.eu/ energy/observatory/electricity/doc/qreem_2010_ quarter3.pdf) accessed 2 October 2011.
- EEA, 2011a, 'EEA greenhouse gas data viewer' (http://dataservice.eea.europa.eu/PivotApp/pivot. aspx?pivotid=475) accessed 24 September 2011.
- EEA, 2011b, *Annual European Union greenhouse gas inventory 1990–2009 and inventory report 2011*, EEA Technical Report No 2/2011 (http:// www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2011) accessed 24 September 2011.
- EEA, 2011c, 'European Union Emissions Trading Scheme (EU ETS) data viewer' (http://dataservice. eea.europa.eu/PivotApp/pivot.aspx?pivotid=473) accessed 24 September 2011.
- Eurostat, 2011, 'Energy — Database' (http://epp. eurostat.ec.europa.eu/portal/page/portal/energy/data/ database) accessed 24 September 2011.
- Eurostat data:

  - Eurostat Monthly Oil and Gas Questionnaires and Monthly Coal Questionnaires (2008, 2009 and 2010 submissions)
  - Eurostat monthly data on crude oil production (indicator code 100100, product code 3100);
  - Eurostat monthly total consumption data for natural gas (indicator code 100900, product code 4100);
  - Eurostat production data for natural gas (indicator code 100100, product code 4100);
  - Eurostat annual data for the final energy consumption of motor spirit, automotive diesel oil and kerosene/jet fuels;
  - Eurostat monthly data on production of nuclear energy (indicator code 100100, product code 5100)
  - Eurostat monthly data for the internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels;
  - Monthly production data for crude steel production and blast furnace iron production of the International Iron and Steel Institute (IISI);
  - Eurostat annual statistics on livestock population for dairy cattle, non-dairy cattle, swine, sheep, goats.Eurostat annual road freight transport by typ

- IEA/OECD, 2011a, *Renewables Information 2011*, International Energy Agency and Organisation for Economic Co-operation and Development.
- IEA/OECD, 2011b, *End-use energy prices database, 2011*, International Energy Agency and Organisation for Economic Co-operation and Development.
- IPCC, 1996, Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, (http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html) accessed 6 October 2011.
- ISSB Limited, 2011:, UK Crude Steel Production 1990-2010, (http://www.issb.co.uk/uk.html) accessed 6 October 2011.
- Matthes, F. C., Herold, A., Ziesing, H.J., 2007, 'A ‘Proxy-Inventory’ for GHG Emissions from the EU-27 Member States' – Feasibility study, ETC/ACC Technical Paper No 2007/3.
- Ministerio de Medio Ambiente y Medio Rural y Marino, 2011, 'Avance de la estimación de emisiones GEI 2010' (http://www.marm.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Avance_Inventario_Emisiones_GEI_2010__tcm7-162704.pdf) accessed 6 October 2011.
- National Institute of Statistics Bulgaria, 2011, Press release No. 135 of 30 June 2011: Animal production in 2010, (http://www.insse.ro/cms/files/statistici/comunicate/com_trim/prod_anim10e.pdf) accessed 6 October 2011.

- Statistics Estonia, 2011, 2010 was successful for Estonian industry. News release, 31.01.2011. (http://www.stat.ee/49340)) accessed 6 October 2011.
- Statistics Finland, 2011, Energy supply, consumption and prices. 2010, 4th quarter, (http://www.stat.fi/til/ehkh/2010/04/ehkh_2010_04_2011-03-29_tie_001_en.html) accessed 6 October 2011.
- SverigesOfficiellaStatistik, 2011, Number of cattle 2008, 2009 and 2010,(http://www.jordbruksverket.se/webdav/files/SJV/Amnesomraden/Statistik%2C%20fakta/Husdjur/JO23/JO23SM1101/JO23SM1101_inEnglish.htm) accessed 6 October 2011.
- Umweltbundesamt, 2011, ,'Treibhausgase deutlich unter dem Limit', Presseinformation Nr. 20/2011, 12.04.2011.
- UNFCCC, 2011, 'Kyoto Protocol base year data', (http://unfccc.int/ghg_data/kp_data_unfccc/base_ year_data/items/4354.php) accessed 24 September 2011.
- World Steel Association, 2011, Crude steel production and blast furnace iron production by month, (http://www.worldsteel.org/?action=stats&type=steel&period=latest&month=13&year=2010) accessed 6 October 2011.
- Ziesing, H.-J., 2011, Kurz-Information – Gute Konjunktur und kalte Witterung treiben CO_2-Emissionen im Jahr 2010 wieder in die Höhe, Berlin, 22.03.2011.
- National preliminary energy balance data or energy statistics:
  - Bulgaria, 2011, Monthly statistics for liquid, solid and gaseous fuels, (http://www.nsi.bg/otrasalen.php?otr=37) accessed 6 October 2011.
  - Czech Republic, 2011 Primary energy sources, (http://www.mpo.cz/dokument87231.html) accessed 6 October 2011.
  - Denmark, 2011, Monthly energy statistics, (http://www.ens.dk/en-US/Info/FactsAndFigures/Energy_statistics_and_indicators/Monthly%20Statistic/Sider/Forside.aspx) accessed 6 October 2011.
  - Estonia: Energy balances derived from (http://pub.stat.ee/px-web.2001/I_Databas/Economy/07Energy/02Energy_consumption_and_production/01Annual_statistics/01Annual_statistics.asp) accessed 6 October 2011.
  - Finland 2011, Energy consumption data, (http://www.stat.fi/til/ehkh/2010/04/ehkh_2010_04_2011-03-29_tie_001_en.html) accessed 6 October 2011.
  - France, 2011, Monthly energy statistics gas, oil and coal, (http://developpement-durable.bsocom.fr/statistiques/ReportFolders/reportFolders.aspx) accessed 6 October 2011.
  - Germany, 2011, Quarterly energy consumption data, (http://www.ag-energiebilanzen.de/viewpage.php?idpage=62) and

Official Petroleum Data for Germany,
(http://www.mwv.de/index.php/daten/statistikeninfoportal) accessed 6 October 2011.

- Ireland, 2011, Energy balances, (http://www.seai.ie/Publications/Statistics_Publications/Energy_Balance/) accessed 6 October 2011.
- Latvia, 2011, Monthly data on natural gas, solid fuels and oil products, (http://data.csb.gov.lv/DATABASEEN/vide/Short%20term%20statistical%20data/Energy/Energy.asp) accessed 6 October 2011.
- Lithuania, 2011, Energy statistics, (http://db1.stat.gov.lt/statbank/default.asp?w=1280) accessed 6 October 2011.
- Netherlands, 2011, Annual energy balances, (http://statline.cbs.nl/StatWeb/dome/?LA=EN) accessed 6 October 2011.
- Slovenia 2011, Annual balance of liquid, solid and gaseous fuels, (http://pxweb.stat.si/pxweb/Database/Environment/18_energy/04_18180_fuels/04_18180_fuels.asp) accessed 6 October 2011.
- Sweden, 2011, Quarterly energy balances, (http://www.ssd.scb.se/databaser/makro/MainTable.asp?yp=tansss&xu=C9233001&omradekod=EN&omradetext=Energi&lang=1) and
Monthly data on liquid fuel use, (http://www.ssd.scb.se/Databaser/makro/MainTable.asp?yp=bergman&xu=scb&omradekod=EN&omradetext=Energi&lang=2&langdb=1) accessed 6 October 2011.
- United Kingdom, 2011, Energy trends. Quarterly data, (http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/total/total.aspx) accessed 6 October 2011.

• Annex 1 – Detailed overview of methods and data sources used

Table 41 Methods and data used for CO_2 emissions from 1A Fuel combustion

Source Category	1A	Fuel Combustion (Sectoral Approach)	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5	1A4 & 1A5 from previous year
BE	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
BG	Emissions calculation based on activity data	Early national energy statistics (monthly data)	trend to consumption data of previous year
CY	Emissions calculation based on activity data	Eurostat data from Monthly Oil and Gas Questionnaires and from Eurostat database for solid fuels	Activity data for single fuel categories
CZ	Emissions calculation based on activity data	Early national energy statistics (annual data)	trend to consumption data of previous year
DE	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
DK	Emissions calculation based on activity data	Early national energy statistics (monthly data)	trend to consumption data of previous year
EE	Emissions calculation based on activity data	Early national energy statistics (monthly data)	trend to consumption data of previous year
ES	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
FI	Emissions calculation based on activity data	Early national energy statistics (annual data)	trend to consumption data of previous year
FR	Emissions calculation based on activity data	Early national energy statistics (monthly data)	trend to consumption data of previous year
UK	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
GR	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
HU	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
IE	Emissions calculation based on activity data	Early national energy statistics (energy balance)	trend to consumption data of previous year
IT	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5	1A4 & 1A5 from previous year
LT	Emissions calculation based on activity data	Early national energy statistics (monthly data)	trend to consumption data of previous year
LU	Emissions calculation based on activity data	Eurostat data from Monthly Oil and Gas Questionnaires and from Eurostat database for solid fuels	trend to consumption data of previous year
LV	Emissions calculation based on activity data	Early national energy statistics (monthly data)	trend to consumption data of previous year
MT	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5	1A4 & 1A5 from previous year
NL	Emissions calculation based on activity data	Early national energy statistics (energy balance)	trend to consumption data of previous year
PL	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
PT	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
RO	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year
SE	Emissions calculation based on activity data	Early national energy statistics (quarterly data)	trend to consumption data of previous year
SI	Emissions calculation based on activity data	Early national energy statistics (annual data)	trend to consumption data of previous year
SK	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2011	trend to consumption data of previous year

Table 42 Methods and data used for CH4 and N2O emissions from 1A Fuel combustion

Source Category	1A	Fuel Combustion
Gas	CH4	N2O

Member State	**Projection Approach**	**Data Sources**
AT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
BE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
BG	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
CY	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
CZ	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
DE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
DK	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
EE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
ES	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
FI	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
FR	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
UK	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
GR	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
HU	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
IE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
IT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
LT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
LU	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
LV	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
MT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
NL	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
PL	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
PT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
RO	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
SE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
SI	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
SK	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report

Table 43 Methods and data used for CO_2, CH_4 and N_2O emissions for 1A1 Energy industries

Source Category	1A1	Energy Industries
Gas	CO2	

Member State	**Projection Approach**	**Data Sources**
AT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
BE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
BG	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
CY	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
CZ	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
DE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
DK	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
EE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
ES	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
FI	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
FR	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
UK	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
GR	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
HU	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
IE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
IT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
LT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
LU	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
LV	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
MT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
NL	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
PL	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
PT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
RO	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
SE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
SI	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
SK	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c

Table 44 Methods and data used for CO_2 emissions from 1A1a Public electricity and heat production

Source Category	1A1a	a. Public Electricity and Heat Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
BG	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
EE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
LT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
LU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
LV	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
MT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
RO	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
SI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis
SK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	identification of power sector by Öko-Institut's analysis

Table 45 Methods and data used for CH_4 emissions from 1A1a Public electricity and heat production

Source Category	1A1a	a. Public Electricity and Heat Production	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
CY	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
CZ	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
DK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
EE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LV	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
MT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
NL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
PL	Data from previous years	UNFCCC 2011 submission	
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
SI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 46 Methods and data used for N_2O emissions from 1A1a Public electricity and heat production

Source Category	1A1a	a. Public Electricity and Heat Production	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
CY	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
CZ	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
DE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
DK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
EE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
UK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
GR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LV	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
MT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
NL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
PL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
RO	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
SI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 47 Methods and data used for CO_2 emissions from 1A1b Petroleum refining

Source Category	1A1b	b. Petroleum Refining	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
EE	Data from previous years	UNFCCC 2011 submission	
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Data from previous years	UNFCCC 2011 submission	
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity Code 2
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 48 Methods and data used for CH_4 emissions from 1A1b Petroleum refining

Source Category	1A1b	b. Petroleum Refining
Gas	CH4	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	UNFCCC 2011 submission
BE	Data from previous years	UNFCCC 2011 submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
CY	Data from previous years	UNFCCC 2011 submission
CZ	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
DE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
DK	Data from previous years	UNFCCC 2011 submission
EE	Data from previous years	UNFCCC 2011 submission
ES	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
FI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
FR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
UK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
GR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
HU	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
IE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
LT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
LU	Data from previous years	UNFCCC 2011 submission
LV	Data from previous years	UNFCCC 2011 submission
MT	Data from previous years	UNFCCC 2011 submission
NL	Data from previous years	UNFCCC 2011 submission
PL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
RO	Data from previous years	UNFCCC 2011 submission
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
SI	Data from previous years	UNFCCC 2011 submission
SK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2

Table 49 Methods and data used for N_2O emissions from 1A1b Petroleum refining

Source Category	1A1b	b. Petroleum Refining
Gas	N2O	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	UNFCCC 2011 submission
BE	Data from previous years	UNFCCC 2011 submission
BG	Data from previous years	UNFCCC 2011 submission
CY	Data from previous years	UNFCCC 2011 submission
CZ	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
DE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
DK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
EE	Data from previous years	UNFCCC 2011 submission
ES	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
FI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
FR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
UK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
GR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
HU	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
IE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
LT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
LU	Data from previous years	UNFCCC 2011 submission
LV	Data from previous years	UNFCCC 2011 submission
MT	Data from previous years	UNFCCC 2011 submission
NL	Data from previous years	UNFCCC 2011 submission
PL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
PT	Data from previous years	UNFCCC 2011 submission
RO	Data from previous years	UNFCCC 2011 submission
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
SI	Data from previous years	UNFCCC 2011 submission
SK	Data from previous years	UNFCCC 2011 submission

Table 50 Methods and data sources used for CO_2, CH_4 and N_2O emissions from 1A1c Manufacture of solid fuels and other energy industries

Source Category	1A1c	c. Manufacture of Solid Fuels and Other Energ
Gas	CO2	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	UNFCCC 2011 submission
BE	Data from previous years	UNFCCC 2011 submission
BG	Data from previous years	UNFCCC 2011 submission
CY	Data from previous years	UNFCCC 2011 submission
CZ	Data from previous years	UNFCCC 2011 submission
DE	Data from previous years	UNFCCC 2011 submission
DK	Data from previous years	UNFCCC 2011 submission
EE	Data from previous years	UNFCCC 2011 submission
ES	Data from previous years	UNFCCC 2011 submission
FI	Data from previous years	UNFCCC 2011 submission
FR	Data from previous years	UNFCCC 2011 submission
UK	Data from previous years	UNFCCC 2011 submission
GR	Data from previous years	UNFCCC 2011 submission
HU	Data from previous years	UNFCCC 2011 submission
IE	Data from previous years	UNFCCC 2011 submission
IT	Data from previous years	UNFCCC 2011 submission
LT	Data from previous years	UNFCCC 2011 submission
LU	Data from previous years	UNFCCC 2011 submission
LV	Data from previous years	UNFCCC 2011 submission
MT	Data from previous years	UNFCCC 2011 submission
NL	Data from previous years	UNFCCC 2011 submission
PL	Data from previous years	UNFCCC 2011 submission
PT	Data from previous years	UNFCCC 2011 submission
RO	Data from previous years	UNFCCC 2011 submission
SE	Data from previous years	UNFCCC 2011 submission
SI	Data from previous years	UNFCCC 2011 submission
SK	Data from previous years	UNFCCC 2011 submission

Table 51 Methods and data used for CO_2 emissions from 1A2 Manufacturing industries and construction

Source Category	1A2	2. Manufacturing Industries and Construction	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
BG	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
EE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
LT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
LU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
LV	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
MT	Data from previous years	UNFCCC 2011 submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
RO	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
SI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
SK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99

Table 52 Methods and data used for CH_4 emissions from 1A2 Manufacturing industries and construction

Source Category	1A2	2. Manufacturing Industries and Construction	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CZ	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
DE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
DK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
EE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
ES	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
IE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LV	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
MT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
NL	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
PL	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
PT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
RO	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
SE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SI	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 53 Methods and data used for N_2O emissions from 1A2 Manufacturing industries and construction

Member State	Projection Approach	Data Sources	Notes
Source Category	1A2	2. Manufacturing Industries and Construction	
Gas	N2O		
AT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
CZ	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
DE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
DK	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
EE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
ES	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
FI	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
FR	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
UK	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
GR	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
HU	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
IE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
IT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
LT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
MT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
PT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
RO	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
SI	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 54 Methods and data used for CO_2 emissions from 1A3 Transport

Source Category	1A3 Transport		
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
BE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
BG	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
CY	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
CZ	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
DE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	2010 Eurostat monthly data on motor spirit replaced by data of the German Federal Office of Economics and Export Control (BAFA)
DK	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
EE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Missing Eurostat data for kerosene (III/2010) replaced by own guess
ES	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
FI	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
FR	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
UK	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
GR	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
HU	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
IE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
IT	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
LT	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
LU	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Missing Eurostat data (I-VI/2010) replaced by own guess
LV	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
MT	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Missing Eurostat data for motor spirit and diesel (VII/2010 & I-VIII/2009) and for kerosene (VIII/2009-XII/2010) replaced by own guess
NL	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
PL	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
PT	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
RO	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
SE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	2010 Eurostat monthly data on motor spirit replaced by data of Statstics Sweden (SCB)
SI	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Missing Eurostat data for diesel (V/2010) and for kerosene (VI/2009) replaced by own guess
SK	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	

Table 55 Methods and data used for CH_4 and N_2O emissions from 1A3 Transport

Source Category	1A3 Transport	
Gas	CH4 N2O	
Member State	**Projection Approach**	**Data Sources**
AT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
BE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
BG	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
CY	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
CZ	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
DE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
DK	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
EE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
ES	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
FI	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
FR	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
UK	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
GR	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
HU	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
IE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
IT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
LT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
LU	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
LV	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
MT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
NL	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
PL	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
PT	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
RO	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
SE	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
SI	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report
SK	Emission trends (dynamics) calculated for CO2 in same source category	CO2 projection in this report

Table 56 Methods and data used for CO_2 emissions from 1B1 Fugitive emissions from solid fuels

Source Category	1B1 1. Solid Fuels		
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	
BE	Data from previous years	UNFCCC 2011 submission	
BG	Data from previous years	UNFCCC 2011 submission	
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	
DE	Data from previous years	UNFCCC 2011 submission	
DK	Data from previous years	UNFCCC 2011 submission	
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	
FI	Data from previous years	UNFCCC 2011 submission	
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Data from previous years	UNFCCC 2011 submission	
GR	Data from previous years	UNFCCC 2011 submission	
HU	Data from previous years	UNFCCC 2011 submission	
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	UNFCCC 2011 submission	
LT	Data from previous years	UNFCCC 2011 submission	
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PT	Data from previous years	UNFCCC 2011 submission	
RO	Data from previous years	UNFCCC 2011 submission	
SE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SK	Data from previous years	UNFCCC 2011 submission	

Table 57 Methods and data used for CH_4 emissions from 1B1 Fugitive emissions from solid fuels

Source Category	1B1	1. Solid Fuels	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal Production (monthly data)	Indicator code 100100, product code 2111
DE	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal Production (monthly data)	Indicator code 100100, product code 2111
DK	Data from previous years	UNFCCC 2011 submission	
EE	Activity trends (dynamics) from other sources	UNFCCC 2011 submission	
ES	Activity trends (dynamics) from other sources	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal Production (monthly data)	Indicator code 100100, product code 2111
GR	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Data from previous years	UNFCCC 2011 submission	
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal Production (monthly data)	Indicator code 100100, product code 2111
PT	Data from previous years	UNFCCC 2011 submission	
RO	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
SE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SI	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
SK	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210

Table 58 Methods and data used for CO_2 emissions from 1B2a Fugitive emissions from oil

Source Category	1B2a	a. Oil	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BE	Data from previous years	UNFCCC 2011 submission	
BG	Data from previous years	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
DE	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
DK	Data from previous years	UNFCCC 2011 submission	
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
FR	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Data from previous years	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Data from previous years	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
SE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 59 Methods and data used for CH_4 emissions from 1B2a Fugitive emissions from oil

Source Category	1B2a	a. Oil	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
BE	Data from previous years	UNFCCC 2011 submission	
BG	Data from previous years	UNFCCC 2011 submission	
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	
DE	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
DK	Data from previous years	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	CITL data (operator holding accounts) 2008-20012	Main activity code 2
FI	Data from previous years	CITL data (operator holding accounts) 2008-20012	Main activity code 2
FR	Data from previous years	UNFCCC 2011 submission	
UK	Data from previous years	UNFCCC 2011 submission	
GR	Data from previous years	UNFCCC 2011 submission	
HU	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
IE	Data from previous years	UNFCCC 2011 submission	
IT	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
LT	Data from previous years	UNFCCC 2011 submission	
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	
PL	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
PT	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-20012	Main activity code 2
RO	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
SE	Data from previous years	CITL data (operator holding accounts) 2008-20012	Main activity code 2
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	

Table 60 Methods and data used for CO2 emissions from 1B2b Fugitive emissions from gas

Source Category	1B2b	b. Natural Gas	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
DK	Data from previous years	UNFCCC 2011 submission	
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	
IE	Data from previous years	UNFCCC 2011 submission	
IT	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
LT	Data from previous years	UNFCCC 2011 submission	
LU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LV	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
MT	Data from previous years	UNFCCC 2011 submission	
NL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SE	Data from previous years	UNFCCC 2011 submission	
SI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 61 Methods and data used for CH4 emissions from 1B2b Fugitive emissions from gas

Source Category	1B2b	b. Natural Gas	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
DK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
EE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Data from previous years	UNFCCC 2011 submission	
LU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LV	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
MT	Data from previous years	UNFCCC 2011 submission	
NL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
SE	Data from previous years	UNFCCC 2011 submission	
SI	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 62 Methods and data used for CO_2 emissions from 1B2c Venting

Source Category	1B2c	c. Venting	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	
BE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DE	Data from previous years	UNFCCC 2011 submission	
DK	Data from previous years	UNFCCC 2011 submission	
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Activity trends (dynamics) from other sources	Eurostat Crude Oil production Production (monthly data)	Indicator code 100100, product code 3100
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PT	Data from previous years	UNFCCC 2011 submission	
RO	Data from previous years	UNFCCC 2011 submission	
SE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 63 Methods and data used for CH_4 emissions from 1B2c Venting

Source Category	1B2c	c. Venting	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	
BE	Data from previous years	UNFCCC 2011 submission	
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DE	Data from previous years	UNFCCC 2011 submission	
DK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	
FR	Data from previous years	UNFCCC 2011 submission	
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Activity trends (dynamics) from other sources	Eurostat Crude Oil production Production (monthly data)	Indicator code 100100, product code 3100
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Data from previous years	UNFCCC 2011 submission	
PT	Data from previous years	UNFCCC 2011 submission	
RO	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SE	Data from previous years	UNFCCC 2011 submission	
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 64 Methods and data used for CO_2 emissions from 1B2c Flaring

Source Category	1B2c c. flaring		
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	
BE	Data from previous years	UNFCCC 2011 submission	
BG	Data from previous years	UNFCCC 2011 submission	
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding account) 2008-2012	Main activity code 2
DE	Emission trends (dynamics) from other sources	CITL data (operator holding account) 2008-2012	Main activity code 2
DK	Data from previous years	UNFCCC 2011 submission	
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	
FR	Data from previous years	UNFCCC 2011 submission	
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Activity trends (dynamics) from other sources	Eurostat Crude Oil production Production (monthly data)	Indicator code 100100, product code 3100
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SE	Data from previous years	UNFCCC 2011 submission	
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 65 Methods and data used for CH_4 emissions from 1B2c Flaring

Source Category	1B2c	c. flaring	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	
BE	Data from previous years	UNFCCC 2011 submission	
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
EE	Data from previous years	UNFCCC 2011 submission	
ES	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FI	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
GR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
HU	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
IE	Data from previous years	UNFCCC 2011 submission	
IT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Data from previous years	UNFCCC 2011 submission	
LV	Data from previous years	UNFCCC 2011 submission	
MT	Data from previous years	UNFCCC 2011 submission	
NL	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
PL	Data from previous years	UNFCCC 2011 submission	
PT	Data from previous years	UNFCCC 2011 submission	
RO	Data from previous years	UNFCCC 2011 submission	
SE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SI	Data from previous years	UNFCCC 2011 submission	
SK	Data from previous years	UNFCCC 2011 submission	Average 2007-2009

Table 66 Methods and data used for CO_2 emissions from 2.A.1 Cement Production

Member State	Projection Approach	Data Sources	Notes
Source Category: 2A1 Cement Production			
Gas: CO2			
AT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
BE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
BG	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
CY	Data from previous year	CITL data as of 24 May 2011 from EU	
CZ	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
DE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
DK	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
EE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
ES	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
FI	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
FR	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
UK	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
GR	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
HU	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
IE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
IT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
LT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
LU	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
LV	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
MT	Data from previous year		
NL	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
PL	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
PT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
RO	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
SE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
SI	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
SK	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009

Table 67 Methods and data used for CO_2 emissions from 2.A.2 Lime Production

Source Category	2A2	Lime Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
BE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
BG	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
CY	Data from previous year		CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
CZ	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
DE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
DK	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
EE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
ES	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
FI	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
FR	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
UK	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
GR	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
HU	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
IE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
IT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
LT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
LU	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
LV	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
MT	Data from previous year		CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
NL	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
PL	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
PT	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
RO	Data from previous year	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
SE	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
SI	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009
SK	Direct use of emissions data from other sources	CITL data as of 24 May 2011 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2005-2009

Table 68 Methods and data used for CH_4 emissions from 2.A Mineral products

Source Category	2A	Mineral Products	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE			
DK			
EE			
ES			
FI			
FR			
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO			
SE			
SI			
SK			

Table 69 Methods and data used for CO_2 emissions from 2B1 Ammonia Production

Source Category	2B1	Ammonia Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK			
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI			
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE			
SI			
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 70 Methods and data used for N_2O emissions from 2B2 Nitric Acid Production

Source Category	2B2	Nitric Acid Production	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE			
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI			
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 71 Methods and data used for N_2O emissions from 2B3 Adipic Acid Production

Source Category	2B3	Adipic Acid Production	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK			
EE			
ES			
FI			
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR			
HU			
IE			
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 72 Methods and data used for CH_4 emissions from 2.C Metal production

Source Category	2.C	2.C Metal Production	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT			
LU			
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI			
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 73 Methods and data used for CO_2 emissions from 2.C Metal production

Source Category	2C	C. Metal Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
BE	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
BG	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
CY	Data from previous years	CRF 2C	
CZ	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
DE	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
DK	Data from previous years	CRF 2C	
EE	Data from previous years	CRF 2C	
ES	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
FI	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
FR	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
UK	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
GR	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
HU	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
IE	Data from previous years	CRF 2C	
IT	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
LT	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
LU	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
LV	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
MT	Data from previous years	CRF 2C	
NL	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
PL	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
PT	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
RO	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
SE	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
SI	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year
SK	Complex calculation	CRF 2C and CRF 2C1 proxy	CRF 2C1 proxy + (CRF 2C - CRF 2C1)previous year

Table 74 Methods and data used for N_2O emissions from 2.C Metal production

Source Category	2.C	2.C Metal Production	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI			
FR			
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT			
RO			
SE			
SI			
SK			

Table 75 Methods and data used for CO_2 emissions from 2.C.1 Iron and steel production

Source Category	2C1	1. Iron and Steel Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
BE	Activity trends (dynamics) from other sources	IISI blast furnace iron production (monthly data)	
BG	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
CY	Data from previous years	UNFCCC 2011 submission	
CZ	Activity trends (dynamics) from other sources	IISI blast furnace iron production (monthly data)	
DE	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
DK	Data from previous years	UNFCCC 2011 submission	
EE	Data from previous years	UNFCCC 2011 submission	
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	CITL categories iron and bf-gas
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	CITL categories iron and bf-gas
FR	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
UK	Complex calculation	UK Energy Balance	
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	CITL categories coke, ore,iron, bf-gas
HU	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
IE	Data from previous years	UNFCCC 2011 submission	
IT	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
LT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
LU	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
LV	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
MT	Data from previous years	UNFCCC 2011 submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	CITL categories iron and bf-gas
PL	Activity trends (dynamics) from other sources	IISI blast furnace production (monthly data)	
PT	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
RO	Data from previous years	UNFCCC 2011 submission	Average 2007-2009
SE	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
SI	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
SK	Activity trends (dynamics) from other sources	IISI blast furnace production (monthly data)	

Table 76 Methods and data used for CO_2 emissions from 2.D Other production

Source Category	2.D	2.D Other Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO			
SE			
SI			
SK			

Table 77 Methods and data used for CH_4 and N_2O emissions from 2.D Other production

Source Category	2.D	2.D Other Production	
Gas	CH4	N2O	
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK			
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI			
SK			

Table 78 Methods and data used for SF6 emissions

Source Category	2 2. Industrial Processes		
Gas	SF6		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY			
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 79 Methods and data used for HFC emissions

Source Category	2 2. Industrial Processes		
Gas	HFC		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 80 Methods and data used for PFC emissions

Source Category	2 2. Industrial Processes		
Gas	PFC		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT			
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV			
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 81 Methods and data used for CO_2 emissions from 2.G Other

Source Category	2.G	2.G Other	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE			
ES			
FI			
FR			
UK			
GR			
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE			
IT			
LT			
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT			
RO			
SE			
SI			
SK			

Table 82 Methods and data used for CH_4 and N_2O emissions from 2.G Other

Source Category	2.G 2.G Other		
Gas	CH4 N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT BE BG CY CZ DE DK EE ES FI FR UK GR HU IE IT LT LU LV MT NL PL PT RO SE SI SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 83 Methods and data used for CO_2 emissions from 3 Solvent and other product use

Source Category	3 3. Solvent and Other Product Use		
Gas	CO2		
Member State	Projection Approach	Data Sources	Notes
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE			
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT			
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI			
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 84 Methods and data used for N_2O emissions from 3 Solvent and other product used

Source Category	3 3. Solvent and Other Product Use		
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE			
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE			
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT			
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 85 Methods and data used for CH_4 emissions from 4.A. Enteric fermentation and from 4.B Manure management

Source Category	4.A, 4.B A. Enteric Fermentation, 4.B Manure Management:		
Gas	CH4 Dairy Cattle, Non-dairy Cattle, Sheep, Goats, Swine		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2009 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
BE			Dairy cattle: EUROSTAT December survey; Non-dairy cattle, Goats, Swine: EUROSTAT June survey; Sheep: EUROSTAT June survey plus adjustment factor
BG			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
CY			Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey plus adjustment factor
CZ			Dairy cattle, Non-dairy cattle: EUROSTAT December survey plus adjustment factor; Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey with extrapolation for 2010 plus adjustment factor for Goats
DE			Dairy cattle, Non-dairy cattle, Sheep: EUROSTAT June survey; Swine: EUROSTAT December survey plus adjustment factor; Goats: EUROSTAT December survey extrapolation for 2010
DK			Dairy cattle, Swine: EUROSTAT June survey; Non-dairy cattle: EUROSTAT December survey; Sheep: EUROSTAT December survey with extrapolation for 2010 plus adjustment factor, Goats: no population data available, extrapolation of UNFCCC CH4 emissions
EE			Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey with extrapolation for 2010 plus adjustment factor
ES			Dairy cattle: EUROSTAT June survey; Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
FI			Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey with extrapolation for 2010 plus adjustment factor for Sheep
FR			Dairy cattle, Sheep, Goats: EUROSTAT December survey; Non-dairy cattle, Swine: EUROSTAT June survey plus adjustment factor for Swine
UK			Dairy cattle, Non-Dairy cattle, Swine: EUROSTAT June survey; Sheep: EUROSTAT December survey plus adjustment factor; Goats: no population data available, extrapolation of UNFCCC CH4 emissions
GR			Dairy cattle, Non-dairy cattle, Goats, Sheep EUROSTAT December survey; Swine EUROSTAT December survey plus adjustment factor;
HU			Dairy cattle, Non-dairy cattle, Sheep, Swine: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
IE			Dairy cattle: EUROSTAT December survey; Non-dairy cattle: EUROSTAT June survey plus adjustment factor; Swine, Sheep, Goats: EUROSTAT June survey
IT			Dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey; Non-dairy cattle: EUROSTAT June survey
LT			Dairy cattle, Non-dairy cattle, Goats, Sheep, Swine: EUROSTAT December survey
LU			Dairy cattle: EUROSTAT December survey plus adjustment factor; Non-dairy cattle, Swine, Sheep, Goats: EUROSTAT December survey
LV			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey with extrapolation for 2010 for Goats
MT			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
NL			Dairy cattle, Swine: EUROSTAT June survey; Non-dairy cattle, Sheep: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
PL			Dairy cattle: EUROSTAT June survey; Non-dairy cattle, Goats, Swine: EUROSTAT December survey; Sheep: EUROSTAT December survey plus adjustment factor;
PT			Dairy cattle, Non-dairy cattle, Sheep, Swine, Goats: EUROSTAT December survey
RO			Dairy cattle, Non-dairy cattle, Sheep, Swine, Goats: EUROSTAT December survey
SE			Dairy cattle, Non-dairy cattle, Swine: EUROSTAT June survey; Sheep: EUROSTAT December survey plus adjustment factor; Goats: no population data available, extrapolation of UNFCCC CH4 emissions
SI			Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey with extrapolation for 2010
SK			Dairy cattle, Non-dairy cattle: EUROSTAT December survey plus adjustment factor; Swine, Sheep, Goats: EUROSTAT December survey

Table 86 Methods and data used for N_2O emissions from 4.B Manure management

Source Category	4.B	B. Manure Management	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 87 Methods and data used for CH_4 emissions from 4.C Rice cultivation

Source Category	4.C	C. Rice cultivation	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY			
CZ			
DE			
DK			
EE			
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI			
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SE			
SI			
SK			

Table 88 Methods and data used for CH_4 emissions from 4.D Agricultural soils

Source Category	4.D	D. Agricultural Soils	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE			
BG			
CY			
CZ			
DE			
DK			
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 89 Methods and data used for N_2O emissions from 4.D.1.1 Synthetic fertilizer

Source Category	4.D.1.1	1. Synthetic Fertilizers	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 90 Methods and data used for N_2O emissions from 4.D.1.2 Animal manure applied to soil

Source Category	4.D.1.2	2. Animal Manure Applied to Soils	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 91 Methods and data used for N_2O emissions from 4.D.1.3 N-fixing crops

Source Category	4.D.1.3	3. N-fixing Crops	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT			
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 92 Methods and data used for N_2O emissions from 4.D.1.4 Crop residues

Source Category	4.D.1.4	4. Crop Residues	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT			
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 93 Methods and data used for N_2O emissions from 4.D.1.5 Cultivation of histosols

Source Category	4.D.1.5	5. Cultivation of Histosols	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG			
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES			
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR			
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU			
IE			
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU			
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT			
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT			
RO	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Data from previous years	UNFCCC 2011 submission	Value of 2009
SK			

Table 94 Methods and data used for N_2O emissions from 4.D.1.6 Other

Source Category	4.D.1.6	6. Other direct emissions	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE			
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ			
DE	Data from previous years	UNFCCC 2011 submission	Value of 2009
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK			
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT			
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI			
SK			

Table 95 Methods and data used for N_2O emissions from 4.D.2 Pasture, Range and Paddock Manure

Source Category	4.D.2	2. Pasture, Range and Paddock Manure	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Data from previous years	UNFCCC 2011 submission	Value of 2009
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT			
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Data from previous years	UNFCCC 2011 submission	Value of 2009
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 96 Methods and data used for N_2O emissions from 4.D.3 Indirect emissions

Source Category	4.D.3	3. Indirect Emissions	
Gas	N2O		
Member State	Projection Approach	Data Sources	Notes
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Data from previous years	UNFCCC 2011 submission	Value of 2009
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 97 Methods and data used for N_2O emissions from 4.D.4 Other

Source Category	4.D.4	4. Other	
Gas	N2O		
Member State	Projection Approach	Data Sources	Notes
AT			
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG			
CY			
CZ			
DE			
DK			
EE			
ES			
FI			
FR			
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL			
PT			
RO			
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI			
SK			

Table 98 Methods and data used for CH_4 emissions from 4.F Field burning of agricultural residues

Source Category	4.F F. Field Burning of Agricultural Residues		
Gas	CH4		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE			
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR			
UK			
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT			
LU			
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO			
SE			
SI			
SK			

Table 99 Methods and data used for N_2O emissions from 4.F Field burning of agricultural residues

Source Category	4.F F. Field Burning of Agricultural Residues		
Gas	N2O		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE			
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR			
UK			
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT			
NL			
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO			
SE			
SI			
SK			

Table 100 Methods and data used for CO_2 emissions from 6.A Solid waste disposal on land

Source Category	6A	A. Solid Waste Disposal on Land	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 101 Methods and data used for CH_4 emissions from 6.A Solid waste disposal on land

Source Category	6A	A. Solid Waste Disposal on Land	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 102 Methods and data used for N_2O emissions from 6.A Solid waste disposal on land

Source Category	6A	A. Solid Waste Disposal on Land	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK			
EE			
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 103 Methods and data used for CH_4 emissions from 6.B Wastewater handling

Source Category	6B	B. Waste Water Handling	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY	Data from previous years	UNFCCC 2011 submission	Value of 2009
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE	Data from previous years	UNFCCC 2011 submission	Value of 2009
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Data from previous years	UNFCCC 2011 submission	Value of 2009
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 104 Methods and data used for N_2O emissions from 6.B Wastewater handling

Source Category	6B	B. Waste Water Handling	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Data from previous years	UNFCCC 2011 submission	Value of 2009
DE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Data from previous years	UNFCCC 2011 submission	Value of 2009
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 105 Methods and data used for CO_2 emissions from 6.C Waste incineration

Source Category	6C	C. Waste Incineration	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG	Data from previous years	UNFCCC 2011 submission	Value of 2009
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE			
DK			
EE			
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI			
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR	Data from previous years	UNFCCC 2011 submission	Value of 2009
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU			
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL			
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Data from previous years	UNFCCC 2011 submission	Value of 2009
RO	Data from previous years	UNFCCC 2011 submission	Value of 2009
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 106 Methods and data used for CH_4 emissions from 6.C Waste incineration

Source Category	6C	C. Waste Incineration	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE			
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE			
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI			
FR	Data from previous years	UNFCCC 2011 submission	Value of 2009
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
IE			
IT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LT			
LU			
LV			
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI			
SK			

Table 107 Methods and data used for N_2O emissions from 6.C Waste incineration

Source Category	6C	C. Waste Incineration	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
DE			
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE			
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI			
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2011 submission	Value of 2009
GR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2011 submission	Value of 2009
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2011 submission	Value of 2009
LU			
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT	Data from previous years	UNFCCC 2011 submission	Value of 2009
NL			
PL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2011 submission	Value of 2009
SI	Data from previous years	UNFCCC 2011 submission	Value of 2009
SK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation

Table 108 Methods and data used for CH_4 emissions from 6.D Other

Source Category	6D	D. Other	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2011 submission	Value of 2009
BE	Data from previous years	UNFCCC 2011 submission	Value of 2009
BG			
CY			
CZ			
DE	Data from previous years	UNFCCC 2011 submission	Value of 2009
DK	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2011 submission	Value of 2009
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK			
GR			
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
LT			
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT			
NL	Data from previous years	UNFCCC 2011 submission	Value of 2009
PL			
PT			
RO			
SE			
SI			
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

Table 109 Methods and data used for N_2O emissions from 6.D Other

Source Category	6D	D. Other	
Gas	N2O		
Member State	Projection Approach	Data Sources	Notes
AT	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
BE			
BG			
CY			
CZ			
DE	Data from previous years	UNFCCC 2011 submission	Value of 2009
DK	Data from previous years	UNFCCC 2011 submission	Value of 2009
EE	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
ES			
FI	Data from previous years	UNFCCC 2011 submission	Value of 2009
FR	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
UK			
GR			
HU			
IE			
IT			
LT			
LU	Data from previous years	UNFCCC 2011 submission	Value of 2009
LV	Data from previous years	UNFCCC 2011 submission	Value of 2009
MT			
NL	Extrapolation from previous years	UNFCCC 2011 submission	linear trend projection via minimum square deviation
PL			
PT			
RO			
SE			
SI			
SK	Data from previous years	UNFCCC 2011 submission	Value of 2009

- **Annex 2 – Detailed results**

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Austria

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**72 788.31**	**5 578.31**	**5 417.01**	**1 055.62**	**35.05**	**343.44**	**85 217.74**
1. Energy	**63 554.52**	**518.17**	**762.82**				**64 835.51**
A. Fuel Combustion (Sectoral Approach)	63 316.36	255.70	762.82				64 334.88
1. Energy Industries	13 765.72	6.59	97.11				13 869.41
2. Manufacturing Industries and Construction	16 593.56	13.24	174.28				16 781.08
3. Transport	22 053.35	16.49	250.50				22 320.35
4. Other Sectors	IE	IE	IE				IE,
5. Other	10 903.72	219.39	240.93				11 364.04
B. Fugitive Emissions from Fuels	238.16	262.47	IE,NA				500.63
1. Solid Fuels	IE,NA,NO	IE,NA,NO	IE				IE,NA,NO,
2. Oil and Natural Gas	238.16	262.47	IE				500.63
2. Industrial Processes	**9 058.46**	**17.35**	**149.11**	**1 055.62**	**35.05**	**343.44**	**10 659.03**
A. Mineral Products	2 871.34	NA	NE				2 871.34
B. Chemical Industry	554.89	17.26	149.11				721.26
C. Metal Production	5 632.23	0.09	NA		IE	IE	5 632.31
D. Other Production	NA	0.00	0.00				0
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**163.07**		**145.7**				**308.77**
4. Agriculture		**3 581.13**	**3 982.63**				**7 563.76**
A. Enteric Fermentation		3 252.30					3 252.30
B. Manure Management		319.23	919.38				1 238.61
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		8.73621088	3 063.05				3 071.79
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		0.85	0.20				1.05
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**12.26**	**1 461.66**	**376.75**				**1 850.68**
A. Solid Waste Disposal on Land	NA,NO	1 379.47	0.00				1 379.47
B. Waste-water Handling		27.31	260.95				288.27
C. Waste Incineration	12.26	0.01	0.03				12.30
D. Other	NA	54.87	115.76				170.63586
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	85 217.74
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Austria provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Belgium

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**115 804.66**	**6 507.14**	**7 716.56**	**1 870.62**	**159.37**	**96.50**	**132 154.85**
1. Energy	**107 700.83**	**682.48**	**677.61**				**109 060.92**
A. Fuel Combustion (Sectoral Approach)	107 584.66	282.95	677.61				108 545.21
1. Energy Industries	24 537.96	20.88	181.52				24 740.36
2. Manufacturing Industries and Construction	22 363.02	64.49	110.29				22 537.79
3. Transport	29 135.44	17.60	238.53				29 391.57
4. Other Sectors	IE	IE	IE				IE,
5. Other	31 548.24	179.97	147.28				31 875.49
B. Fugitive Emissions from Fuels	116.17	399.54	IE,NA,NO				515.71
1. Solid Fuels	NO	6.90	IE				6.90
2. Oil and Natural Gas	116.17	392.63	IE				508.80
2. Industrial Processes	**8 027.11**	**33.62**	**2 082.46**	**1 870.62**	**159.37**	**96.50**	**12 269.68**
A. Mineral Products	4 742.62	NA,NO	NE				4 742.62
B. Chemical Industry	1 849.31	0.73	2 082.46				3 932.49
C. Metal Production	1 435.19	32.89	NO		IE	IE	1 468.08
D. Other Production	IE	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**NA**		**213.71**				**213.71**
4. Agriculture		**5 187.01**	**4 448.28**				**9 635.29**
A. Enteric Fermentation		3 559.33					3 559.33
B. Manure Management		1 627.68	774.50				2 402.18
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA	3 673.78				3 673.78
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**76.72**	**604.03**	**294.49**				**975.25**
A. Solid Waste Disposal on Land	NA,NO	423.92	0.00				423.92
B. Waste-water Handling		118.92	294.49				413.41
C. Waste Incineration	76.72	0.00	0.00				76.73
D. Other	NA	61.19	NA				61.19
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	132 154.85
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS (Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Bulgaria

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**45 314.74**	**8 833.92**	**4 625.57**	**268.00**	**0.01**	**10.34**	**59 052.58**
1. Energy	**42 130.81**	**2 203.72**	**254.70**				**44 589.23**
A. Fuel Combustion (Sectoral Approach)	42 116.30	243.70	254.70				42 614.70
1. Energy Industries	31 657.84	7.77	121.08				31 786.69
2. Manufacturing Industries and Construction	3 276.61	11.93	21.80				3 310.34
3. Transport	6 266.48	13.38	74.40				6 354.26
4. Other Sectors	IE	IE	IE				IE,
5. Other	915.37	210.62	37.42				1 163.41
B. Fugitive Emissions from Fuels	14.51	1 960.02	NA,NO				1 974.53
1. Solid Fuels	NA,NO	1 463.20	IE				1 463.20
2. Oil and Natural Gas	14.51	496.82	IE				511.33
2. Industrial Processes	**3 124.71**	**1.29**	**271.88**	**268.00**	**0.01**	**10.34**	**3 676.23**
A. Mineral Products	1 748.57	NO	NE				1 748.57
B. Chemical Industry	590.01	1.29	271.88				863.17
C. Metal Production	786.13	NA,NO	NA		IE	IE	786.13
D. Other Production	NO	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**25.32**		**23.22**				**48.54**
4. Agriculture		**2 141.47**	**3 910.05**				**6 051.53**
A. Enteric Fermentation		1 287.31					1 287.31
B. Manure Management		713.03	421.48				1 134.51
C. Rice Cultivation		71.06					71.06
D. Agricultural Soils(3)		NA,NO	3 454.94				3 454.94
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		70.07	33.63				103.70
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**33.89**	**4 487.44**	**165.72**				**4 687.05**
A. Solid Waste Disposal on Land	NO	3 802.18	0.00				3 802.18
B. Waste-water Handling		685.26	165.72				850.98
C. Waste Incineration	33.89	NO	NO				33.89
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	59 052.58
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Cyprus

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**7 839.84**	**1 019.86**	**366.59**	**7.10**	**NA,NE,NO,**	**NA,NE,**	**9 233.40**
1. Energy	**7 116.56**	**16.85**	**70.48**				**7 203.89**
A. Fuel Combustion (Sectoral Approach)	7 116.56	16.85	70.48				7 203.89
1. Energy Industries	3 992.47	3.24	9.55				4 005.26
2. Manufacturing Industries and Construction	670.99	0.78	1.97				673.74
3. Transport	2 240.95	10.20	60.43				2 311.58
4. Other Sectors	IE	IE	IE				IE,
5. Other	212.15	2.64	-1.47				213.32
B. Fugitive Emissions from Fuels	NA,NE,NO,	NA,NE,NO,	NA,NO				NA,NE,NO,
1. Solid Fuels	NA,NO	NA,NO	IE				IE,NA,NO,
2. Oil and Natural Gas	NA,NE,NO	NA,NE,NO	IE				IE,NA,NE,NO,
2. Industrial Processes	**720.20**	**0.00**	**0.00**	**7.10**	**NA,NO**	**NA**	**727.30**
A. Mineral Products	720.20	NA	NE				720.20
B. Chemical Industry	0.00	0.00	0				0.00
C. Metal Production	NA,NO	NA,NO	NA		IE	IE	IE,NA,NO,
D. Other Production	NE	0.00	0.00				0
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**3.09**		**NE**				**3.09**
4. Agriculture		**410.18**	**296.11**				**706.29**
A. Enteric Fermentation		170.66					170.66
B. Manure Management		239.00	177.01				416.02
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA,NE	119.03				119.03
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		0.52	0.07				0.59
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**NA,NE,NO,**	**592.83**	**0.00**				**592.83**
A. Solid Waste Disposal on Land	NA,NE,NO	546.99	0.00				546.99
B. Waste-water Handling		45.84	IE,NA,NE				45.84
C. Waste Incineration	NA	NA	NA				NA,
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	9 233.40
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Czech Republic

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	2 equivalent (Gg)						
Total (Net Emissions) (1)	**115 845.63**	**11 308.67**	**7 326.47**	**1 041.67**	**28.97**	**49.61**	**135 601.02**
1. Energy	**105 152.59**	**5 469.79**	**1 182.16**				**111 804.54**
A. Fuel Combustion (Sectoral Approach)	105 134.21	543.23	1 182.11				106 859.55
1. Energy Industries	60 226.70	24.40	287.20				60 538.31
2. Manufacturing Industries and Construction	15 941.63	38.09	69.11				16 048.83
3. Transport	16 155.23	27.70	654.53				16 837.46
4. Other Sectors	IE	IE	IE				IE,
5. Other	12 810.64	453.05	171.27				13 434.95
B. Fugitive Emissions from Fuels	18.38	4 926.56	0.05				4 944.99
1. Solid Fuels	NA,NE	4 256.94	IE				4 256.94
2. Oil and Natural Gas	18.38	669.61	IE				688.00
2. Industrial Processes	**10 102.64**	**81.67**	**592.75**	**1 041.67**	**28.97**	**49.61**	**11 897.30**
A. Mineral Products	3 403.78	3.62	NE				3 407.40
B. Chemical Industry	634.42	22.75	592.75				1 249.92
C. Metal Production	6 064.44	55.30	NA		IE	IE	6 119.74
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**270.29**		**232.50**				**502.79**
4. Agriculture		**2 720.51**	**5 106.79**				**7 827.30**
A. Enteric Fermentation		2 299.34					2 299.34
B. Manure Management		421.17	300.42				721.59
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA,NE	4 806.37				4 806.37
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**320.12**	**3 036.69**	**212.27**				**3 569.08**
A. Solid Waste Disposal on Land	NA,NO	2 528.88	0.00				2 528.88
B. Waste-water Handling		507.82	204.44				712.26
C. Waste Incineration	320.12	0.00	7.83				327.95
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	135 601.02
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Germany

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**825 262.37**	**47 736.95**	**66 031.16**	**12 342.73**	**427.50**	**3 171.97**	**954 972.69**
1. Energy	**771 429.64**	**13 049.53**	**6 079.37**				**790 558.55**
A. Fuel Combustion (Sectoral Approach)	769 953.16	2 626.63	6 078.47				778 658.26
1. Energy Industries	347 598.73	1 512.36	3 686.78				352 797.87
2. Manufacturing Industries and Construction	119 950.26	155.24	888.86				120 994.36
3. Transport	152 786.06	137.89	990.89				153 914.84
4. Other Sectors	IE	IE	IE				IE,
5. Other	149 618.12	821.14	511.93				150 951.19
B. Fugitive Emissions from Fuels	1 476.48	10 422.90	0.90				11 900.28
1. Solid Fuels	IE,NO	2 681.94	IE				2 681.94
2. Oil and Natural Gas	1 476.48	7 740.96	IE				9 217.44
2. Industrial Processes	**52 356.38**	**5.62**	**11 267.55**	**12 342.73**	**427.50**	**3 171.97**	**79 571.74**
A. Mineral Products	18 647.70	NO	NE				18 647.70
B. Chemical Industry	16 199.29	0.30	11 252.15				27 451.74
C. Metal Production	17 509.39	5.31	15.40		IE	IE	17 530.11
D. Other Production	NO	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**1 476.35**		**319.04**				**1 795.40**
4. Agriculture		**26 802.11**	**45 706.03**				**72 508.14**
A. Enteric Fermentation		20 794.20					20 794.20
B. Manure Management		6 007.91	2 220.69				8 228.60
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	43 485.34				43 485.34
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**NO,**	**7 879.70**	**2 659.16**				**10 538.86**
A. Solid Waste Disposal on Land	NO	7 252.00	0.00				7 252.00
B. Waste-water Handling		73.22	2 301.69				2 374.91
C. Waste Incineration	NO	NO	NO				NO,
D. Other	NO	554.48	357.47				911.96
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	954 972.69
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Germany provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Denmark

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**48 840.96**	**5 935.88**	**6 042.68**	**798.84**	**11.15**	**34.49**	**61 664.00**
1. Energy	**47 867.08**	**520.48**	**376.24**				**48 763.80**
A. Fuel Combustion (Sectoral Approach)	47 516.50	408.52	375.63				48 300.65
1. Energy Industries	23 207.49	200.23	110.94				23 518.66
2. Manufacturing Industries and Construction	4 082.02	14.87	31.94				4 128.83
3. Transport	13 063.42	15.97	133.94				13 213.34
4. Other Sectors	IE	IE	IE				IE,
5. Other	7 163.57	177.44	98.81				7 439.82
B. Fugitive Emissions from Fuels	350.58	111.96	0.61				463.15
1. Solid Fuels	NA,NO	NA,NO	IE				IE,NA,NO,
2. Oil and Natural Gas	350.58	111.96	IE				462.54
2. Industrial Processes	**879.23**	**0.00**	**0.00**	**798.84**	**11.15**	**34.49**	**1 723.72**
A. Mineral Products	844.43	IE,NA	NE				844.43
B. Chemical Industry	2.13	0.00	0.00				2.13
C. Metal Production	NA,NO	NA,NO	NO		IE	IE	IE,NA,NO,
D. Other Production	1.92	0.00	0.00				1.92
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	30.76	NA,NO	NA,NO	IE	IE	IE	30.76
3. Solvent and Other Product Use	**65.50**		**37.00**				**102.51**
4. Agriculture		**4 229.29**	**5 507.79**				**9 737.08**
A. Enteric Fermentation		2 965.03					2 965.03
B. Manure Management		1 261.38	441.19				1 702.57
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA,NE	5 065.50				5 065.50
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		2.88	1.10				3.99
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**29.14**	**1 186.11**	**121.65**				**1 336.90**
A. Solid Waste Disposal on Land	NA,NE,NO	1 027.54	0.00				1 027.54
B. Waste-water Handling		74.68	80.87				155.55
C. Waste Incineration	IE	0.02	0.29				0.30
D. Other	29.14	83.88	40.50				153.52
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	61 664.00
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Denmark provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS (Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Estonia

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**17 617.25**	**1 403.47**	**1 047.87**	**140.66**	**NA,NE,NO,**	**1.44**	**20 210.69**
1. Energy	**17 268.11**	**385.58**	**97.81**				**17 751.50**
A. Fuel Combustion (Sectoral Approach)	17 268.11	44.00	97.81				17 409.92
1. Energy Industries	15 362.00	8.50	25.04				15 395.54
2. Manufacturing Industries and Construction	668.34	0.52	2.11				670.97
3. Transport	2 169.60	5.04	16.99				2 191.62
4. Other Sectors	IE	IE	IE				IE,
5. Other	-931.82	29.94	53.67				-848.22
B. Fugitive Emissions from Fuels	0.00	341.58	NO				341.58
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	0.00	341.58	IE				341.58
2. Industrial Processes	**336.28**	**0.00**	**0.00**	**140.66**	**NA,NO**	**1.44**	**478.38**
A. Mineral Products	306.62	NO	NE				306.62
B. Chemical Industry	29.66	0.00	0				29.66
C. Metal Production	NA,NO	NA,NO	NA		IE	IE	IE,NA,NO,
D. Other Production	NO	0.00	0.00				0
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**12.86**		**4.43930333**				**17.30**
4. Agriculture		**501.70**	**813.09**				**1 314.79**
A. Enteric Fermentation		437.78					437.78
B. Manure Management		59.40	119.75				179.15
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	692.48				692.48
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		4.52	0.85				5.38
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**NA,NE,NO,**	**516.19**	**132.53**				**648.72**
A. Solid Waste Disposal on Land	NA,NE,NO	456.48	0.00				456.48
B. Waste-water Handling		5.12	72.08				77.20
C. Waste Incineration	NA	NA,NE	0.01				0.01
D. Other	NE	54.59	60.44				115.0341466
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	20 210.69
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Spain

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**286 181.90**	**36 788.52**	**25 977.12**	**7 246.87**	**308.55**	**350.98**	**356 853.94**
1. Energy	**266 885.36**	**2 686.72**	**2 333.31**				**271 905.38**
A. Fuel Combustion (Sectoral Approach)	264 637.35	1 442.20	2 333.29				268 412.84
1. Energy Industries	72 267.36	150.76	702.06				73 120.18
2. Manufacturing Industries and Construction	56 609.44	544.11	519.11				57 672.66
3. Transport	91 900.36	105.31	869.43				92 875.10
4. Other Sectors	IE	IE	IE				IE,
5. Other	43 860.19	642.03	242.68				44 744.90
B. Fugitive Emissions from Fuels	2 248.00	1 244.51	0.02				3 492.54
1. Solid Fuels	1.18	733.14	IE				734.32
2. Oil and Natural Gas	2 246.83	511.37	IE				2 758.20
2. Industrial Processes	**18 288.23**	**53.60**	**895.74**	**7 246.87**	**308.55**	**350.98**	**27 143.96**
A. Mineral Products	14 488.16	NA	NE				14 488.16
B. Chemical Industry	577.52	40.95	895.434628				1 513.91
C. Metal Production	3 222.55	12.65	0.31		IE	IE	3 235.50
D. Other Production	NA	0.00	0.00				0
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**993.07**		**1596.173706**				**2589.24**
4. Agriculture		**18 648.64**	**19 858.52**				**38 507.16**
A. Enteric Fermentation		12 349.02					12 349.02
B. Manure Management		5 718.95	2 513.34				8 232.29
C. Rice Cultivation		240.53					240.53
D. Agricultural Soils(3)		IE,NA	17 283.89				17 283.89
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		340.13	61.28				401.41
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**15.25**	**15 399.57**	**1 293.39**				**16 708.20**
A. Solid Waste Disposal on Land	11.32	12 360.62	1.17				12 373.11
B. Waste-water Handling		2 304.50	1 284.19				3 588.69
C. Waste Incineration	3.93	0.53	8.03				12.49
D. Other	NA	733.92	NE				733.9197978
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	356 853.94
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Spain provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Finland

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**63 360.49**	**4 147.51**	**5 868.54**	**1 020.93**	**9.32**	**40.19**	**74 446.97**
1. Energy	**59 104.14**	**399.87**	**1 023.00**				**60 527.01**
A. Fuel Combustion (Sectoral Approach)	58 975.59	351.63	1 022.50				60 349.72
1. Energy Industries	29 776.79	21.54	305.49				30 103.81
2. Manufacturing Industries and Construction	10 321.68	12.53	154.59				10 488.80
3. Transport	13 196.78	40.11	179.79				13 416.68
4. Other Sectors	IE	IE	IE				IE,
5. Other	5 680.34	277.45	382.64				6 340.43
B. Fugitive Emissions from Fuels	128.55	48.24	0.50				177.29
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	128.55	48.24	IE				176.79
2. Industrial Processes	**4 210.65**	**8.35**	**792.99**	**1 020.93**	**9.32**	**40.19**	**6 082.41**
A. Mineral Products	1 047.99	NO	NE				1 047.99
B. Chemical Industry	684.79	0.00	792.99				1 477.77
C. Metal Production	2 477.87	8.35	NO		IE	IE	2 486.22
D. Other Production	NO	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**45.70**		**24.78**				**70.48**
4. Agriculture		**1 851.60**	**3 871.80**				**5 723.40**
A. Enteric Fermentation		1 560.61					1 560.61
B. Manure Management		290.63	398.84				689.47
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NE,NO	3 472.86				3 472.86
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		0.36	0.11				0.46
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**IE,NO,**	**1 887.69**	**155.97**				**2 043.66**
A. Solid Waste Disposal on Land	NO	1 702.51	0.00				1 702.51
B. Waste-water Handling		122.11	93.56				215.66
C. Waste Incineration	IE	IE	IE				IE,
D. Other	NO	63.08	62.41				125.49
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	74 446.97
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
France

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**381 697.35**	**64 093.34**	**62 099.49**	**15 943.57**	**274.22**	**499.49**	**524 607.46**
1. Energy	**360 909.87**	**3 083.04**	**4 520.65**				**368 513.56**
A. Fuel Combustion (Sectoral Approach)	357 283.65	1 892.08	4 472.69				363 648.41
1. Energy Industries	58 355.75	41.82	661.88				59 059.45
2. Manufacturing Industries and Construction	67 939.10	169.01	846.67				68 954.79
3. Transport	129 407.02	214.11	1 555.77				131 176.89
4. Other Sectors	IE	IE	IE				IE,
5. Other	101 581.78	1 467.13	1 408.37				104 457.28
B. Fugitive Emissions from Fuels	3 626.22	1 190.97	47.96				4 865.15
1. Solid Fuels	NA,NO	57.73	IE				57.73
2. Oil and Natural Gas	3 626.22	1 133.24	IE				4 759.46
2. Industrial Processes	**18 007.09**	**56.45**	**3 784.53**	**15 943.57**	**274.22**	**499.49**	**38 565.34**
A. Mineral Products	11 865.39	NA	NE				11 865.39
B. Chemical Industry	2 394.89	54.95	3 784.53				6 234.37
C. Metal Production	3 746.81	1.50	NA		IE	IE	3 748.31
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**1 093.05**		**86.97**				**1 180.01**
4. Agriculture		**42 342.91**	**52 139.48**				**94 482.39**
A. Enteric Fermentation		28 664.09					28 664.09
B. Manure Management		13 564.19	5 919.77				19 483.96
C. Rice Cultivation		114.64					114.64
D. Agricultural Soils(3)		NA	46 219.70				46 219.70
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**1 687.35**	**18 610.93**	**1 567.88**				**21 866.15**
A. Solid Waste Disposal on Land	NA,NO	17 069.63	0.00				17 069.63
B. Waste-water Handling		1 205.24	1 144.41				2 349.65
C. Waste Incineration	1 687.35	205.49	82.90				1 975.73
D. Other	NA	130.58	340.57				471.15
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	524 607.46
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Greece

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**102 310.00**	**8 578.78**	**6 832.61**	**2 568.96**	**36.13**	**5.02**	**120 331.49**
1. Energy	**96 030.40**	**1 535.10**	**717.82**				**98 283.31**
A. Fuel Combustion (Sectoral Approach)	96 023.79	181.18	717.80				96 922.77
1. Energy Industries	51 585.36	15.74	171.16				51 772.26
2. Manufacturing Industries and Construction	6 865.93	9.54	37.20				6 912.67
3. Transport	21 926.17	71.81	231.74				22 229.72
4. Other Sectors	IE	IE	IE				IE,
5. Other	15 646.33	84.09	277.70				16 008.12
B. Fugitive Emissions from Fuels	6.60	1 353.92	0.02				1 360.54
1. Solid Fuels	IE,NO	1 188.08	IE				1 188.08
2. Oil and Natural Gas	6.60	165.84	IE				172.44
2. Industrial Processes	**6 114.18**	**0.46**	**357.23**	**2 568.96**	**36.13**	**5.02**	**9 081.97**
A. Mineral Products	4 877.88	NA,NO	NE				4 877.88
B. Chemical Industry	156.49	0.00	357.23				513.72
C. Metal Production	1 079.80	0.46	NA		IE	IE	1 080.26
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**161.89**		**154.74**				**316.64**
4. Agriculture		**3 740.10**	**5 218.18**				**8 958.28**
A. Enteric Fermentation		3 255.77					3 255.77
B. Manure Management		328.25	305.30				633.54
C. Rice Cultivation		121.81					121.81
D. Agricultural Soils(3)		NE,NO	4 902.07				4 902.07
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		34.28	10.82				45.10
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**3.53**	**3 303.13**	**384.63**				**3 691.29**
A. Solid Waste Disposal on Land	NA,NO	2 464.00	0.00				2 464.00
B. Waste-water Handling		839.12	384.47				1 223.60
C. Waste Incineration	3.53	0.01	0.16				3.69
D. Other	NO	NO	NO				NO,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	120 331.49
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Hungary

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**51 555.91**	**8 246.61**	**6 699.73**	**953.67**	**1.72**	**234.73**	**67 692.37**
1. Energy	**48 662.16**	**2 299.83**	**539.37**				**51 501.35**
A. Fuel Combustion (Sectoral Approach)	48 562.54	231.77	539.14				49 333.45
1. Energy Industries	16 636.45	23.63	79.13				16 739.21
2. Manufacturing Industries and Construction	5 550.16	12.50	18.41				5 581.07
3. Transport	11 074.64	20.19	355.43				11 450.25
4. Other Sectors	IE	IE	IE				IE,
5. Other	15 301.29	175.45	86.17				15 562.91
B. Fugitive Emissions from Fuels	99.62	2 068.05	0.23				2 167.91
1. Solid Fuels	IE,NA,NO	18.17	IE				18.17
2. Oil and Natural Gas	99.62	2 049.88	IE				2 149.50
2. Industrial Processes	**2 777.67**	**24.98**	**14.81**	**953.67**	**1.72**	**234.73**	**4 007.58**
A. Mineral Products	1 370.46	NA,NO	NE				1 370.46
B. Chemical Industry	390.24	24.98	14.81335				430.04
C. Metal Production	216.89	IE,NA,NO	NA		IE	IE	216.89
D. Other Production	NO	0.00	0.00				0
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	800.07	NO	NO	IE	IE	IE	800.07
3. Solvent and Other Product Use	**47.91**		**292.18399**				**340.09**
4. Agriculture		**2 496.56**	**5 651.73**				**8 148.29**
A. Enteric Fermentation		1 546.40					1 546.40
B. Manure Management		938.75	932.08				1 870.83
C. Rice Cultivation		11.41					11.41
D. Agricultural Soils(3)		NA,NO	4 719.65				4 719.65
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**68.17**	**3 425.24**	**201.63**				**3 695.05**
A. Solid Waste Disposal on Land	NA,NO	2 973.40	0.00				2 973.40
B. Waste-water Handling		451.06	199.68				650.74
C. Waste Incineration	68.17	0.78	1.96				70.91
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	67 692.37
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Ireland

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**41 088.93**	**11 776.63**	**7 116.74**	**506.78**	**46.01**	**63.98**	**60 599.06**
1. Energy	**39 727.81**	**248.47**	**364.43**				**40 340.71**
A. Fuel Combustion (Sectoral Approach)	39 727.81	199.54	364.43				40 291.78
1. Energy Industries	12 326.57	6.38	132.30				12 465.24
2. Manufacturing Industries and Construction	5 273.24	8.21	18.06				5 299.50
3. Transport	12 165.20	19.59	115.83				12 300.62
4. Other Sectors	IE	IE	IE				IE,
5. Other	9 962.80	165.36	98.25				10 226.41
B. Fugitive Emissions from Fuels	0.00	48.93	NO				48.93
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	0.00	48.93	IE				48.93
2. Industrial Processes	**1 289.71**	**0.00**	**0.00**	**506.78**	**46.01**	**63.98**	**1 906.48**
A. Mineral Products	1 289.71	NO	NE				1 289.71
B. Chemical Industry	0.00	0.00	0				0.00
C. Metal Production	NO	NO	NO		IE	IE	IE,NO,
D. Other Production	NE	0.00	0.00				0
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**71.41**		**NA,NE**				**71.41**
4. Agriculture		**10 455.30**	**6 603.94**				**17 059.25**
A. Enteric Fermentation		8 393.36					8 393.36
B. Manure Management		2 061.95	355.76				2 417.71
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NE,NO	6 248.18				6 248.18
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**NA,NO,**	**1 072.86**	**148.37**				**1 221.23**
A. Solid Waste Disposal on Land	NA,NO	1 056.83	0.00				1 056.83
B. Waste-water Handling		16.03	148.37				164.40
C. Waste Incineration	NO	NO	NO				NO,
D. Other	NO	NO	NO				NO,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	60 599.06
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Italy

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**421 026.05**	**36 574.24**	**27 357.45**	**8 635.96**	**217.81**	**328.33**	**494 139.83**
1. Energy	**399 266.45**	**6 306.11**	**4 745.62**				**410 318.17**
A. Fuel Combustion (Sectoral Approach)	396 935.42	1 308.29	4 733.78				402 977.50
1. Energy Industries	129 950.32	105.62	513.47				130 569.41
2. Manufacturing Industries and Construction	64 029.18	118.64	1 400.22				65 548.03
3. Transport	116 010.82	309.59	1 053.25				117 373.66
4. Other Sectors	IE	IE	IE				IE,
5. Other	86 945.10	774.44	1 766.86				89 486.40
B. Fugitive Emissions from Fuels	2 331.02	4 997.82	11.84				7 340.68
1. Solid Fuels	NA	67.03	IE				67.03
2. Oil and Natural Gas	2 331.02	4 930.79	IE				7 261.81
2. Industrial Processes	**20 381.65**	**47.32**	**992.35**	**8 635.96**	**217.81**	**328.33**	**30 603.42**
A. Mineral Products	17 616.05	NA	NE				17 616.05
B. Chemical Industry	1 146.02	5.93	992.35				2 144.30
C. Metal Production	1 619.58	41.40	NA		IE	IE	1 660.97
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**1 190.58**		**671.01**				**1 861.59**
4. Agriculture		**14 741.48**	**18 854.88**				**33 596.36**
A. Enteric Fermentation		10 303.29					10 303.29
B. Manure Management		2 870.76	3 738.93				6 609.68
C. Rice Cultivation		1 554.90					1 554.90
D. Agricultural Soils(3)		NA	15 112.02				15 112.02
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		12.53	3.93				16.46
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**187.38**	**15 479.33**	**2 093.58**				**17 760.29**
A. Solid Waste Disposal on Land	NA,NO	12 475.49	0.00				12 475.49
B. Waste-water Handling		2 723.09	1 964.37				4 687.46
C. Waste Incineration	187.38	276.47	129.22				593.06
D. Other	NA	4.28	NA				4.28
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	494 139.83
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Italy provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Lithuania

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**13 754.79**	**3 567.92**	**4 970.32**	**37.89**	**NA,NE,NO,**	**5.00**	**22 335.94**
1. Energy	**12 085.75**	**414.44**	**134.11**				**12 634.30**
A. Fuel Combustion (Sectoral Approach)	12 076.16	164.03	134.08				12 374.26
1. Energy Industries	5 697.39	7.97	21.99				5 727.36
2. Manufacturing Industries and Construction	1 110.01	4.31	5.80				1 120.12
3. Transport	4 501.76	13.10	72.28				4 587.14
4. Other Sectors	IE	IE	IE				IE,
5. Other	767.00	138.64	34.01				939.65
B. Fugitive Emissions from Fuels	9.60	250.41	0.03				260.03
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	9.60	250.41	IE				260.00
2. Industrial Processes	**1 578.20**	**0.00**	**2 024.30**	**37.89**	**NA,NO**	**5.00**	**3 645.40**
A. Mineral Products	321.11	NA,NE,NO	NE				321.11
B. Chemical Industry	1 251.90	0.00	2 024.30				3 276.20
C. Metal Production	5.19	NO	NO		IE	IE	5.19
D. Other Production	NE	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**90.19**		**NA,NE**				**90.19**
4. Agriculture		**1 848.03**	**2 736.73**				**4 584.76**
A. Enteric Fermentation		1 289.57					1 289.57
B. Manure Management		558.47	307.80				866.26
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA,NE	2 428.93				2 428.93
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**0.64**	**1 305.45**	**75.19**				**1 381.28**
A. Solid Waste Disposal on Land	NA,NE	830.31	0.00				830.31
B. Waste-water Handling		475.14	75.14				550.28
C. Waste Incineration	0.64	NE	0.05				0.70
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	22 335.94
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS (Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Luxembourg

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**11 287.23**	**443.78**	**459.53**	**68.06**	**0.22**	**7.88**	**12 266.70**
1. Energy	**10 670.42**	**60.72**	**100.68**				**10 831.82**
A. Fuel Combustion (Sectoral Approach)	10 670.35	18.30	100.68				10 789.33
1. Energy Industries	1 200.92	1.42	2.60				1 204.95
2. Manufacturing Industries and Construction	1 173.44	2.05	11.03				1 186.52
3. Transport	6 271.14	6.32	71.91				6 349.37
4. Other Sectors	IE	IE	IE				IE,
5. Other	2 024.85	8.51	15.14				2 048.50
B. Fugitive Emissions from Fuels	0.07	42.42	NA,NO				42.49
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	0.07	42.42	IE				42.49
2. Industrial Processes	**605.42**	**0.00**	**0.00**	**68.06**	**0.22**	**7.88**	**681.58**
A. Mineral Products	451.40	NO	NE				451.40
B. Chemical Industry	0.00	0.00	0.00				0.00
C. Metal Production	154.02	NA,NO	NA		IE	IE	154.02
D. Other Production	NO	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**11.39**		**4.69**				**16.08**
4. Agriculture		**336.48**	**335.15**				**671.62**
A. Enteric Fermentation		239.67					239.67
B. Manure Management		96.81	25.98				122.79
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA,NE	309.17				309.17
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**IE,NA,NO,**	**46.58**	**19.02**				**65.59**
A. Solid Waste Disposal on Land	NA,NO	36.13	0.00				36.13
B. Waste-water Handling		3.02	11.25				14.27
C. Waste Incineration	IE	IE	IE				IE,
D. Other	NO	7.43	7.77				15.20
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	12 266.70
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Luxembourg provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Latvia

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**7 695.72**	**1 966.46**	**1 716.87**	**94.65**	**NA,NE,NO,**	**13.11**	**11 486.80**
1. Energy	**7 225.27**	**396.67**	**127.38**				**7 749.33**
A. Fuel Combustion (Sectoral Approach)	7 225.27	289.95	127.38				7 642.61
1. Energy Industries	2 455.13	5.19	10.16				2 470.47
2. Manufacturing Industries and Construction	1 139.47	6.11	10.31				1 155.89
3. Transport	2 721.68	4.31	47.11				2 773.11
4. Other Sectors	IE	IE	IE				IE,
5. Other	908.99	274.35	59.80				1 243.13
B. Fugitive Emissions from Fuels	0.00	106.72	NO				106.72
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	0.00	106.72	IE				106.72
2. Industrial Processes	**446.57**	**0.05**	**0.00**	**94.65**	**NA,NO**	**13.11**	**554.37**
A. Mineral Products	435.62	,NA,NE,NO	NE				435.62
B. Chemical Industry	0.00	0.00	0.00				0.00
C. Metal Production	10.96	0.05	NO		IE	IE	11.00
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NA	IE	IE	IE	IE,NA,NO,
3. Solvent and Other Product Use	**23.54**		**4.03**				**27.57**
4. Agriculture		**762.25**	**1 529.84**				**2 292.09**
A. Enteric Fermentation		666.86					666.86
B. Manure Management		95.38	162.30				257.68
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA	1 367.54				1 367.54
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**0.34**	**807.48**	**55.62**				**863.44**
A. Solid Waste Disposal on Land	NA,NO	593.32	0.00				593.32
B. Waste-water Handling		212.90	54.21				267.11
C. Waste Incineration	0.34	NE,NO	0.01				0.34
D. Other	NE	1.27	1.41				2.67
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	11 486.80
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Malta

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**2 507.84**	**275.16**	**42.83**	**41.55**	**0.00**	**1.68**	**2 869.07**
1. Energy	**2 507.11**	**3.49**	**6.11**				**2 516.71**
A. Fuel Combustion (Sectoral Approach)	2 507.11	3.49	6.11				2 516.71
1. Energy Industries	1 839.23	1.52	4.49				1 845.25
2. Manufacturing Industries and Construction	66.52	0.06	0.19				66.77
3. Transport	554.69	1.88	1.48				558.05
4. Other Sectors	IE	IE	IE				IE,
5. Other	46.67	0.02	-0.04				46.65
B. Fugitive Emissions from Fuels	0.00	0.00	NA				0.00
1. Solid Fuels	NA	NA	IE				IE,NA,
2. Oil and Natural Gas	0.00	0.00	IE				0.00
2. Industrial Processes	**0.25**	**0.00**	**0.00**	**41.55**	**0.00**	**1.68**	**43.49**
A. Mineral Products	0.16	NO	NE				0.16
B. Chemical Industry	0.10	0.00	0.00				0.10
C. Metal Production	NA,NO	NA,NO	NA		IE	IE	IE,NA,NO,
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**NA**		**1.60**				**1.60**
4. Agriculture		**57.21**	**23.46**				**80.66**
A. Enteric Fermentation		29.90					29.90
B. Manure Management		27.31	4.59				31.90
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA,NE	18.87				18.87
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**0.47**	**214.47**	**11.66**				**226.61**
A. Solid Waste Disposal on Land	NA	199.59	0.00				199.59
B. Waste-water Handling		14.88	11.44				26.32
C. Waste Incineration	0.47	0.00	0.22				0.70
D. Other	NO	NO	NO				NO,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	2 869.07
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Netherlands

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**182 487.42**	**16 749.30**	**9 695.29**	**2 087.82**	**167.97**	**168.90**	**211 356.71**
1. Energy	**176 139.35**	**2 597.09**	**824.60**				**179 561.04**
A. Fuel Combustion (Sectoral Approach)	174 559.83	1 748.43	824.60				177 132.86
1. Energy Industries	64 396.47	111.52	258.14				64 766.12
2. Manufacturing Industries and Construction	27 812.80	60.32	29.08				27 902.21
3. Transport	34 071.66	57.38	430.23				34 559.26
4. Other Sectors	IE	IE	IE				IE,
5. Other	48 278.91	1 519.21	107.15				49 905.27
B. Fugitive Emissions from Fuels	1 579.52	848.66	IE,NA,NO				2 428.18
1. Solid Fuels	541.57	20.76	IE				562.33
2. Oil and Natural Gas	1 037.95	827.91	IE				1 865.85
2. Industrial Processes	**6 224.35**	**266.14**	**1 056.64**	**2 087.82**	**167.97**	**168.90**	**9 971.82**
A. Mineral Products	1 000.95	NO	NE				1 000.95
B. Chemical Industry	3 415.91	230.06	1 050.14				4 696.12
C. Metal Production	1 501.75	IE,NA,NO	NO		IE	IE	1 501.75
D. Other Production	29.75	0.00	0.00				29.75
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	275.98	36.07	6.49	IE	IE	IE	318.55
3. Solvent and Other Product Use	**123.72**		**73.39**				**197.10**
4. Agriculture		**9 445.99**	**7 267.21**				**16 713.20**
A. Enteric Fermentation		6 540.14					6 540.14
B. Manure Management		2 905.85	997.41				3 903.26
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NE,NO	6 269.80				6 269.80
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**IE,NA,NO,**	**4 440.08**	**473.46**				**4 913.54**
A. Solid Waste Disposal on Land	NA,NO	4 212.33	0.00				4 212.33
B. Waste-water Handling		207.34	438.04				645.38
C. Waste Incineration	IE	IE	IE				IE,
D. Other	NA	20.41	35.42				55.83
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	211 356.71
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The Netherlands provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Poland

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**324 925.77**	**34 618.21**	**27 358.06**	**4 135.72**	**28.56**	**40.58**	**391 106.89**
1. Energy	**302 775.12**	**14 646.64**	**2 077.12**				**319 498.88**
A. Fuel Combustion (Sectoral Approach)	302 570.28	3 020.24	2 076.92				307 667.45
1. Energy Industries	171 715.86	77.19	829.53				172 622.58
2. Manufacturing Industries and Construction	33 012.51	76.35	230.65				33 319.51
3. Transport	46 235.72	122.56	581.82				46 940.11
4. Other Sectors	IE	IE	IE				IE,
5. Other	51 606.19	2 744.14	434.91				54 785.24
B. Fugitive Emissions from Fuels	204.84	11 626.40	0.20				11 831.44
1. Solid Fuels	1.34	7 133.65	IE				7 134.99
2. Oil and Natural Gas	203.50	4 492.75	IE				4 696.24
2. Industrial Processes	**21 301.35**	**351.49**	**1 101.19**	**4 135.72**	**28.56**	**40.58**	**26 958.89**
A. Mineral Products	8 931.40	NA	NE				8 931.40
B. Chemical Industry	3 872.12	234.42	1 088.02				5 194.56
C. Metal Production	7 421.96	117.07	13.17		IE	IE	7 552.19
D. Other Production	8.62	0.00	0.00				8.62
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	1 067.25	NO	NO	IE	IE	IE	1 067.25
3. Solvent and Other Product Use	**618.31**		**124.00**				**742.31**
4. Agriculture		**12 091.20**	**22 932.68**				**35 023.89**
A. Enteric Fermentation		8 923.82					8 923.82
B. Manure Management		3 135.80	5 082.42				8 218.22
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA	17 833.05				17 833.05
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		31.58	17.22				48.80
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**230.99**	**7 528.87**	**1 123.06**				**8 882.93**
A. Solid Waste Disposal on Land	NA,NO	6 424.75	0.00				6 424.75
B. Waste-water Handling		1 104.12	1 114.06				2 218.18
C. Waste Incineration	230.99	NA	9.01				240.00
D. Other	NO	NO	NO				NO,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	391 106.89
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

Poland provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Portugal

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**56 805.95**	**12 253.64**	**4 546.32**	**1 174.58**	**0.00**	**8.26**	**74 788.76**
1. Energy	**52 448.31**	**855.31**	**617.06**				**53 920.68**
A. Fuel Combustion (Sectoral Approach)	51 737.16	412.47	614.61				52 764.24
1. Energy Industries	13 907.20	7.58	94.54				14 009.32
2. Manufacturing Industries and Construction	9 504.61	64.45	106.62				9 675.68
3. Transport	18 766.24	30.38	197.08				18 993.70
4. Other Sectors	IE	IE	IE				IE,
5. Other	9 559.10	310.07	216.37				10 085.54
B. Fugitive Emissions from Fuels	711.15	442.84	2.45				1 156.44
1. Solid Fuels	IE,NO	IE,NO	IE				IE,NO,
2. Oil and Natural Gas	711.15	442.84	IE				1 153.99
2. Industrial Processes	**4 141.77**	**11.15**	**102.10**	**1 174.58**	**0.00**	**8.26**	**5 437.87**
A. Mineral Products	4 026.55	1.81	NE				4 028.36
B. Chemical Industry	92.18	9.34	102.10				203.63
C. Metal Production	22.71	IE,NO	NO		IE	IE	22.71
D. Other Production	0.32	0.00	0.00				0.32
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**215.27**		**82.29**				**297.57**
4. Agriculture		**4 247.82**	**3 220.74**				**7 468.57**
A. Enteric Fermentation		2 659.76					2 659.76
B. Manure Management		1 152.29	297.68				1 449.97
C. Rice Cultivation		415.57					415.57
D. Agricultural Soils(3)		NE,NO	2 906.03				2 906.03
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		20.19	17.03				37.23
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**0.60**	**7 139.35**	**524.12**				**7 664.08**
A. Solid Waste Disposal on Land	NA	5 441.13	NO				5 441.13
B. Waste-water Handling		1 698.17	522.62				2 220.79
C. Waste Incineration	0.60	0.05	1.50				2.15
D. Other	NO	NO	NO				NO,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	74 788.76
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Romania

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**85 615.74**	**25 608.42**	**17 920.42**	**25.12**	**478.08**	**7.38**	**129 655.16**
1. Energy	**72 836.73**	**12 018.56**	**385.61**				**85 240.90**
A. Fuel Combustion (Sectoral Approach)	72 810.87	1 002.80	385.61				74 199.28
1. Energy Industries	36 122.37	12.82	125.74				36 260.93
2. Manufacturing Industries and Construction	12 946.15	25.00	40.12				13 011.27
3. Transport	14 410.99	42.22	37.38				14 490.59
4. Other Sectors	IE	IE	IE				IE,
5. Other	9 331.37	922.76	182.36				10 436.49
B. Fugitive Emissions from Fuels	25.86	11 015.76	NA,NE				11 041.62
1. Solid Fuels	NA,NE	2 451.08	IE				2 451.08
2. Oil and Natural Gas	25.86	8 564.68	IE				8 590.54
2. Industrial Processes	**12 648.56**	**11.60**	**516.75**	**25.12**	**478.08**	**7.38**	**13 687.48**
A. Mineral Products	4 615.23	NA,NE	NE				4 615.23
B. Chemical Industry	1 708.50	11.60	516.75				2 236.85
C. Metal Production	6 324.83	NA,NE	NA		IE	IE	6 324.83
D. Other Production	NE	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**122.33**		**NE**				**122.33**
4. Agriculture		**7 107.37**	**16 728.53**				**23 835.90**
A. Enteric Fermentation		5 288.46					5 288.46
B. Manure Management		1 785.14	1 440.50				3 225.64
C. Rice Cultivation		33.77					33.77
D. Agricultural Soils(3)		NA,NE	15 288.04				15 288.04
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**8.12**	**6 470.89**	**289.53**				**6 768.54**
A. Solid Waste Disposal on Land	NA	5 579.89	0.00				5 579.89
B. Waste-water Handling		891.00	289.53				1 180.52
C. Waste Incineration	8.12	NE	NE				8.12
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	129 655.16
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS (Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Sweden

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**51 717.25**	**5 199.97**	**6 407.87**	**977.41**	**25.16**	**82.31**	**64 409.97**
1. Energy	**46 510.96**	**492.88**	**1 439.20**				**48 443.05**
A. Fuel Combustion (Sectoral Approach)	45 610.46	474.70	1 435.11				47 520.27
1. Energy Industries	11 493.99	107.29	541.20				12 142.49
2. Manufacturing Industries and Construction	11 423.54	47.00	637.22				12 107.76
3. Transport	20 452.30	27.41	162.18				20 641.90
4. Other Sectors	IE	IE	IE				IE,
5. Other	2 240.62	292.99	94.50				2 628.12
B. Fugitive Emissions from Fuels	900.51	18.18	4.09				922.78
1. Solid Fuels	7.92	0.00	IE				7.92
2. Oil and Natural Gas	892.59	18.17	IE				910.76
2. Industrial Processes	**4 922.97**	**11.60**	**419.27**	**977.41**	**25.16**	**82.31**	**6 438.72**
A. Mineral Products	2 024.40	NA	NE				2 024.40
B. Chemical Industry	57.69	5.33	339.87				402.89
C. Metal Production	2 840.88	0.11	NA,NO		IE	IE	2 840.99
D. Other Production	NE	6.16	79.39				85.56
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**174.94**		**123.04**				**297.98**
4. Agriculture		**3 133.83**	**4 262.82**				**7 396.65**
A. Enteric Fermentation		2 670.02					2 670.02
B. Manure Management		463.81	436.03				899.84
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	3 826.79				3 826.79
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NO	NO				NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**108.37**	**1 561.65**	**163.55**				**1 833.58**
A. Solid Waste Disposal on Land	NO	1 263.86	0.00				1 263.86
B. Waste-water Handling		297.77	158.40				456.17
C. Waste Incineration	108.37	0.02	5.15				113.54
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	64 409.97
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS (Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Slovenia

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**16 418.54**	**1 978.60**	**1 147.63**	**126.80**	**5.85**	**13.21**	**19 690.62**
1. Energy	**15 678.94**	**390.81**	**183.96**				**16 253.71**
A. Fuel Combustion (Sectoral Approach)	15 597.78	111.09	183.96				15 892.83
1. Energy Industries	6 175.97	2.40	27.42				6 205.79
2. Manufacturing Industries and Construction	1 836.83	5.22	27.37				1 869.42
3. Transport	5 188.70	9.95	82.80				5 281.45
4. Other Sectors	IE	IE	IE				IE,
5. Other	2 396.28	93.51	46.38				2 536.17
B. Fugitive Emissions from Fuels	81.15	279.73	NA,NO				360.88
1. Solid Fuels	81.15	249.37	IE				330.52
2. Oil and Natural Gas	0.00	30.36	IE				30.36
2. Industrial Processes	**734.99**	**4.38**	**0.00**	**126.80**	**5.85**	**13.21**	**885.23**
A. Mineral Products	546.61	NA	NE				546.61
B. Chemical Industry	0.83	4.38	0.00				5.21
C. Metal Production	187.55	NA,NO	NO		IE	IE	187.55
D. Other Production	NA	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**NA,NE,NO**		**34.23**				**34.23**
4. Agriculture		**1 086.71**	**870.35**				**1 957.06**
A. Enteric Fermentation		666.34					666.34
B. Manure Management		420.37	147.92				568.29
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	722.44				722.44
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**4.61**	**496.69**	**59.09**				**560.39**
A. Solid Waste Disposal on Land	NA,NO	337.34	0.00				337.34
B. Waste-water Handling		159.35	59.01				218.36
C. Waste Incineration	4.61	NA,NO	0.08				4.69
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	19 690.62
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
Slovakia

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**35 893.79**	**4 261.10**	**3 512.77**	**308.53**	**31.34**	**19.77**	**44 027.31**
1. Energy	**27 002.10**	**1 256.03**	**152.32**				**28 410.45**
A. Fuel Combustion (Sectoral Approach)	27 002.10	180.09	152.32				27 334.51
1. Energy Industries	9 101.04	5.28	34.59				9 140.91
2. Manufacturing Industries and Construction	6 643.85	15.94	20.62				6 680.40
3. Transport	7 199.30	15.75	86.89				7 301.94
4. Other Sectors	IE	IE	IE				IE,
5. Other	4 057.91	143.12	10.22				4 211.25
B. Fugitive Emissions from Fuels	0.00	1 075.94	0.00				1 075.94
1. Solid Fuels	NA,NO	328.61	IE				328.61
2. Oil and Natural Gas	0.00	747.34	IE				747.34
2. Industrial Processes	**8 799.70**	**22.92**	**1 200.62**	**308.53**	**31.34**	**19.77**	**10 382.89**
A. Mineral Products	2 225.29	NA	NE				2 225.29
B. Chemical Industry	763.12	22.83	1 200.62				1 986.57
C. Metal Production	5 811.29	0.10	NA		IE	IE	5 811.38
D. Other Production	NO	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**86.99**		**74.59**				**161.58**
4. Agriculture		**975.85**	**1 959.26**				**2 935.11**
A. Enteric Fermentation		856.45					856.45
B. Manure Management		119.40	366.10				485.50
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NO	1 593.15				1 593.15
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**5.00**	**2 006.29**	**125.99**				**2 137.28**
A. Solid Waste Disposal on Land	IE,NO	1 584.45	0.00				1 584.45
B. Waste-water Handling		364.60	60.11				424.71
C. Waste Incineration	5.00	NO	2.52				7.52
D. Other	NO	57.24	63.36				120.60
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	44 027.31
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
United Kingdom

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**495 480.27**	**43 151.38**	**33 015.07**	**11 000.87**	**147.07**	**580.03**	**583 374.69**
1. Energy	**480 317.38**	**9 449.97**	**4 508.54**				**494 275.89**
A. Fuel Combustion (Sectoral Approach)	475 480.10	1 126.04	4 471.61				481 077.75
1. Energy Industries	182 897.65	247.66	1 335.87				184 481.17
2. Manufacturing Industries and Construction	70 099.82	224.91	1 160.42				71 485.14
3. Transport	117 222.13	93.75	1 270.08				118 585.96
4. Other Sectors	IE	IE	IE				IE,
5. Other	105 260.51	559.72	705.25				106 525.47
B. Fugitive Emissions from Fuels	4 837.28	8 323.93	36.93				13 198.14
1. Solid Fuels	194.60	2 922.81	IE				3 117.40
2. Oil and Natural Gas	4 642.68	5 401.12	IE				10 043.80
2. Industrial Processes	**14 883.25**	**94.68**	**1 063.71**	**11 000.87**	**147.07**	**580.03**	**27 769.63**
A. Mineral Products	5 947.01	5.00	NE				5 952.02
B. Chemical Industry	2 721.33	75.46	1 057.64				3 854.44
C. Metal Production	6 214.91	14.22	6.07		IE	IE	6 235.19
D. Other Production	NE	0.00	0.00				0.00
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	NA	NA	NA	IE	IE	IE	IE,NA,
3. Solvent and Other Product Use	**NE**		**NE,NO**				**NE,NO,**
4. Agriculture		**17 907.68**	**26 020.42**				**43 928.10**
A. Enteric Fermentation		15 146.07					15 146.07
B. Manure Management		2 761.62	1 962.91				4 724.53
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		IE,NA,NE	24 057.51				24 057.51
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO,
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**279.63**	**15 699.05**	**1 422.39**				**17 401.08**
A. Solid Waste Disposal on Land	NA,NE,NO	15 363.32	0.00				15 363.32
B. Waste-water Handling		333.36	1 379.58				1 712.94
C. Waste Incineration	279.63	2.37	42.81				324.82
D. Other	NA	NA	NA				NA,
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	583 374.69
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

United Kingdom provided its own early estimate for 2010 (see Table 5). This estimate has been used to assess progress towards targets.

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The tables in Annex II are shown here for transparency reasons as this is how EU estimates have been derived. The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
EU-15

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3 156 139.13**	**305 515.37**	**274 583.44**	**67 299.60**	**1 865.55**	**5 781.77**	**3 811 184.86**
1. Energy	**2 978 562.51**	**42 485.93**	**29 090.96**				**3 050 139.40**
A. Fuel Combustion (Sectoral Approach)	2 960 012.19	12 728.66	28 985.63				3 001 726.48
1. Energy Industries	1 037 268.29	2 683.57	8 795.06				1 048 746.92
2. Manufacturing Industries and Constructior	494 041.64	1 518.52	6 125.58				501 685.74
3. Transport	798 428.10	1 163.72	7 751.13				807 342.95
4. Other Sectors	IE	IE	IE				IE,
5. Other	630 274.17	7 362.85	6 313.85				643 950.87
B. Fugitive Emissions from Fuels	18 550.32	29 757.27	105.32				48 412.92
1. Solid Fuels	745.27	7 678.39	IE				8 423.66
2. Oil and Natural Gas	17 805.05	22 078.88	IE				39 883.93
2. Industrial Processes	**169 390.44**	**606.34**	**22 963.67**	**67 299.60**	**1 865.55**	**5 781.77**	**267 907.36**
A. Mineral Products	91 741.56	6.813909607	NE				91 748.38
B. Chemical Industry	29 852.45	440.32	22856.00812				53 148.78
C. Metal Production	47 457.69	116.97	21.78		IE	IE	47 596.43
D. Other Production	31.99543948	6.16	79.39				117.5515109
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	306.74	36.07380077	6.49047	IE	IE	IE	349.31
3. Solvent and Other Product Use	**5785.95**		**3532.548033**				**9318.50**
4. Agriculture		**166 651.38**	**207 297.86**				**373 949.23**
A. Enteric Fermentation		122 352.65					122 352.65
B. Manure Management		41 431.30	21 307.70				62 739.00
C. Rice Cultivation		2 447.45					2 447.45
D. Agricultural Soils(3)		8.736210881	185 895.69				185 904.43
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		411.23	94.46				505.70
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**2 400.23**	**95 771.72**	**11 698.41**				**109 870.37**
A. Solid Waste Disposal on Land	11.32	83 528.76	1.17				83 541.26
B. Waste-water Handling		10 043.88	10 467.25				20 511.13
C. Waste Incineration	2 359.78	484.95	270.09				3 114.81
D. Other	29.14	1 714.13	959.90				2703.17
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	3 811 184.86
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest for CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 2010
Submission 2011 v1.0
EU-27

GREENHOUSE GAS SOURCE AND	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
SINK CATEGORIES	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3 881 124.69**	**408 603.77**	**351 318.59**	**74 480.97**	**2 440.08**	**6 178.61**	**4 724 146.71**
1. Energy	**3 639 003.76**	**81 988.34**	**34 302.09**				**3 755 294.19**
A. Fuel Combustion (Sectoral Approach)	3 619 999.48	18 579.90	34 196.25				3 672 775.63
1. Energy Industries	1 398 250.74	2 863.48	10 371.01				1 411 485.22
2. Manufacturing Industries and Construction	576 904.69	1 715.35	6 574.05				585 194.09
3. Transport	917 147.84	1 450.01	9 822.67				928 420.51
4. Other Sectors	IE	IE	IE				IE,
5. Other	727 696.22	12 551.07	7 428.53				747 675.81
B. Fugitive Emissions from Fuels	19 004.28	63 408.44	105.84				82 518.56
1. Solid Fuels	827.77	23 579.41	IE				24 407.17
2. Oil and Natural Gas	18 176.51	39 829.03	IE				58 005.55
2. Industrial Processes	**231 961.56**	**1 104.73**	**28 685.97**	**74 480.97**	**2 440.08**	**6 178.61**	**344 851.92**
A. Mineral Products	116 366.62	10.43868817	NE				116 377.06
B. Chemical Industry	39 093.33	762.58	28565.14005				68 421.04
C. Metal Production	74 286.92	289.48	34.94		IE	IE	74 611.35
D. Other Production	40.61843948	6.16	79.39				126.1745109
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	2 174.07	36.07380077	6.49047	IE	IE	IE	2 216.63
3. Solvent and Other Product Use	**7086.78**		**4323.341428**				**11410.12**
4. Agriculture		**198 850.43**	**269 856.48**				**468 706.90**
A. Enteric Fermentation		145 815.53					145 815.53
B. Manure Management		49 944.53	30 770.06				80 714.59
C. Rice Cultivation		2 563.69					2 563.69
D. Agricultural Soils(3)		8.736210881	238 940.18				238 948.92
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		517.93	146.23				664.16
G. Other		NE	NE				NE,
5. Land Use, Land-Use Change and Forestry(1)	**NE**	**NE**	**NE**				**NE,**
A. Forest Land	NE	NE	NE				NE,
B. Cropland	NE	NE	NE				NE,
C. Grassland	NE	NE	NE				NE,
D. Wetlands	NE	NE	NE				NE,
E. Settlements	NE	NE	NE				NE,
F. Other Land	NE	NE	NE				NE,
G. Other	NE	NE	NE				NE,
6. Waste	**3 072.59**	**126 660.27**	**14 150.71**				**143 883.58**
A. Solid Waste Disposal on Land	11.32	109 386.34	1.17				109 398.83
B. Waste-water Handling		14 960.97	12 772.67				27 733.64
C. Waste Incineration	3 032.14	485.73	291.76				3 809.63
D. Other	29.14	1 827.24	1 085.11				2941.48
7. Other (as specified in Summary 1.A)	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE,**

Memo Items: (4)							
International Bunkers	NE	NE	NE				NE,
Aviation	NE	NE	NE				NE,
Marine	NE	NE	NE				NE,
Multilateral Operations	**NE**	**NE**	**NE**				**NE,**
CO2 Emissions from Biomass	**NE**						**NE,**

Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	4 724 146.71
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

The estimates at the level of sub-sector and gas in this table have been compiled according to the methodology described in Annex I. The EU early estimates are based on a bottom up approach (by sector, gas and country). The uncertainty in the numbers increases at finer levels of detail, particularly for non-CO_2 emissions. The uncertainty is lowest CO_2 emissions from energy combustion. Sector 1A5 includes emissions from 1A4.