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Approximated EU GHG inventory:

Early estimates for 2011

European Environment Agency

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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

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• Executive 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 2011. The official submission of 2011 data to the United Nations Framework Convention on Climate Change (UNFCCC) will occur in 2013.

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 2011 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 2012 submissions to UNFCCC (which relate to emissions in 2010).

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 2011.

Finally, the EEA has also used the early estimates of 2011 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 2011 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 (1990–2010) covering all countries, sectors and gases were released on 30 May 2012 (EEA, 2012a) in connection with the annual submission of the EU GHG inventory to the UNFCCC (EEA, 2012b). 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 2011 (EEA, 2012c).

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, 2009 and 2010

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 and 2011, the EEA published its early emission estimates for 2009 and 2010 (EEA, 2010 and 2011). 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 trends in emissions in 2010 were further analysed in the 2012 EU GHG inventory submitted to the UNFCCC (EEA, 2012b).

Methodology for early GHG emission estimates

The present report sets out the estimated GHG emissions for 2011 for the EU Member States, the EU-15 and the EU-27 based on data sources that were published by mid-July of 2012. 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 provided their own early greenhouse gas estimates (Austria, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Poland, Spain, Slovenia, the United Kingdom, Norway and Switzerland).[1] 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.

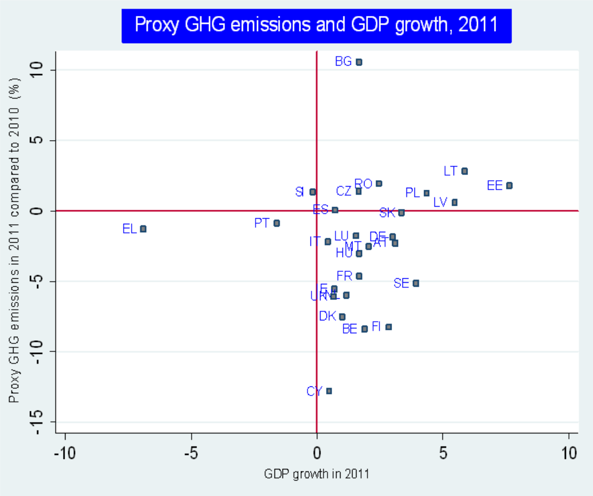
Early GHG emission estimates for 2011 at EU level

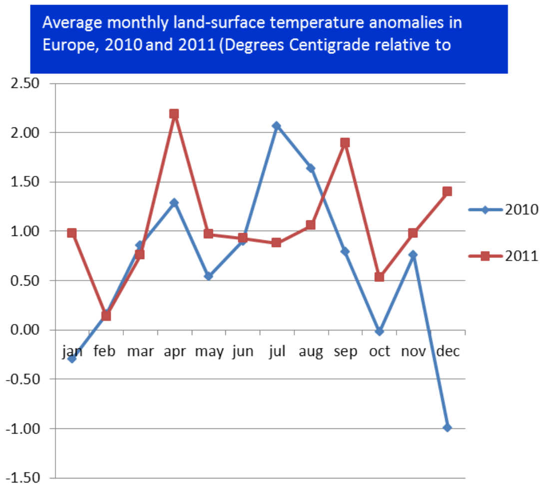
The 2011 EEA estimates indicate that, after increases in emissions between 2009 and 2010, EU greenhouse gas emissions are once again following a decreasing trend just as in the period prior to 2010. Compared to the 2010 official emissions published earlier this year, the annual fall in emissions in 2011 is estimated to be -3.5 % (+/-0.6 %) for the EU-15 and -2.5 % (+/-0.3 %) for the EU-27 (total emissions without LULUCF). However, the greenhouse gas emissions for the new Member States (EU-12) increased by 1.5 % compared to the previous year. Based on these 2011 estimates, total EU-15 emissions in 2011 would be –13.8 % below the 1990 level and -14.1 % below base year level. For EU-27, total GHG emissions in 2011 are estimated to be almost -17.5 % below 1990 emissions.

Such decrease in emissions came amid positive economic growth at the EU level between 2010 and 2011. Gross Domestic Product (GDP) increased by 1.5 %. Emissions decreased by -3.5 % /-2.5 % in EU-15 / EU-27 respectively. Notwithstanding economic developments in specific sectors and countries, there was no apparent correlation between GDP growth and GHG emissions in the EU in 2011 (see Figure ES.0).

Figure ES. 0 GHG emissions, GDP growth and monthly European temperatures, changes 2010-2011

[1] This report covers only EU-27 Member States, however other EEA Member countries also provided early greenhouse gas emission estimates to the EEA for the purposes of assessing the current status of Kyoto targets.





Note: GDP from DG ECFIN's Ameco database, European Commission; 2011 GHG emissions based on the EEA's own proxy estimates for EU Member States; average monthly land-surface temperatures from the UK's Met Office Hadley Centre, HadCRUT3 dataset. Other international sources, such as NASA's GISS and NOAA's NCDC, also confirm average warmer conditions in Europe in 2011 compared to 2010.

Source: EEA

A milder 2011 winter compared to 2010 can partly explain lower fossil-fuel emissions (see Figure ES.0). In 2011, the winter was warmer than in the previous year in Central and Northern Europe leading to a lower heating demand and lower emissions from the residential and commercial sector. However, the winter was colder in some Southern European countries.

Overall the sectors covered by the EU Emissions Trading System (EU ETS) contributed less to the overall reduction in 2011 GHG emissions than the non-trading sectors (i.e. those outside the EU ETS). Between 2010 and 2011 the emission reductions were larger in the non-ETS sectors (-3.8 %) than in the installations covered by the European Emissions Trading Scheme (-3.1 %) for EU-15. Also for EU-27 the non-ETS sectors showed larger reductions (-3.0 %) in the period 2010-2011 compared to the non-ETS sectors (-1.8 %). For the new Member States (EU-12) that experienced emission growth in this period, the increase in the ETS sectors was higher (2.5 %) whereas the non-ETS emissions only grew by 0.6 %.

The residential and commercial sector contributed most to lower emissions in the EU-27 in 2011. This sector broadly falls outside the scope of the EU ETS. The milder winter conditions and the lower demand for heating were the principle reason for the approximately 62 million tonnes decrease in emissions in 2011, particularly from households. Among the EU ETS sectors, the largest decrease stemmed from energy industries, sector including emissions from heat and electricity production and refineries, with a net reduction in emissions of 47 million tonnes in 2011. The combined effect of these two sectors (residential/commercial and energy industries) contributed to about 90 % of the total reduction in GHG emissions in the EU in 2011. EU emissions from transport fell for the fourth consecutive year.

In general, GHG emissions decreased in the majority of key sectors in 2011, particularly those relying on fossil fuel combustion. On average, the total consumption of fossil fuels decreased by 2.4 % in EU-27. The combustion of fossil fuels fell by 3.3 % in the EU-15 whereas it increased in the new Member States by 2.1 %. The use of solid fuels, such as hard coal and lignite, increased by 5.4 % in the EU-27, whereas the use of liquid fuels decreased by -3.8 %. Oil prices increased by 10 % between 2010 and 2011 for industry and households in the EU, whereas crude oil prices increased by 35 % in the same period. The consumption of natural gas fell by -5.2 % in the EU-27 – with a strong reduction in the EU-15 (-6.4 %) but with an average increase in the new Member States of 3.7 %. Gas prices grew by 14 % for industrial consumers and by 8 % for households in the EU-27, whereas industrial gas prices rose only modestly in many of the new Member States.

Total energy consumption from renewable energy also increased in the EU-27 in 2011. The use of renewables continues to play an important role in GHG mitigation efforts by the EU and its Member States. Nuclear electricity consumption stayed stable in 2011 compared to 2010 at EU-27 level.[2] This is despite the shutdown of eight nuclear plants in Germany.

Greenhouse gas emissions from industrial processes remained relatively constant in 2011 compared to the previous year, although emissions from mineral production decreased overall and particularly in Member States experiencing reduced activity in the construction industry. Finally, emissions from the agriculture sector decreased moderately due to a reduction in cattle livestock and the subsequent reduction in N_2O emissions from manure applied to soils and of CH_4 emissions from enteric fermentation.

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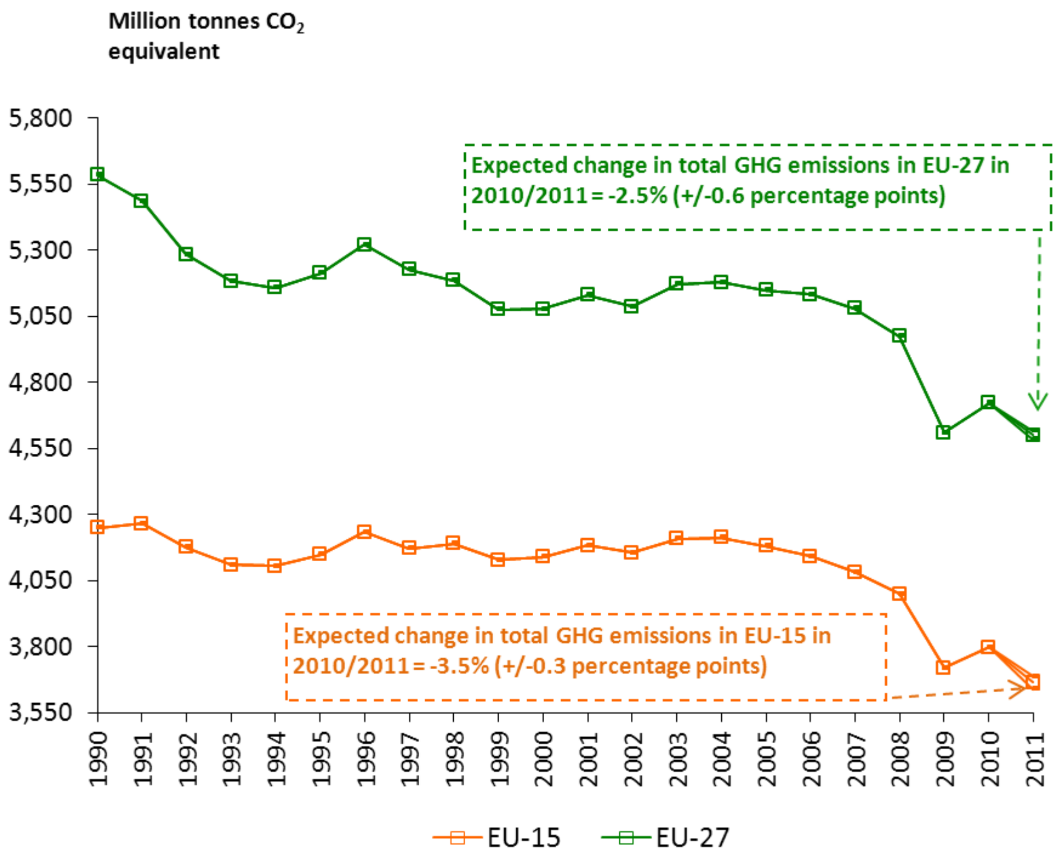
[2] Eurostat 2012b: Electricity production and supply statistics" - Statistics Explained (2012/8/1) <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Electricity_production_and_supply_statistics

Figure ES.1 shows the emission trend for total GHG emissions without LULUCF in the period 1990–2011 ([3]).

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 2012 EU greenhouse gas inventory submitted to the UNFCCC for the period 1990-2010 and early estimates for 2011

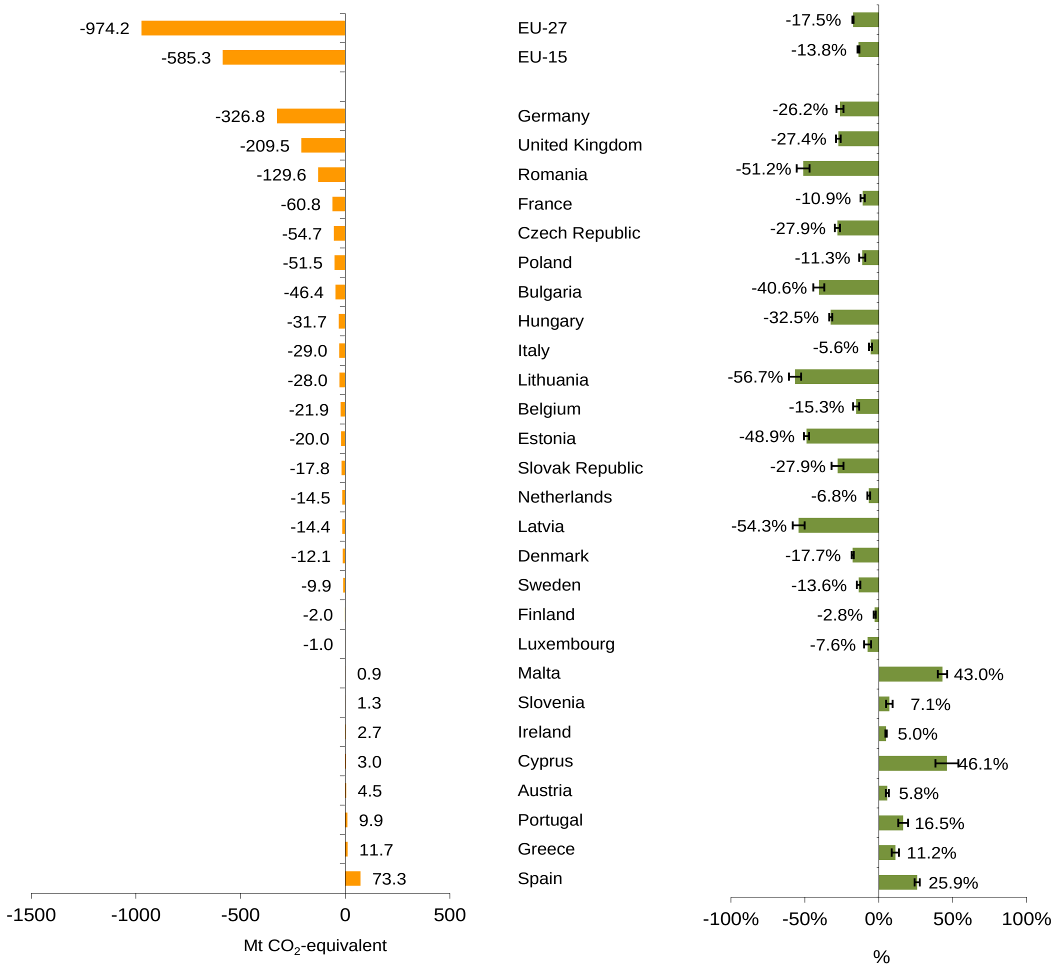
Change in GHG emissions in the period 1990–2011

Figure ES.2 presents the estimated change in GHG emissions for each Member State between 1990 and 2011 ([4]).

[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.

[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

Figure ES. 2 Change in total GHG emissions (without LULUCF) in the EU and its Member States, 1990–2011



Note: Error bars are derived by doubling the average absolute deviations between the approximated GHG inventory estimated for the period 2008 to 2010 and the real 2008-2010 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 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Aside from any recent economic impacts, a wide range of additional factors and policies (climatic and non-climatic) have contributed to the long-term decline in GHG emissions in the EU, particularly for CO_2. 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

emissions. Furthermore, Member State use of flexible mechanisms and LULUCF activities also contribute to compliance with the Kyoto targets.

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.

Change in GHG emissions in the period 2010–2011 at Member State level

As *Figure ES.3* illustrates, GHG emissions decreased in most Member States (Austria, Belgium, Cyprus, Denmark, Germany, Greece, Finland, France, Hungary, Ireland, Italy, Luxembourg, Malta, the Netherlands, Sweden and the United Kingdom). GHG emissions remained at a similar level as in 2010 for four Member States (Latvia, Portugal, Slovakia and Spain) and increased for seven others. The largest absolute growth in emissions occurred in Bulgaria, whereas the other Member States with growing emissions experienced rather small increases (Czech Republic, Estonia, Lithuania, Poland, Romania and Slovenia). Only new Member States showed growing emissions between 2010 and 2011. Cyprus experienced the largest relative emission decrease, followed by Belgium, Denmark and Finland. Different to previous years, the emission trend changes between 2010 and 2011 are not a simple consequence of the economic situation. The Member States with current economic and financial problems are not connected with the strongest emission reductions.

Fourteen Member States have estimated and partly published their own early GHG emissions for 2011, which differ from the EEA data presented in Figure ES.3. Austria, Denmark, Germany, France, Ireland, Italy, Luxembourg, the Netherlands, Poland, Slovenia and Spain have estimated complete emissions in the form of UNFCCC's Common Reporting Format summary Table 2, similar to the approach in this report.

Finland, Greece, and the United Kingdom have provided national-total emission estimates for 2011 but not for all the disaggregated subcategories of CRF summary Table 2. According to the country estimates, the expected change in GHG emissions in 2011 compared to 2010 is as follows: Austria (- 3.1 %), Denmark (- 8.1 %), Finland (-9.7 %), France (-4.8 %), Germany (-2.1 %), Greece (+ 0.2 %), Ireland (- 6.5 %), Italy (- 1.5 %), Luxembourg (+ 1.8 %), the Netherlands (- 6.8 %), Poland (+2.1 %), Slovenia (+ 0.1 %), Spain (+ 0.1 %) and the United Kingdom (- 6.2 %).

The list below provides links to the early GHG estimates for 2011 that individual EEA member countries have published.

Germany

http://www.umweltbundesamt.de/uba-info-presse/2012/pd12-017_weniger_treibhausgase_mit_weniger_atomenergie.htm

France

http://www.citepa.org/images/III-1_Rapports_Inventaires/secten_avril2012-indb_sec.pdf

Finland

http://www.stat.fi/til/khki/2010/khki_2010_2012-04-26_tie_001_en.html

http://www.stat.fi/tup/khkinv/suominir_2012.pdf

Norway

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

Netherlands

http://www.cbs.nl/en-GB/menu/themas/natuur-milieu/publicaties/artikelen/archief/2012/2012-3674-wm.htm?Languageswitch=on

Switzerland

http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=de&msg-id=45430

Spain

http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Avance_de_la_estimaci%C3%B3n_de_emisiones_GEI_2011_tcm7-217059.pdf

The United Kingdom

http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/uk_emissions.aspx

Figure ES.3 illustrates that the largest absolute decrease of emissions occurred in United Kingdom (-35.9 Mt CO2eq or -6.1 %), followed by France (-24.2 Mt CO2eq or -4.6 %) and Germany (-17.2 Mt CO2eq or -1.8 %). The largest relative fall in emission compared to the previous year took place in Cyprus (-12.8), followed by Belgium (-8.4 %), Finland (-8.2 %) and Denmark (-7.5 %). The largest absolute growth in emissions occurred in Bulgaria (6.5 Mt CO2eq or 10.6 %) and Poland (5.0 Mt CO2eq or 1.3 %).

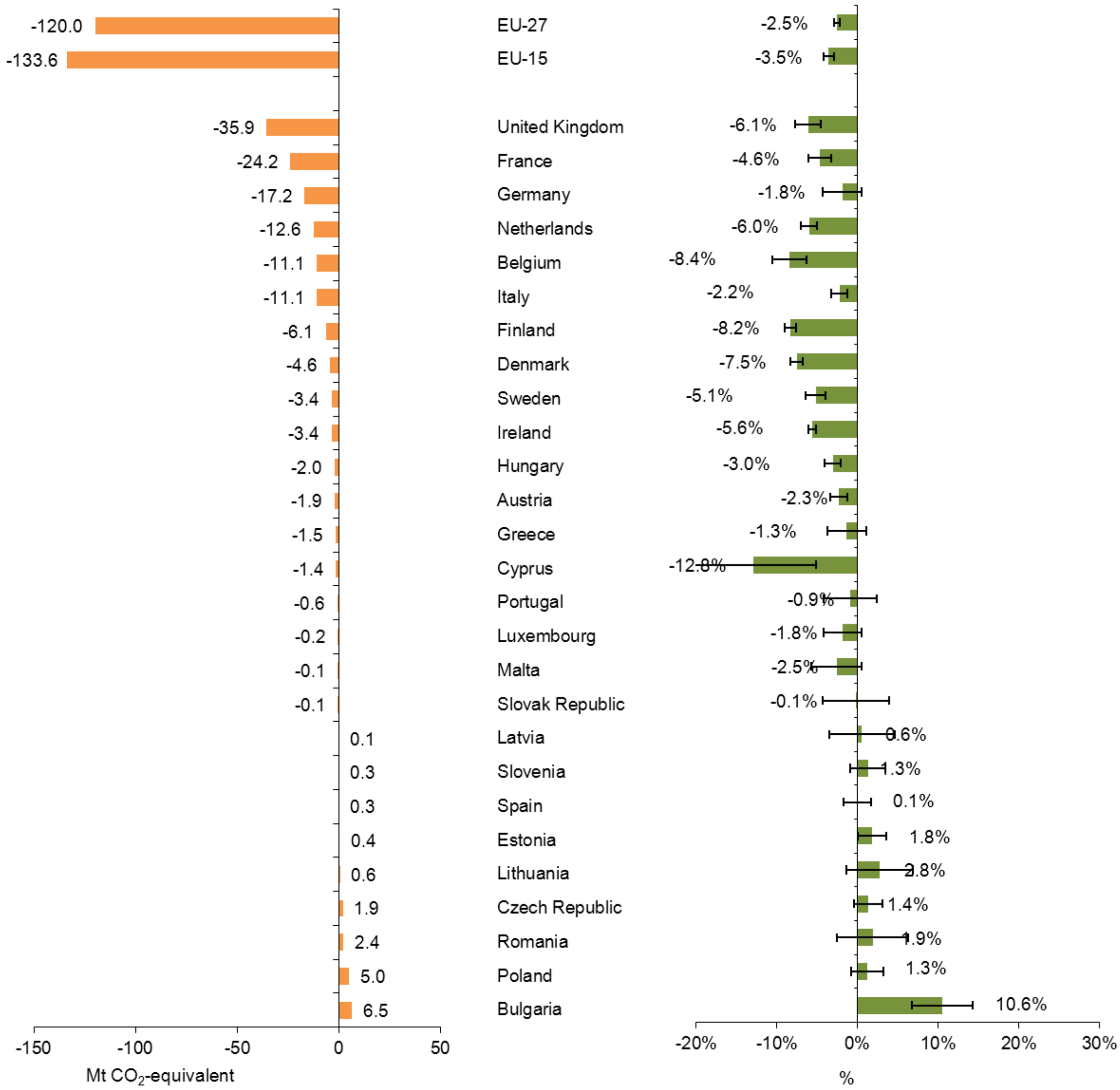
In Germany, the largest EU economy and GHG emitter, showed an emission decrease of -1.8 % or 17.2 Mt CO2eq in 2011 compared to 2010. This emission reduction between 2010 and 2011 occurred despite the shutdown of eight nuclear plants after the nuclear accident in Fukushima in 2011. The increasing use of renewable electricity (increase of 23 % of electricity production from renewable sources including hydro) contributed to this reduction as well as lower electricity exports, but also the mild winter was favourable and lowered the heating demand (lower natural gas and oil consumption). The emission reduction in the ETS sector between 2010 and 2011 (-1.0 %) was smaller than in the non-ETS sector (-2.6 %).

In the United Kingdom greenhouse gas emissions fell by -6.1 % or -35.9 Mt CO2eq in 2011 relative to 2010. The decrease in CO2 emissions between 2010 and 2011 resulted primarily from a decrease in residential gas use due to a mild winter, combined with a reduction in demand for electricity. This was accompanied by lower use of gas and greater use of nuclear power for electricity generation after technical problems at some nuclear power stations in 2010 were resolved (nuclear power generation increased by 17.1 %).

In France the results indicate that greenhouse gas emissions declined by -4.6 % or -24.2 Mt CO2eq in 2011 compared to 2010. The drop in emissions was, on the one hand, caused by the mild winter leading to a considerably reduced heating demand in the residential and services sectors. On the other hand favourable conditions led to a larger production of nuclear electricity in 2011 compared to the previous year. This resulted in a strong emission decrease from electricity generation.

The case of Spain is quite exceptional. Spanish GHG emissions remained almost constant (see Figure ES.4). In Spain, the emissions covered under the EU ETS show a strong increase (9.2 %) whereas the non-ETS emissions declined by -4.7 %. The strong growth in emissions in the energy sector is due to a switch from liquid and gaseous fuels to solid fuels for power generation. Renewable energies decreased as well as the use of nuclear energy. In the transport, services and agriculture sectors emissions decreased. Low economic activity continued throughout 2011, and lower demand for construction also resulted in lower emissions from mineral products.

Figure ES. 3 Changes in total GHG emissions without LULUCF for the EU and its Member States, 2010–2011

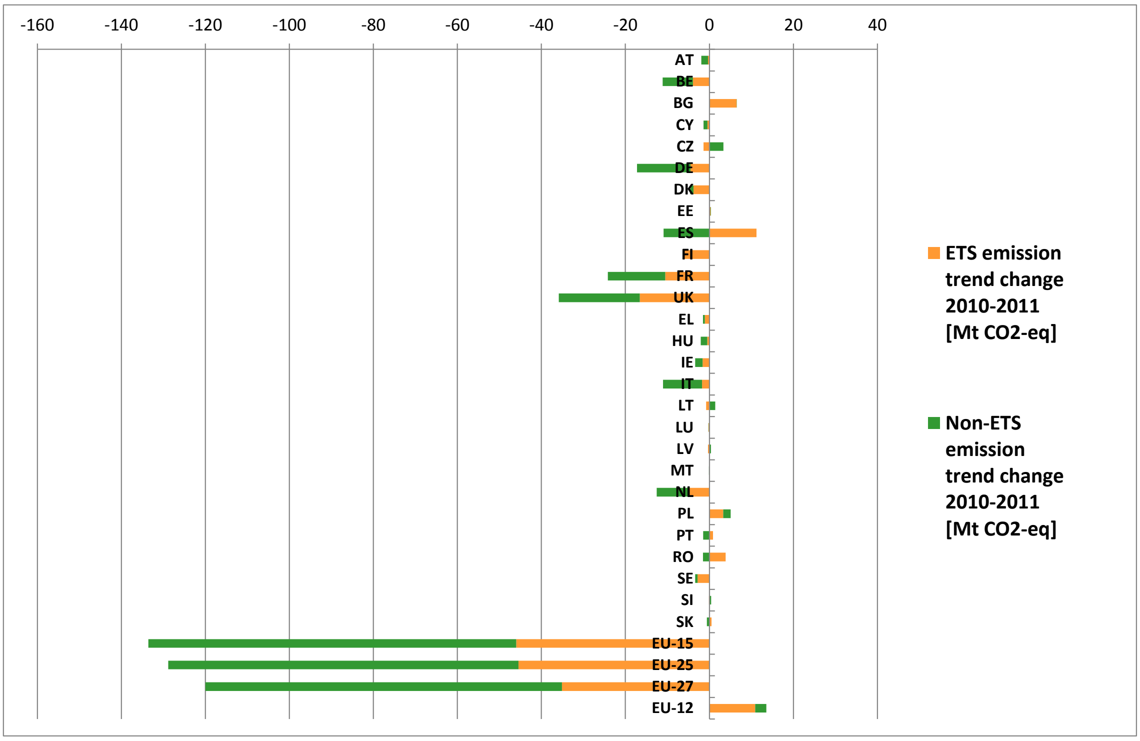


Note: For two Member States – Denmark and the UK – inventories submitted to the UNFCCC are different to the inventories submitted under the EU Monitoring Mechanism Decision due to the fact that Kyoto inventories include non-EU territories. The comparison in this table refers to the EC GHG inventory as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

Error bars are derived by doubling the average absolute deviations between the approximated GHG inventory estimated for the period 2008-2010 and the real 2008-2010 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 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Figure ES.4 Change in GHG emission trends in Europe separated for ETS and non-ETS emissions between 2010 and 2011 in Mt CO_2-eq



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011, verified emissions from CITL as of 15 August 2012

Bulgaria showed the strongest increase in emissions. Bulgaria also recorded a large increase in electricity generation of 7.5 % and nuclear electricity generation dropped by -16.8 % in 2011 compared to the previous year. Different to central Europe, the 2011 winter was colder than usual leading to a higher heating demand. Similar to Spain, the emission increase is also due to a change in fuel use from liquid fuel to coal. The solid fuel consumption increased by 18.6 % between 2010 and 2011. This led to a drastic increase in EU ETS emissions (19.4 %) whereas non-ETS emissions remained more or less constant.

Poland also faced increasing emissions, but only by 1.3 % in 2011 relative to 2010. Fuel consumption of all fuel types rose, in particular solid fuel consumption (9.5 %) and natural gas consumption (10.3 %). This development is mainly influenced by economic issues as GDP increased by 4.3 % in the period considered.

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 data for some source categories, if there are changes in implied emission factors or in the methodologies used by Member States.

The early 2011 estimates are based on the national methodologies and emission factors used by Member States in their 2012 official submissions to the UNFCCC. Current quality improvements in Member State inventories take effect in next year's official submissions to the UNFCCC and are therefore a source of uncertainty for the proxy inventory.

The uncertainty ranges presented for the early 2011 estimates are derived from comparing the official national data submitted to the UNFCCC for the period 2008 to 2010 to the EEA early estimates for these three years. The uncertainties presented in the text and graphs are the average absolute deviation between the proxy inventory estimates and final Member State emissions submitted to the UNFCCC. However, by assessing the early greenhouse gas estimates that several Member States have produced for 2011 (Austria, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Poland, Slovenia, Spain and the United Kingdom), the EEA was able to verify the most suitable methodology for calculating emissions, resulting in a reduced uncertainty range.

Official 2011 greenhouse gas emissions for the EU will be available towards the end of May or early June 2013, when the EEA publishes its EU greenhouse gas inventory 1990–2011 and inventory report 2013 for submission to the UNFCCC.

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• 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 2011. 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.[5] The next official GHG inventory submissions to UNFCCC will occur in April/May 2013.

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

[5] 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[6]. The actual reduction in greenhouse gas emissions in the official report to UNFCCC later, was captured by the confidence interval around the early EEA estimates for EU-15 and EU-27 for this first and subsequent early estimates. (see section .2).

In the present report the methodological approach from 2011 is repeated. The 2011 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 2011 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 2012 submissions to UNFCCC (which relate to emissions in 2010).[7]

The approximated GHG inventory for 2011 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 2011 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 2011 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 2011 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 2011.

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 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 2011 (t-1) and

6 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

7 Except for Romania in the agriculture sector where some IEF as reported in the 2012 inventory submission were corrected.

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

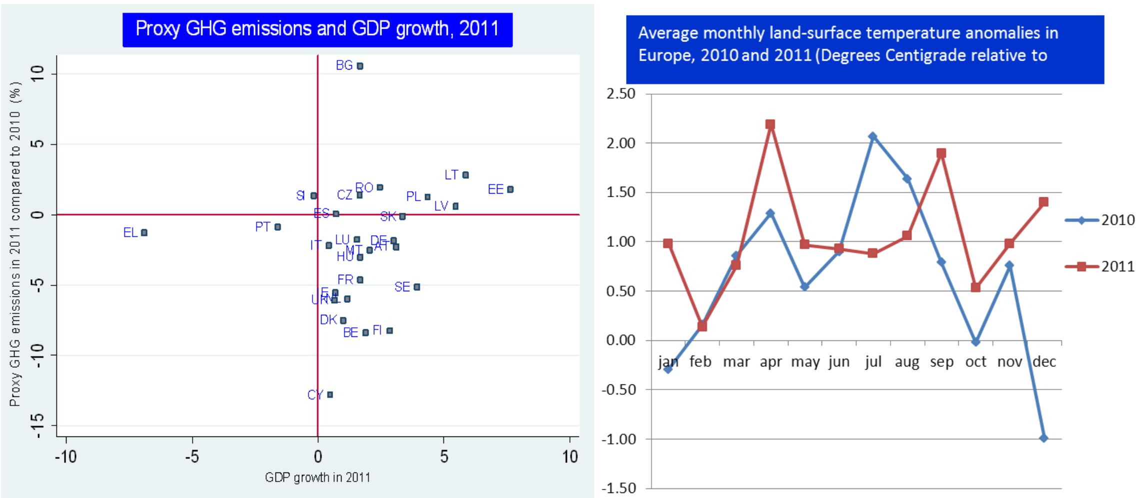
.1 Early GHG emission estimates for 2011 in the EU

The 2011 EEA estimates indicate that, after increases in emissions between 2009 and 2010, EU greenhouse gas emissions are once again following a decreasing trend just as in the period prior to 2010. Compared to the 2010 official emissions published earlier this year, the annual fall in emissions in 2011 is estimated to be -3.5 % (+/-0.6 %) for the EU 15 and -2.5 % (+/-0.3 %) for the EU 27 (total emissions without LULUCF). However, the greenhouse gas emissions for the new Member States (EU-12) increased by 1.5 % compared to the previous year. Based on these 2011 estimates, total EU-15 emissions in 2011 would be –13.8 % below the 1990 level and 14.1 % below base year level. For EU-27, total GHG emissions in 2011 are estimated to be almost 17.5 % below 1990 emissions.

Such decrease in emissions came amid positive economic growth at the EU level between 2010 and 2011. Gross Domestic Product (GDP) increased by 1.5 %. Emissions decreased by -3.5 % /-2.5 % in EU-15 / EU-27 respectively. Notwithstanding economic developments in specific sectors and countries, there was no apparent correlation between GDP growth and GHG emissions in the EU in 2011 (see Figure 1).

A milder 2011 winter compared to 2010 can partly explain lower fossil-fuel emissions (see Figure 1). In 2011, the winter was warmer than in the previous year in Central and Northern Europe leading to a lower heating demand and lower emissions from the residential and commercial sector. However, the winter was colder in some Southern European countries.

Figure 1 GHG emissions, GDP growth and monthly European temperatures, changes 2010-2011



Note: GDP from DG ECFIN's Ameco database, European Commission; 2011 GHG emissions based on EEA's own proxy estimates for EU Member States; average monthly land-surface temperatures from the UK's Met Office Hadley Centre, HadCRUT3 dataset. Other international sources, such as NASA's GISS and NOAA's NCDC, also confirm average warmer conditions in Europe in 2011 compared to 2010.

Source: EEA

In general, GHG emissions decreased in the majority of key sectors in 2011, particularly those relying on fossil fuel combustion. On average, the total consumption of fossil fuels decreased by 2.4 % in EU-27. The combustion of fossil fuels fell by 3.3 % in the EU-15 whereas it increased in the new Member States by 2.1 %. The use of solid fuels, such as hard coal and lignite, increased by 5.4 % in the EU-27, whereas the use of liquid fuels decreased by -3.8 %. Oil prices increased by 10 % between 2010 and 2011 for industry and households in the EU, whereas crude oil prices increased by 35 % in the same period. The consumption of natural gas fell by -5.2 % in the EU-27 – with a strong reduction in the EU-15 (-6.4 %) but with an average increase in the new Member States of 3.7 %. Gas prices grew by 14 % for industrial consumers and by 8 % for households in the EU-27, whereas industrial gas prices rose only modestly in many of the new Member States. [8]

Overall the sectors covered by the EU Emissions Trading System (EU ETS) contributed less to the overall reduction in 2011 GHG emissions than the non-trading sectors (i.e. those outside the EU ETS). Between 2010 and 2011 the emission reductions were larger in the non-ETS sectors (-3.8 %) than in the installations covered by the European Emissions Trading Scheme (-3.1 %) for EU-15. Also for EU-27 the non-ETS sectors showed larger reductions (-3.0 %) in the period 2010-2011 compared to the non-ETS sectors (-1.8 %). For the new Member States (EU-12) that experienced emission growth in this period, the increase in the ETS sectors was higher (2.5 %) whereas the non-ETS emissions only grew by 0.6 %.

The residential and commercial sector contributed most to lower emissions in the EU-27 in 2011. This sector broadly falls outside the scope of the EU ETS. The milder winter conditions and the lower demand for heating were the principle reason for the approximately 62 million tonnes decrease in emissions in 2011, particularly from households. Among the EU ETS sectors, the largest decrease stemmed from energy industries, sector including emissions from heat and electricity production and refineries, with a net reduction in emissions of 47 million tonnes in 2011. The combined effect of these two sectors (residential/commercial and energy industries) contributed to about 90 % of the total reduction in GHG emissions in the EU in 2011. EU emissions from transport fell for the fourth consecutive year.

Total energy consumption from renewable energy increased in EU-27. The use of renewables continue to play an increasing role in GHG mitigation efforts by the EU and its MS. Nuclear electricity consumption stayed stable in 2011 compared to 2010 at EU-27 level.[9] This is despite the shutdown of eight nuclear plants in Germany.

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[8] Eurostat 2012: Gas prices for household consumers and gas prices for industrial consumers. http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables , accessed by 17 August 2012.

[9] Eurostat 2012b: Electricity production and supply statistics" - Statistics Explained (2012/8/1) <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Electricity_production_and_supply_statistics

Greenhouse gas emissions from 'industrial processes' remained relatively constant in 2011 compared to the previous year, although emissions from mineral production decreased overall and particularly in MS experiencing reduced activity in the construction industry: Finally, emissions from 'agriculture' decreased moderately due to a reduction in cattle livestock and the subsequent reduction in N_2O emissions from manure applied to soils and of CH_4 emissions from enteric fermentation.

Aside from any recent economic impacts, a wide range of additional 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.

Change in GHG emissions in the period 2010–2011 at Member State level

As Figure 2 illustrates, GHG emissions decreased in most Member States (Austria, Belgium, Cyprus, Denmark, Germany, Greece, Finland, France, Hungary, Ireland, Italy, Luxembourg, Malta, the Netherlands, Sweden and the United Kingdom). GHG emissions remained at a similar level as in 2010 for four Member States (Latvia, Portugal, Slovakia and Spain) and increased for seven others. The largest absolute growth in emissions occurred in Bulgaria, whereas the other Member States with growing emissions experienced rather small increases (Czech Republic, Estonia, Lithuania, Poland, Romania and Slovenia). Only new Member States showed growing emissions between 2010 and 2011. A common feature of new Member States is that in most of them the consumption of solid fuels increased in the period 2010-2011, whereas in a number of EU-15 Member States coal consumption dropped. Some new Member States also experienced rather large increases in emissions from mineral products, in particular cement production. Cyprus experienced the largest relative emission decrease, followed by Belgium, Denmark and Finland. Different to previous years, the emission trend changes between 2010 and 2011 are not a simple consequence of the economic situation. The Member States with current economic and financial problems are not connected with the strongest emission reductions.

Figure 2 illustrates that the largest absolute decrease of emissions occurred in United Kingdom (-35.9 Mt CO_2eq or -6.1 % compared to 2010), followed by France (-24.2 Mt CO_2eq or -4.6 %), Germany (-17.2 Mt CO_2eq or -1.8 %), the Netherlands (-12.6 Mt CO_2eq or -6.0 %) and Belgium (-11.1 Mt CO_2eq or -8.4 %). The largest relative fall in emission compared to the previous year took place in Cyprus (-12.8 %), followed by Belgium (-8.4 %), Finland (-8.2 %) and Denmark (-7.5 %). The largest absolute growth in emissions occurred in Bulgaria (6.5 Mt CO_2eq or 10.6 %) and Poland (5.0 Mt CO_2eq or 1.3 %).

In Germany, the largest EU economy and GHG emitter showed an emission decrease of -1.8 % or 17.2 Mt CO_2eq in 2011 compared to 2010. Relative to 1990 emissions fell by -26.2 %. This emission reduction between 2010 and 2011 occurred despite of the shutdown of eight nuclear plants after the nuclear accident in Fukushima in 2011. The increasing use of renewable electricity contributed to this reduction as well as lower electricity exports, but also the mild winter was favourable and lowered the heating demand (lower natural gas and oil consumption). The emission reduction in the ETS sector between 2010 and 2011 (-1.0 %) was smaller than in the Non-ETS sector (-2.6 %).

In the United Kingdom greenhouse gas emissions fell by -6.1 % or -35.9 Mt CO2eq in 2011 relative to 2010. The decrease in CO2 emissions between 2010 and 2011 resulted primarily from a decrease in residential gas use due to a mild winter, combined with a reduction in demand for electricity. This was accompanied by lower use of gas and greater use of nuclear power for electricity generation after technical problems at some nuclear power stations in 2010 were resolved (nuclear power generation increased by 17.1 %).[11] In the UK, the emission reduction in the ETS sector between 2010 and 2011 (-7.0 %) was larger than in the Non-ETS sector (-5.5 %).

In France the results indicate that greenhouse gas emissions declined by -4.6 % or -24.2 Mt CO_2eq in 2011 compared to 2010. Relative to 1990 emissions decreased by -10.9 %. The drop in emissions is on the one hand caused by the mild winter, leading to a considerably reduced heating demand in the residential and services sector. On the other hand favourable conditions led to a larger production of nuclear electricity in 2011 compared to the previous year. This resulted in a strong emission decrease from electricity generation, therefore in France the decline in ETS emissions (-9.5 %) exceeded the decrease in Non-ETS emissions (-3.3 %).

In Italy greenhouse gas emissions decreased by -2.2 % in 2011 compared to the previous year or by -5.6 % compared to 1990. Emissions declined in the power production and the industrial processes. Non-ETS emissions fell stronger (-3.0 %) compared to ETS emissions (-0.9 %). In the energy sector, liquid and natural gas consumption decreased (by -6.7 % and -4.3 %), whereas solid fuel consumption grew considerably (24.7 %).

In the results, emissions from Cyprus decreased strongly, however few datasets are available for Cyprus and Malta and in the past the estimates for these two Member States have been related to higher uncertainties than for the other Member States. The fuel consumption between 2010 and 2011 fell in Cyprus and both Eurostat and ETS data indicate a decrease in 9% of CO_2 emissions in the ETS sector for Cyprus.

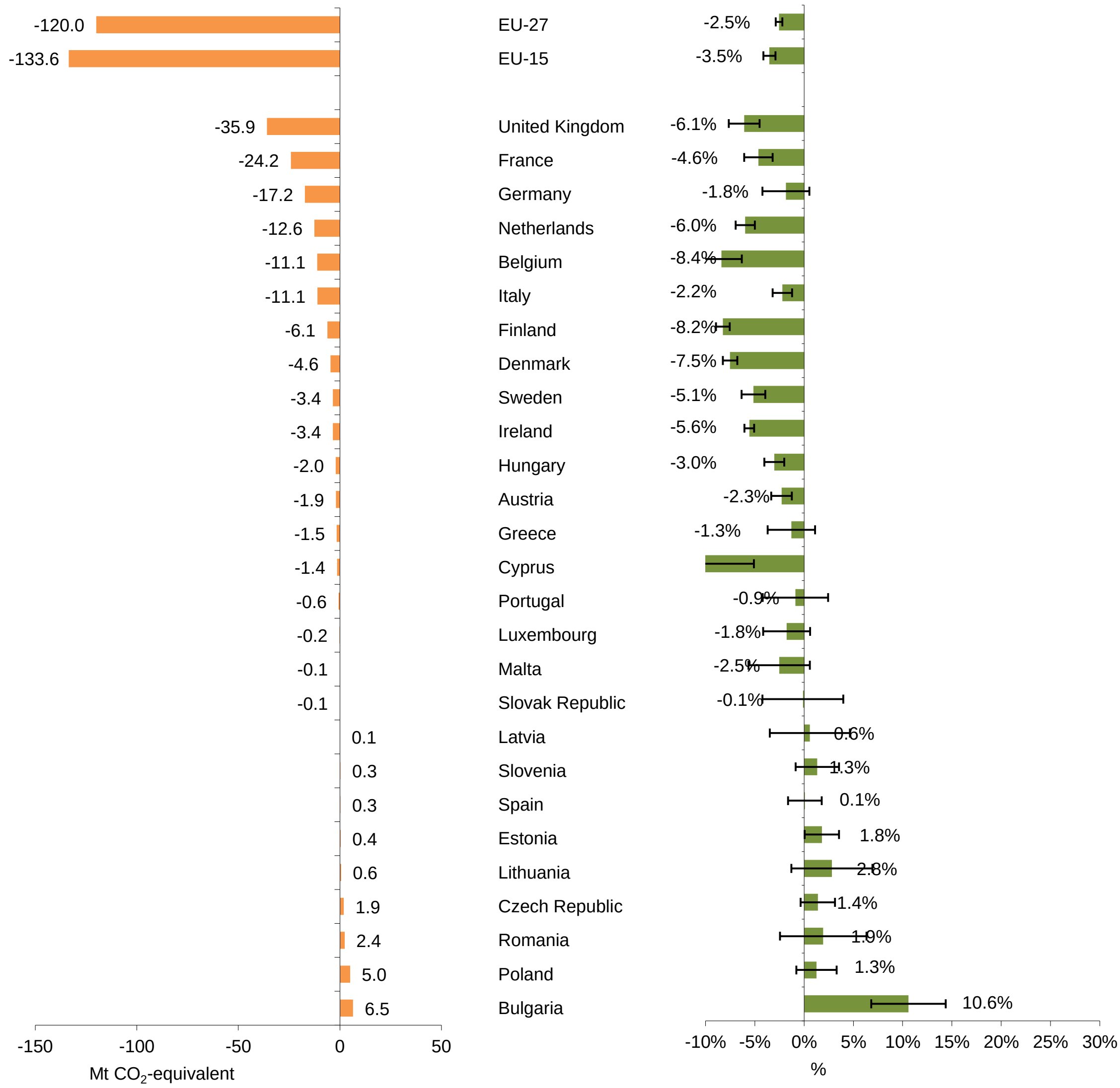
The case of Spain is quite exceptional. Spanish GHG emissions remained almost constant (0.07 % increase). In Spain, the emissions covered under the EU ETS show a strong increase (9.2 %) whereas the non-ETS emissions declined by -4.7 %. The strong growth in the energy sector is due to a switch from liquid and gaseous fuels to solid fuels for power generation. Renewable energies decreased (-28 % decrease in electricity generation from hydropower) as well as the use of nuclear energy. In the transport, services and agriculture sectors emissions decreased. The recession with a lower demand for construction also resulted in lower emissions from mineral products.

Bulgaria showed the strongest increase in emissions. Bulgaria also recorded a large increase in electricity generation of 7.5 % and nuclear electricity generation dropped by 16.8 % in 2011 compared to the previous year.[11] Different to central Europe, the 2011 winter was colder than usual leading to a higher heating demand. Similar to Spain, the emission increase is also due to a fuel switch from liquid fuel to coal. The solid fuel consumption increased by 18.6 % between

2010 and 2011. This led to a drastic increase in EU ETS emissions (19.4 %) whereas non-ETS emissions remained more or less constant.

Poland also faced increasing emissions, but only by 1.3 % in 2011 relative to 2010. The ETS emissions grew stronger (1.7 %) than the non-ETS emissions (0.9 %). Fuel consumption of all fuel types rose, in particular solid fuel consumption (9.5 %) and natural gas consumption (10.3 %). This development is mainly influenced by the economic development: GDP increased by 4.3 % in the period considered.

Figure 2 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 2010-2011[10]

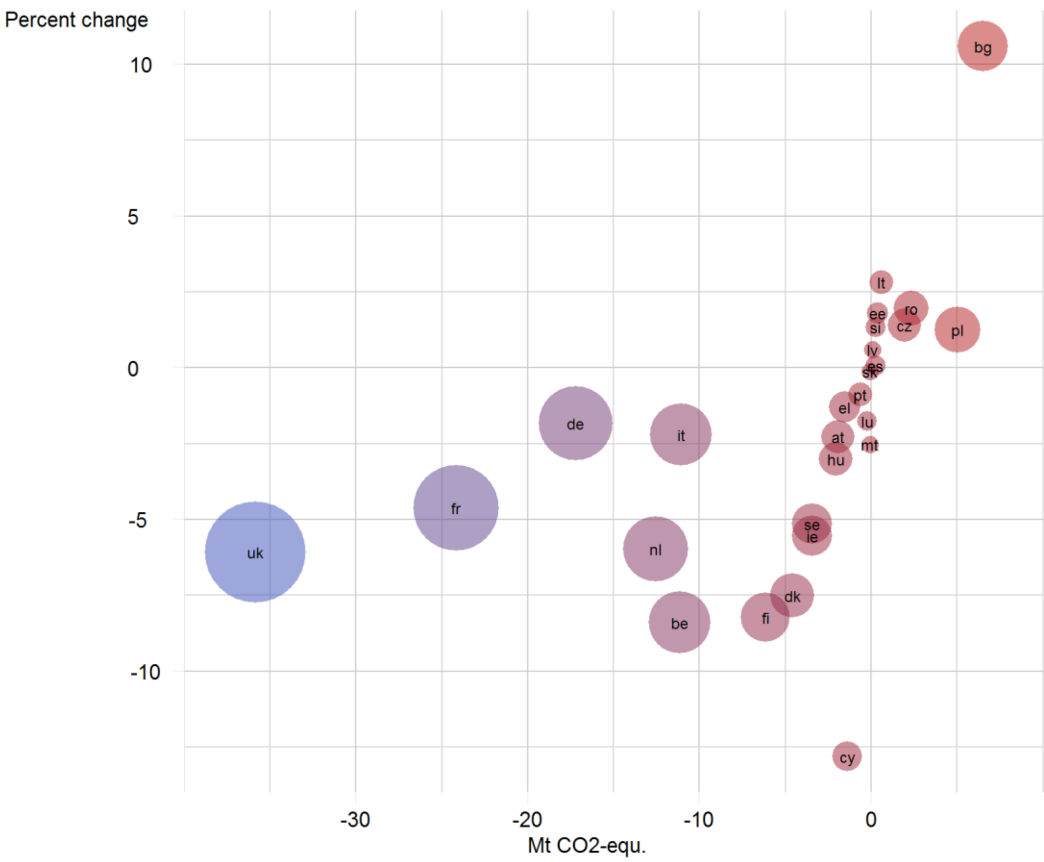


Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Note: Error bars are derived by doubling the average absolute deviations between the approximated GHG inventory estimated for the years 2008 to 2010 and the real 2008 - 2010 inventory submission at Member States' level and for the EU on either side of the mean estimate.

10 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 3 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 2010-2011 (This figure presents the same data as Figure 2, but in a different graphical lay-out)



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

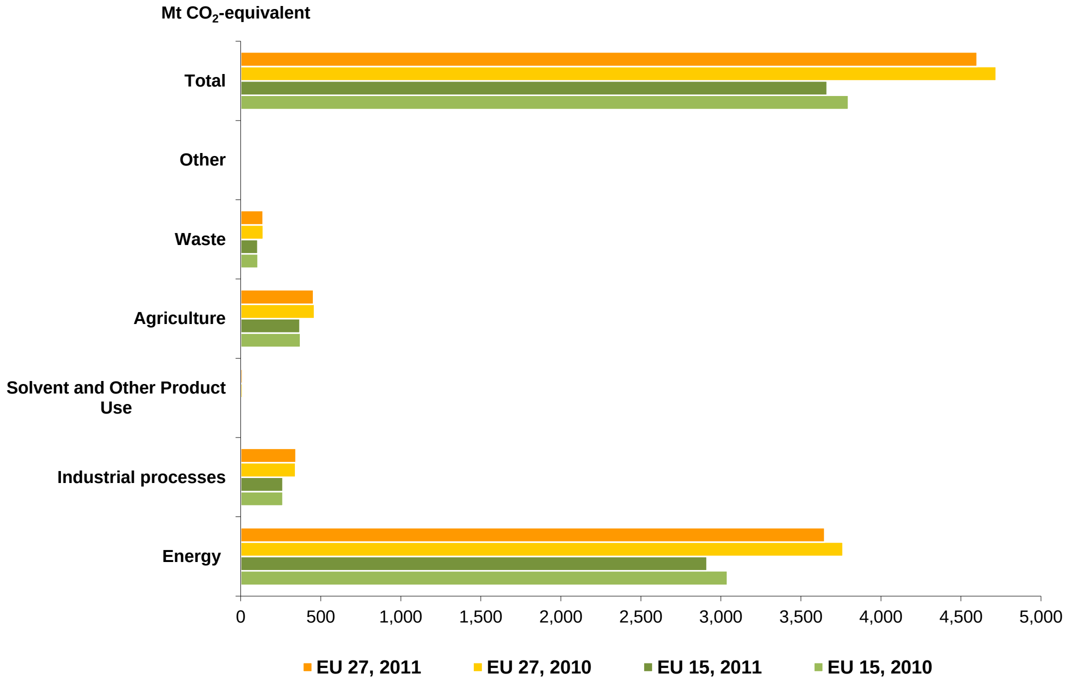
Table 1 and Figure 4 show the changes between 2010 and 2011 at sectoral level for the EU-15 and the EU-27.

Table 1 *Change in GHG emissions between 2010 and 2011 at sectoral level in absolute and relative terms*

	Emissions change between 2010 and 2011 in the EU			
	EU-15		EU-27	
	Mt CO_2eq	**%**	**Mt CO_2eq**	**%**
Energy	-128.5	-4.2%	-114.2	-3.0%
Industrial processes	-0.4	-0.1%	2.2	0.7%
Solvent and Other Product Use	-0.5	-5.7%	-0.6	-4.8%
Agriculture	-3.3	-0.9%	-6.5	-1.4%
Waste	-0.8	-0.8%	-0.9	-0.7%
Other	NE,	NE,	NE,	NE,
Total	**-133.6**	**-3.5%**	**-120.0**	**-2.5%**

Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Figure 4 Change in GHG emissions between 2010 and 2011 at sectoral level



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

On a sectoral basis, the largest absolute emission reduction occurred in the Energy sector, which shows a fall of 128.5 Mt CO_2eq for the EU-15 and of 114.2 Mt CO_2eq for the EU-27 – equivalent to a decrease in emissions of -4.2 % and -3.0 %, respectively. This decrease in emissions in the Energy sector reflects the decline of gross inland energy consumption in the EU-27 in 2011 by -2.4 %. [11] The sector that contributed most to lower emissions in the EU-27 in 2011 was 'residential and commercial', which broadly falls outside the scope of the EU ETS. The key reason for the approximately 62 million tonnes decrease in emissions there was the milder winter conditions in 2011, which decreased demand for heating, particularly by households. Among the EU ETS sectors, the largest decrease stemmed from 'energy industries', including emissions from heat and electricity production and refineries, with a net reduction in emissions of 47 million tonnes in 2011. The combined effect of these two sectors (residential/commercial and energy industries) contributed to about 90 % of the total reduction in GHG emissions in the EU in 2011. EU Emissions from transport fell for the fourth consecutive year.

Natural gas use decreased significantly by about -5.2 % in 2011 compared to 2010 in the EU-27 and by -6.4 % in EU-15. This drop reflects on the one hand lower heating demand in the residential and services sector in the relatively warm winter in 2011 and higher gas prices. Natural gas prices increased broadly in Europe with oil prices, but price changes varied within Member

[11] Based on Eurostat monthly energy data for 2011

States. The drop in gas production also matches with the largest decline in gas production recorded in the EU[12]. However, at Member State level the trend in gas consumption is not homogenous: In particular in EU-15 Member States, the gas consumption dropped significantly such as in Belgium, Germany, Denmark, Finland, Ireland, the Netherlands and the UK. In the new Member States, gas consumption increased by 3.7 %, a trend shared by most EU-12 countries (Bulgaria, Czech Republic, Lithuania, Latvia, Poland, Romania and Slovakia). Among EU-12. only Hungary and Slovenia reported declining gas consumption.

Oil consumption showed a decrease relative to 2010 at EU-27 level (-3.8 %) which is also more pronounced for EU-15. This decrease is likely to be influences by increasing oil prices in 2011. Oil prices for the year exceeded $100 for the first time ever (in money-of-the-day terms) and inflation-adjusted prices were the second-highest on record, behind only 1864. Crude oil prices peaked in April following the loss of Libyan supplies and uncertainties in other supply countries due to protests against governments.[12]

Solid fuel consumption was growing at EU-27 level by 5.4 % compared to 2010. However, the trend in solid fuel consumption between 2010 and 2011 varied considerably in different Member States: Belgium, Spain, Italy, the Netherlands and Portugal showed large relative increases, whereas solid fuel consumption dropped considerably in Denmark, Estonia, Finland, France and Ireland.[13].

As stated before, the 2011 winter was warmer than in the previous year in Central and Northern Europe (Belgium, Germany, Denmark, Estonia, Finland, France, UK, Italy, Ireland, Lithuania, Latvia, Luxembourg, the Netherlands, Poland and Sweden) leading to a lower heating demand and lower emissions from the residential and commercial sector. However, the winter was colder in some Southern European countries (Bulgaria, Cyprus, Greece, Malta and Romania).

Nuclear electricity consumption stayed stable in 2011 compared to 2010 at EU-27 level. However, in Germany nuclear electricity generation showed a pronounced decline in Germany of -23.2 % due to the permanent shut-down of 8 nuclear power plants after the nuclear accident in Fukushima. Nuclear electricity production also decreased considerably in Belgium (-8.0 %), Bulgaria (-16.8 %), Finland (-14.9 %), the Netherlands (-9.7 %) and Spain (-15.3 %), but increased in France (5.1 %), Slovenia (4.1 %), Slovakia (3.5 %), Sweden (3.5 %) and the UK (17.1 %)

Energy consumption from renewable sources increased by about 2.6 % in EU-27 according to Eurostat data for 2011.[12] Strong growth of renewables energy consumption is reported for Belgium (49 % increase of electricity generation from renewables including hydro), Czech Republic (23 %), Denmark (25 %), Estonia (32 %), Germany (23 %), Hungary (17 %) Ireland (41 %), the Netherlands (26 %), and the UK (44 %). The share of renewables in electricity generation at EU-

[12] BP 2012: BP Statistical Review of World Energy, June 2012.

[13] Based on Eurostat monthly energy data for 2011

27 level was stable for hydro production, decreased to a small extent from wind power (-2.9 %) and showed a strong increase of 58.9 % for solar power according to Eurostat data.[14]

The greenhouse gas emissions from Industrial Processes remained relatively constant in 2011 compared to the previous year (EU-15 -0.1 %, EU-27 0.7 %). The emissions from mineral production decreased by -3.6 % in EU-15 and by -1.5 % in EU-27 which is consistent with the decrease of emissions from cement and lime production under the EU-ETS. Emissions from Mineral Products showed a strong difference for those Member States experiencing a continued financial crisis and economic problems due to reduced activities in the construction industry: In Spain emissions decreased by -12.4 %, in Greece by -10.1 %, in Portugal by -14.0 %, in Ireland by 10.1 % and in Italy by -3.3 %. The emissions from Metal Production slightly decreased in EU-15 by -2.3 % and remained constant at EU-27 level (-0.8 %). In the EU ETS data, also emissions from iron and steel production for EU-15 remained stable. Emissions from chemical production were projected to grow by 3.4 % in EU-15 and by 2.3 % in EU-27.

In the agricultural sector GHG emissions show a decrease of -3.3 Mt CO_2eq or -0.9 % for the EU-15 and a decrease of -1.4 % or -6.5 Mt CO_2eq for the EU-27. This decrease was mainly due to emission reductions in the sub-sectors Enteric Fermentation and Manure Management that resulted from a lower number of cattle in the EU. Based on results of statistical survey on livestock and animal production, the cattle numbers (the most important source category) decreased in particular in France, Greece, Spain, Latvia and the UK, but increased in Bulgaria. . A lower number of cattle resulted in a lower amount of manure applied to soils and thus less emissions of N_2O from soils as well as lower emissions from Enteric Fermentation.

The waste sector is expected to show a rather small decrease of –0.8 % for the EU-15 and -0.7 % for the EU-27. GHG emissions decreased mainly in the sub-sector Waste-water Handling. However, in the waste sector no updated activity data are available and results are based on trend extrapolations.

Figure 5 shows the emission trend for total GHG emissions without LULUCF between the years 1990 and 2011. According to these estimates, total EU-15 emissions in 2011 will be -13.8 % below the 1990 level and -14.1 % below base year level. For EU-27, total GHG emissions in 2010 are estimated to be almost -17.5 % below 1990 emissions.

Figure 6 presents a differentiation of the emission trend change between ETS emissions and Non-ETS emissions. Overall the sectors covered by the EU Emissions Trading System (EU ETS) contributed less to the overall reduction in 2011 GHG emissions than the non-trading sectors (i.e. those outside the EU ETS). Between 2010 and 2011 the emission reductions were larger in the non-ETS sectors (-3.8 %) than in the installations covered by the European Emissions Trad-

[14] Eurostat 2012: Electricity Statistics 2011, http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Electricity_Statistics,_2011_(in_GWh).png&filetimestamp=20120507123319

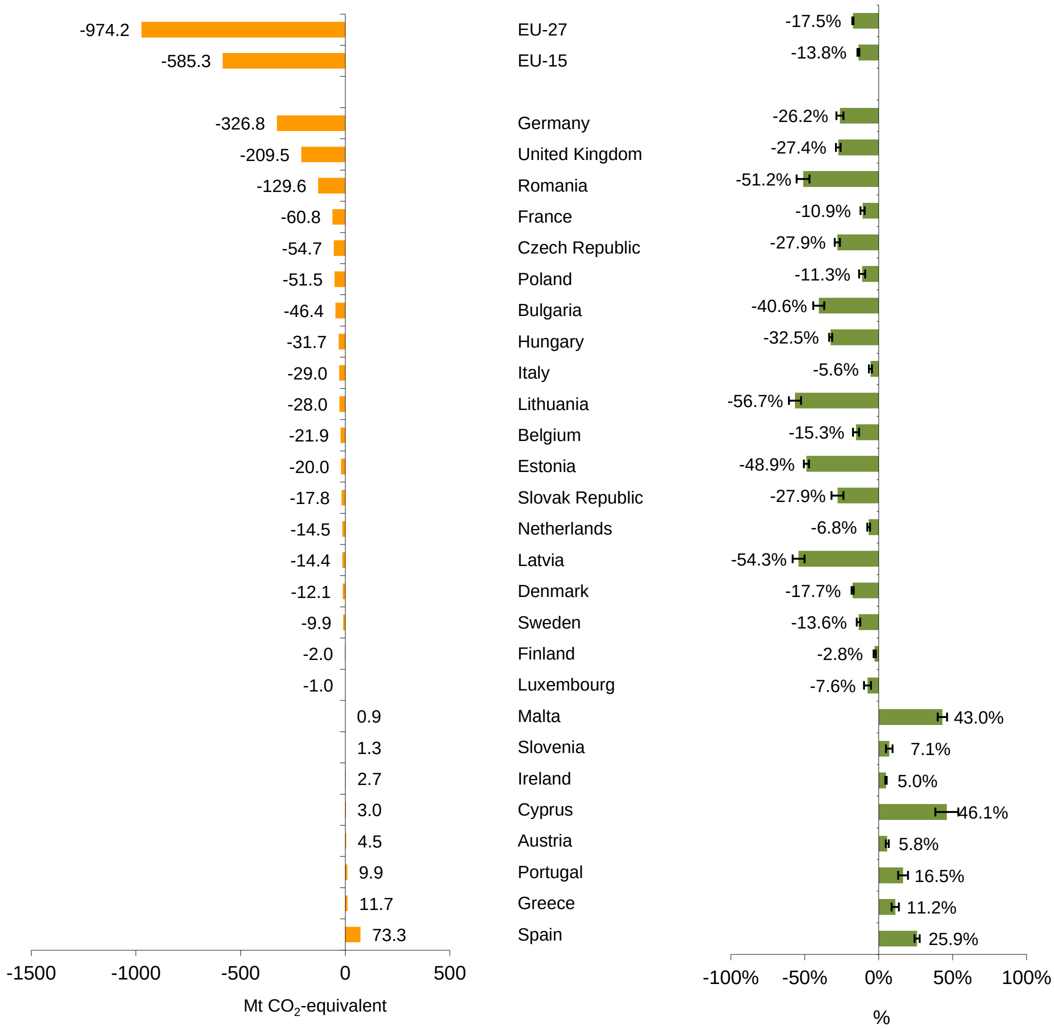
ing Scheme (-3.1 %) for EU-15. Also for EU-27 the non-ETS sectors showed larger reductions (-3.0 %) in the period 2010-2011 compared to the non-ETS sectors (-1.8 %). For the new Member States (EU-12) that experienced emission growth in this period, the increase in the ETS sectors was higher (2.5 %) whereas the non-ETS emissions only grew by 0.6 %.

In absolute terms, the emission reduction of the Non-ETS sector in the 2010-2011 period is 87 MtCO2eq and the ETS share is 46 MtCO2eq. At Member State level the trend change differentiated in the ETS and Non-ETS sector look different: 11 Member States (Austria, Belgium, Germany, Spain, Hungary, Italy, Malta, the Netherlands, Portugal, Romania and Slovakia) the Non-ETS sector achieved larger relative emission reductions than the ETS sector. For 5 of these Member States (Spain, Malta, Portugal, Romania and Slovakia), the ETS emissions even grew between 2010 and 2011 whereas Non-ETS emissions declined. The opposite situation – a stronger relative emission decrease in the ETS sector compared to the Non-ETS sector occurred in the Czech Republic, Denmark, Finland, France, Greece, Ireland, Lithuania, Luxembourg, Latvia, Sweden, Slovenia and the United Kingdom, Spain is exceptional because it shows a strong emission growth in the ETS sector of 9.2 % and an emission reduction of 4.7 % in the Non-ETS sector in this period.

It should be borne in mind, however, that the percentage reduction trends shown in Figure 5 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 be 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".

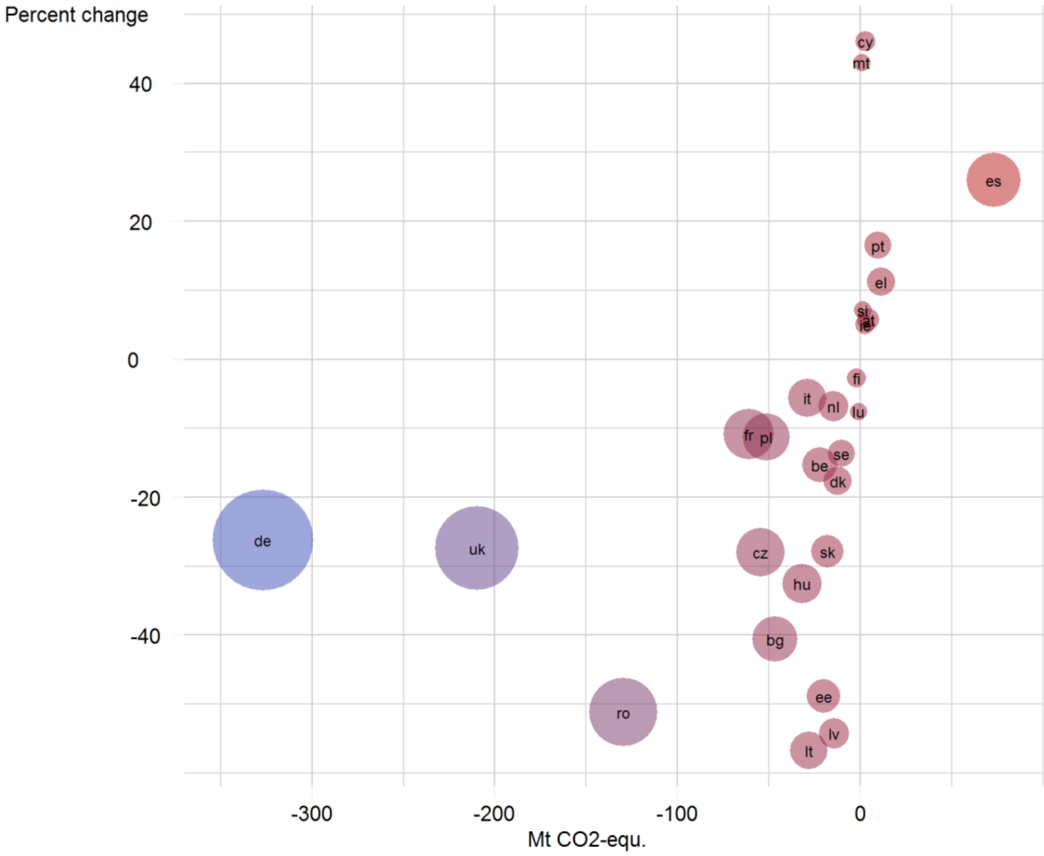
Figure 5 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 1990-2011



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

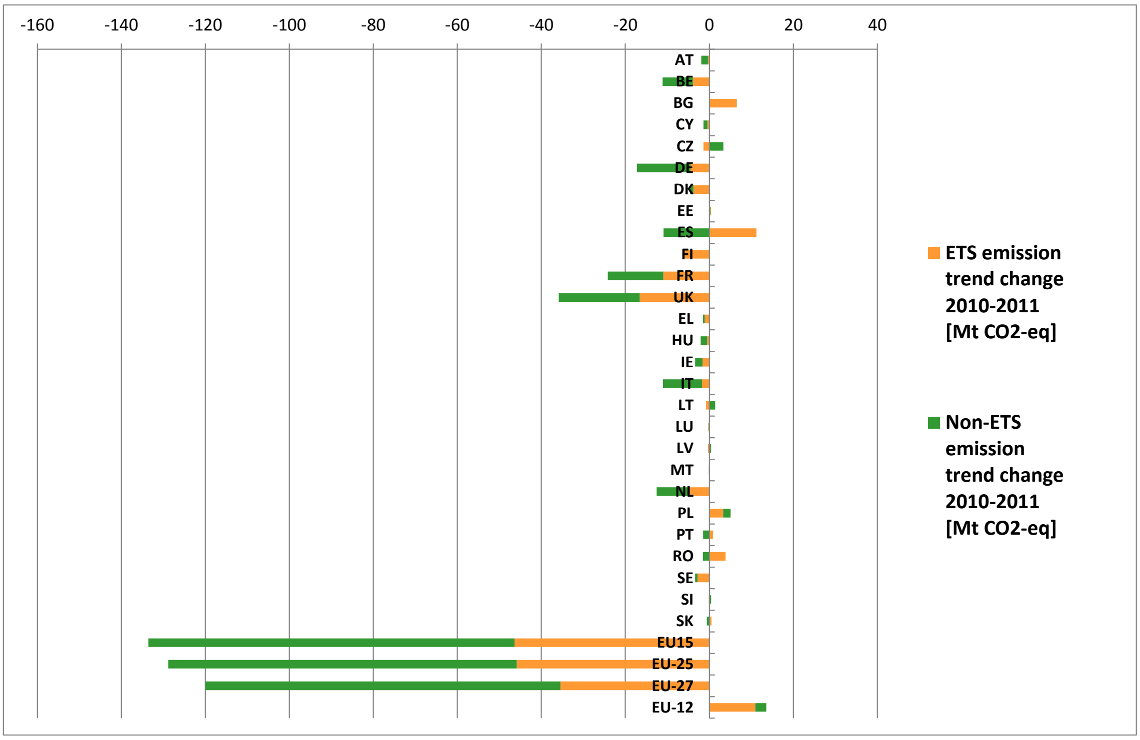
Note: Error bars are derived by doubling the deviations between the approximated GHG inventory estimated for the years 2008 to 2010 and the real 2008-2010 inventory submission at Member States' level and for the EU on either side of the mean estimate.

Figure 6 Change in GHG emission trends in Europe for total GHG emissions without LULUCF, 1990-2010 (This figure presents the same data as Figure 5, but in a different graphical lay-out)



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Figure 7 Change in GHG emission trends in Europe separated between ETS and non-ETS emissions between 2010 and 2011 in Mt CO_2-eq



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011, verified emissions from CITL as of 15 August 2012

Annex 2 includes summary tables for 2011 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 2011 for EU-15 (total emissions without LULUCF)

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

Inventory 2011
Submission 2012 v1.0
EU-15

GREENHOUSE GAS SOURCE AND	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
SINK CATEGORIES	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3,017,680.39**	**296,154.84**	**266,556.24**	**75,321.15**	**2,801.14**	**5,542.36**	**3,664,056.12**
1. Energy	**2,846,206.78**	**38,236.92**	**28,635.88**				**2,913,079.57**
A. Fuel Combustion (Sectoral Approach)	2,827,986.89	13,029.59	28,537.80				2,869,554.28
1. Energy Industries	1,011,708.46	2,707.12	8,379.22				1,022,794.80
2. Manufacturing Industries and Construction	473,904.90	1,494.71	5,577.55				480,977.17
3. Transport	787,263.08	1,187.08	7,825.97				796,276.14
4. Other Sectors	IE	IE	IE				IE,
5. Other	555,110.45	7,640.68	6,755.05				569,506.17
B. Fugitive Emissions from Fuels	18,219.88	25,207.33	98.08				43,525.29
1. Solid Fuels	1245.02	6,188.83	1.45				7,435.30
2. Oil and Natural Gas	16,974.86	19,018.49	96.63				36,089.99
2. Industrial Processes	**163,758.96**	**458.64**	**16,269.07**	**75,321.15**	**2,801.14**	**5,542.36**	**264,151.32**
A. Mineral Products	88,861.94	1.631179712	NE				88,863.57
B. Chemical Industry	31,311.84	419.74	16237.4725				47,969.06
C. Metal Production	43,230.96	1.63	20.21		IE	IE	43,252.79
D. Other Production	30.87705164	0.00	0.00				30.87705164
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	323.35	35.63330962	11.39715	IE	IE	IE	370.38
3. Solvent and Other Product Use	**5569.46**		**3453.798507**				**9023.26**
4. Agriculture		**163,566.71**	**206,946.10**				**370,512.81**
A. Enteric Fermentation		120,873.79					120,873.79
B. Manure Management		39,724.61	20,272.23				59,996.83
C. Rice Cultivation		2,472.85					2,472.85
D. Agricultural Soils(3)		9.686891707	186,560.03				186,569.72
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		485.77	113.84				599.61
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	**2,145.20**	**93,892.57**	**11,251.39**				**107,289.16**
A. Solid Waste Disposal on Land	2.29	82,011.90	1.17				82,015.36
B. Waste-water Handling		10,589.64	9,942.37				20,532.01
C. Waste Incineration	2,122.48	294.49	261.84				2,678.81
D. Other	20.43	996.53	1,046.01				2062.976271
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							3,664,056.12
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							NE,

Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Table 3 Summary table of approximated GHG emissions for 2011 for EU-27 (total emissions without LULUCF)

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

Inventory 2011
Submission 2012 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)	**3,777,567.64**	**391,211.82**	**335,758.19**	**87,415.03**	**2,945.87**	**5,949.13**	**4,600,847.67**
1. Energy	**3,540,315.56**	**74,022.95**	**34,477.48**				**3,648,815.99**
A. Fuel Combustion (Sectoral Approach)	3,520,684.99	19,955.63	34,376.94				3,575,017.56
1. Energy Industries	1,368,148.36	2,898.35	9,953.42				1,381,000.14
2. Manufacturing Industries and Construction	573,564.44	1,712.40	6,031.11				581,307.95
3. Transport	912,595.22	1,567.04	10,463.63				924,625.89
4. Other Sectors	IE	IE	IE				IE,
5. Other	666,376.97	13,777.84	7,928.78				688,083.59
B. Fugitive Emissions from Fuels	19,630.57	54,067.32	100.54				73,798.44
1. Solid Fuels	1586.50	19,074.33	1.45				20,662.27
2. Oil and Natural Gas	18,044.08	34,992.99	99.10				53,136.17
2. Industrial Processes	**227,630.17**	**783.73**	**20,638.11**	**87,415.03**	**2,945.87**	**5,949.13**	**345,362.03**
A. Mineral Products	116,582.26	4.982825813	NE				116,587.25
B. Chemical Industry	41,187.36	738.13	20592.42				62,517.90
C. Metal Production	67,175.27	4.98	34.29		IE	IE	67,214.55
D. Other Production	47.72744291	0.00	0.00				47.72744291
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	2,637.55	35.63330962	11.39715	IE	IE	IE	2,684.58
3. Solvent and Other Product Use	**6893.89**		**4189.50203**				**11083.39**
4. Agriculture		**192,718.09**	**262,306.64**				**455,024.73**
A. Enteric Fermentation		143,278.44					143,278.44
B. Manure Management		46,188.59	29,343.67				75,532.26
C. Rice Cultivation		2,610.92					2,610.92
D. Agricultural Soils(3)		9.686891707	232,791.13				232,800.81
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		630.46	171.84				802.30
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	**2,728.01**	**123,687.04**	**14,146.46**				**140,561.51**
A. Solid Waste Disposal on Land	2.29	105,253.59	1.17				105,257.05
B. Waste-water Handling		17,023.43	12,682.10				29,705.53
C. Waste Incineration	2,705.29	295.50	286.56				3,287.36
D. Other	20.43	1,114.51	1,176.63				2311.574542
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							4,600,847.67
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							NE,

Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

.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 average absolute deviation of Member States' real GHG inventories for the years 2008, 2009 and 2010 as submitted to UNFCCC by end of May 2012 with the approximated GHG inventory estimated for the years 2008-2010 in previous reports. 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 0.4 % (13.6 Mt CO_2eq) higher than the real GHG inventory submissions for the year 2010 and for the EU-27 0.1 % (3.3 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: For 2009 the approximated GHG inventory had underestimated the EU-15 GHG emissions by -0.7 % and the EU-27 GHG emissions by -0.3%. 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 2010 inventory submissions. This is especially the case for those source categories for which linear trend extrapolation was performed, in particular for the source categories Chemical Industry, fluorinated gases, Solvent and Other Product Use and some subcategories in the sector Agriculture and Waste (see below).

By referring to GHG inventory data submitted in 2012, the proxy estimates of the increase in greenhouse gas emissions 2010/2011 amounted to 2.5 % both for the EU-15 (92 Mt CO_2eq) and for the EU-27 (114 Mt CO_2eq)[15]. Greenhouse gas emissions in 2009 and 2010, as officially reported to UNFCCC in 2012, showed an increase in emissions of 2.1 % (78 Mt CO_2eq) for the EU-15 and 2.4 % (111 Mt CO_2eq) for the EU-27. Even though the proxy estimates last year overestimated the average increase officially reported to UNFCCC this year, the latter average increases were captured by the upper and lower confidence limits around the mean proxy trend estimates estimated last year (+/-0.7 % for the EU-15, +/-0.3 % for the EU-27).

[15] The increase in GHG emissions 2009/2010 of 2.3 % for EU-15 and 2.4 % for EU-27 as given with the proxy estimates last year and as published by EEA in 2010 (http://www.eea.europa.eu/pressroom/newsreleases/eu-greenhouse-gas-emissions-estimated) was based on the GHG inventory submission in 2011 (for the year 2009). With the GHG inventory submissions in 2012, all Member States carried out recalculations of their data for the year 2009, resulting in a slightly larger increase than published before (see

).

Table 4 Deviation between the approximated GHG inventory estimated for 2010 and the real 2010 inventory submission at Member States' level and for the EU

MS	UNFCCC 2010 (Submission 2012)	Proxy 2010	Deviation 2008	Deviation 2009	Deviation 2010		Average deviation 2008-2010	Recalcu-lations 2011	Deviation 2010 with impact of recalculations
	Gg CO_2eq		%	%	Gg CO_2eq	%	%	%	%
AT	84,594	85,218	1.7%	0.7%	624	**0.7%**	**1.0%**	-0.4%	0.3%
BE	132,459	132,155	-3.0%	3.0%	-304	**-0.2%**	**2.1%**	0.6%	0.4%
BG	61,427	59,053	-0.3%	7.2%	-2,374	**-3.9%**	**3.8%**	-1.0%	-4.9%
CY	10,838	9,233	0.2%	8.2%	-1,605	**-14.8%**	**7.7%**	18.1%	3.3%
CZ	139,158	135,601	1.3%	-1.4%	-3,557	**-2.6%**	**1.8%**	1.4%	-1.2%
DE	936,544	954,973	-0.8%	-4.3%	18,429	**2.0%**	**2.4%**	-0.9%	1.1%
DK	61,065	61,664	-1.0%	-0.2%	599	**1.0%**	**0.7%**	-0.5%	0.5%
EE	20,517	20,211	-0.8%	3.0%	-306	**-1.5%**	**1.8%**	-2.6%	-4.1%
EL	118,287	120,331	3.1%	-2.4%	2,045	**1.7%**	**2.4%**	1.8%	3.5%
ES	355,898	356,854	4.6%	-0.3%	956	**0.3%**	**1.7%**	-0.3%	-0.1%
FI	74,556	74,447	0.3%	1.7%	-109	**-0.1%**	**0.7%**	-0.3%	-0.5%
FR	522,373	524,607	1.6%	-2.3%	2,235	**0.4%**	**1.4%**	-0.5%	-0.1%
HU	67,679	67,692	1.8%	1.2%	13	**0.0%**	**1.0%**	0.3%	0.3%
IE	61,314	60,599	0.2%	-0.1%	-715	**-1.2%**	**0.5%**	-1.0%	-2.2%
IT	501,318	494,140	-0.2%	1.4%	-7,178	**-1.4%**	**1.0%**	0.1%	-1.3%
LT	20,810	22,336	-0.4%	4.6%	1,526	**7.3%**	**4.1%**	-7.6%	-0.3%
LU	12,075	12,267	1.9%	3.6%	191	**1.6%**	**2.4%**	-1.4%	0.1%
LV	12,077	11,487	4.0%	3.2%	-590	**-4.9%**	**4.1%**	2.2%	-2.7%
MT	2,988	2,869	3.8%	-1.5%	-119	**-4.0%**	**3.1%**	3.6%	-0.4%
NL	210,053	211,357	1.2%	1.1%	1,304	**0.6%**	**1.0%**	0.0%	0.7%
PL	400,865	391,107	-2.1%	1.6%	-9,758	**-2.4%**	**2.0%**	1.4%	-1.1%
PT	70,599	74,789	2.1%	1.9%	4,190	**5.9%**	**3.3%**	-0.3%	5.7%
RO	121,355	129,655	4.7%	-1.6%	8,301	**6.8%**	**4.4%**	-5.7%	1.1%
SE	66,232	64,410	0.1%	-0.8%	-1,822	**-2.8%**	**1.2%**	-0.5%	-3.3%
SI	19,522	19,691	-0.3%	5.4%	168	**0.9%**	**2.2%**	0.7%	1.5%
SK	45,982	44,027	-2.1%	6.0%	-1,955	**-4.3%**	**4.1%**	1.8%	-2.5%
UK	590,247	583,375	1.2%	2.3%	-6,872	**-1.2%**	**1.6%**	1.1%	-0.1%
EU-15	3,797,613	3,811,185	0.8%	-0.7%	13,572	**0.36%**	**0.62%**		
EU-27	4,720,831	4,724,147	0.6%	-0.3%	3,316	**0.07%**	**0.34%**		

Source: EEA's ETC ACM based on the 2011 and 2012 EU greenhouse gas inventories to UNFCCC for 2009 and 2010

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 4 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 deviations in relative terms occurred for Cyprus (Proxy 15 % lower), followed by Lithuania (Proxy 7 % higher) and Romania (Proxy 7 % higher). In absolute terms the deviations were highest for Germany (overestimation by Proxy of 18 Mt CO_2eq), Poland (underestimation by Proxy of 10 Mt CO_2eq) and Romania (overestimation by Proxy of 8 Mt CO_2eq). By comparing the percentage changes in emission levels 2009/2010 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 8. Whilst the emission increase 2009/2010 as given by the approximated GHG inventory estimated for 2009 amounts to 2.5 % for the EU-27, this increase only amounts to 2.4 % by using the official GHG inventory submission to UNFCCC (cf. Table 4). The difference of 0.1 % equals the deviation between the approximated GHG inventory estimated for 2010 and the real 2010 inventory submission.

Figure 8 Deviation between the approximated GHG inventory estimated for 2010 and the real 2010 inventory submission and deviation between percentage change in emission levels 2009/2010 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 2012 EU greenhouse gas inventory to UNFCCC for 2009 and 2010

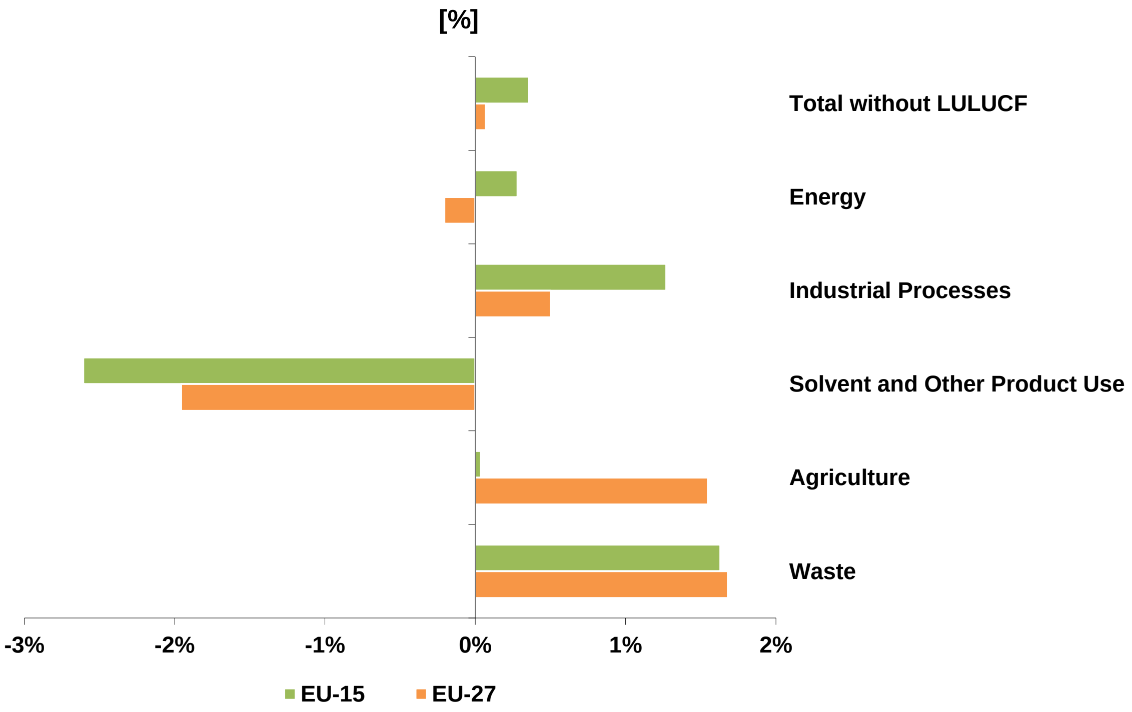
Compared to the approximated GHG emissions that have been calculated last year, deviations could be reduced for 15 of 27 Member States. For nine Member States the deviations were lower than 1 % (Austria, Belgium, Denmark, Spain, Finland, France, Hungary, the Netherlands and Slovenia), whereas for eight Member States the deviations were higher than 3 % (Bulgaria, Cyprus, Latvia, Lithuania, Malta, Portugal, Romania and Slovakia). 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 an important role for the deviations of the 2010 proxy emission estimates compared to 2010 emissions officially reported in 2012. In the following sections country-specific deviations are further explained for some Member States with high deviations in absolute terms (Germany, Romania) and/or in relative terms (Cyprus, Romania) (see also columns on the right hand side in Table 4):

- Cyprus: 80 % of the underestimation by 14.8 % of the Cypriot GHG emissions can be explained by a recalculation of CH_4 emissions in the waste sector. Without the effect of the recalculations, the difference to the proxy estimate would have been about 3.3 %.
- Lithuania: Considerably recalculations in the energy sector where emission factors were updated as well as activity data corrected, amount to a change in the same magnitude as the difference between the proxy estimate and the real inventory submission. Without the effect of the recalculations, the difference to the proxy estimate would have been about -0.3 %.
- Germany: The overestimation of the German GHG emissions occurred mainly in the energy (fuel combustion) sector (8.2 Mt CO_2eq), in the industrial processes sector (7.0 Mt CO_2eq, mostly in chemical industry) and in the agricultural sector (5.0 Mt CO_2eq from agricultural soils). More than the half of the overestimated GHG emissions could be explained by changes in methodologies and thus recalculations which Germany performed in particular for fuel combustion (households and energy industries) and agricultural soils.
- Romania: 90 % of the overestimation by 8.3 Mt CO_2eq/6.8 % of the Romanian GHG emissions can be explained by a recalculation of N_2O emissions from agricultural soils.
- Poland: Also in Poland recalculations can explain a considerable part of the difference. Without the effect of the recalculations, the difference to the proxy estimate would have been about -1.1 %.

Figure 9 presents the deviations for 2010 at sectoral level for the EU-15 and for the EU-27.

Figure 9 Deviation between the approximated GHG inventory estimated for 2010 and the real 2010 inventory submission at sectoral level for EU-15 and EU-27

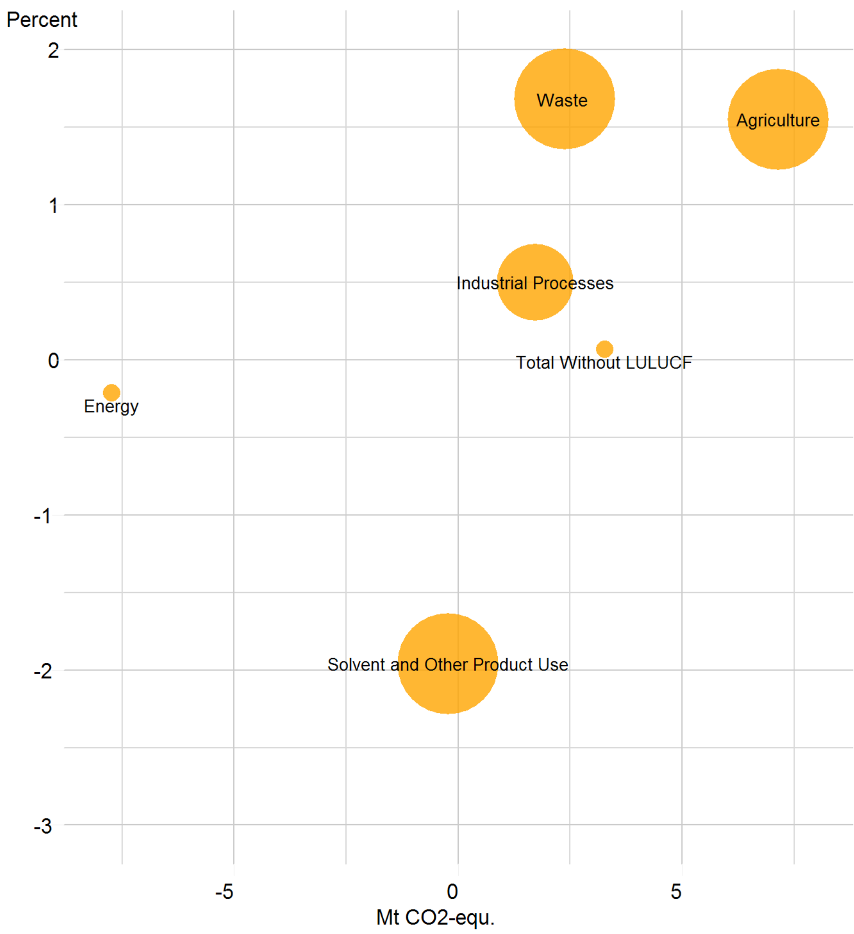


Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 2010

Relative deviations at sectoral level have significantly decreased compared to the EEA's 2010 early estimate of 2009 emissions. Back then, relative deviations in the order of magnitude of 10 % were observed for the Waste and Industrial Processes sectors. In the 2011 the largest relative deviation occurred in the Solvent and Other Product Use sector and were below 3 % for the EU-15 and below 2 % for the EU-27. In absolute terms, however, that sector is nearly negligible. In all other sectors, the relative deviations were below 2 % for both the EU-15 and the EU-27. The most important sector in absolute terms is the Energy sector. Here, the deviations were 0.3 % overestimation for the EU-15 and -0.2 % underestimation for the EU-27.

A detailed analysis of the EU-27 deviations at source category level showed that the approximated results matched rather well for 1A Fuel Combustion (0.4 % lower), 1A1 Energy Industries (1.0 % lower), 1A2 Manufacturing Industries (0.1 % higher) as well as 1A3 Transport (0.2 % lower). Nevertheless, for some Member States the deviations could not entirely be explained by recalculations.

Figure 10 Deviation between the approximated GHG inventory estimated for 2010 and the real 2010 inventory submission at sectoral level for EU-27 (This figure presents the same data as Figure 9, but in a different graphical layout)



Source: EEA's ETC ACM based on the 2011 EU greenhouse gas inventory to UNFCCC for 2010

In the Industrial Processes sector, significant overestimations for 2B Chemical Industry (12 %) and 2C Metal Production (10 %) were almost entirely offset by a 12 % underestimation for emissions of fluorinated gases (primarily in 2F Consumption of Halocarbons and SF_6). Compared to the EEA's 2010 early estimate of 2009 emissions, deviations in the 2C Metal Production decreased to less than one third. For 2B Chemical Industry and 2F Consumption of Halocarbons and SF_6, no recent data sources are available for the approximated GHG inventory and emissions were extrapolated from past trends. Extrapolation methods cannot reflect sudden changes that can occur in these source categories due to rapidly changing demand patterns, technological improvements and more drastic changes in production levels than in other source categories. For 2A Mineral Products the estimates improved through the use of CITL data for 2010: the relative deviations were -1.7 % for the EU-27 and were approximately halved compared to the EEA's 2010 early estimate of 2009 emissions.

In the agricultural sector the difference between the approximated EU-27 GHG inventory and real EU-27 inventory data amounted to 7.1 Mt CO_2eq which represents a 1.5 % overestimation.

The absolutely highest deviations occurred in the subsectors 4D Agricultural Soils (5.8 Mt CO_2eq / 2.5 % overestimation), 4B Manure Management (3.8 Mt CO_2eq / 5.0 % overestimation) and 4A Enteric Fermentation (-2.3 Mt CO_2eq / -1.6 % underestimation). Compared to the EEA's 2010 early estimate of 2009 emissions, the deviations for 4 Agriculture were reduced by 50 %.

The estimates for the waste sector show 1.7 % overestimation for the EU-27 which is approximately one fourth of the previous year's deviation. On subsectoral level, a 7.7 % underestimation for 6B Wastewater Handling is more than offset in absolute terms by a 3.3 % overestimation in 6A Solid Waste Disposal on Land.

.3 Member States' activities and results related to preliminary 2011 GHG emissions

Fourteen Member States have estimated and partly published their own early GHG emissions for 2011, which differ from the EEA data presented in this report. Austria, Denmark, Germany, France, Ireland, Italy, Luxembourg, the Netherlands, Poland, Slovenia and Spain have estimated complete emissions in the form of UNFCCC's Common Reporting Format summary Table 2, similar to the approach in this report. Greece, Spain and the United Kingdom provided emission estimates for 2011 as national total only and not for all disaggregated subcategories. Some Member States published their own approximated greenhouse gas emissions for 2011 and the list below provides the links to these sources for individual EEA member countries:

Germany

http://www.umweltbundesamt.de/uba-info-presse/2012/pd12-017_weniger_treibhausgase_mit_weniger_atomenergie.htm

France

http://www.citepa.org/images/III-1_Rapports_Inventaires/secten_avril2012-indb_sec.pdf

Finland

http://www.stat.fi/til/khki/2010/khki_2010_2012-04-26_tie_001_en.html

http://www.stat.fi/tup/khkinv/suominir_2012.pdf

Norway

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

Netherlands

http://www.cbs.nl/en-GB/menu/themas/natuur-milieu/publicaties/artikelen/archief/2012/2012-3674-wm.htm?Languageswitch=on

Switzerland

http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=de&msg-id=45430

Spain

http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Avance_de_la_estimaci%C3%B3n_de_emisiones_GEI_2011_tcm7-217059.pdf

The United Kingdom

http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/uk_emissions.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. In general the preliminary estimates from both sources matched well with differences smaller than ± 1-2 % (Table 5), except for Luxembourg difference -3.6 %) and the UK (7.1 %). For the UK the reported proxy emissions belong to a different geographical scope than the emissions in the EU inventory calculated in this report. Luxembourg already took into account recalculation of the 2010 inventory due to the review process for its own preliminary estimates for 2011. This will result in estimates closer to the real 2011 emissions, however, as such recalculated inventories are not available for all Member States the official UNFCCC submissions by April/March 2012 were consistently kept as the starting point for the estimates performed for this report.

Table 5 Deviation of approximated GHG inventories calculated in this report from MS own preliminary emission estimates for 2011 (total GHG emissions without LULUCF)

Member State	*EEA proxy* kt CO_2eq	*MS proxy* kt CO_2eq	*Difference* kt CO_2eq	*Difference* %
Austria	82,663	81,943	720	0.87%
Denmark	56,480	56,111	369	0.7%
Spain	356,162	356,111	51	0.0%
Germany	919,329	916,982	2,347	0.3%
France	498,203	497,487	716	0.1%
Greece	116,750	118,540	-1,790	-1.5%
Ireland	57,909	57,340	569	1.0%
Italy	490,259	493,693	-3,434	-0.7%
Luxembourg	11,862	12,291	-429	-3.6%
Netherlands	197,500	195,848	1,652	0.8%
Poland	405,910	409,324	-3,414	-0.8%
Slovenia	19,784	19,541	242	1.2%
United Kingdom	596,199	553,800	42,399	7.1%

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 2011 were used:

- BP's Statistical Review of World Energy 2012[16];
- verified emissions reported under the EU-ETS and recorded in the CITL[17];
- 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);
- 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) [18];
- Annual production data for crude steel production for UK from ISSB Limited[19];
- Eurostat annual statistics on livestock population for dairy cattle, non-dairy cattle, swine, sheep, goats.
- National preliminary energy balance data or energy statistics
- National preliminary energy balance data or energy statistics:
    - Bulgaria, 2012, Monthly statistics for liquid, solid and gaseous fuels, (http://www.nsi.bg/otrasalen.php?otr=37) accessed 11 July 2012.

[16] • BP, 2012, BP Statistical Review of World Energy 2012 (http://www.bp.com/extendedsectiongenericarticle.do?categoryId=9041234&contentId=7075077) accessed by 16 June 2012.

[17] 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.

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

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

- Cyprus, 2012, Petroleum products sales and stock changes (http://www.cystat.gov.cy/mof/cystat/statistics.nsf/energy_environment_81main_en/energy_environment_81main_en?OpenForm&sub=1&sel=1) accessed 12 July 2012).
- Denmark, 2012, Monthly energy statistics, (http://www.ens.dk/en-US/Info/FactsAndFigures/Energy_statistics_and_indicators/Monthly%20Statistic/Sider/Forside.aspx) accessed 12 July 2012.
- Estonia, 2012, 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 12 July 2012.
- Finland 2011, Energy consumption data, (http://www.stat.fi/til/ehk/2012/01/ehk_2012_01_2012-06-20_tie_001_en.html) accessed 12 July 2012.
- France, 2012, Monthly energy statistics gas, oil and coal, (http://developpement-durable.bsocom.fr/statistiques/ReportFolders/reportFolders.aspx) accessed 12 July 2012.
- Germany, 2012, Quarterly energy consumption data, (http://www.ag-energiebilanzen.de/viewpage.php?idpage=62) accessed 12 July 2012.
- Hungary, 2012. Monthly energy statistics (http://www.eh.gov.hu/home/html/index.asp?msid=1&sid=0&lng=1&hkl=223) accessed 12 July 2012.
- Ireland, 2012, Energy balances, (http://www.seai.ie/Publications/Statistics_Publications/Energy_Balance/) accessed 12 July 2012.
- Italy, 2012, Monthly energy statistics for oil and gas (http://dgerm.sviluppoeconomico.gov.it/dgerm/consumipetroliferi.asp) accessed 12 July 2012.
- Latvia, 2012, 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 12 July 2012.
- Lithuania, 2012, Energy statistics, (http://db1.stat.gov.lt/statbank/default.asp?w=1280) accessed 12 July 2012.
- Luxembourg, 2012, Monthly data until June 2011, energy balance 2000-2010 (http://www.statistiques.public.lu/stat/TableViewer/tableView.aspx) accessed 23 July 2012.
- Netherlands, 2012, Annual energy balances, (http://statline.cbs.nl/StatWeb/dome/?LA=EN) accessed 12 July 2012.
- Romania, 2012, Industry statistical bulletin (http://www.insse.ro/cms/files/arhiva_buletine2011/bsi_3.pdf and http://www.insse.ro/cms/files/arhiva_buletine2012/bsi_4.pdf) accessed 23 July 2012.

- Slovakia, 2012, Monthly and annual statistics (http://portal.statistics.sk/showdoc.do?docid=33588) accessed 12 July 2012.
- Slovenia 2012, 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 12 July 2012.
- United Kingdom, 2011, Digest of UK energy statistics (http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx) and Quarterly bulletin of energy statistics published in Mar, Jun, Sept, Dec, March version includes complete data for X-1 (http://www.decc.gov.uk/en/content/cms/statistics/publications/trends/trends.aspx) and Energy statistics on a monthly, quarterly and annual basis (http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/source.aspx) accessed 12 July 2012.

Based on these data sources, 2012 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 2011 activity data was available that could be combined with IEFs from GHG inventories. These categories were extrapolated from 2012 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2011 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.

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

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 2011 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 2012 CITL data will be updated very late due to the establishment of the Union registry and in the preparation of the reports, updated CITL data were not yet available. Member States' national energy statistics are released at different point in times and the 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, updates 20 August 2012. Data as of 22 June 2012 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

2011 emissions in source category 1.A (Energy - Fuel Combustion) are mostly 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

Five different approaches for the estimation of 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 1.A 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	2011 consumption trend for solid, liquid and gaseous fuels applied to inventory data for 2010	2011 activity data combined with emission factors from most recent GHG inventory	2011 consumption trend for solid, liquid and gaseous fuels applied to inventory data for 2010	detailed estimation for inventory source categories 1A1, 1A2, 1A3, constant emissions for 1A4 and 1A5	2011 consumption trend for solid, liquid and gaseous fuels applied to inventory data for 2010

Source: Öko-Institut

In Approach A, the main source for the estimation of CO_2 emissions from source category 1.A (Energy - Fuel Combustion) is 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.

Approaches B & C are based on Eurostat monthly energy statistics which reflect Member States' submissions of monthly Oil and Gas Questionnaires and monthly Coal Questionnaires to Eurostat: Approach B uses absolute data on absolute energy consumption while Approach C makes use of energy consumption trends derived from these Eurostat statistics and applies equation 1 below to the previous year's CO_2 emissions as reported in Member States' sectoral approach. For Finland a correction due to the reallocation of peat from other fuels to solid fuels is applied for consistency with Eurostat fuel categories. In Approach B NCVs are averages reported in CRF over the past five years and C contents are based on the most recent inventory submission.

In contrast to all other approaches for sector 1.A (Fuel Combustion) CO_2 emissions, Approach D makes use of CO_2 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). In this 'bottom up' approach those CO_2 emission estimates for 2011 are complemented with reported 2010 CO_2 emissions for categories 1.A.4 (Other Sectors, i.e. Commercial/Institutional, Residential and Agriculture/Forestry/Fishing) and 1.A.5 (Other) in order to estimate 2011 CO_2 emissions for 1A (Fuel Combustion) CO_2 emissions.

In Approach E, finally, early national energy statistics are used: 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 1.A (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 1.A (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 1.A (Fuel Combustion). For each of those fuel categories a fuel consumption trend 2010 to 2011 was derived from the respective data sources (this applies to approaches A (BP), C (Eurostat trend) and E (national energy statistics)). 2011 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 2011 CO_2 emissions from other fuels in source category 1.A (Fuel Combustion) were approximated using the respective emissions as reported by the Member States in 2010[20]. For some Member States country-specific ad-

[20] In the case of Finland, CO_2 emissions from other fuels have an extraordinary high share in total 1A CO_2 emissions (18 % in 2010). 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 the CRF

justments 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 1.A (Fuel combustion) is depicted in Equation 1 (applies to approaches A (BP), C (Eurostat trend) and E (national energy statistics)):

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

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

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

In approach D (Bottom-up: CITL data & Eurostat data for transport) the calculation approach is as follows:

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 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*

All approaches were calculated for the years 2009 to 2011 (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 Belgium, Bulgaria, Denmark, Hungary, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Sweden and the United Kingdom. Absolute Eurostat data (Approach B) was used for Cyprus and Malta. The trend of Eurostat monthly data (Approach C) was used for Czech Republic, Germany, Estonia, Finland, Greece and Latvia.

The Bottom-Up approach (Approach D) relying on CITL data, Eurostat transport data and earlier officially reported emission data was chosen for Austria, Poland, Portugal, Romania, Slovenia and Slovakia. Early national energy statistics data (Approach E) were chosen for Estonia and France.

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.

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 previousyear*

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

.1.1.2 Results for 2011

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, 2011 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 *2011 CO_2 emissions for source category 1.A Fuel combustion in various approximation approaches*[21]

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	60,148	67,744	60,546	61,299	not available
BE	95,018	86,298	115,997	100,036	not available
BG	51,617	47,244	52,066	50,155	50,510
CY	not available	6,873	7,145	7,405	not available
CZ	111,158	109,973	110,608	107,871	not available
DE	736,235	708,738	740,665	759,381	737,086
DK	43,094	41,420	41,395	43,092	43,221
EE	not available	18,671	18,195	18,012	18,119
ES	268,101	266,969	267,200	273,739	not available
FI	52,505	52,512	53,260	52,436	52,736
FR	334,952	339,532	350,905	344,467	335,450
UK	449,986	481,330	440,490	466,183	444,888
GR	88,812	83,315	91,440	87,378	not available
HU	44,214	45,559	48,061	44,927	not available
IE	36,764	32,430	35,526	37,046	38,033
IT	391,258	375,900	395,461	398,631	not available
LT	12,779	13,188	12,263	11,186	12,679
LU	10,282	10,367	9,549	10,587	not available
LV	not available	6,718	7,910	7,832	7,740
MT	not available	2,355	2,445	2,740	not available
NL	161,109	177,638	172,414	167,644	158,714
PL	321,553	322,586	333,639	312,587	not available
PT	47,760	48,317	51,793	47,818	not available
RO	81,669	87,068	82,300	80,170	not available
SE	43,344	44,326	42,818	39,930	not available
SI	not available	14,291	15,034	15,701	15,148
SK	31,271	34,865	32,874	30,318	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

21 In 2010, Eurostat initiated the project 'Early Estimates of CO2 Emissions', aiming at providing first estimates of CO2 emissions from energy combustion four months after the reference year. CO2 emissions are estimated with a harmonised methodology across EU Member States and are based on cumulative monthly energy statistics reported under the EU Energy Statistics Regulation (EU ESR). The method applies the % change in the last two years of a given fossil fuel reported under the EU ESR to the equivalent fuel of CRF table 1.A (b) reported under UNFCCC. The same process is repeated for each Member State and the emissions summed up to obtain the EU-27 aggregate. Thus, the Eurostat approach is based on the IPCC reference approach calculation whereas the Proxy report is based on approximated CO2 emissions from the sectoral (bottom up) approach. Therefore, the method employed in this project may generate results which are different form the one used in this report. More information on Eurostat's project and method can be found from the following links: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/European_energy_statistics_system and http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/documents/Method.pdf

Table 9, Table 10 and Table 11 show the results for the proxy inventory in 2011 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 1.A 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	2011
	Gg									
AT	54,070	56,228	57,827	70,588	67,428	64,345	63,541	58,752	62,851	61,299
BE	110,014	114,304	114,943	114,447	110,549	106,373	109,475	100,306	106,048	95,018
BG	73,334	53,235	41,733	46,008	47,551	50,710	49,216	42,666	44,683	51,617
CY	4,193	5,283	6,332	6,967	7,228	7,484	7,741	7,635	7,471	6,873
CZ	145,894	115,463	113,232	115,106	115,807	115,313	110,998	105,726	109,181	110,608
DE	977,713	869,890	827,825	804,244	808,343	786,995	786,310	733,738	762,283	740,665
DK	51,221	58,832	51,127	48,768	56,705	51,928	48,885	47,101	47,515	43,094
EE	35,552	17,290	14,498	15,728	15,109	17,965	16,447	13,860	17,866	18,119
ES	203,236	231,832	280,481	337,161	327,017	334,756	308,760	276,249	262,533	267,200
FI	52,954	54,518	52,984	52,545	63,694	61,619	53,394	51,434	59,109	53,260
FR	362,882	362,654	382,242	394,649	382,591	371,911	366,224	351,378	359,105	335,450
UK	562,621	525,021	528,741	533,293	533,177	524,392	513,828	466,964	484,048	449,986
GR	75,171	78,541	94,407	103,949	102,749	105,358	102,126	97,836	90,846	91,440
HU	64,151	55,192	52,707	54,385	53,339	51,390	50,370	45,444	45,870	44,214
IE	30,154	33,006	41,757	45,046	44,682	44,809	44,585	40,092	39,897	36,764
IT	401,084	414,018	433,849	457,330	452,662	444,136	435,213	391,837	401,699	391,258
LT	33,086	13,805	10,500	12,457	12,609	12,762	12,536	11,358	12,255	12,779
LU	10,256	8,136	7,879	11,289	11,093	10,516	10,410	9,940	10,476	10,282
LV	18,408	8,841	6,853	7,495	7,931	8,263	7,853	7,114	7,921	7,910
MT	1,858	2,209	2,345	2,703	2,670	2,756	2,715	2,628	2,640	2,355
NL	149,874	161,611	161,724	167,085	163,829	163,557	166,881	161,983	172,596	161,109
PL	351,855	339,810	296,676	295,488	306,782	306,320	300,961	292,361	309,663	312,587
PT	39,785	48,115	58,513	62,088	57,762	54,685	53,602	51,875	47,489	47,818
RO	165,241	115,571	86,736	92,060	95,902	93,939	92,341	77,401	75,500	80,170
SE	51,369	53,098	48,426	47,446	46,896	45,474	43,654	41,819	46,347	43,344
SI	13,650	14,094	14,250	15,522	15,663	15,768	16,790	15,214	15,297	15,701
SK	52,469	37,477	34,107	34,675	33,594	31,722	32,936	29,074	30,649	30,318
EU-15	3,132,403	3,069,804	3,142,724	3,249,927	3,229,176	3,170,856	3,106,888	2,881,304	2,952,842	2,827,987
EU-25	3,853,519	3,679,268	3,694,226	3,810,454	3,799,908	3,740,598	3,666,235	3,411,719	3,511,656	3,389,452
EU-27	4,092,094	3,848,073	3,822,694	3,948,522	3,943,361	3,885,248	3,807,791	3,531,785	3,631,838	3,521,239
EU-10	721,116	609,464	551,501	560,526	570,732	569,743	559,346	530,415	558,814	561,465
EU-2	238,575	168,806	128,469	138,068	143,453	144,650	141,557	120,066	120,182	131,787

Table 10 CH_4 emissions for source category 1.A 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	2011
	Gg									
AT	22.0	20.4	15.1	13.0	12.0	11.3	11.4	10.8	11.8	11.5
BE	22.2	19.7	16.6	14.9	15.3	14.4	15.2	13.8	16.2	14.5
BG	16.8	12.1	11.8	12.9	13.7	12.8	12.8	11.9	13.3	15.4
CY	0.4	0.4	0.5	0.6	0.7	0.7	0.7	0.8	0.7	0.7
CZ	69.6	35.8	26.1	25.2	29.2	26.9	25.8	26.5	28.8	29.2
DE	212.3	92.5	76.2	92.9	104.0	113.4	122.5	123.1	137.1	133.2
DK	8.8	21.3	26.0	23.7	22.3	20.5	20.3	18.4	20.5	18.6
EE	4.7	5.7	5.4	5.0	4.8	5.8	5.9	6.2	6.5	6.6
ES	59.0	58.0	63.9	79.5	79.2	75.6	74.9	71.5	74.5	75.8
FI	14.6	14.2	13.6	14.5	14.8	14.6	14.7	15.1	16.6	15.0
FR	235.6	219.3	166.0	128.4	111.3	101.7	96.9	89.5	91.7	85.6
UK	128.6	92.8	78.3	57.5	55.6	56.7	57.1	52.4	54.5	50.7
GR	10.1	10.2	11.8	10.5	10.8	10.5	10.1	9.7	9.1	9.1
HU	34.0	17.6	10.7	14.2	14.9	13.0	12.5	13.4	15.8	15.2
IE	20.3	14.1	10.8	9.7	9.4	9.2	9.6	9.8	9.5	8.8
IT	68.2	75.3	67.0	66.4	67.5	74.2	74.5	74.6	77.3	75.3
LT	11.3	7.4	8.7	9.5	9.9	9.5	9.8	9.7	9.9	10.3
LU	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.8	0.8
LV	12.5	13.5	11.3	13.1	12.7	12.7	11.7	12.8	12.2	12.1
MT	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NL	34.8	44.3	43.7	44.0	48.1	58.5	76.5	77.1	81.1	75.7
PL	123.4	178.3	114.8	125.3	138.9	130.0	137.1	139.3	162.4	163.9
PT	22.5	21.4	19.6	16.5	15.8	15.2	14.5	14.1	13.5	13.6
RO	28.5	21.8	39.1	43.5	41.3	43.1	51.5	50.0	55.7	59.2
SE	23.8	24.6	20.5	21.2	20.9	20.7	21.5	23.3	26.6	24.9
SI	7.8	7.5	6.7	6.0	6.0	5.9	6.1	6.5	6.9	7.0
SK	4.3	5.6	6.2	10.7	9.9	9.3	16.1	7.6	7.3	7.2
EU-15	884.2	729.3	630.3	593.8	588.1	597.4	620.6	604.0	640.8	613.1
EU-25	1,152.4	1,001.5	820.8	803.7	815.3	811.4	846.7	827.0	891.4	865.6
EU-27	1,197.7	1,035.3	871.6	860.2	870.2	867.3	911.0	888.9	960.5	940.1
EU-10	268.2	272.2	190.5	209.9	227.2	214.0	226.0	223.0	250.6	252.5
EU-2	45.3	33.8	50.8	56.4	54.9	55.9	64.4	62.0	69.0	74.6

Table 11 N_2O emissions for source category 1.A 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	2011
	Gg									
AT	1.8	2.1	2.4	2.6	2.5	2.5	2.4	2.3	2.3	2.2
BE	2.2	2.6	2.9	2.7	2.7	2.0	2.0	2.0	2.2	1.9
BG	1.1	1.5	1.2	0.9	0.9	0.9	0.9	0.8	0.8	1.0
CY	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CZ	2.4	2.3	2.8	3.7	3.8	3.9	3.8	3.7	3.8	3.8
DE	26.2	23.7	21.7	19.9	20.3	20.7	20.3	19.3	20.4	19.8
DK	1.0	1.2	1.2	1.2	1.3	1.3	1.2	1.2	1.2	1.1
EE	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
ES	5.0	6.9	9.4	8.8	8.7	8.8	8.6	7.9	7.8	8.0
FI	3.2	3.2	3.1	3.1	3.4	3.3	3.1	2.9	3.3	2.9
FR	11.8	13.2	13.8	14.8	14.5	14.2	14.3	13.3	14.0	13.0
UK	20.1	19.8	17.8	16.9	16.5	16.2	15.1	13.7	13.8	12.8
GR	2.9	3.2	3.2	3.4	3.5	3.4	3.3	2.9	2.5	2.5
HU	0.9	0.9	1.1	1.7	1.7	1.7	1.7	1.7	1.6	1.6
IE	0.8	1.0	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.1
IT	14.6	21.9	17.4	17.1	17.3	17.4	16.8	16.1	16.1	15.6
LT	1.0	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
LU	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3
LV	0.5	0.4	0.3	0.4	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	0.0
NL	1.7	2.4	2.4	2.5	2.5	2.4	2.5	2.5	2.5	2.3
PL	6.2	6.6	6.0	6.2	6.3	6.3	6.5	6.6	6.9	7.0
PT	1.5	2.4	2.0	2.0	1.9	1.9	2.0	1.9	1.8	1.8
RO	1.5	1.4	1.5	1.9	1.9	2.1	2.4	2.3	2.9	3.1
SE	4.4	4.7	4.1	4.1	4.2	4.1	4.2	4.3	4.7	4.4
SI	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6
SK	0.8	0.6	0.5	0.6	0.6	0.5	0.7	0.5	0.5	0.5
EU-15	97.3	108.4	102.8	100.8	101.0	99.9	97.4	91.8	94.2	90.2
EU-25	110.0	120.5	114.9	114.8	115.1	114.2	112.0	106.1	108.8	104.9
EU-27	112.6	123.4	117.6	117.6	117.9	117.2	115.4	109.2	112.5	108.9
EU-10	12.7	12.1	12.0	14.0	14.1	14.3	14.6	14.3	14.6	14.7
EU-2	2.6	2.9	2.7	2.8	2.8	3.0	3.4	3.1	3.7	4.0

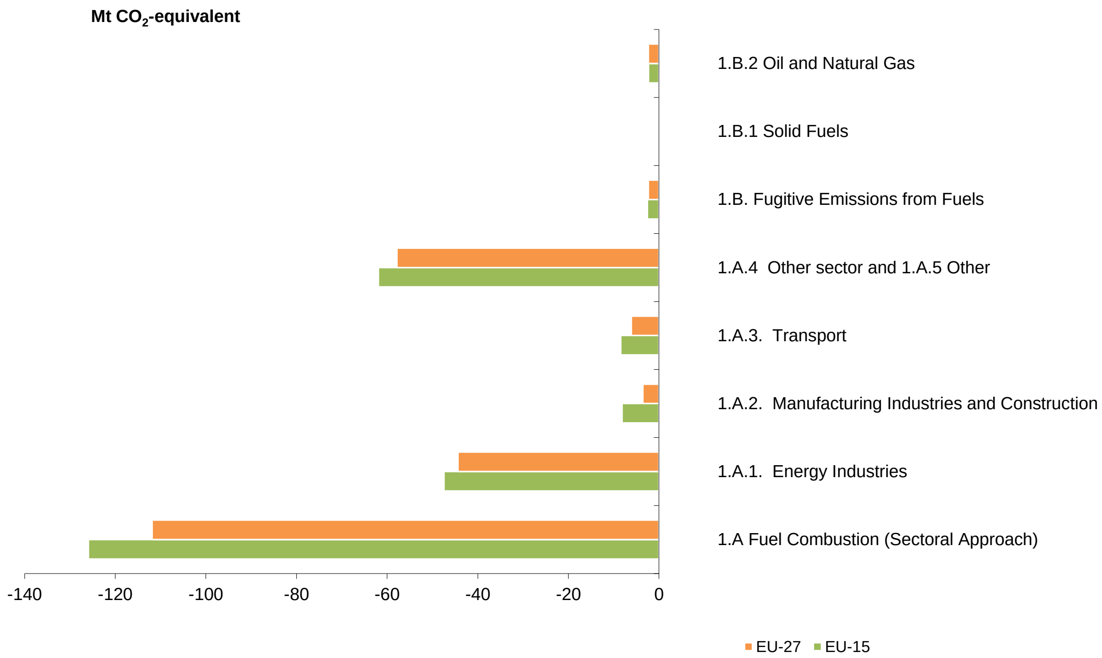
The results in the fuel combustion sector show a decrease of GHG emissions by 125.9 Mt CO_2eq or 4.2 % for EU-15 between 2010 and 2011. For the EU-27 a decrease of GHG emissions from fuel combustion by 111.9 Mt CO_2eq or 3.0 % between 2010 and 2011 is estimated. Table 12 indicates the sub-sectors contribution to this drop in emissions. Emissions from sub-sectors are estimated separately applying different methodologies as explained later. The largest decrease in fuel combustion emissions both in EU-15 and EU-27 occurred in Energy Industries and the 'other' sectors (including commercial/residential/agriculture etc.). This is mainly due to emission reductions in the energy industry sector.

Table 12 Change in GHG emissions between 2010 and 2011 for main source categories in the energy sector

Sector Energy	Change 2011/2010			
	EU-15		EU-27	
	Mt CO2eq	%	Mt CO2eq	%
1.A Fuel Combustion (Sectoral Approach)	-125.9	-4.2%	-111.9	-3.0%
1.A.1. Energy Industries	-47.4	-4.4%	-44.3	-3.1%
1.A.2. Manufacturing Industries and Construction	-8.2	-1.7%	-3.6	-0.6%
1.A.3. Transport	-8.4	-1.0%	-6.1	-0.7%
1.A.4 Other sector and 1.A.5 Other	-61.9	-9.8%	-57.9	-7.8%
1.B. Fugitive Emissions from Fuels	-2.6	-5.6%	-2.3	-3.1%
1.B.1 Solid Fuels	-0.3	-3.6%	0.0	0.0%
1.B.2 Oil and Natural Gas	-2.3	-6.0%	-2.3	-4.2%

Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Figure 11 Change in GHG emissions between 2010 and 2011 for main source categories in the Energy sector



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

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

Three 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 2008-2010 of the CH_4 emission data from the last inventory submissions were used.
2. For the Member States with strong growth of CH_4 emissions in previous years the CH_4 emissions from the last inventory submission were used.
3. 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, Denmark, Spain, Lithuania, Luxembourg, Portugal, and Slovakia. The second option was used for Poland. 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 3).

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 2008-2010 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

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

with

$E^{Y}_{1A1a,N2O}$	*N_2O emissions for source category 1A1a*
$E^{Y-1}_{1A1a,N2O}$	*N_2O 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, Estonia, Spain, Finland, Hungary, Ireland, Lithuania, Luxembourg and Slovakia. 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, the Czech Republic, Hungary, Poland, Portugal, Romania, and Slovakia sufficient and consistent data were not available. Therefore the average of the CO_2 emissions of the years 2008-2010 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 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

$E^{Y}_{1A1b,N2O}$	N_2O emissions for source category 1A1b
$E^{Y-1}_{1A1b,N2O}$	N_2O 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 Austria, Belgium, Denmark, Ireland, the Netherlands, Poland, Portugal, Romania, Slovenia, and Slovakia. 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 2011

Table 13, Table 14 and Table 15 show the results for the proxy inventory in 2011 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	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	13.792	12.919	12.221	16.274	15.160	13.842	13.628	12.752	14.174	13.524
BE	29.826	29.266	28.325	29.289	27.797	27.284	25.264	25.710	26.221	20.798
BG	38.661	27.120	23.977	26.934	27.245	30.553	32.072	29.422	31.336	34.332
CY	1.765	2.168	2.959	3.472	3.653	3.802	3.967	3.992	3.868	3.868
CZ	57.743	58.783	57.535	58.313	57.783	61.335	56.110	53.428	55.960	54.577
DE	423.418	365.317	356.812	375.232	376.816	384.933	363.153	336.909	349.060	344.305
DK	26.146	32.163	25.544	22.838	30.711	26.002	23.887	23.832	23.577	19.337
EE	28.702	14.332	11.872	12.346	11.605	13.849	12.561	10.645	14.600	14.600
ES	77.354	86.058	104.679	125.166	116.265	122.226	105.109	88.941	71.706	87.060
FI	19.057	23.918	21.899	21.658	32.530	30.482	23.847	24.922	30.166	24.017
FR	64.048	55.370	62.068	67.422	64.088	64.401	62.288	60.181	60.810	47.744
UK	235.444	202.136	197.123	211.273	217.847	213.509	207.680	184.520	190.547	174.131
GR	42.993	44.770	54.629	57.940	55.766	59.232	58.019	54.480	52.037	52.289
HU	22.178	23.901	23.558	18.382	19.458	20.317	19.425	16.212	16.562	15.759
IE	11.159	13.317	16.050	15.657	14.907	14.407	14.495	12.926	13.171	11.274
IT	136.503	139.841	151.894	159.756	161.069	160.870	156.217	131.153	132.634	130.048
LT	13.961	6.578	5.198	5.754	5.302	4.791	4.870	4.894	5.416	4.382
LU	33	91	117	1.281	1.352	1.227	1.048	1.243	1.267	1.030
LV	6.268	3.418	2.476	2.048	2.073	1.944	1.917	1.865	2.248	2.092
MT	1.361	1.604	1.688	1.989	2.004	2.046	2.003	1.897	1.887	1.941
NL	52.501	61.416	63.630	67.313	62.409	65.129	65.204	64.234	66.237	60.915
PL	234.686	190.586	176.602	177.274	182.508	179.225	173.541	166.170	172.612	173.174
PT	16.303	19.822	21.433	25.416	22.420	19.728	19.550	19.382	14.460	16.186
RO	70.978	60.468	43.624	42.104	44.559	44.171	42.523	35.752	33.228	36.610
SE	9.795	11.155	8.620	10.370	10.409	9.824	9.654	10.029	12.461	9.050
SI	6.239	5.601	5.473	6.297	6.350	6.567	6.356	6.062	6.190	6.212
SK	16.819	11.601	11.490	12.064	11.251	10.468	10.898	8.616	9.470	8.894
EU-15	1.158.372	1.097.560	1.125.044	1.206.885	1.209.545	1.213.095	1.149.044	1.051.215	1.058.527	1.011.708
EU-25	1.548.094	1.416.131	1.423.895	1.504.824	1.511.532	1.517.438	1.440.692	1.324.996	1.347.339	1.297.207
EU-27	1.657.733	1.503.718	1.491.495	1.573.861	1.583.336	1.592.162	1.515.288	1.390.170	1.411.903	1.368.148
EU-10	389.721	318.571	298.851	297.938	301.987	304.344	291.648	273.781	288.812	285.498
EU-2	109.639	87.588	67.600	69.038	71.804	74.724	74.595	65.174	64.564	70.942

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

Source Category	1A1	1. Energy Industries							
Gas	CH4								
Member State	1990	1995	2000	2005	2006	2007	2008	2009	2010	Proxy 2011
AT	0,16	0,16	0,16	0,25	0,29	0,30	0,31	0,34	0,37	0,35
BE	0,83	0,76	0,66	0,65	0,97	1,66	1,66	1,68	2,13	1,90
BG	0,54	0,33	0,27	0,30	0,30	0,33	0,35	0,34	0,36	0,41
CY	0,07	0,09	0,12	0,14	0,14	0,14	0,15	0,15	0,15	0,15
CZ	0,67	0,71	0,74	0,78	0,80	0,87	0,90	0,95	1,03	1,00
DE	13,54	14,67	16,81	45,60	55,09	66,56	74,58	76,19	81,39	80,30
DK	0,68	11,39	14,66	12,47	11,57	9,65	10,22	8,93	11,01	10,05
EE	0,36	0,30	0,31	0,44	0,37	0,35	0,40	0,46	0,61	0,61
ES	1,45	1,26	1,95	5,25	5,81	6,00	6,45	6,27	5,98	6,26
FI	0,39	0,62	0,73	0,98	1,20	1,10	1,04	0,97	1,15	0,90
FR	6,23	3,82	2,79	2,86	2,80	2,83	2,71	2,68	2,72	2,35
UK	10,27	12,06	12,89	13,65	11,84	12,55	12,18	12,45	12,81	12,32
GR	0,60	0,65	0,79	0,83	0,84	0,90	0,89	0,79	0,73	0,72
HU	0,65	0,60	0,52	1,09	0,83	1,01	1,16	1,21	1,23	1,18
IE	0,26	0,31	0,44	0,37	0,35	0,36	0,29	0,28	0,28	0,24
IT	9,27	8,63	6,85	6,34	6,17	5,72	5,65	5,16	4,95	4,87
LT	0,40	0,21	0,18	0,32	0,34	0,34	0,38	0,43	0,44	0,41
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	0,18	0,20	0,19	0,19	0,19	0,21	0,20
MT	0,04	0,06	0,07	0,08	0,08	0,08	0,08	0,07	0,07	0,08
NL	2,78	3,82	4,39	5,97	5,23	4,80	4,82	5,29	5,45	5,01
PL	3,29	2,30	2,15	2,65	2,81	2,91	3,23	3,68	4,10	4,16
PT	0,21	0,25	0,30	0,39	0,38	0,35	0,38	0,38	0,37	0,36
RO	1,54	1,13	0,78	0,71	0,72	0,67	0,65	0,55	0,55	0,58
SE	1,05	1,80	2,19	3,41	3,54	3,55	3,94	4,23	4,81	3,22
SI	0,09	0,08	0,06	0,08	0,09	0,09	0,14	0,11	0,11	0,11
SK	0,25	0,17	0,16	0,18	0,17	0,17	0,17	0,19	0,28	0,22
EU-15	48	60	66	99	106	116	125	126	134	128,91
EU-25	54	65	70	105	112	123	132	133	142	137,02
EU-27	56	66	71	106	113	124	133	134	143	138,02
EU-10	6	5	5	6	6	6	7	7	8	8,11
EU-2	2	1	1	1	1	1	1	1	1	0,99

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	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	0,15	0,16	0,16	0,25	0,29	0,30	0,33	0,32	0,36	0,33
BE	0,67	0,68	0,75	0,50	0,47	0,46	0,44	0,58	0,54	0,53
BG	0,42	0,32	0,29	0,33	0,34	0,39	0,40	0,36	0,39	0,43
CY	0,01	0,02	0,02	0,03	0,03	0,03	0,03	0,03	0,03	0,03
CZ	0,81	0,83	0,84	0,85	0,85	0,91	0,85	0,82	0,87	0,85
DE	14,25	12,59	12,02	12,52	12,79	13,17	12,36	11,64	12,05	11,90
DK	0,28	0,36	0,36	0,33	0,40	0,34	0,33	0,33	0,34	0,28
EE	0,06	0,05	0,04	0,08	0,07	0,07	0,08	0,08	0,10	0,09
ES	0,90	1,78	2,01	2,39	2,28	2,35	2,34	2,16	1,89	2,13
FI	0,39	0,61	0,66	0,82	1,08	1,06	0,98	0,93	1,15	1,02
FR	1,91	1,76	2,13	2,41	2,24	2,32	2,23	2,21	2,25	1,72
UK	6,66	5,55	5,05	5,39	5,57	5,17	4,85	4,39	4,41	4,10
GR	0,50	0,51	0,60	0,63	0,59	0,62	0,61	0,59	0,55	0,55
HU	0,23	0,24	0,23	0,26	0,22	0,25	0,26	0,26	0,26	0,26
IE	0,24	0,25	0,26	0,34	0,37	0,39	0,49	0,47	0,49	0,48
IT	1,67	1,67	1,67	1,90	1,89	1,87	1,88	1,67	1,67	1,62
LT	0,08	0,04	0,03	0,05	0,05	0,05	0,06	0,07	0,07	0,06
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	0,02	0,03	0,03	0,02	0,03	0,03	0,03
MT	0,02	0,01	0,01	0,02	0,02	0,02	0,02	0,01	0,01	0,02
NL	0,45	0,54	0,63	0,78	0,77	0,78	0,80	0,83	0,84	0,76
PL	3,43	2,78	2,56	2,62	2,70	2,67	2,61	2,59	2,70	2,72
PT	0,20	0,25	0,40	0,48	0,45	0,41	0,43	0,44	0,38	0,43
RO	0,59	0,57	0,40	0,40	0,45	0,45	0,45	0,39	0,37	0,41
SE	1,06	1,13	1,00	1,30	1,35	1,30	1,35	1,46	1,71	1,17
SI	0,08	0,08	0,07	0,09	0,09	0,09	0,09	0,09	0,09	0,09
SK	0,21	0,11	0,11	0,14	0,13	0,11	0,13	0,10	0,10	0,11
EU-15	29	28	28	30	31	31	29	28	29	27,03
EU-25	34	32	32	34	35	35	34	32	33	31,27
EU-27	35	33	32	35	36	36	34	33	34	32,11
EU-10	5	4	4	4	4	4	4	4	4	4,24
EU-2	1	1	1	1	1	1	1	1	1	0,83

.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 2008-2010 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 Belgium, Bulgaria, Cyprus, Germany, Estonia, Finland, France, Greece, Hungary, Italy, Lithuania, Latvia, Malta, Portugal, Romania, and Slovenia. 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 2008-2010 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 Austria, Belgium, Bulgaria, Cyprus, Estonia, Greece, Hungary, Italy, Lithuania, Luxembourg, Latvia, Malta, the Netherlands, Poland, Romania, Slovenia, and Slovakia. 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 2011*

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 1.A.2 Manufacturing Industries and Construction

Source Category	1A2	2. Manufacturing Industries and Construction							
Gas	CO2								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	12.685	13.487	13.861	16.368	16.101	15.932	15.933	14.538	15.456	15.519
BE	32.543	32.432	33.079	28.603	28.631	27.497	27.894	19.866	23.492	22.789
BG	20.589	17.818	10.098	9.402	9.782	10.080	6.931	3.590	3.771	6.406
CY	1.077	1.442	1.396	907	866	859	885	746	713	713
CZ	46.616	29.405	28.916	26.830	26.559	24.163	24.711	23.041	23.645	23.418
DE	175.635	134.373	117.692	109.909	113.096	119.432	114.426	101.272	114.096	114.399
DK	5.385	5.852	5.961	5.459	5.584	5.404	4.910	3.981	4.402	4.311
EE	2.478	880	572	714	710	1.176	1.070	598	506	615
ES	46.424	53.019	59.559	73.213	71.236	69.434	66.072	57.497	62.261	60.276
FI	13.172	11.957	11.735	11.151	11.444	11.271	10.615	8.246	9.752	9.148
FR	83.859	79.551	82.164	79.453	79.221	75.860	72.498	62.276	67.458	64.720
UK	101.202	93.644	92.355	83.730	81.550	80.512	78.274	67.538	66.243	66.088
GR	9.566	9.216	9.722	10.171	10.384	10.102	9.346	7.412	6.717	5.800
HU	11.766	8.382	6.395	6.667	5.259	4.993	4.911	3.708	3.882	3.896
IE	3.943	4.330	5.618	5.988	5.881	6.119	5.622	4.408	4.526	4.665
IT	85.631	85.244	82.452	78.705	77.480	74.199	70.866	54.650	60.016	60.539
LT	5.955	1.565	1.010	1.265	1.463	1.434	1.271	1.017	1.110	1.079
LU	6.286	3.344	1.364	1.506	1.581	1.479	1.365	1.248	1.371	1.376
LV	3.742	1.866	1.225	1.164	1.205	1.223	1.124	882	1.063	941
MT	59	60	57	51	46	51	48	40	46	46
NL	33.008	28.840	27.345	27.444	27.833	27.974	27.524	24.921	27.240	26.619
PL	43.011	63.019	47.913	33.431	33.567	36.548	32.589	29.637	30.700	31.820
PT	9.171	10.157	11.901	10.617	10.371	10.537	9.949	8.555	9.340	9.036
RO	65.516	37.088	23.961	26.392	26.151	25.287	24.740	17.076	18.483	19.453
SE	11.490	12.994	12.069	10.810	10.970	10.425	9.824	8.143	9.586	8.620
SI	3.085	2.587	2.240	2.450	2.550	2.311	2.269	1.888	1.874	1.727
SK	18.093	13.573	10.991	10.359	11.229	10.088	9.995	9.519	9.291	9.545
EU-15	630.000	578.441	566.876	553.127	551.363	546.176	525.119	444.550	481.955	473.905
EU-25	765.884	701.220	667.591	636.965	634.817	629.022	603.993	515.627	554.785	547.705
EU-27	851.989	756.126	701.650	672.759	670.749	664.389	635.664	536.294	577.039	573.564
EU-10	135.884	122.779	100.715	83.838	83.454	82.846	78.874	71.077	72.830	73.800
EU-2	86.104	54.906	34.059	35.794	35.933	35.367	31.671	20.667	22.253	25.860

Table 17 CH4 emissions from 1.A.2 Manufacturing Industries and Construction

Source Category	1A2	2. Manufacturing Industries and Construction								
Gas	CH4									
Member	Inventory data									Proxy
State	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	0,34	0,40	0,44	0,61	0,62	0,62	0,65	0,64	0,68	0,68
BE	3,91	3,14	3,59	3,28	3,60	3,24	3,80	2,50	3,16	3,15
BG	1,17	1,11	0,62	0,72	0,74	0,77	0,58	0,36	0,50	0,48
CY	0,06	0,07	0,06	0,05	0,05	0,05	0,05	0,04	0,04	0,04
CZ	4,31	3,05	2,90	2,85	2,87	2,71	2,76	2,65	2,71	2,69
DE	11,27	6,61	6,50	7,39	8,18	7,81	7,65	6,71	8,35	7,57
DK	0,36	0,47	1,19	0,97	0,85	0,63	0,68	0,64	0,66	0,65
EE	0,15	0,06	0,05	0,08	0,09	0,15	0,13	0,07	0,07	0,09
ES	3,90	7,32	17,11	31,28	31,09	28,36	28,16	24,95	28,88	27,96
FI	0,61	0,69	0,72	0,64	0,70	0,66	0,62	0,52	0,70	0,61
FR	11,32	10,50	10,54	9,74	8,09	9,97	8,29	5,96	7,45	7,23
UK	15,57	15,66	15,30	13,19	13,31	13,11	12,43	10,32	10,10	10,08
GR	0,43	0,42	0,48	0,49	0,46	0,45	0,49	0,42	0,42	0,44
HU	0,90	0,64	0,52	0,61	0,54	0,55	0,55	0,40	0,47	0,48
IE	0,27	0,24	0,34	0,45	0,43	0,42	0,39	0,33	0,35	0,36
IT	6,82	7,02	5,72	6,28	6,24	6,53	6,24	4,18	5,51	5,31
LT	0,35	0,11	0,10	0,23	0,24	0,24	0,22	0,17	0,19	0,19
LU	0,16	0,10	0,07	0,11	0,11	0,11	0,10	0,09	0,10	0,10
LV	0,26	0,17	0,16	0,26	0,29	0,27	0,28	0,33	0,40	0,34
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	2,67	2,65	2,67	2,57	2,62	2,56
PL	3,23	5,93	4,28	3,22	3,21	3,34	3,32	3,20	3,42	3,54
PT	1,53	1,82	2,10	2,31	2,31	2,38	2,31	2,37	2,32	2,33
RO	4,93	3,12	1,91	2,09	2,16	2,16	2,03	1,54	1,88	1,82
SE	2,18	2,70	2,01	2,06	2,33	2,23	2,24	2,22	2,36	2,13
SI	0,36	0,26	0,22	0,37	0,35	0,30	0,30	0,26	0,27	0,28
SK	0,76	0,58	0,49	0,46	0,46	0,47	0,45	0,42	0,42	0,43
EU-15	61,43	59,83	69,13	81,44	80,99	79,16	76,73	64,43	73,67	71,18
EU-25	71,82	70,71	77,92	89,57	89,09	87,23	84,79	71,97	81,66	79,25
EU-27	77,92	74,93	80,46	92,37	91,99	90,16	87,40	73,87	84,03	81,54
EU-10	10,39	10,88	8,79	8,13	8,10	8,07	8,06	7,54	7,99	8,07
EU-2	6,10	4,22	2,54	2,80	2,90	2,93	2,61	1,90	2,37	2,30

Table 18 N_2O emissions from 1.A.2 Manufacturing Industries and Construction

Source Category	1A2	2. Manufacturing Industries and Construction							
Gas	N2O								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	0,26	0,32	0,43	0,47	0,49	0,51	0,51	0,48	0,48	0,49
BE	0,31	0,30	0,31	0,32	0,35	0,47	0,45	0,39	0,48	0,44
BG	0,16	0,14	0,09	0,10	0,10	0,11	0,07	0,04	0,06	0,05
CY	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
CZ	0,58	0,38	0,35	0,36	0,36	0,33	0,34	0,34	0,34	0,34
DE	4,56	3,24	2,58	2,37	2,39	2,49	2,44	2,19	2,37	2,38
DK	0,17	0,15	0,15	0,13	0,14	0,14	0,13	0,11	0,12	0,12
EE	0,02	0,01	0,01	0,01	0,01	0,02	0,02	0,01	0,01	0,01
ES	1,35	1,51	1,76	2,16	2,13	2,09	1,98	1,74	1,83	1,77
FI	0,56	0,54	0,61	0,55	0,53	0,50	0,48	0,40	0,45	0,42
FR	2,52	2,51	2,68	2,79	3,00	2,85	2,82	2,50	2,66	2,56
UK	5,62	5,22	4,74	4,73	4,41	4,60	4,33	3,56	3,52	3,51
GR	0,14	0,16	0,17	0,15	0,15	0,15	0,15	0,13	0,12	0,13
HU	0,06	0,04	0,03	0,04	0,04	0,04	0,04	0,03	0,03	0,04
IE	0,04	0,04	0,05	0,07	0,07	0,06	0,06	0,05	0,05	0,05
IT	4,93	4,52	4,66	5,02	5,05	4,98	4,64	3,98	4,01	4,21
LT	0,04	0,01	0,01	0,03	0,03	0,03	0,02	0,02	0,02	0,02
LU	0,05	0,05	0,04	0,11	0,11	0,11	0,09	0,09	0,09	0,09
LV	0,03	0,02	0,02	0,03	0,03	0,03	0,03	0,04	0,05	0,04
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	0,08	0,08	0,10	0,10	0,10	0,10
PL	0,79	1,11	0,79	0,62	0,61	0,64	0,66	0,66	0,64	0,65
PT	0,22	0,24	0,29	0,30	0,31	0,32	0,32	0,29	0,32	0,31
RO	0,27	0,21	0,16	0,18	0,20	0,20	0,18	0,14	0,18	0,16
SE	1,62	1,83	1,60	1,50	1,59	1,54	1,54	1,45	1,57	1,41
SI	0,08	0,07	0,08	0,09	0,12	0,09	0,10	0,08	0,06	0,08
SK	0,15	0,11	0,08	0,07	0,07	0,07	0,06	0,07	0,05	0,06
EU-15	22,44	20,71	20,15	20,73	20,78	20,92	20,04	17,47	18,17	17,99
EU-25	24,20	22,47	21,52	21,97	22,05	22,17	21,33	18,72	19,38	19,24
EU-27	24,62	22,82	21,77	22,26	22,35	22,47	21,58	18,89	19,61	19,46
EU-10	1,75	1,77	1,37	1,24	1,27	1,25	1,29	1,25	1,21	1,25
EU-2	0,42	0,35	0,25	0,28	0,30	0,31	0,25	0,17	0,23	0,22

.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;

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 (Austria, Cyprus, Czech Republic, Finland, Germany, Greece, Hungary, Lithuania, Luxembourg, Malta, Poland, Slovakia, Slovenia, 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 1A3 b,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 Belgium, Bulgaria, Denmark, Estonia, Ireland, Italy, Latvia, Portugal, Spain 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*

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

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*

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

$C^{Y}_{automotive diesel}$ *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*

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

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

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

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

Option 3 for calculating CO_2 emissions (Equation 17) was finally chosen for France, the Netherlands 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 1A3 b,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 2011

Table 19, Table 20 and Table 21 show the results for the proxy inventory in 2011 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 1.A.3

Source Category	1A3	Transport							
Gas	CO2								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	13 772	15 678	18 625	24 677	23 401	23 577	22 323	21 545	22 205	21 240
BE	20 101	22 015	24 122	25 736	25 200	25 090	27 366	26 640	23 999	24 113
BG	6 578	4 370	5 486	7 566	8 184	8 011	8 392	8 073	7 850	7 691
CY	1 168	1 468	1 745	2 031	2 019	2 156	2 246	2 251	2 298	2 233
CZ	7 587	9 618	11 933	17 223	17 550	18 473	18 324	17 765	16 732	17 032
DE	162 366	175 690	180 962	160 364	156 625	153 519	153 405	152 419	153 272	154 822
DK	10 617	11 939	12 173	13 166	13 544	14 161	13 862	13 141	13 099	13 006
EE	2 449	1 555	1 654	2 136	2 315	2 441	2 317	2 128	2 234	2 270
ES	54 138	64 381	82 615	99 225	102 349	105 738	100 253	93 467	90 422	88 260
FI	12 483	11 735	12 592	13 480	13 668	14 039	13 419	12 748	13 356	13 435
FR	119 376	129 360	138 010	139 817	138 352	136 718	130 415	129 061	130 614	131 780
UK	113 234	114 796	120 784	125 483	125 697	126 677	122 294	117 411	117 217	115 923
GR	14 487	16 504	19 060	21 708	22 574	23 365	22 378	25 331	22 573	19 770
HU	8 019	6 817	8 537	11 788	12 266	12 422	12 453	12 260	11 483	11 330
IE	5 022	6 053	10 561	12 906	13 689	14 288	13 596	12 387	11 476	10 382
IT	101 269	111 445	120 101	125 825	127 145	127 209	122 273	117 897	117 384	116 379
LT	7 475	3 829	3 361	4 321	4 579	5 330	5 284	4 368	4 496	4 492
LU	2 600	3 301	4 687	6 814	6 498	6 227	6 365	5 835	6 215	6 558
LV	2 895	2 011	2 109	2 986	3 293	3 730	3 524	3 091	3 168	3 357
MT	342	437	494	539	505	532	528	544	567	613
NL	26 007	29 178	32 410	34 668	35 567	35 213	35 495	34 041	34 499	35 490
PL	21 477	24 063	27 870	35 213	38 977	43 016	45 225	45 640	48 024	49 266
PT	10 140	13 322	19 157	19 590	19 640	19 246	18 959	18 937	18 718	17 625
RO	11 939	9 530	10 663	12 163	12 678	13 519	15 386	15 214	14 472	14 789
SE	18 900	19 222	19 566	21 270	21 079	21 127	20 647	20 138	20 522	18 481
SI	2 672	3 636	3 646	4 342	4 555	5 128	6 044	5 243	5 182	5 711
SK	4 895	4 250	4 152	6 164	5 763	6 425	6 616	6 083	6 559	6 549
EU-15	684 512	744 622	815 424	844 727	845 028	846 193	823 050	800 998	795 570	787 263
EU-25	743 491	802 305	880 926	931 469	936 851	945 845	925 609	900 371	896 312	890 115
EU-27	762 008	816 205	897 075	951 198	957 713	967 376	949 387	923 658	918 634	912 595
EU-10	58 978	57 683	65 503	86 742	91 823	99 652	102 560	99 373	100 742	102 852
EU-2	18 517	13 900	16 149	19 729	20 862	21 531	23 778	23 286	22 322	22 480

Table 20 CH_4 emissions for source category 1.A.3

Source Category	1A3	Transport								
Gas	CH4									
Member State	Inventory data									Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	3.07	3.08	1.92	1.33	1.16	1.02	0.86	0.77	0.72	0.69
BE	5.54	5.36	3.62	2.46	2.21	1.14	0.91	0.75	0.73	0.73
BG	3.90	2.13	1.24	0.97	0.99	0.94	0.88	0.88	0.83	0.81
CY	0.19	0.23	0.26	0.35	0.36	0.39	0.41	0.42	0.42	0.41
CZ	1.38	1.67	1.74	1.64	1.55	1.55	1.50	1.43	1.26	1.28
DE	52.74	33.42	21.04	12.55	11.35	10.09	8.81	8.12	7.67	7.75
DK	2.57	2.42	1.83	1.29	1.19	1.08	0.91	0.77	0.69	0.69
EE	0.92	0.50	0.46	0.37	0.37	0.36	0.36	0.36	0.36	0.36
ES	14.80	14.73	11.78	7.87	7.05	6.48	5.53	5.11	4.62	4.51
FI	4.73	3.90	3.15	2.41	2.24	2.12	1.91	1.84	1.79	1.80
FR	40.17	32.61	24.53	16.98	14.77	13.44	11.76	10.70	9.86	9.94
UK	30.28	23.29	14.55	8.36	7.64	6.85	6.02	4.46	3.81	3.77
GR	5.05	5.20	5.75	5.70	5.60	5.36	5.06	4.84	4.37	3.83
HU	2.42	1.83	1.46	1.37	1.38	1.31	1.13	1.07	1.03	1.02
IE	1.73	1.79	1.67	1.24	1.20	1.14	1.06	0.97	0.87	0.79
IT	37.23	41.37	31.52	20.82	19.53	18.32	16.97	16.00	15.41	15.28
LT	1.80	1.03	0.78	0.89	0.85	0.79	0.75	0.69	0.66	0.66
LU	0.84	0.76	0.70	0.52	0.44	0.37	0.33	0.29	0.26	0.27
LV	0.78	0.58	0.49	0.39	0.37	0.34	0.28	0.22	0.21	0.22
MT	0.10	0.12	0.12	0.12	0.11	0.12	0.12	0.12	0.13	0.14
NL	7.57	5.57	3.81	2.93	2.82	2.71	2.67	2.53	2.44	2.51
PL	5.82	7.03	5.19	5.12	5.45	5.53	5.54	5.46	5.50	5.65
PT	4.12	4.42	3.83	2.53	2.30	2.11	1.84	1.76	1.62	1.52
RO	4.74	2.40	3.73	2.87	2.47	3.02	2.40	2.48	6.20	6.34
SE	8.92	7.42	5.13	3.39	3.23	2.98	2.85	2.88	2.73	2.46
SI	1.46	1.77	1.15	0.69	0.62	0.57	0.57	0.48	0.44	0.48
SK	1.20	1.25	0.97	0.94	0.87	0.84	0.83	0.74	0.72	0.72
EU-15	219.36	185.32	134.83	90.38	82.74	75.21	67.48	61.78	57.58	56.53
EU-25	235.42	201.31	147.47	102.25	94.67	87.01	78.96	72.77	68.31	67.47
EU-27	244.06	205.84	152.44	106.09	98.14	90.96	82.24	76.13	75.34	74.62
EU-10	16.06	16.00	12.64	11.86	11.94	11.80	11.48	10.99	10.73	10.94
EU-2	8.64	4.53	4.97	3.85	3.46	3.96	3.29	3.36	7.03	7.15

Table 21 N_2O emissions for source category 1.A.3

Source Category	1A3	Transport								
Gas	N2O									
Member State	Inventory data									Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	0.62	0.87	0.98	1.08	1.00	0.95	0.85	0.79	0.75	0.71
BE	0.82	1.24	1.49	1.51	1.50	0.76	0.76	0.72	0.78	0.79
BG	0.43	0.95	0.71	0.32	0.34	0.32	0.33	0.27	0.26	0.26
CY	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
CZ	0.49	0.78	1.28	2.22	2.25	2.36	2.32	2.28	2.23	2.27
DE	4.01	5.66	5.27	3.44	3.37	3.48	3.68	3.86	4.19	4.23
DK	0.37	0.47	0.50	0.48	0.47	0.48	0.47	0.44	0.44	0.43
EE	0.07	0.08	0.10	0.08	0.06	0.06	0.06	0.06	0.06	0.06
ES	1.70	2.55	4.53	3.01	3.09	3.18	3.09	2.84	2.92	2.85
FI	0.56	0.57	0.59	0.59	0.59	0.58	0.56	0.56	0.57	0.57
FR	3.20	4.66	4.63	4.86	4.80	4.82	4.74	4.10	4.30	4.34
UK	4.50	6.11	5.44	4.55	4.43	4.35	3.88	3.71	3.74	3.70
GR	1.03	1.39	1.31	1.44	1.53	1.49	1.44	1.30	1.07	0.94
HU	0.33	0.42	0.76	1.30	1.25	1.23	1.31	1.27	1.18	1.16
IE	0.19	0.26	0.43	0.48	0.49	0.54	0.40	0.38	0.36	0.33
IT	3.31	10.62	5.80	3.93	4.19	4.14	3.83	3.69	3.68	3.65
LT	0.80	0.37	0.16	0.18	0.19	0.23	0.24	0.17	0.18	0.18
LU	0.09	0.17	0.21	0.26	0.24	0.23	0.23	0.22	0.22	0.23
LV	0.27	0.15	0.15	0.20	0.19	0.20	0.19	0.16	0.16	0.17
MT	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
NL	0.93	1.58	1.55	1.45	1.47	1.43	1.42	1.39	1.41	1.45
PL	0.90	0.93	1.10	1.33	1.48	1.68	1.83	1.90	2.02	2.07
PT	0.27	1.07	0.72	0.71	0.71	0.69	0.67	0.59	0.59	0.56
RO	0.40	0.42	0.49	0.78	0.73	0.89	1.17	1.14	1.71	1.75
SE	0.70	0.83	0.61	0.49	0.47	0.47	0.49	0.50	0.53	0.48
SI	0.15	0.27	0.30	0.27	0.27	0.28	0.31	0.27	0.26	0.29
SK	0.35	0.26	0.25	0.27	0.25	0.25	0.26	0.25	0.26	0.26
EU-15	22.29	38.06	34.05	28.28	28.34	27.59	26.51	25.09	25.54	25.25
EU-25	25.68	41.36	38.18	34.17	34.33	33.93	33.08	31.49	31.92	31.75
EU-27	26.51	42.73	39.38	35.28	35.40	35.14	34.58	32.91	33.90	33.75
EU-10	3.39	3.30	4.13	5.89	5.99	6.33	6.57	6.40	6.39	6.50
EU-2	0.83	1.38	1.20	1.10	1.07	1.21	1.50	1.41	1.97	2.01

.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 1.A.4 (Other Sectors) and 1.A.5 (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 1.A.5 (which represents only a minor share in total emissions) by a subtraction approach. Based on the real-time projection for the source categories 1.A, 1.A.1, 1.A.2 and 1.A.3, the emissions for the total of source categories 1.A.4 and 1.A.5 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 2011.

For Austria, Poland, Portugal, Romania, Slovenia and Slovakia the 'Bottom-Up' approach (Approach D) was chosen for estimating overall CO_2 emissions from fuel combustion (1.A), i.e. relying on CITL data for 1.A.1 and 1.A.2, Eurostat transport data for 1.A.3 (cf. chapter .1.1.1). Here, the emissions of the previous year in categories 1.A.4 and 1.A.5 were used.

As a result, the emissions from 1.A.4 and 1.A.5 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.

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

$E^{Y}_{1B1,CH4}$	CH_4 emissions for source category 1B1
$E^{Y-1}_{1B1,CH4}$	CH_4 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 Poland where hard coal production is the main determinant for CH_4 emissions from source category 1.B.1, 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 Czech Republic, Germany and Spain the primary hard coal production was used, as the 2010 data for lignite production did not correlate with CRF emissions. For countries with a dominant lignite production (Bulgaria, Greece, Slovenia and Slovakia), 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 2008-2010, 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

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

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 CH4	1B2c flaring CO2	1B2c flaring CH4
Crude Oil Production	BG, DK, HU, IT, PL, RO, SK	FR, NL, RO			LT	LT	CZ, FR, LT
CITL Refineries	CZ, DE, FI, FR, LT, SE	AT, HU			IT	CZ, DE	
Gas Production		ES, IE, PL, SK	DE, IT, RO	GB, HU, IT, RO	HU, RO		IT, RO
Gas Consumption		CZ, DE, DK, FI, IT, PT, SE	BE, BU, LU, SI	BG, DE, EE, ES, FR, GR, LU, PL, SI, SK			ES

For all other member states that report CO_2 and CH_4 emissions from 1.B.2 either the value for 2010 or the average of 2008-2010 CO_2 or CH_4 emissions from the last inventory submission was used. For the CO_2 emissions for source category 1.B.2c venting 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 2011

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 1.B.1 Fugitive Emissions from Solid Fuels

Source Category	1B1	1. Solid Fuels								
Gas	CO2									
Member State	Inventory data									Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	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	456,24	356,21	315,13	300,85	324,80	293,09	288,00	250,22	259,30	259,30
DE	0,02	0,03	0,03	0,21	0,25	0,35	0,32	0,29	0,29	0,29
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	89,91	124,94	93,55	13,11	40,73	47,65	47,65
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	111,98	138,77	197,58	236,18	149,12	219,64	219,64
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	598,54	565,80	319,30	710,07	546,82	972,43	972,43
PL	1,61	1,19	1,11	0,98	1,33	1,38	1,44	1,18	1,55	1,55
PT	8,65	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
RO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SE	5,18	5,99	5,53	5,33	5,22	4,60	4,45	14,54	5,01	5,01
SI	98,38	86,20	78,99	81,28	80,99	81,83	81,77	79,85	80,63	80,63
SK	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
EU-15	1.290,56	762,11	544,91	805,96	834,98	615,38	964,12	751,51	1.245,02	1.245,02
EU-25	1.853,55	1.208,11	940,14	1.189,07	1.242,10	991,67	1.335,32	1.082,76	1.586,50	1.586,50
EU-27	1.853,55	1.208,11	940,14	1.189,07	1.242,10	991,67	1.335,32	1.082,76	1.586,50	1.586,50
EU-10	562,98	446,00	395,23	383,10	407,12	376,30	371,20	331,25	341,48	341,48
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 1.B.1 Fugitive Emissions from solid Fuels

Source Category	1B1	1. Solid Fuels								
Gas	CH4									
Member State	Inventory data									Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	0,52	0,28	0,27	0,00	0,00	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
BE	15,70	0,83	0,63	0,56	0,57	0,50	0,30	0,19	0,29	0,26
BG	77,18	70,43	43,94	29,09	24,48	30,93	32,25	32,66	35,34	44,71
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	197,15	171,78	180,11	164,65	167,90	152,36	155,50	149,98
DE	963,81	706,21	590,51	274,05	234,74	194,28	183,32	133,17	133,02	122,18
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	44,71	44,27	42,07	32,97	29,63	25,53	13,62
FI	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
FR	193,59	198,06	114,42	15,59	10,87	2,88	2,90	2,47	2,50	2,62
UK	870,56	600,03	323,22	156,34	142,10	93,04	97,05	93,29	85,69	92,01
GR	52,16	57,95	64,21	69,74	64,84	66,80	66,05	65,22	56,80	60,16
HU	31,39	16,31	14,83	1,04	1,02	1,00	0,93	0,66	0,56	0,72
IE	NE,NO	NE,NO	NO	NO	NO	NO	NO	NO	NO	NO
IT	5,79	3,07	3,48	3,27	2,56	4,00	3,45	2,12	3,10	2,89
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	1,59	1,60	1,06	1,12	1,08	1,09	1,04	0,84	1,01	0,96
PL	627,93	601,85	525,16	458,92	442,10	410,29	387,21	350,08	344,73	346,88
PT	3,14	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO
RO	157,22	129,51	128,18	97,74	86,40	55,80	50,85	43,98	37,28	44,04
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	12,17	12,12	12,12	12,11	11,87	11,87	12,06
SK	27,20	29,70	28,82	16,17	14,67	13,52	15,95	16,92	15,23	15,21
EU-15	2.193,41	1.637,99	1.157,21	565,38	501,02	404,65	387,07	326,93	307,94	294,71
EU-25	3.256,25	2.575,42	1.935,17	1.225,46	1.151,04	1.006,23	971,18	858,82	835,82	819,55
EU-27	3.490,66	2.775,36	2.107,29	1.352,28	1.261,92	1.092,96	1.054,29	935,46	908,43	908,30
EU-10	1.062,84	937,43	777,96	660,08	650,01	601,58	584,11	531,89	527,88	524,84
EU-2	234,41	199,94	172,12	126,83	110,88	86,73	83,10	76,64	72,61	88,75

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 1.B.2 Fugitive Emissions from Oil and Natural Gas

Source Category	1B2	2. Oil and Natural Gas								
Gas	CO2									
Member State	**Inventory data**									**Proxy**
	1990	**1995**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
	Gg									
AT	102,09	127,15	164,65	205,15	232,16	237,16	212,16	265,16	237,17	238,16
BE	84,45	84,13	165,20	104,25	130,55	114,79	116,56	117,22	103,09	112,20
BG	4,14	4,73	3,09	24,82	24,02	14,29	10,85	2,24	4,59	5,80
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	13,50	23,98	20,39	18,98	18,62	17,10	13,76	12,91
DE	1.690,63	2.067,36	2.159,38	2.063,08	2.038,91	1.894,75	1.749,78	1.637,33	1.450,90	1.380,09
DK	324,69	449,46	720,04	542,86	532,15	544,01	392,40	265,34	356,88	337,48
EE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ES	1.656,24	1.800,40	2.113,60	2.061,64	2.188,90	2.391,63	2.146,82	2.090,38	2.182,83	2.140,01
FI	218,85	170,68	127,93	127,11	114,10	131,14	139,93	115,23	139,25	131,44
FR	4.045,34	4.356,54	4.363,81	3.922,07	4.154,02	3.974,97	4.204,24	3.863,65	3.434,62	3.334,36
UK	5.777,84	8.429,61	5.633,01	5.759,08	4.894,07	5.055,59	4.301,99	4.628,39	4.388,43	4.439,61
GR	70,23	38,73	24,15	9,46	9,11	6,96	5,33	7,52	10,60	7,73
HU	264,66	293,07	205,36	158,48	139,77	125,50	210,73	209,62	218,96	213,07
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	2.116,94	2.193,67	2.180,77	2.264,33	2.170,11	2.322,06	2.295,93
LT	1,05	10,35	26,04	17,84	14,96	12,71	10,55	9,51	9,48	9,40
LU	0,03	0,03	0,04	0,07	0,07	0,07	0,07	0,07	0,07	NA,NO
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	774,93	441,49	267,24	1.074,30	1.068,60	1.128,47	919,84	1.065,94	1.022,37	1.002,72
PL	45,76	81,83	179,70	233,12	219,11	198,82	207,84	189,68	189,09	184,52
PT	142,95	568,50	528,92	668,11	655,05	726,77	761,53	647,70	713,36	708,84
RO	1.213,18	1.068,50	962,06	901,09	918,85	766,91	723,81	682,36	651,85	643,52
SE	303,76	298,59	350,15	309,48	845,86	882,69	887,93	897,56	881,93	846,28
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	0,17	0,17	0,15	0,15	0,24	0,19	0,00
EU-15	18.535,58	22.010,25	19.205,94	18.963,60	19.057,20	19.269,76	18.102,91	17.771,60	17.243,56	16.974,86
EU-25	18.851,22	22.406,86	19.630,74	19.397,19	19.451,62	19.625,92	18.550,81	18.197,76	17.675,04	17.394,75
EU-27	20.068,54	23.480,09	20.595,89	20.323,10	20.394,48	20.407,11	19.285,47	18.882,36	18.331,48	18.044,08
EU-10	315,64	396,61	424,79	433,59	394,41	356,16	447,90	426,16	431,48	419,89
EU-2	1.217,32	1.073,23	965,16	925,91	942,86	781,19	734,66	684,59	656,44	649,33

Table 26 CH_4 emissions from 1.B.2 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 2011

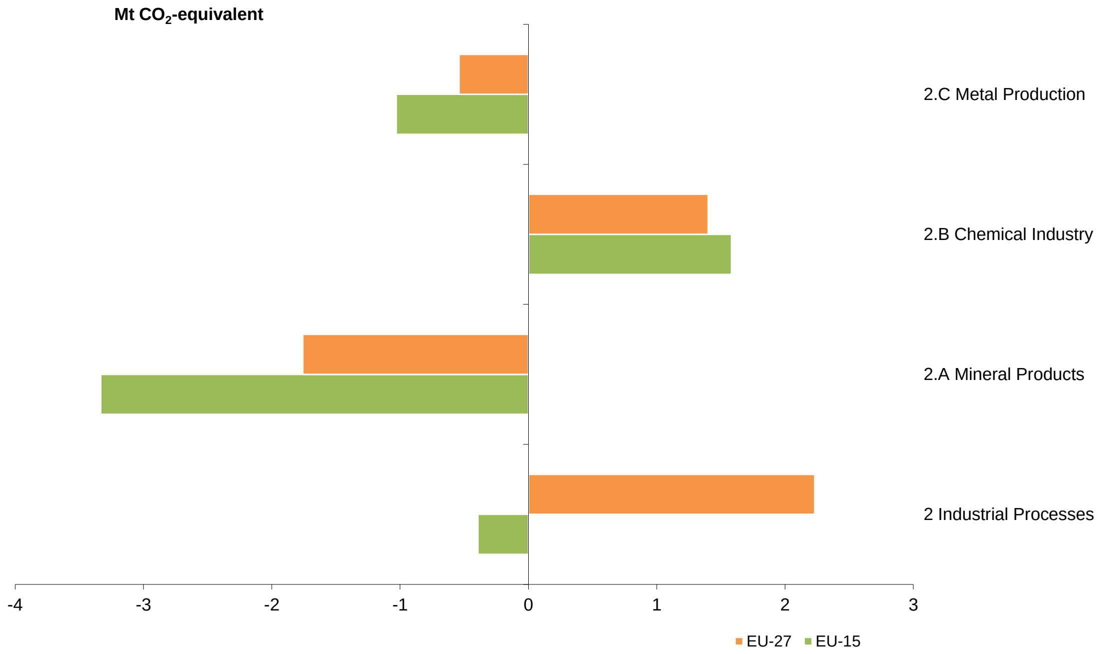
GHG emissions from Industrial Processes decreased by -0.4 Mt CO_2eq for the EU-15 and increased by 2.2 Mt CO_2eq for the EU-27 in 2011 compared to 2010. Table 27 indicates the sub-sector contribution to this trend in emissions.

Table 27 Change in GHG emissions between 2010 and 2011 for Industrial Processes emissions

Industrial Processes	**Change 2011/2010**			
	EU-15		**EU-27**	
	Mt CO_2eq	**%**	**Mt CO_2eq**	**%**
2 Industrial Processes	-0.4	-0.1%	2.2	0.7%
2.A Mineral Products	-3.3	-3.6%	-1.8	-1.5%
2.B Chemical Industry	1.6	3.4%	1.4	2.3%
2.C Metal Production	-1.0	-2.3%	-0.5	-0.8%

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

Figure 12 Change in GHG emissions between 2010 and 2011 for Industrial Processes emissions



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

Table 28 CO_2 emissions from 2.A Mineral Products

Source Category	2A	Mineral Products									
Gas	CO2										
Member State	Inventory data										Proxy
	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010	2011
	Gg										
AT	3,274	2,863	2,966	3,178	3,133	3,307	3,518	3,531	2,916	2,936	2938
BE	5,337	5,705	5,826	5,535	5,442	5,749	5,619	5,592	4,671	4,609	4801
BG	3,907	3,240	2,120	2,595	2,809	2,940	3,460	3,474	2,216	2,482	1921
CY	728	805	811	880	889	903	893	894	722	585	585
CZ	4,830	3,602	4,166	3,909	3,856	3,975	4,364	4,130	3,449	3,425	3675
DE	22,976	23,412	22,527	20,919	19,751	20,186	21,491	20,554	18,133	18,600	19735
DK	1,069	1,405	1,616	1,644	1,544	1,607	1,606	1,320	881	796	931
EE	628	367	401	408	415	463	649	648	282	339	443
ES	15,404	15,857	19,091	21,267	21,875	22,094	21,917	18,805	14,634	14,535	12735
FI	1,259	920	1,116	1,264	1,247	1,323	1,341	1,288	923	1,206	1260
FR	16,401	13,818	13,701	14,250	14,054	14,304	14,359	13,553	11,510	12,264	12512
UK	10,166	9,246	9,302	8,646	8,540	8,597	8,831	7,678	5,418	5,477	5241
GR	6,709	7,103	7,399	7,265	7,790	7,502	7,342	6,963	5,325	4,925	3070
HU	3,278	2,317	2,263	2,283	2,262	2,356	2,391	2,270	1,615	1,413	1102
IE	1,117	1,084	1,909	2,507	2,553	2,539	2,580	2,302	1,485	1,299	1168
IT	21,303	20,976	21,455	23,896	23,481	23,536	24,000	21,703	17,594	17,676	17089
LT	2,142	424	359	430	448	599	599	520	304	325	374
LU	623	519	580	513	505	501	496	466	440	453	464
LV	586	155	165	353	238	266	282	280	242	510	597
MT	0	2	0	0	0	0	0	0	0	0	0
NL	1,172	1,710	1,411	1,464	1,447	1,412	1,416	1,460	1,274	1,254	1259
PL	8,460	9,031	8,310	7,136	7,786	8,930	10,169	9,851	8,443	9,222	10513
PT	3,488	3,946	4,470	4,712	4,783	4,703	4,926	4,812	3,930	4,083	3509
RO	8,658	6,259	5,155	6,006	5,961	6,473	7,682	7,401	5,011	4,912	5296
SE	1,722	1,763	1,879	1,918	2,032	2,182	2,110	2,161	1,836	2,077	2148
SI	725	609	682	702	761	823	865	895	663	629	573
SK	2,966	2,305	2,524	2,979	2,970	3,019	3,049	3,145	2,456	2,303	2641
EU-15	112,020	110,326	115,247	118,978	118,176	119,542	121,551	112,187	90,968	92,189	88,862
EU-25	136,363	129,942	134,927	138,059	137,801	140,873	144,812	134,820	109,143	110,941	109,366
EU-27	148,928	139,440	142,202	146,660	146,571	150,286	155,954	145,695	116,370	118,336	116,582
EU-10	24,343	19,616	19,681	19,081	19,625	21,332	23,261	22,633	18,175	18,751	20,504
EU-2	12,565	9,498	7,275	8,601	8,770	9,413	11,142	10,875	7,227	7,395	7,217

.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

$$E^{Y}_{2C1,CO2} = \frac{AR^{Y}_{steel}}{AR^{Y-1}_{steel}} \cdot E^{Y-1}_{2C1,CO2}$$

with

$E^{Y}_{2C1,CO2}$	*CO_2 emissions for source category 2C1*
$E^{Y-1}_{2C1,CO2}$	*CO_2 emissions for source category 2C1 from previous year*
AR^{Y}_{steel}	*Crude steel production*
AR^{Y-1}_{steel}	*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, Bulgaria, the Czech Republic, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Romania, Sweden, Slovenia and the UK the IISI monthly blast furnace iron production data was used. For Austria, Poland and Slovakia 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 Lithuania, Latvia and Portugal.

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 2011*

Table 29 shows the CO_2 emissions for the proxy inventory in 2011 for 2C Metal Production compared to the inventory time series for the EU and all Member States.

Table 29 CO_2 emissions from 2.C Metal Production

Source Category	2C	C. Metal Production									
Gas	CO2										
Member	Inventory data										Proxy
State	BY	1990	1995	2000	2004	2005	2006	2007	2008	2009	2010	2011
	Gg											
AT	3,725	3,725	3,942	4,221	4,463	5,014	5,212	5,502	5,828	4,597	5,480	5,510
BE	2,451	2,451	2,479	2,215	2,068	2,020	2,086	1,925	2,008	938	1,088	1,092
BG	2,073	2,073	2,680	2,132	1,961	1,819	1,793	1,602	698	79	54	60
CY	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
CZ	12,533	12,533	7,530	7,027	7,798	6,687	7,572	7,757	7,151	5,298	5,919	6,379
DE	24,153	24,153	19,225	21,152	23,299	21,821	22,079	20,022	19,928	13,866	18,764	18,961
DK	28	28	39	41	NA,NO	16	NA,NO	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	NA,NO	NA,NO
ES	3,386	3,386	2,250	2,923	3,094	3,524	3,819	3,538	3,497	2,577	3,377	3,289
FI	1,936	1,936	2,047	2,351	2,541	2,372	2,438	2,460	2,524	1,945	2,408	2,386
FR	4,377	4,377	5,486	4,173	4,869	4,534	4,133	4,101	3,844	2,843	3,444	3,503
UK	2,309	2,309	1,938	1,985	2,054	2,456	2,125	2,657	3,063	1,254	1,747	1,713
GR	940	940	963	946	1,169	1,203	1,192	1,254	1,110	686	860	869
HU	3,208	3,208	2,578	2,108	2,013	2,058	2,026	2,088	1,993	1,898	2,243	2,316
IE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
IT	3,878	3,878	3,403	1,754	1,670	1,922	1,942	1,925	1,875	1,307	1,465	1,594
LT	21	21	6	7	7	7	7	7	5	4	4	4
LU	985	985	465	146	152	153	210	203	169	129	134	133
LV	13	13	4	8	13	12	13	15	9	10	11	12
MT	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
NL	2,661	2,661	1,908	1,519	1,468	1,476	1,243	1,949	1,214	1,076	998	1,015
PL	8,159	8,159	5,076	5,533	5,134	7,549	8,801	9,173	8,935	5,407	7,160	7,443
PT	16	16	21	31	18	18	20	21	22	18	18	19
RO	9,296	9,296	8,214	5,049	5,853	6,284	7,561	7,838	5,447	3,613	3,399	3,347
SE	3,078	3,078	3,352	3,158	3,378	3,100	2,958	3,107	2,980	1,685	3,135	3,148
SI	285	285	211	186	271	275	261	255	188	85	109	112
SK	4,499	4,499	4,135	3,762	4,659	3,980	4,528	4,380	4,267	3,576	4,248	4,270
EU-15	53,923	53,923	47,518	46,615	50,241	49,628	49,456	48,664	48,063	32,920	42,918	43,231
EU-25	82,641	82,641	67,058	65,246	70,135	70,196	72,664	72,338	70,609	49,197	62,612	63,767
EU-27	94,009	94,009	77,951	72,428	77,949	78,299	82,019	81,777	76,754	52,889	66,064	67,175
EU-10	28,718	28,718	19,540	18,631	19,894	20,567	23,208	23,673	22,547	16,277	19,694	20,537
EU-2	11,368	11,368	10,893	7,182	7,814	8,103	9,354	9,439	6,145	3,692	3,453	3,408

.2.3 Other source categories covering industrial processes

For all other source categories covering industrial processes, 2011 activity data from alternative data sources are lacking. These categories were extrapolated from 2010 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2010. 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 2010 data set comparable to animal population reported in GHG inventories. The scaling factor was derived on the basis of the most recent inventory data and the best fitting Eurostat dataset. For some Member States (Romania, Belgium, France, Ireland and Spain) country-specific adjustments were made by applying a percentage trend of the activity data (source: EUROSTAT time series) to the emissions of the previous year 2010.

In general, 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.

.3.1.2 *Results for 2011*

Compared to 2010, GHG emissions from agriculture slightly decreased in 2011 by -0.9 % for the EU-15 and by -1.4 % for the EU-27. Table 27 and Figure 13 indicate the sub-sector contribution to this trend in CH_4- and N_2O-emissions considered with the greenhouse warming potential (GWP) and converted into Mt CO_2 eq..

Table 30 Change in GHG emissions between 2010 and 2011 (change of 2011/2010 absolute emissions in Mt CO_2eq. and in percentage) in the agricultural sector

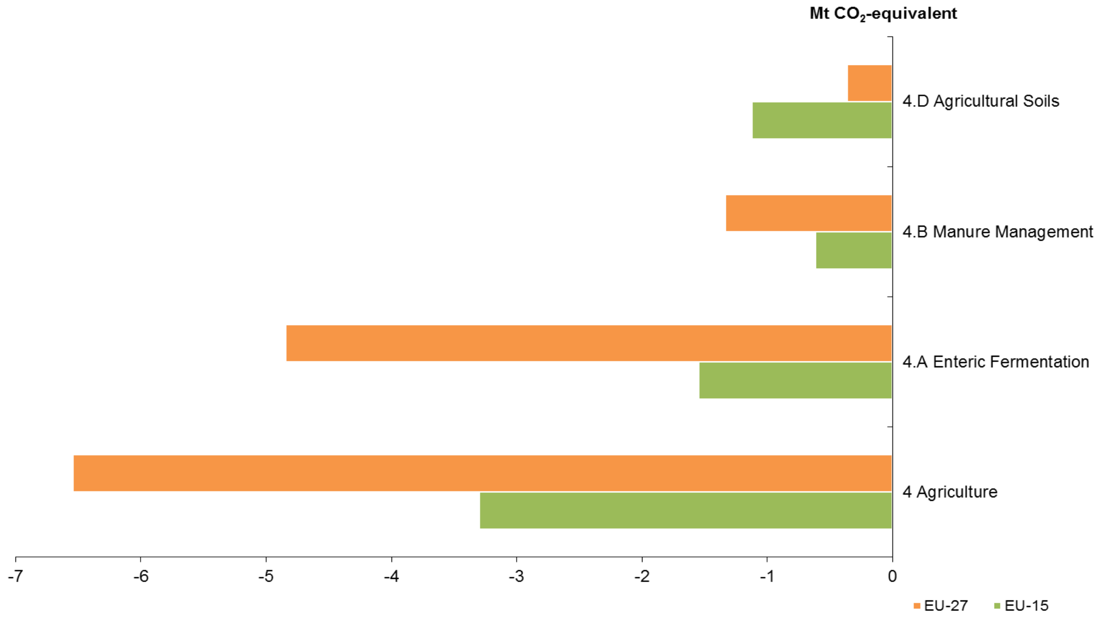
Agriculture	**Change 2011/2010**			
	EU-15		**EU-27**	
	Mt CO_2eq	**%**	**Mt CO_2eq**	**%**
4 Agriculture	-3.3	-0.9%	-6.5	-1.4%
4.A Enteric Fermentation	-1.5	-1.3%	-4.8	-3.3%
4.B Manure Management	-0.6	-1.0%	-1.3	-1.7%
4.D Agricultural Soils	-1.1	-0.6%	-0.4	-0.2%

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

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 12.2 Gg CO_2eq (-0.5%] for the EU-15 and 49 Gg CO_2eq (-2%) for the EU-27 from 2010 to 2011.

The source categories Enteric Fermentation and Manure Management are dominating the declining emission trend in the agriculture sector. Mainly, the CH_4 emission trends of both sectors are influenced by the decreasing number of dairy cattle. Among the EU-15 MS Spain (-37 Gg , -6%), Luxemberg (-0.8 Gg, -6%) and Finland (-2 Gg, -3%) showed the strongest decline of CH_4- emissions in the Enteric Fermentation sector. For the new EU-12 MS Romania had the strongest decline of CH_4- emissions (-137 Gg, -38%) (see Table 33). Table 31 presents the CH_4 emissions for the proxy inventory in 2011 for 4A Enteric Fermentation compared to the inventory time series for the EU and all Member States.

Figure 13 Change in GHG emissions in Mt CO_2 eq. from 2010 and 2011 in the agricultural sector



Source: EEA's ETC ACM based on the 2012 EU greenhouse gas inventory to UNFCCC for 1990-2010 and early estimates for 2011

Table 31 CH_4 emissions in Gg from 4.A Enteric Fermentation

Source Category	4A	A. Enteric Fermentation								
Gas	CH4									
Member State	Inventory data									Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	178.73	172.08	162.71	153.74	153.23	153.84	153.52	155.49	155.07	152.52
BE	197.13	196.98	183.82	168.02	166.50	169.64	168.21	168.16	169.27	167.18
BG	185.62	93.25	84.74	75.04	73.06	68.74	67.48	64.04	62.28	64.14
CY	7.65	8.56	8.39	8.59	8.26	8.40	8.45	8.43	8.55	9.03
CZ	200.92	125.33	106.71	99.72	98.30	99.22	100.14	97.48	95.18	93.60
DE	1 270.07	1 112.67	1 046.14	975.20	954.21	958.22	971.78	975.40	965.61	954.99
DK	154.62	149.22	136.25	130.33	130.47	133.57	134.78	134.42	136.02	137.26
EE	54.95	27.86	21.19	21.63	21.66	21.29	21.29	20.98	21.28	21.36
ES	550.86	561.58	623.46	628.95	621.90	632.56	603.81	596.69	589.37	550.63
FI	92.05	80.80	78.92	76.33	76.38	75.34	74.72	75.32	76.40	74.37
FR	1 451.06	1 421.59	1 414.82	1 348.74	1 347.38	1 360.16	1 374.21	1 358.34	1 355.18	1 328.20
UK	878.89	862.57	811.61	780.73	765.78	750.54	733.36	720.90	723.91	714.23
GR	154.58	151.58	154.31	156.48	156.17	155.58	154.20	153.84	153.52	151.20
HU	155.90	92.80	90.93	81.90	79.64	80.09	78.16	76.94	76.14	75.67
IE	455.91	460.89	452.14	430.07	430.92	424.04	422.70	416.12	404.58	416.64
IT	584.69	587.98	583.14	519.73	509.48	528.51	523.60	524.14	511.05	516.20
LT	154.23	75.80	56.72	61.18	63.19	64.55	61.98	58.77	56.90	58.76
LU	12.45	12.23	11.84	11.09	10.98	11.38	11.63	11.73	11.98	11.23
LV	102.29	41.51	30.89	32.10	31.75	33.21	32.04	31.79	32.01	32.04
MT	1.60	1.70	1.79	1.74	1.67	1.71	1.61	1.52	1.39	1.35
NL	364.44	353.99	313.33	303.56	302.87	306.81	312.83	314.74	316.64	311.29
PL	741.03	512.58	462.76	425.98	436.40	442.92	443.04	438.12	439.16	418.08
PT	126.85	135.81	144.36	140.08	139.40	137.13	137.42	133.29	131.74	130.65
RO	695.88	495.70	399.27	406.25	410.80	420.34	417.23	408.31	358.51	221.62
SE	146.21	147.97	137.59	133.77	133.89	131.30	130.58	129.71	129.21	128.11
SI	31.23	30.79	33.06	31.52	31.60	33.05	32.33	32.08	31.73	31.23
SK	95.90	67.71	50.82	45.53	44.79	44.51	43.13	41.20	40.81	40.02
EU-15	6 618.53	6 407.93	6 254.44	5 956.83	5 899.56	5 928.62	5 907.36	5 868.29	5 829.54	5 744.69
EU-25	8 164.24	7 392.58	7 117.71	6 766.72	6 716.83	6 757.57	6 729.53	6 675.61	6 632.69	6 525.83
EU-27	9 045.74	7 981.54	7 601.72	7 248.01	7 200.69	7 246.65	7 214.23	7 147.96	7 053.48	6 811.58
EU-10	1 545.71	984.65	863.26	809.89	817.26	828.96	822.17	807.32	803.15	781.13
EU-2	881.51	588.95	484.01	481.29	483.87	489.07	484.71	472.35	420.79	285.75

.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 80, Annex 1. 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.

.3.2.2 *Results for 2011*

Table 32 and Table 33 present the CH_4 and N_2O emissions for the proxy inventory in 2011 for 4B Manure Management compared to the inventory time series for the EU and all Member States. Among the EU-15 MS Spain (-13 Gg , -5%), Finland (-0.5 Gg, -3%) and Luxemberg (0.1 Gg, -3%) showed the strongest decline of CH_4 -emissions in the Manure Management sector. For the new EU-12 MS Malta (-0.2 Gg, -19%), Romania (-3 Gg, 14%) and Poland (-14 Gg, 10%) had the largest CH_4 emission reductions.

Table 32 CH_4 emissions in Gg from 4.B Manure Management

Source Category	4B	B. Manure Management							
Gas	CH4								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	20.54	19.51	17.43	16.06	15.87	15.94	15.57	15.83	15.75	15.42
BE	82.31	87.63	83.33	74.39	74.57	76.17	76.45	77.25	78.93	79.11
BG	234.49	93.10	36.62	45.22	49.03	49.99	47.30	46.04	43.76	39.71
CY	4.18	5.44	5.65	5.86	5.99	5.98	6.12	6.07	6.08	5.87
CZ	47.68	31.78	27.34	22.55	22.22	22.11	21.16	19.43	18.91	17.61
DE	301.18	277.47	272.92	267.75	262.86	266.35	268.38	270.38	265.38	265.51
DK	47.29	52.53	56.39	62.07	60.85	61.57	60.63	60.45	61.33	60.11
EE	5.70	2.97	2.25	2.30	2.29	2.32	2.28	2.24	2.35	2.34
ES	187.16	210.84	249.16	260.53	274.57	280.03	266.09	266.86	257.45	244.76
FI	11.76	12.92	13.56	14.57	14.55	14.52	14.62	14.23	14.28	13.80
FR	583.93	581.96	625.32	640.72	643.37	656.20	666.82	652.11	647.30	640.59
UK	169.27	159.76	131.53	135.02	135.07	130.53	127.29	124.89	126.37	123.73
GR	16.07	15.96	15.81	15.80	15.73	15.42	15.21	15.03	14.98	14.98
HU	110.89	65.69	68.04	55.05	54.04	54.89	50.78	45.78	45.51	43.46
IE	112.08	112.64	110.18	107.85	107.29	105.03	105.07	103.52	101.61	104.27
IT	164.86	156.48	156.10	149.93	144.20	145.43	140.99	136.79	122.25	123.30
LT	52.14	27.85	20.50	24.83	25.15	23.50	22.91	21.82	22.23	20.93
LU	3.79	4.46	4.99	4.72	4.64	4.35	4.43	4.50	4.63	4.50
LV	13.04	5.11	3.66	4.15	4.34	4.52	4.40	4.44	4.58	4.53
MT	1.36	1.28	1.58	1.45	1.44	1.49	1.34	1.30	1.28	1.04
NL	144.46	150.97	137.40	125.51	125.37	126.53	129.47	139.28	137.20	135.27
PL	157.65	148.20	133.67	154.55	161.42	161.73	146.57	141.29	143.91	130.18
PT	56.36	58.82	56.72	50.12	50.73	50.78	50.88	51.04	50.70	51.25
RO	54.99	22.38	14.81	23.74	34.84	30.32	27.51	24.55	20.23	17.32
SE	11.12	12.34	11.51	15.00	14.81	14.47	14.36	13.98	14.04	13.84
SI	22.70	20.39	20.55	20.50	20.90	21.58	20.15	20.47	20.49	19.60
SK	17.56	13.25	9.52	7.66	7.49	6.84	5.85	5.94	5.67	5.25
EU-15	1 912.18	1 914.29	1 942.37	1 940.05	1 944.48	1 963.30	1 956.26	1 946.12	1 912.21	1 890.45
EU-25	2 345.08	2 236.27	2 235.13	2 238.94	2 249.76	2 268.26	2 237.83	2 214.91	2 183.21	2 141.23
EU-27	2 634.56	2 351.75	2 286.56	2 307.91	2 333.63	2 348.58	2 312.64	2 285.51	2 247.20	2 198.25
EU-10	432.90	321.97	292.76	298.89	305.28	304.96	281.57	268.79	271.00	250.78
EU-2	289.48	115.48	51.43	68.97	83.87	80.31	74.81	70.60	63.99	57.02

Similarly as for CH_4 emissions N_2O emissions decrease around -1% for the EU-27 (see Table 33). For the EU-15 Denmark and Portugal (-0.1 Gg, -6%) and Spain (-0.3 Gg, -4%) decreased mainly. And for the new EU-12 MS, Bulgaria (-0.1 Gg, -6%), Hungary (-0.1 Gg,-3%) and Poland (0.1 Gg, -3%) showed the main declining trends.

Table 33 N2O4 emissions in Gg from 4.B Manure Management

Source Category	4D	D. Agricultural Soils							
Gas	N2O								
Member State	Inventory data								Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	11.06	12.04	10.30	9.45	9.61	9.75	10.23	9.99	9.45	9.54
BE	16.21	16.17	14.67	13.22	13.15	13.08	12.81	13.07	13.05	13.01
BG	27.32	12.38	10.50	10.74	10.32	10.13	11.10	10.86	11.59	11.56
CY	0.88	1.00	0.85	0.81	0.77	0.77	0.71	0.69	0.70	0.68
CZ	28.40	17.75	16.13	15.50	15.26	15.75	16.42	15.39	15.16	15.16
DE	153.69	134.19	141.59	133.89	131.38	127.88	135.96	129.68	126.97	129.51
DK	24.58	21.64	18.73	16.86	16.43	16.93	17.16	16.19	15.97	15.73
EE	6.20	2.73	2.24	2.16	2.08	2.30	2.67	2.36	2.41	2.50
ES	61.28	55.67	72.00	60.61	62.52	64.73	55.73	55.95	60.79	57.96
FI	12.74	11.67	11.18	11.15	11.16	11.24	11.58	11.01	11.45	11.39
FR	176.11	163.78	171.48	158.56	153.81	154.43	161.22	152.01	150.21	150.84
UK	105.89	103.71	98.83	92.95	88.73	85.60	85.04	84.05	85.11	83.91
GR	24.04	20.56	19.24	17.71	17.22	17.95	16.84	15.93	17.06	16.43
HU	22.95	13.80	15.23	16.06	16.55	16.69	16.68	15.48	15.46	15.93
IE	23.46	25.18	24.80	22.83	22.42	21.68	21.33	21.13	22.06	20.78
IT	62.84	62.67	62.39	58.39	57.89	57.79	54.45	50.01	48.90	49.05
LT	15.42	5.26	6.49	7.40	7.30	7.93	7.52	7.94	8.09	8.05
LU	1.17	1.14	1.12	0.99	0.98	0.97	0.99	1.02	1.02	1.01
LV	9.71	3.62	3.50	4.08	4.09	4.27	4.26	4.39	4.62	4.61
MT	0.07	0.09	0.09	0.07	0.07	0.07	0.06	0.06	0.06	0.06
NL	34.42	33.66	26.98	22.61	22.64	21.49	20.91	19.89	19.64	19.30
PL	73.74	53.85	51.91	51.92	55.14	57.44	59.27	57.60	55.30	57.44
PT	11.16	10.85	11.99	9.55	9.07	9.85	9.43	9.57	9.54	9.30
RO	47.25	30.18	23.50	27.44	26.35	23.85	25.63	25.76	25.43	25.33
SE	16.22	15.47	15.06	14.27	14.19	14.16	14.42	13.86	14.21	14.04
SI	2.41	2.46	2.62	2.42	2.46	2.47	2.29	2.39	2.34	2.29
SK	11.71	6.06	5.46	5.42	5.35	5.78	5.61	5.33	5.53	5.53
EU-15	734.88	688.38	700.37	643.02	631.19	627.53	628.11	603.35	605.42	601.81
EU-25	906.36	794.98	804.89	748.86	740.27	741.00	743.62	714.98	715.09	714.06
EU-27	980.93	837.55	838.90	787.04	776.94	774.98	780.35	751.61	752.10	750.94
EU-10	171.48	106.61	104.52	105.83	109.08	113.47	115.50	111.63	109.67	112.25
EU-2	74.57	42.56	34.01	38.18	36.67	33.98	36.73	36.62	37.01	36.88

.3.3 4.D Agricultural Soils

.3.3.1 Methods and data sources used

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 2010 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2010. 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 2012.

.3.3.2 Results for 2011

Table 34 presents the N_2O emissions for the proxy inventory in 2011 for 4D Agricultural Soils compared to the inventory time series for the EU and all Member States.

Table 34 N_2O emissions in Gg from 4.D Agricultural Soils

Source Category	4D	D. Agricultural Soils								
Gas	N2O									
Member State	Inventory data									Proxy
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
	Gg									
AT	11.06	12.04	10.30	9.45	9.61	9.75	10.23	9.99	9.45	9.54
BE	16.21	16.17	14.67	13.22	13.15	13.08	12.81	13.07	13.05	13.01
BG	27.32	12.38	10.50	10.74	10.32	10.13	11.10	10.86	11.59	11.56
CY	0.88	1.00	0.85	0.81	0.77	0.77	0.71	0.69	0.70	0.68
CZ	28.40	17.75	16.13	15.50	15.26	15.75	16.42	15.39	15.16	15.16
DE	153.69	134.19	141.59	133.89	131.38	127.88	135.96	129.68	126.97	129.51
DK	24.58	21.64	18.73	16.86	16.43	16.93	17.16	16.19	15.97	15.73
EE	6.20	2.73	2.24	2.16	2.08	2.30	2.67	2.36	2.41	2.50
ES	61.28	55.67	72.00	60.61	62.52	64.73	55.73	55.95	60.79	57.96
FI	12.74	11.67	11.18	11.15	11.16	11.24	11.58	11.01	11.45	11.39
FR	176.11	163.78	171.48	158.56	153.81	154.43	161.22	152.01	150.21	150.84
UK	105.89	103.71	98.83	92.95	88.73	85.60	85.04	84.05	85.11	83.91
GR	24.04	20.56	19.24	17.71	17.22	17.95	16.84	15.93	17.06	16.43
HU	22.95	13.80	15.23	16.06	16.55	16.69	16.68	15.48	15.46	15.93
IE	23.46	25.18	24.80	22.83	22.42	21.68	21.33	21.13	22.06	20.78
IT	62.84	62.67	62.39	58.39	57.89	57.79	54.45	50.01	48.90	49.05
LT	15.42	5.26	6.49	7.40	7.30	7.93	7.52	7.94	8.09	8.05
LU	1.17	1.14	1.12	0.99	0.98	0.97	0.99	1.02	1.02	1.01
LV	9.71	3.62	3.50	4.08	4.09	4.27	4.26	4.39	4.62	4.61
MT	0.07	0.09	0.09	0.07	0.07	0.07	0.06	0.06	0.06	0.06
NL	34.42	33.66	26.98	22.61	22.64	21.49	20.91	19.89	19.64	19.30
PL	73.74	53.85	51.91	51.92	55.14	57.44	59.27	57.60	55.30	57.44
PT	11.16	10.85	11.99	9.55	9.07	9.85	9.43	9.57	9.54	9.30
RO	47.25	30.18	23.50	27.44	26.35	23.85	25.63	25.76	25.43	25.33
SE	16.22	15.47	15.06	14.27	14.19	14.16	14.42	13.86	14.21	14.04
SI	2.41	2.46	2.62	2.42	2.46	2.47	2.29	2.39	2.34	2.29
SK	11.71	6.06	5.46	5.42	5.35	5.78	5.61	5.33	5.53	5.53
EU-15	734.88	688.38	700.37	643.02	631.19	627.53	628.11	603.35	605.42	601.81
EU-25	906.36	794.98	804.89	748.86	740.27	741.00	743.62	714.98	715.09	714.06
EU-27	980.93	837.55	838.90	787.04	776.94	774.98	780.35	751.61	752.10	750.94
EU-10	171.48	106.61	104.52	105.83	109.08	113.47	115.50	111.63	109.67	112.25
EU-2	74.57	42.56	34.01	38.18	36.67	33.98	36.73	36.62	37.01	36.88

.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.[22] 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 92.

.4.1.1 *Results for 2011*

GHG emissions from the Waste sector decreased by -0.8 Mt CO_2eq for the EU-15 and by -0.7 Mt CO_2eq for the EU-27 in 2011 compared to 2010. Table 35 indicates the sub-sector contribution to this trend in emissions.

Table 35 Change in GHG emissions from 2010 and 2011 in the Waste sector

Waste	**Change 2011/2010**			
	EU-15		**EU-27**	
	Mt CO2eq	**%**	**Mt CO2eq**	**%**
6 Waste	-0.8	-0.8%	-0.9	-0.7%
6.A Solid Waste Disposal on Land	-0.5	-0.6%	-0.6	-0.6%
6.B Waste-water Handling	-0.3	-1.6%	-0.4	-1.2%
6.C Waste Incineration	0.0	-0.9%	0.0	0.1%
6.D Other	0.0	1.8%	0.0	1.1%

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

[22] Matthes, F. C., Herold, A., Ziesing, H.J. 2007

.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 0.56 % of EU-15 total emissions in 2010 and total emissions from 6.C Waste Incineration contributed to 0.07 % to total EU-15 emissions in that year. For EU 27 the share from 6.B Wastewater Handling were 0.65% of EU-27 total emissions. 6.C Waste Incineration contributed to 0.07% to total EU-27 emissions in 2010.

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 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 2011 activity data was available that could be combined with IEFs from GHG inventories. These categories were extrapolated from 2010 GHG inventories, either by trend extrapolation or by taking the constant values of 2010. 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.

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    - 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

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

Table 36 Methods and data used for CO_2 emissions from 1.A Fuel combustion

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

Table 37 Methods and data used for CH4 and N2O emissions from 1.A 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
GB	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 38 Methods and data used for CO_2, CH_4 and N_2O emissions for 1.A.1 Energy industries

Source Category	1A1 1. Energy Industries	
Gas	CO2 CH4 N2O	
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 39 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) 2008-2012	identification of power sector by Öko-Institut's analysis
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
BG	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	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) 2008-2012	identification of power sector by Öko-Institut's analysis
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
EE	Data from previous years	UNFCCC 2012 submission	
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
LT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
LU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
LV	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
MT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
RO	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
SI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis
SK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	identification of power sector by Öko-Institut's analysis

Table 40 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 2012 submission	Average 2008-2010
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
EE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
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	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
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 2012 submission	Average 2008-2010
LU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	
PT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010

Table 41 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 2012 submission	Average 2008-2010
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010
IE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2	
LT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010

Table 42 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) 2008-2012	Main activity Code 2
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
EE	Data from previous years	UNFCCC 2012 submission	
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
HU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
LT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
LU	Data from previous years	UNFCCC 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
PL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
RO	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity Code 2
SI	Data from previous years	UNFCCC 2012 submission	
SK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010

Table 43 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 2012 submission
BE	Data from previous years		UNFCCC 2012 submission
BG	Emission trends (dynamics) from other sources		Proxy-inventory source categories 1A1b for CO2
CY	Data from previous years		UNFCCC 2012 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 2012 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 2012 submission
LV	Data from previous years		UNFCCC 2012 submission
MT	Data from previous years		UNFCCC 2012 submission
NL	Emission trends (dynamics) from other sources		Proxy-inventory source categories 1A1b for CO2
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	Emission trends (dynamics) from other sources		Proxy-inventory source categories 1A1b for CO2
SE	Emission trends (dynamics) from other sources		Proxy-inventory source categories 1A1b for CO2
SI	Data from previous years		UNFCCC 2012 submission
SK	Emission trends (dynamics) from other sources		Proxy-inventory source categories 1A1b for CO2

Table 44 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 2012 submission
BE	Data from previous years	UNFCCC 2012 submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
CY	Data from previous years	UNFCCC 2012 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 2012 submission
EE	Data from previous years	UNFCCC 2012 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	Data from previous years	UNFCCC 2012 submission
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 2012 submission
LV	Data from previous years	UNFCCC 2012 submission
MT	Data from previous years	UNFCCC 2012 submission
NL	Data from previous years	UNFCCC 2012 submission
PL	Data from previous years	UNFCCC 2012 submission
PT	Data from previous years	UNFCCC 2012 submission
RO	Data from previous years	UNFCCC 2012 submission
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
SI	Data from previous years	UNFCCC 2012 submission
SK	Data from previous years	UNFCCC 2012 submission

Table 45 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 Energy Industries
Gas	CO2 CH4 N2O	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	UNFCCC 2012 submission
BE	Data from previous years	UNFCCC 2012 submission
BG	Data from previous years	UNFCCC 2012 submission
CY	Data from previous years	UNFCCC 2012 submission
CZ	Data from previous years	UNFCCC 2012 submission
DE	Data from previous years	UNFCCC 2012 submission
DK	Data from previous years	UNFCCC 2012 submission
EE	Data from previous years	UNFCCC 2012 submission
ES	Data from previous years	UNFCCC 2012 submission
FI	Data from previous years	UNFCCC 2012 submission
FR	Data from previous years	UNFCCC 2012 submission
UK	Data from previous years	UNFCCC 2012 submission
GR	Data from previous years	UNFCCC 2012 submission
HU	Data from previous years	UNFCCC 2012 submission
IE	Data from previous years	UNFCCC 2012 submission
IT	Data from previous years	UNFCCC 2012 submission
LT	Data from previous years	UNFCCC 2012 submission
LU	Data from previous years	UNFCCC 2012 submission
LV	Data from previous years	UNFCCC 2012 submission
MT	Data from previous years	UNFCCC 2012 submission
NL	Data from previous years	UNFCCC 2012 submission
PL	Data from previous years	UNFCCC 2012 submission
PT	Data from previous years	UNFCCC 2012 submission
RO	Data from previous years	UNFCCC 2012 submission
SE	Data from previous years	UNFCCC 2012 submission
SI	Data from previous years	UNFCCC 2012 submission
SK	Data from previous years	UNFCCC 2012 submission

Table 46 Methods and data used for CO_2 emissions from 1.A.2 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) 2008-2012	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) 2008-2012	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) 2008-2012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99
MT	Data from previous years	UNFCCC 2012 submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	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) 2008-2012	Main activity codes 1 (w/o power), 3, 4, 5, 6, 7, 8, 9, 99

Table 47 Methods and data used for CH_4 emissions from 1.A.2 Manufacturing industries and construction

Source Category	1A2	2. Manufacturing Industries and Construction	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CZ	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
DE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
DK	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
EE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
ES	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
FI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
UK	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
IT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LU	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
LV	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
MT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
RO	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
SI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SK	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	

Table 48 Methods and data used for N_2O emissions from 1.A.2 Manufacturing industries and construction

Source Category	1A2	2. Manufacturing Industries and Construction	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
IT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LV	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
MT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PT	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
RO	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SE	Emission trends (dynamics) from other sources	Proxy inventory source categories 1A2 for CO2	
SI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010

Table 49 Methods and data used for CO_2 emissions from 1.A.3 Transport

Source Category	1A3	Transport
Gas	CO2	
Member State	**Projection Approach**	**Data Sources**
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
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
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
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
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
SI	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels
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 50 Methods and data used for CH_4 and N_2O emissions from 1.A.3 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 51 Methods and data used for CO_2 emissions from 1.B.1 Fugitive emissions from solid fuels

Source Category	1B1	1. Solid Fuels
Gas	CO2	

Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	UNFCCC 2012 submission
BE	Data from previous years	UNFCCC 2012 submission
BG	Data from previous years	UNFCCC 2012 submission
CY	Data from previous years	UNFCCC 2012 submission
CZ	Data from previous years	UNFCCC 2012 submission
DE	Data from previous years	UNFCCC 2012 submission
DK	Data from previous years	UNFCCC 2012 submission
EE	Data from previous years	UNFCCC 2012 submission
ES	Data from previous years	UNFCCC 2012 submission
FI	Data from previous years	UNFCCC 2012 submission
FR	Data from previous years	UNFCCC 2012 submission
UK	Data from previous years	UNFCCC 2012 submission
GR	Data from previous years	UNFCCC 2012 submission
HU	Data from previous years	UNFCCC 2012 submission
IE	Data from previous years	UNFCCC 2012 submission
IT	Data from previous years	UNFCCC 2012 submission
LT	Data from previous years	UNFCCC 2012 submission
LU	Data from previous years	UNFCCC 2012 submission
LV	Data from previous years	UNFCCC 2012 submission
MT	Data from previous years	UNFCCC 2012 submission
NL	Data from previous years	UNFCCC 2012 submission
PL	Data from previous years	UNFCCC 2012 submission
PT	Data from previous years	UNFCCC 2012 submission
RO	Data from previous years	UNFCCC 2012 submission
SE	Data from previous years	UNFCCC 2012 submission
SI	Data from previous years	UNFCCC 2012 submission
SK	Data from previous years	UNFCCC 2012 submission

Table 52 Methods and data used for CH_4 emissions from 1.B.1 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 2012 submission	
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 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 2012 submission	
EE	Activity trends (dynamics) from other sources	UNFCCC 2012 submission	
ES	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal Production (monthly data)	Indicator code 100100, product code 2111
FI	Data from previous years	UNFCCC 2012 submission	
FR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010
IE	Data from previous years	UNFCCC 2012 submission	
IT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
LT	Data from previous years	UNFCCC 2012 submission	
LU	Data from previous years	UNFCCC 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	
RO	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 53 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 2012 submission	Average 2008-2010
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
BG	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
DE	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
DK	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
EE	Data from previous years	UNFCCC 2012 submission	
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
FR	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	
IT	Data from previous years	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
LT	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
LU	Data from previous years	UNFCCC 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
PT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
RO	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
SE	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
SI	Data from previous years	UNFCCC 2012 submission	
SK	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100

Table 54 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 Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
BE	Data from previous years	UNFCCC 2012 submission	
BG	Data from previous years	UNFCCC 2012 submission	
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
DE	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
DK	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
EE	Data from previous years	UNFCCC 2012 submission	
ES	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
FI	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
FR	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
UK	Data from previous years	UNFCCC 2012 submission	
GR	Data from previous years	UNFCCC 2012 submission	
HU	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
IE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
IT	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
LT	Data from previous years	UNFCCC 2012 submission	
LU	Data from previous years	UNFCCC 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Activity trends (dynamics) from other sources	Eurostat Primary Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
PL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PT	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	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) 2008-2012	Main activity code 2
SI	Data from previous years	UNFCCC 2012 submission	
SK	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100

Table 55 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 2012 submission	Average 2008-2010
BE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
BG	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	
EE	Data from previous years	UNFCCC 2012 submission	
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IE	Data from previous years	UNFCCC 2012 submission	
IT	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
LT	Data from previous years	UNFCCC 2012 submission	
LU	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
RO	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
SE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010

Table 56 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 2012 submission	Average 2008-2010
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
BG	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010
EE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
ES	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
FI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FR	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
UK	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
GR	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
HU	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
IE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IT	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
LT	Data from previous years	UNFCCC 2012 submission	
LU	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
LV	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	Average 2008-2010
RO	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
SE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SI	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
SK	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100

Table 57 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 2012 submission	
BE	Data from previous years	UNFCCC 2012 submission	
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
DE	Data from previous years	UNFCCC 2012 submission	
DK	Data from previous years	UNFCCC 2012 submission	
EE	Data from previous years	UNFCCC 2012 submission	
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Data from previous years	UNFCCC 2012 submission	
FR	Data from previous years	UNFCCC 2012 submission	
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Data from previous years	UNFCCC 2012 submission	
IE	Data from previous years	UNFCCC 2012 submission	
IT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
RO	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SE	Data from previous years	UNFCCC 2012 submission	
SI	Data from previous years	UNFCCC 2012 submission	
SK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010

Table 58 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 2012 submission	
BE	Data from previous years	UNFCCC 2012 submission	
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
DE	Data from previous years	UNFCCC 2012 submission	
DK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
EE	Data from previous years	UNFCCC 2012 submission	
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Data from previous years	UNFCCC 2012 submission	
FR	Data from previous years	UNFCCC 2012 submission	
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
IE	Data from previous years	UNFCCC 2012 submission	
IT	Activity trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	Main activity code 2
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 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Data from previous years	UNFCCC 2012 submission	
PT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
RO	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
SE	Data from previous years	UNFCCC 2012 submission	
SI	Data from previous years	UNFCCC 2012 submission	
SK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010

Table 59 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 2012 submission	
BE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 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 2012 submission	Average 2008-2010
EE	Data from previous years	UNFCCC 2012 submission	
ES	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IE	Data from previous years	UNFCCC 2012 submission	
IT	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
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 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Data from previous years	UNFCCC 2012 submission	
PT	Data from previous years	UNFCCC 2012 submission	
RO	Data from previous years	UNFCCC 2012 submission	
SE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SI	Data from previous years	UNFCCC 2012 submission	
SK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010

Table 60 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 2012 submission	
BE	Data from previous years	UNFCCC 2012 submission	
BG	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Activity trends (dynamics) from other sources	Eurostat Crude Oil production Production (monthly data)	Indicator code 100100, product code 3100
DE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
DK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
EE	Data from previous years	UNFCCC 2012 submission	
ES	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
FI	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
FR	Activity trends (dynamics) from other sources	Eurostat Crude Oil production Production (monthly data)	Indicator code 100100, product code 3100
UK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
GR	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
HU	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
IE	Data from previous years	UNFCCC 2012 submission	
IT	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
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 2012 submission	
LV	Data from previous years	UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	
NL	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
PL	Data from previous years	UNFCCC 2012 submission	
PT	Data from previous years	UNFCCC 2012 submission	
RO	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Production (monthly data)	Indicator code 100100, product code 4100
SE	Data from previous years	UNFCCC 2012 submission	Average 2008-2010
SI	Data from previous years	UNFCCC 2012 submission	
SK	Data from previous years	UNFCCC 2012 submission	Average 2008-2010

Table 61 Methods and data used for CO_2 emissions from 2.A.1 Cement Production

Source Category	2A1	Cement Production	
Gas	CO2		
Member State	Projection Approach	Data Sources	Notes
AT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
BE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
BG	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
CY	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
CZ	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
DE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
DK	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
EE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
ES	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
FI	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
FR	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
UK	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
GR	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
HU	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
IE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
IT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
LT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
LU	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
LV	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
MT	Data from previous year		
NL	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
PL	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
PT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
RO	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
SE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
SI	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
SK	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010

Table 62 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 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
BE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
BG	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
CY	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
CZ	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
DE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
DK	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
EE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
ES	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
FI	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
FR	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
UK	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
GR	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
HU	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
IE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
IT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
LT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
LU	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
LV	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
MT	Data from previous year		
NL	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
PL	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
PT	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
RO	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
SE	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
SI	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010
SK	Direct use of emissions data from other sources	CITL data as of 2 May 2012 from EU ETS data viewer	CITL data + scaling factor based on comparison inventory data - CITL data for 2010

Table 63 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 2012 submission	Value of 2010
DE			
DK			
EE			
ES			
FI			
FR			
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO			
SE			
SI			
SK			

Table 64 Methods and data used for CO_2 emissions from 2.B.1 Ammonia Production

Source Category	2B1	Ammonia Production	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY			
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK			
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI			
FR	Data from previous years	UNFCCC 2012 submission	Value of 2010
UK	Data from previous years	UNFCCC 2012 submission	Value of 2010
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Data from previous years	UNFCCC 2012 submission	Value of 2010
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE			
SI			
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 65 Methods and data used for N_2O emissions from 2.B.2 Nitric Acid Production

Source Category	2B2	Nitric Acid Production	
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY			
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE			
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI			
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 66 Methods and data used for N_2O emissions from 2.B.3 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 2012 submission	linear trend projection via minimum square deviation
DK			
EE			
ES			
FI			
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2012 submission	Value of 2010
GR			
HU			
IE			
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 67 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 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT			
LU			
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI			
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 68 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 69 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 2012 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI			
FR			
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT			
RO			
SE			
SI			
SK			

Table 70 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	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2012	CITL categories coke, ore,iron, bf-gas
BE	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
BG	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
CY	Data from previous years	UNFCCC 2012 submission	
CZ	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
DE	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
DK	Data from previous years	UNFCCC 2012 submission	
EE	Data from previous years	UNFCCC 2012 submission	
ES	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
FI	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
FR	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
UK	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
GR	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
HU	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
IE	Data from previous years	UNFCCC 2012 submission	
IT	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
LT	Data from previous years	UNFCCC 2012 submission	value of previous year
LU	Activity trends (dynamics) from other sources	IISI crude steel production (monthly data)	
LV	Data from previous years	UNFCCC 2012 submission	Average 2005-2010
MT	Data from previous years	UNFCCC 2012 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	CITL data (operator holding accounts) 2008-2012	CITL categories coke, ore,iron, bf-gas
PT	Data from previous years	CITL data (operator holding accounts) 2008-2012	CITL categories coke, ore,iron, bf-gas
RO	Data from previous years	UNFCCC 2012 submission	Average 2005-2010
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	CITL data (operator holding accounts) 2008-2012	CITL categories coke, ore,iron, bf-gas

Table 71 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 2012 submission	Value of 2010
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Data from previous years	UNFCCC 2012 submission	Value of 2010
RO			
SE			
SI			
SK			

Table 72 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 2012 submission	linear trend projection via minimum square deviation
SI			
SK			

Table 73 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 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY		UNFCCC 2012 submission	
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 74 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 2012 submission	Value of 2010
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY	Data from previous years	UNFCCC 2012 submission	Value of 2010
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 75 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 2012 submission	Value of 2010
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY		UNFCCC 2012 submission	
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2012 submission	Value of 2010
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT		UNFCCC 2012 submission	
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV		UNFCCC 2012 submission	
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Data from previous years	UNFCCC 2012 submission	Value of 2010
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	Value of 2010
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 76 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 2012 submission	linear trend projection via minimum square deviation
EE			
ES			
FI			
FR			
UK			
GR			
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE			
IT			
LT			
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT			
RO			
SE			
SI			
SK			

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

<table>
<tr><th>Source Category</th><th colspan="3">2.G 2.G Other</th></tr>
<tr><th>Gas</th><th colspan="3">CH4 N2O</th></tr>
<tr><th>Member State</th><th>Projection Approach</th><th>Data Sources</th><th>Notes</th></tr>
<tr><td>AT</td><td rowspan="27">Data from previous years</td><td rowspan="27">UNFCCC 2012 submission</td><td rowspan="27">Value of 2010</td></tr>
<tr><td>BE</td></tr>
<tr><td>BG</td></tr>
<tr><td>CY</td></tr>
<tr><td>CZ</td></tr>
<tr><td>DE</td></tr>
<tr><td>DK</td></tr>
<tr><td>EE</td></tr>
<tr><td>ES</td></tr>
<tr><td>FI</td></tr>
<tr><td>FR</td></tr>
<tr><td>UK</td></tr>
<tr><td>GR</td></tr>
<tr><td>HU</td></tr>
<tr><td>IE</td></tr>
<tr><td>IT</td></tr>
<tr><td>LT</td></tr>
<tr><td>LU</td></tr>
<tr><td>LV</td></tr>
<tr><td>MT</td></tr>
<tr><td>NL</td></tr>
<tr><td>PL</td></tr>
<tr><td>PT</td></tr>
<tr><td>RO</td></tr>
<tr><td>SE</td></tr>
<tr><td>SI</td></tr>
<tr><td>SK</td></tr>
</table>

Table 78 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 2012 submission	linear trend projection via minimum square deviation
BE			
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT			
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI			
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 79 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 2012 submission	Value of 2010
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY			
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE			
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE			
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT			
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 80 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	In general emissions calculation based on activity data (AD), only for Belgium, France, Ireland, Romania, Spain and the United Kingdom AD trend applied to emissions previous year.	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2010 inventories except for Romania (IPCC IEF defaults for Eastern Europe)	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
BE			Dairy cattle, Goats: EUROSTAT December survey; Non-dairy cattle, Swine: EUROSTAT June survey; Sheep: EUROSTAT June survey plus adjustment factor and for 2011 extrapolation
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, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey until 2010 (for goats, for sheep until 2009) with extrapolation for 2011 plus adjustment factor
DE			Dairy cattle, Non-dairy cattle, Sheep: EUROSTAT June survey with extrapolation for 2011; Goats: EUROSTAT December survey; Swine: EUROSTAT December survey plus adjustment factor
DK			Swine: EUROSTAT June survey; Dairy cattle, Non-dairy cattle: EUROSTAT December survey; Sheep: EUROSTAT December survey with extrapolation for 2011 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 2011 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 2011 plus adjustment factor for Sheep
FR			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
UK			Dairy cattle, Non-Dairy cattle: EUROSTAT June survey; Swine: EUROSTAT December survey; Sheep: EUROSTAT December survey plus adjustment factor; Goats: no population data available, extrapolation of UNFCCC CH4
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, Swine: EUROSTAT December survey; Non-dairy cattle, Sheep: EUROSTAT June survey plus adjustment factor; Goats: EUROSTAT December survey from 2009 onwards no population data available, extrapolation of UNFCCC CH4 emissions
IT			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
LT			Dairy cattle, Non-dairy cattle, Goats, Sheep, Swine: EUROSTAT December survey
LU			Non-dairy cattle: EUROSTAT December survey; Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey plus adjustment factor; Sheep,
LV			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey with extrapolation for 2011 for goats and sheeps
MT			Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
NL			Dairy cattle: EUROSTAT June survey; Non-dairy cattle, Sheep, Swine: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
PL			Dairy cattle: EUROSTAT June survey; Non-dairy cattle, Swine: EUROSTAT December survey; Goats, 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, Goats: EUROSTAT December survey; Swine: EUROSTAT December surveyplus adjustment factor
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 2011
SK			Dairy cattle, Non-dairy cattle: EUROSTAT December survey plus adjustment factor; Swine, Sheep, Goats: EUROSTAT December survey

Table 81 Methods and data used for CH_4 emissions from 4.A Enteric Fermentation, Buffalo

Source Category	4.A	A. Enteric Fermentation; Buffalo	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
CY			
CZ			
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK			
EE			
ES			
FI			
FR			
UK			
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Data from previous year	UNFCCC 2012 submission	Value of 2010
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE			
SI			
SK			

Table 82 Methods and data used for CH_4 emissions from 4.B Manure Management, Buffalo

Source Category	4.B	B. Manure Management; Buffalo	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via
CY			
CZ			
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK			
EE			
ES			
FI			
FR			
UK			
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Data from previous year	UNFCCC 2012 submission	Value of 2010
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via
SE			
SI			
SK			

Table 83 Methods and data used for CH_4 emissions from 4.A Enteric Fermentation, Horses

Source Category	4.A	A. Enteric Fermentation; Horses	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous year	UNFCCC 2012 submission	Value of 2010
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY	Data from previous year	UNFCCC 2012 submission	Value of 2010
CZ	Data from previous year	UNFCCC 2012 submission	Value of 2010
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK	Data from previous year	UNFCCC 2012 submission	Value of 2010
EE	Data from previous year	UNFCCC 2012 submission	Value of 2010
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Data from previous year	UNFCCC 2012 submission	Value of 2010
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PT	Data from previous year	UNFCCC 2012 submission	Value of 2010
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE	Data from previous year	UNFCCC 2012 submission	Value of 2010
SI	Data from previous year	UNFCCC 2012 submission	Value of 2010
SK	Data from previous year	UNFCCC 2012 submission	Value of 2010

Table 84 Methods and data used for CH_4 emissions from 4.B Manure Management, Horses

Source Category	4.B	B. Manure Management; Horses	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Data from previous year	UNFCCC 2012 submission	Value of 2010
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Data from previous year	UNFCCC 2012 submission	Value of 2010
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Data from previous year	UNFCCC 2012 submission	Value of 2010
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Data from previous year	UNFCCC 2012 submission	Value of 2010
LV	Data from previous year	UNFCCC 2012 submission	Value of 2010
MT	Data from previous year	UNFCCC 2012 submission	Value of 2010
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PT	Data from previous year	UNFCCC 2012 submission	Value of 2010
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE	Data from previous year	UNFCCC 2012 submission	Value of 2010
SI	Data from previous year	UNFCCC 2012 submission	Value of 2010
SK	Data from previous year	UNFCCC 2012 submission	Value of 2010

Table 85 Methods and data used for CH_4 emissions from 4.A Enteric Fermentation, Mules and Asses

Source Category	4.A	A. Enteric Fermentation; Mules and Asses	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY			
CZ			
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK			
EE			
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI			
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
HU	Data from previous year	UNFCCC 2012 submission	Value of 2010
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
LT			
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE			
SI			
SK			

Table 86 Methods and data used for CH_4 emissions from 4.B Manure Management, Mules and Asses

Source Category	4.B	B. Manure Management, Mules and Asses	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY			
CZ			
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK			
EE			
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI			
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
LT			
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE			
SI			
SK			

Table 87 Methods and data used for CH_4 emissions from 4.A Enteric Fermentation, Poultry

Source Category	4.A	A. Enteric Fermentation; Poultry	
Gas	CH4		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous year	UNFCCC 2012 submission	Value of 2010
BE			
BG			
CY			no information available , recalculation compared to submission 2011
CZ			
DE			
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE			
ES			
FI			
FR			
UK			
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE			
IT			
LT			
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV			
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 88 Methods and data used for CH4 emissions from 4.B Manure Management, Poultry

Source Category	4.B	B. Manure Management; Poultry	
Gas	CH4		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous year	UNFCCC 2012 submission	Value of 2010
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Data from previous year	UNFCCC 2012 submission	Value of 2010
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Data from previous year	UNFCCC 2012 submission	Value of 2010
NL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Data from previous year	UNFCCC 2012 submission	Value of 2010
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 89 Methods and data used for CH_4 emissions from 4.A Enteric Fermentation, Other

Source Category	4.A	A. Enteric Fermentation; Other	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous year	UNFCCC 2012 submission	Value of 2010
BE			
BG			
CY			
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
EE	Data from previous year	UNFCCC 2012 submission	Value of 2010
ES			
FI	Data from previous year	UNFCCC 2012 submission	Value of 2010
FR			
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR			
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
IE			
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT			
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
LV			
MT	Data from previous year	UNFCCC 2012 submission	Value of 2010
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
RO			
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum
SI			
SK			

Table 90 Methods and data used for CH_4 emissions from 4.B Manure Management, Other

Source Category	4.B	B. Manure Management; Other	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous year	UNFCCC 2012 submission	Value of 2010
BE			
BG			
CY			
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square
EE	Data from previous year	UNFCCC 2012 submission	Value of 2010
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Data from previous year	UNFCCC 2012 submission	Value of 2010
FR			
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR			
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square
IE			
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT			
LU	Data from previous year	UNFCCC 2012 submission	Value of 2010
LV			
MT	Data from previous year	UNFCCC 2012 submission	Value of 2010
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square
RO			
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square
SI			
SK			

Table 96 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 2012 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Data from previous year	UNFCCC 2012 submission	Value of 2010
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 97 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 2012 submission	linear trend projection via minimum square deviation
CY			
CZ			
DE			
DK			
EE			
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI			
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE			
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT			
LU			
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SE			
SI			
SK			

Table 98 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 year	UNFCCC 2012 submission	Value of 2010
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 99 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 year	UNFCCC 2012 submission	Value of 2010
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	Value of 2010
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous year	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Data from previous year	UNFCCC 2012 submission	Value of 2010
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Data from previous year	UNFCCC 2012 submission	Value of 2010
RO	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SE	Data from previous year	UNFCCC 2012 submission	Value of 2010
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 100 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 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CZ	Data from previous year	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous year	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 101 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 2012 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Data from previous year	UNFCCC 2012 submission	Value of 2010
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Data from previous year	UNFCCC 2012 submission	Value of 2010
LV	Data from previous year	UNFCCC 2012 submission	Value of 2010
MT			
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PT	Data from previous year	UNFCCC 2012 submission	Value of 2010
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 102 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 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT			
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 103 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 2012 submission	Value of 2010
BG			
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES			
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR			
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU			
IE			
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU			
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT			
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Data from previous years	UNFCCC 2012 submission	Value of 2010
SK			

Table 104 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 2012 submission	Value of 2010
BE			
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY			
CZ			
DE	Data from previous years	UNFCCC 2012 submission	Value of 2010
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK			
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU			
IE			
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT			
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Data from previous years	UNFCCC 2012 submission	Value of 2010
SK			

Table 105 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 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY			
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK	Data from previous year	UNFCCC 2012 submission	Value of 2010
EE	Data from previous year	UNFCCC 2012 submission	Value of 2010
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Data from previous year	UNFCCC 2012 submission	Value of 2010
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Data from previous year	UNFCCC 2012 submission	Value of 2010
MT			
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Data from previous year	UNFCCC 2012 submission	Value of 2010
SK	Data from previous year	UNFCCC 2012 submission	Value of 2010

Table 106 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 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY	Data from previous year	UNFCCC 2012 submission	Value of 2010
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Data from previous year	UNFCCC 2012 submission	Value of 2010
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous year	UNFCCC 2012 submission	Value of 2010
SE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 107 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 year	UNFCCC 2012 submission	Value of 2010
BG			
CY			
CZ			
DE			
DK			
EE			
ES			
FI			
FR			
UK	Data from previous year	UNFCCC 2012 submission	Value of 2010
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Data from previous year	UNFCCC 2012 submission	Value of 2010
PL			
PT			
RO			
SE	Data from previous year	UNFCCC 2012 submission	Value of 2010
SI			
SK			

Table 108 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 year	UNFCCC 2012 submission	Value of 2010
BE			
BG	Data from previous year	UNFCCC 2012 submission	Value of 2010
CY	Data from previous year	UNFCCC 2012 submission	Value of 2010
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE			
ES	Data from previous year	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR			
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT			
LU			
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE			
SI			
SK			

Table 109 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 year	UNFCCC 2012 submission	Value of 2010
BE			
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY	Data from previous years	UNFCCC 2012 submission	Value of 2010
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE			
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2012 submission	Value of 2010
UK			
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT			
NL			
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Data from previous years	UNFCCC 2012 submission	Value of 2010
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE			
SI			
SK			

Table 91 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 FI FR UK GR HU IE IT LT LU LV MT NL PL PT RO SE SI SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 92 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	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BE	Data from previous year	UNFCCC 2012 submission	Value of 2010
BG	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CY	Data from previous year	UNFCCC 2012 submission	linear trend projection via minimum square deviation
CZ	Data from previous year	UNFCCC 2012 submission	Value of 2010
DE	Data from previous year	UNFCCC 2012 submission	Value of 2010
DK	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous year	UNFCCC 2012 submission	Value of 2010
UK	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Data from previous year	UNFCCC 2012 submission	Value of 2010
HU	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Data from previous year	UNFCCC 2012 submission	Value of 2010
IT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LT	Data from previous year	UNFCCC 2012 submission	Value of 2010
LU	Data from previous year	UNFCCC 2012 submission	Value of 2010
LV	Data from previous year	UNFCCC 2012 submission	Value of 2010
MT	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
NL	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SE	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SI	Trend extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Data from previous year	UNFCCC 2012 submission	Value of 2010

Table 93 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 2012 submission	Value of 2010
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 94 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 2012 submission	Value of 2010
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY	Data from previous years	UNFCCC 2012 submission	Value of 2010
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE	Data from previous years	UNFCCC 2012 submission	Value of 2010
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2012 submission	Value of 2010
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Data from previous years	UNFCCC 2012 submission	Value of 2010
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 95 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 2012 submission	Value of 2010
BE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY			
CZ	Data from previous years	UNFCCC 2012 submission	Value of 2010
DE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Data from previous years	UNFCCC 2012 submission	Value of 2010
UK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Data from previous years	UNFCCC 2012 submission	Value of 2010
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Data from previous years	UNFCCC 2012 submission	Value of 2010
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 96 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 2012 submission	Value of 2010
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG	Data from previous years	UNFCCC 2012 submission	Value of 2010
CY			
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE			
DK			
EE			
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI			
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2012 submission	Value of 2010
GR	Data from previous years	UNFCCC 2012 submission	Value of 2010
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU			
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL			
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Data from previous years	UNFCCC 2012 submission	Value of 2010
RO	Data from previous years	UNFCCC 2012 submission	Value of 2010
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 97 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 2012 submission	Value of 2010
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE			
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE			
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI			
FR	Data from previous years	UNFCCC 2012 submission	Value of 2010
UK	Data from previous years	UNFCCC 2012 submission	Value of 2010
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
IE			
IT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LT			
LU			
LV			
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI			
SK			

Table 98 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 2012 submission	Value of 2010
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
DE			
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE			
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI			
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2012 submission	Value of 2010
GR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2012 submission	Value of 2010
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2012 submission	Value of 2010
LU			
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT	Data from previous years	UNFCCC 2012 submission	Value of 2010
NL			
PL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2012 submission	Value of 2010
SI	Data from previous years	UNFCCC 2012 submission	Value of 2010
SK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation

Table 99 Methods and data used for CO_2 emissions from 6.D Other

Source Category	6D	D. Other	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 100 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 2012 submission	Value of 2010
BE	Data from previous years	UNFCCC 2012 submission	Value of 2010
BG			
CY			
CZ			
DE	Data from previous years	UNFCCC 2012 submission	Value of 2010
DK	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2012 submission	Value of 2010
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK			
GR			
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
LT			
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT			
NL	Data from previous years	UNFCCC 2012 submission	Value of 2010
PL			
PT			
RO			
SE			
SI			
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

Table 101 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 2012 submission	linear trend projection via minimum square deviation
BE			
BG			
CY			
CZ			
DE	Data from previous years	UNFCCC 2012 submission	Value of 2010
DK	Data from previous years	UNFCCC 2012 submission	Value of 2010
EE	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
ES			
FI	Data from previous years	UNFCCC 2012 submission	Value of 2010
FR	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
UK			
GR			
HU			
IE			
IT			
LT			
LU	Data from previous years	UNFCCC 2012 submission	Value of 2010
LV	Data from previous years	UNFCCC 2012 submission	Value of 2010
MT			
NL	Extrapolation from previous years	UNFCCC 2012 submission	linear trend projection via minimum square deviation
PL			
PT			
RO			
SE			
SI			
SK	Data from previous years	UNFCCC 2012 submission	Value of 2010

- **Annex 2 – Detailed results**

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS
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Inventory 2011
Submission 2012 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)	**70.732,96**	**5.389,29**	**4.977,81**	**1.160,63**	**69,85**	**332,32**	**82.662,86**
1. Energy	**61.537,22**	**518,89**	**694,17**				**62.750,27**
A. Fuel Combustion (Sectoral Approach)	61.299,06	242,44	694,17				62.235,67
1. Energy Industries	13.523,51	7,25	103,38				13.634,14
2. Manufacturing Industries and Construction	15.519,05	14,29	151,95				15.685,29
3. Transport	21.240,25	14,41	221,21				21.475,86
4. Other Sectors	IE	IE	IE				IE,
5. Other	11.016,25	206,50	217,62				11.440,37
B. Fugitive Emissions from Fuels	238,16	276,45	IE,NA				514,61
1. Solid Fuels	IE,NA,NO	IE,NA,NO	IE				IE,NA,NO,
2. Oil and Natural Gas	238,16	276,45	IE				514,61
2. Industrial Processes	**9.037,21**	**17,55**	**11,18**	**1.160,63**	**69,85**	**332,32**	**10.628,73**
A. Mineral Products	2.938,26	NA	NE				2.938,26
B. Chemical Industry	589,08	17,55	11,1755				617,80
C. Metal Production	5.509,88	NA	NA		IE	IE	5.509,88
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	**156,50**		**W4**				**156,50**
4. Agriculture		**3.537,27**	**3.889,38**				**7.426,65**
A. Enteric Fermentation		3.202,92					3.202,92
B. Manure Management		323,84	931,88				1.255,72
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		9,686891707	2.957,31				2.967,00
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		0,82	0,19				1,01
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	**2,03**	**1.315,57**	**383,09**				**1.700,69**
A. Solid Waste Disposal on Land	NA,NO	1.234,85	0,00				1.234,85
B. Waste-water Handling		27,39	264,81				292,20
C. Waste Incineration	2,03	0,00	0,01				2,04
D. Other	NA	53,33	118,28				171,6057547
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	82.662,86
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
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Inventory 2011
Submission 2012 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)	**104.030,79**	**6.656,31**	**8.570,39**	**1.852,45**	**124,00**	**104,91**	**121.338,85**
1. Energy	**95.129,81**	**718,06**	**602,36**				**96.450,23**
A. Fuel Combustion (Sectoral Approach)	95.017,60	305,16	602,36				95.925,12
1. Energy Industries	20.797,67	39,88	164,77				21.002,32
2. Manufacturing Industries and Construction	22.789,21	66,20	136,30				22.991,72
3. Transport	24.113,27	15,32	244,06				24.372,65
4. Other Sectors	IE	IE	IE				IE,
5. Other	27.317,45	183,77	57,23				27.558,44
B. Fugitive Emissions from Fuels	112,20	412,90	IE,NA,NO				525,10
1. Solid Fuels	NO	5,47	IE				5,47
2. Oil and Natural Gas	112,20	407,43	IE				519,64
2. Industrial Processes	**8.810,47**	**0,82**	**2.650,06**	**1.852,45**	**124,00**	**104,91**	**13.542,71**
A. Mineral Products	4.801,22	NA,NO	NE				4.801,22
B. Chemical Industry	2.917,64	0,82	2.650,06				5.568,52
C. Metal Production	1.091,61	NA,NO	NO		IE	IE	1.091,61
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**		**213,65**				**213,65**
4. Agriculture		**5.197,31**	**4.806,44**				**10.003,75**
A. Enteric Fermentation		3.510,79					3.510,79
B. Manure Management		1.686,52	773,70				2.460,23
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA	4.032,73				4.032,73
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	**90,52**	**740,11**	**297,89**				**1.128,51**
A. Solid Waste Disposal on Land	NA,NO	595,83	0,00				595,83
B. Waste-water Handling		119,75	297,88				417,64
C. Waste Incineration	90,52	0,00	0,00				90,52
D. Other	NA	24,53	NA				24,53
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							121.338,85
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.

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Inventory 2011
Submission 2012 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)	**54.393,30**	**8.495,89**	**4.748,89**	**280,94**	**0,04**	**11,11**	**67.930,17**
1. Energy	**51.623,08**	**1.745,68**	**276,14**				**53.644,90**
A. Fuel Combustion (Sectoral Approach)	51.617,28	295,66	276,14				52.189,07
1. Energy Industries	34.331,89	8,58	132,57				34.473,03
2. Manufacturing Industries and Construction	6.406,43	10,05	16,61				6.433,09
3. Transport	7.691,04	17,04	79,98				7.788,06
4. Other Sectors	IE	IE	IE				IE,
5. Other	3.187,92	260,00	46,98				3.494,90
B. Fugitive Emissions from Fuels	5,80	1.450,02	0,01				1.455,83
1. Solid Fuels	NA,NO	939,01	IE				939,01
2. Oil and Natural Gas	5,80	511,01	IE				516,81
2. Industrial Processes	**2.730,51**	**0,50**	**267,50**	**280,94**	**0,04**	**11,11**	**3.290,61**
A. Mineral Products	1.921,07	NO	NE				1.921,07
B. Chemical Industry	748,97	0,50	267,50				1.016,97
C. Metal Production	60,46	NO	NA		IE	IE	60,46
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	**25,54**		**20,17**				**45,71**
4. Agriculture		**2.306,46**	**4.015,44**				**6.321,89**
A. Enteric Fermentation		1.346,88					1.346,88
B. Manure Management		833,89	421,18				1.255,07
C. Rice Cultivation		101,37					101,37
D. Agricultural Soils(3)		NA,NO	3.582,11				3.582,11
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		24,31	12,14				36,45
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	**14,17**	**4.443,25**	**169,64**				**4.627,06**
A. Solid Waste Disposal on Land	NO	3.743,05	0,00				3.743,05
B. Waste-water Handling		700,20	164,43				864,63
C. Waste Incineration	14,17	NO	5,21				19,38
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	67.930,17
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.

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Inventory 2011
Submission 2012 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)	**6.745,78**	**2.160,20**	**393,89**	**149,96**	**NA,NE,NO,**	**NA,NE,NO,**	**9.449,83**
1. Energy	**6.160,92**	**12,61**	**15,72**				**6.189,26**
A. Fuel Combustion (Sectoral Approach)	6.160,92	12,61	15,72				6.189,26
1. Energy Industries	3.868,00	3,12	9,22				3.880,34
2. Manufacturing Industries and Construction	712,75	0,92	2,31				715,98
3. Transport	2.232,80	8,66	5,87				2.247,33
4. Other Sectors	IE	IE	IE				IE,
5. Other	-652,63	-0,09	-1,67				-654,39
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	**584,86**	**0,00**	**0,00**	**149,96**	**NA,NO**	**NA,NO**	**734,82**
A. Mineral Products	584,86	NA,NE	NE				584,86
B. Chemical Industry	0,00	0,00	0				0,00
C. Metal Production	NA,NO	NA,NE	NA		IE	IE	IE,NA,NE,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	**NE**		**NE**				**NE,**
4. Agriculture		**313,45**	**355,71**				**669,16**
A. Enteric Fermentation		189,66					189,66
B. Manure Management		123,30	144,18				267,48
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA,NE	211,37				211,37
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		0,49	0,17				0,66
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,**	**1.834,15**	**22,45**				**1.856,60**
A. Solid Waste Disposal on Land	NA,NE,NO	1.059,34	0,00				1.059,34
B. Waste-water Handling		774,81	22,45				797,26
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							9.449,83
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 2011
Submission 2012 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)	**122.024,69**	**10.041,95**	**7.482,36**	**1.503,36**	**31,10**	**16,22**	**141.099,69**
1. Energy	**110.879,93**	**4.453,38**	**1.214,33**				**116.547,64**
A. Fuel Combustion (Sectoral Approach)	110.607,72	628,97	1.214,29				112.450,98
1. Energy Industries	54.576,81	21,09	262,18				54.860,08
2. Manufacturing Industries and Construction	23.417,63	56,39	104,14				23.578,16
3. Transport	17.031,81	26,89	702,82				17.761,52
4. Other Sectors	IE	IE	IE				IE,
5. Other	15.581,47	524,61	145,15				16.251,22
B. Fugitive Emissions from Fuels	272,21	3.824,41	0,04				4.096,66
1. Solid Fuels	259,30	3.149,65	IE				3.408,95
2. Oil and Natural Gas	12,91	674,76	IE				687,66
2. Industrial Processes	**10.672,30**	**29,45**	**455,24**	**1.503,36**	**31,10**	**16,22**	**12.707,68**
A. Mineral Products	3.675,10	3,35	NE				3.678,45
B. Chemical Industry	617,82	22,75	455,24				1.095,82
C. Metal Production	6.379,38	3,35	NA		IE	IE	6.382,73
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	**263,53**		**232,50**				**496,03**
4. Agriculture		**2.335,33**	**5.371,41**				**7.706,73**
A. Enteric Fermentation		1.965,62					1.965,62
B. Manure Management		369,71	672,56				1.042,28
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA,NE	4.698,84				4.698,84
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	**208,94**	**3.223,79**	**208,88**				**3.641,61**
A. Solid Waste Disposal on Land	NA,NO	2.708,23	0,00				2.708,23
B. Waste-water Handling		515,56	204,94				720,49
C. Waste Incineration	208,94	0,00	3,95				212,88
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							141.099,69
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 2011
Submission 2012 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)	**798.024,27**	**46.243,88**	**59.008,91**	**12.678,86**	**302,28**	**3.070,96**	**919.329,16**
1. Energy	**742.044,93**	**11.030,42**	**6.296,69**				**759.372,04**
A. Fuel Combustion (Sectoral Approach)	740.664,54	2.868,86	6.296,48				749.829,88
1. Energy Industries	344.305,15	1.686,40	3.687,91				349.679,46
2. Manufacturing Industries and Construction	114.399,20	159,01	737,82				115.296,04
3. Transport	154.821,98	162,72	1.310,81				156.295,51
4. Other Sectors	IE	IE	IE				IE,
5. Other	127.138,21	860,72	559,94				128.558,87
B. Fugitive Emissions from Fuels	1.380,39	8.161,56	0,21				9.542,16
1. Solid Fuels	0,29	2.565,88	IE				2.566,17
2. Oil and Natural Gas	1.380,09	5.595,68	IE				6.975,78
2. Industrial Processes	**54.534,15**	**0,25**	**7.343,57**	**12.678,86**	**302,28**	**3.070,96**	**77.930,07**
A. Mineral Products	19.735,02	NA	NE				19.735,02
B. Chemical Industry	15.838,56	0,25	7.329,88				23.168,69
C. Metal Production	18.960,57	NA	13,69		IE	IE	18.974,26
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	**1.445,19**		**299,06**				**1.744,25**
4. Agriculture		**25.630,66**	**42.417,51**				**68.048,18**
A. Enteric Fermentation		20.054,85					20.054,85
B. Manure Management		5.575,81	2.268,28				7.844,09
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA,NO	40.149,23				40.149,23
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,**	**9.582,55**	**2.652,06**				**12.234,61**
A. Solid Waste Disposal on Land	NO	8.967,00	0,00				8.967,00
B. Waste-water Handling		70,92	2.298,22				2.369,14
C. Waste Incineration	NO	NO	NO				NO,
D. Other	NO	544,63	353,85				898,48
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	919.329,16
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 2011
Submission 2012 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)	**44.479,53**	**5.439,59**	**5.712,30**	**800,25**	**10,86**	**37,46**	**56.479,99**
1. Energy	**43.431,18**	**443,03**	**297,98**				**44.172,19**
A. Fuel Combustion (Sectoral Approach)	43.093,70	337,62	297,15				43.728,46
1. Energy Industries	19.337,21	211,06	87,40				19.635,68
2. Manufacturing Industries and Construction	4.310,89	13,60	37,08				4.361,57
3. Transport	13.005,86	14,40	133,95				13.154,21
4. Other Sectors	IE	IE	IE				IE,
5. Other	6.439,73	98,56	38,72				6.577,01
B. Fugitive Emissions from Fuels	337,48	105,41	0,83				443,72
1. Solid Fuels	NA,NO	NA,NO	IE				IE,NA,NO,
2. Oil and Natural Gas	337,48	105,41	IE				442,89
2. Industrial Processes	**965,06**	**0,00**	**0,00**	**800,25**	**10,86**	**37,46**	**1.813,63**
A. Mineral Products	930,64	IE,NA	NE				930,64
B. Chemical Industry	2,12	0,00	0,00				2,12
C. Metal Production	NA,NO	IE,NA	NO		IE	IE	IE,NA,NO,
D. Other Production	1,56	0,00	0,00				1,56
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	30,74	NA	NA	IE	IE	IE	30,74
3. Solvent and Other Product Use	**62,86**		**14,16**				**77,02**
4. Agriculture		**4.146,78**	**5.273,37**				**9.420,15**
A. Enteric Fermentation		2.882,37					2.882,37
B. Manure Management		1.262,29	397,57				1.659,86
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA,NE	4.874,99				4.874,99
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		2,12	0,81				2,93
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	**20,43**	**849,79**	**126,79**				**997,01**
A. Solid Waste Disposal on Land	NA,NE,NO	689,78	0,00				689,78
B. Waste-water Handling		75,39	83,85				159,24
C. Waste Incineration	IE	0,02	0,29				0,31
D. Other	20,43	84,60	42,65				147,68
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							56.479,99
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 2011
Submission 2012 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)	**18.575,02**	**1.040,57**	**1.112,82**	**156,33**	**NA,NE,NO,**	**1,81**	**20.886,55**
1. Energy	**18.119,20**	**221,27**	**99,99**				**18.440,47**
A. Fuel Combustion (Sectoral Approach)	18.119,20	138,96	99,99				18.358,15
1. Energy Industries	14.599,66	12,85	26,76				14.639,27
2. Manufacturing Industries and Construction	615,14	1,88	3,56				620,58
3. Transport	2.270,32	7,66	19,12				2.297,10
4. Other Sectors	IE	IE	IE				IE,
5. Other	634,09	116,56	50,55				801,20
B. Fugitive Emissions from Fuels	NO,	82,32	NO				82,32
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	NO	82,32	IE				82,32
2. Industrial Processes	**442,97**	**0,00**	**0,00**	**156,33**	**NA,NO**	**1,81**	**601,11**
A. Mineral Products	442,97	NO	NE				442,97
B. Chemical Industry	0,00	0,00	0				0,00
C. Metal Production	NA,NO	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	**12,84**		**4,623972917**				**17,47**
4. Agriculture		**497,61**	**876,58**				**1.374,19**
A. Enteric Fermentation		448,49					448,49
B. Manure Management		49,12	100,84				149,96
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	775,74				775,74
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,NE,NO,**	**321,68**	**131,63**				**453,31**
A. Solid Waste Disposal on Land	NA,NE,NO	255,45	0,00				255,45
B. Waste-water Handling		6,03	64,93				70,95
C. Waste Incineration	NA	NA,NE	0,05				0,05
D. Other	NE	60,20	66,65				126,854732
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	20.886,55
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 2011
Submission 2012 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)	**287.055,40**	**34.223,91**	**26.643,51**	**7.569,81**	**308,36**	**361,06**	**356.162,04**
1. Energy	**269.387,97**	**2.388,64**	**2.482,42**				**274.259,03**
A. Fuel Combustion (Sectoral Approach)	267.200,31	1.596,63	2.482,39				271.279,33
1. Energy Industries	87.060,46	131,37	660,14				87.851,98
2. Manufacturing Industries and Construction	60.275,52	587,19	548,89				61.411,60
3. Transport	88.259,71	94,61	882,37				89.236,69
4. Other Sectors	IE	IE	IE				IE,
5. Other	31.604,62	783,45	390,98				32.779,06
B. Fugitive Emissions from Fuels	2.187,66	792,01	0,03				2.979,70
1. Solid Fuels	47,65	285,93	IE				333,57
2. Oil and Natural Gas	2.140,01	506,09	IE				2.646,10
2. Industrial Processes	**16.658,74**	**41,00**	**505,10**	**7.569,81**	**308,36**	**361,06**	**25.444,07**
A. Mineral Products	12.735,31	NA	NE				12.735,31
B. Chemical Industry	634,66	41,00	504,387608				1.180,05
C. Metal Production	3.288,77	NA	0,71		IE	IE	3.289,48
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	**1002,46**		**1817,46637**				**2819,93**
4. Agriculture		**17.434,61**	**20.552,33**				**37.986,94**
A. Enteric Fermentation		11.597,21					11.597,21
B. Manure Management		5.139,98	2.512,96				7.652,95
C. Rice Cultivation		300,39					300,39
D. Agricultural Soils(3)		IE,NA	17.966,90				17.966,90
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		397,03	72,46				469,49
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	**6,22**	**14.359,66**	**1.286,20**				**15.652,07**
A. Solid Waste Disposal on Land	2,29	11.965,39	1,17				11.968,85
B. Waste-water Handling		2.357,00	1.277,03				3.634,03
C. Waste Incineration	3,93	0,52	7,97				12,43
D. Other	NA	36,74	0,03				36,7676099
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							356.162,04
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 2011
Submission 2012 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)	**57.859,16**	**4.165,55**	**5.219,78**	**1.130,09**	**0,75**	**37,51**	**68.412,83**
1. Energy	**53.391,45**	**358,79**	**912,13**				**54.662,37**
A. Fuel Combustion (Sectoral Approach)	53.260,01	314,18	911,50				54.485,69
1. Energy Industries	24.016,60	18,88	314,83				24.350,32
2. Manufacturing Industries and Construction	9.148,47	12,87	130,12				9.291,46
3. Transport	13.435,00	37,85	177,91				13.650,76
4. Other Sectors	IE	IE	IE				IE,
5. Other	6.659,94	244,58	288,63				7.193,15
B. Fugitive Emissions from Fuels	131,44	44,61	0,64				176,69
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	131,44	44,61	IE				176,05
2. Industrial Processes	**4.425,23**	**0,00**	**166,58**	**1.130,09**	**0,75**	**37,51**	**5.760,16**
A. Mineral Products	1.259,56	NO	NE				1.259,56
B. Chemical Industry	780,06	0,00	166,58				946,64
C. Metal Production	2.385,60	NO	NO		IE	IE	2.385,60
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	**42,48**		**27,90**				**70,38**
4. Agriculture		**1.851,73**	**3.952,89**				**5.804,62**
A. Enteric Fermentation		1.561,72					1.561,72
B. Manure Management		289,78	421,33				711,11
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NE,NO	3.531,49				3.531,49
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		0,23	0,07				0,29
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,**	**1.955,04**	**160,27**				**2.115,31**
A. Solid Waste Disposal on Land	NO	1.773,16	0,00				1.773,16
B. Waste-water Handling		119,05	97,75				216,81
C. Waste Incineration	IE	IE	IE				IE,
D. Other	NO	62,83	62,52				125,34
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							68.412,83
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 2011
Submission 2012 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)	**358.989,40**	**61.665,67**	**59.678,98**	**17.476,39**	**39,15**	**353,84**	**498.203,44**
1. Energy	**338.784,27**	**2.895,30**	**4.070,50**				**345.750,07**
A. Fuel Combustion (Sectoral Approach)	335.449,92	1.798,50	4.040,75				341.289,17
1. Energy Industries	47.743,99	49,40	532,84				48.326,23
2. Manufacturing Industries and Construction	64.719,91	151,92	792,27				65.664,11
3. Transport	131.779,95	208,81	1.344,63				133.333,39
4. Other Sectors	IE	IE	IE				IE,
5. Other	91.206,07	1.388,37	1.371,01				93.965,45
B. Fugitive Emissions from Fuels	3.334,36	1.096,80	29,74				4.460,90
1. Solid Fuels	NA,NO	55,04	IE				55,04
2. Oil and Natural Gas	3.334,36	1.041,76	IE				4.376,11
2. Industrial Processes	**17.672,16**	**46,88**	**2.399,61**	**17.476,39**	**39,15**	**353,84**	**37.988,04**
A. Mineral Products	12.512,44	NA	NE				12.512,44
B. Chemical Industry	1.656,32	46,88	2.399,61				4.102,81
C. Metal Production	3.503,41	NA	NA		IE	IE	3.503,41
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	**1.048,99**		**87,49**				**1.136,48**
4. Agriculture		**41.684,48**	**51.839,78**				**93.524,26**
A. Enteric Fermentation		28.093,36					28.093,36
B. Manure Management		13.452,42	5.069,51				18.521,93
C. Rice Cultivation		114,28					114,28
D. Agricultural Soils(3)		NA	46.760,42				46.760,42
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		24,42	9,85				34,27
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	**1.483,97**	**17.039,01**	**1.281,60**				**19.804,59**
A. Solid Waste Disposal on Land	NA,NO	15.648,93	0,00				15.648,93
B. Waste-water Handling		1.210,03	780,40				1.990,43
C. Waste Incineration	1.483,97	23,07	73,94				1.580,98
D. Other	NA	156,98	427,26				584,25
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							498.203,44
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 2011
Submission 2012 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)	**96.148,40**	**9.843,92**	**7.092,41**	**3.557,92**	**101,61**	**6,14**	**116.750,41**
1. Energy	**91.447,60**	**1.662,59**	**754,76**				**93.864,95**
A. Fuel Combustion (Sectoral Approach)	91.439,87	183,32	754,73				92.377,92
1. Energy Industries	52.288,80	15,14	171,56				52.475,49
2. Manufacturing Industries and Construction	5.800,15	9,29	41,35				5.850,79
3. Transport	19.769,52	80,43	290,50				20.140,45
4. Other Sectors	IE	IE	IE				IE,
5. Other	13.581,40	78,46	251,33				13.911,19
B. Fugitive Emissions from Fuels	7,73	1.479,27	0,03				1.487,04
1. Solid Fuels	IE,NO	1.263,32	IE				1.263,32
2. Oil and Natural Gas	7,73	215,95	IE				223,68
2. Industrial Processes	**4.535,36**	**0,00**	**389,86**	**3.557,92**	**101,61**	**6,14**	**8.590,89**
A. Mineral Products	3.070,43	NA,NO	NE				3.070,43
B. Chemical Industry	595,72	0,00	389,86				985,58
C. Metal Production	869,21	NA,NO	NA		IE	IE	869,21
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	**162,25**		**155,11**				**317,36**
4. Agriculture		**3.645,15**	**5.396,11**				**9.041,26**
A. Enteric Fermentation		3.175,20					3.175,20
B. Manure Management		314,65	290,21				604,86
C. Rice Cultivation		125,92					125,92
D. Agricultural Soils(3)		NE,NO	5.094,75				5.094,75
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		29,37	11,15				40,52
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	**3,19**	**4.536,19**	**396,57**				**4.935,95**
A. Solid Waste Disposal on Land	NA,NO	3.467,99	0,00				3.467,99
B. Waste-water Handling		1.068,16	395,66				1.463,82
C. Waste Incineration	3,19	0,04	0,91				4,14
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	116.750,41
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 2011
Submission 2012 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)	**49.346,53**	**8.272,26**	**6.724,77**	**1.017,45**	**0,36**	**275,53**	**65.636,89**
1. Energy	**44.427,55**	**2.376,55**	**451,75**				**47.255,86**
A. Fuel Combustion (Sectoral Approach)	44.214,48	293,56	451,53				44.959,58
1. Energy Industries	15.758,80	24,79	80,53				15.864,12
2. Manufacturing Industries and Construction	3.896,31	9,99	11,10				3.917,40
3. Transport	11.329,93	21,35	360,05				11.711,33
4. Other Sectors	IE	IE	IE				IE,
5. Other	13.229,44	237,44	-0,15				13.466,73
B. Fugitive Emissions from Fuels	213,07	2.082,99	0,22				2.296,28
1. Solid Fuels	IE,NA,NO	15,04	IE				15,04
2. Oil and Natural Gas	213,07	2.067,95	IE				2.281,02
2. Industrial Processes	**4.802,10**	**21,90**	**10,64**	**1.017,45**	**0,36**	**275,53**	**6.127,98**
A. Mineral Products	1.102,22	NA,NO	NE				1.102,22
B. Chemical Industry	427,94	21,90	10,64478				460,49
C. Metal Production	2.316,39	NA,NO	NA		IE	IE	2.316,39
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	955,54	NO	NO	IE	IE	IE	955,54
3. Solvent and Other Product Use	**32,57**		**236,30866**				**268,88**
4. Agriculture		**2.511,09**	**5.824,48**				**8.335,57**
A. Enteric Fermentation		1.589,10					1.589,10
B. Manure Management		912,60	885,59				1.798,19
C. Rice Cultivation		9,39					9,39
D. Agricultural Soils(3)		NA,NO	4.938,89				4.938,89
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	**84,31**	**3.362,71**	**201,59**				**3.648,61**
A. Solid Waste Disposal on Land	NA,NO	2.943,49	0,00				2.943,49
B. Waste-water Handling		418,20	198,97				617,17
C. Waste Incineration	84,31	1,01	2,62				87,94
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							65.636,89
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 2011
Submission 2012 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)	**38.002,89**	**11.908,03**	**7.388,83**	**551,67**	**17,58**	**39,63**	**57.908,63**
1. Energy	**36.764,00**	**225,03**	**354,27**				**37.343,30**
A. Fuel Combustion (Sectoral Approach)	36.764,00	185,49	354,27				37.303,76
1. Energy Industries	11.274,19	4,98	149,41				11.428,58
2. Manufacturing Industries and Construction	4.664,60	7,53	16,49				4.688,61
3. Transport	10.381,85	16,51	101,03				10.499,39
4. Other Sectors	IE	IE	IE				IE,
5. Other	10.443,37	156,47	87,33				10.687,17
B. Fugitive Emissions from Fuels	IE,NO,	39,54	NO				39,54
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	IE,NO	39,54	IE				39,54
2. Industrial Processes	**1.168,46**	**0,00**	**0,00**	**551,67**	**17,58**	**39,63**	**1.777,34**
A. Mineral Products	1.168,46	NO	NE				1.168,46
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	**70,43**		**NA,NE**				**70,43**
4. Agriculture		**10.939,20**	**6.884,78**				**17.823,99**
A. Enteric Fermentation		8.749,48					8.749,48
B. Manure Management		2.189,72	442,06				2.631,78
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NE,NO	6.442,72				6.442,72
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,**	**743,79**	**149,78**				**893,57**
A. Solid Waste Disposal on Land	NA,NO	727,46	0,00				727,46
B. Waste-water Handling		16,33	149,78				166,11
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	57.908,63
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 2011
Submission 2012 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)	**414.857,50**	**37.625,29**	**26.766,94**	**9.310,70**	**1.330,83**	**367,53**	**490.258,81**
1. Energy	**393.553,96**	**6.695,83**	**4.861,94**				**405.111,73**
A. Fuel Combustion (Sectoral Approach)	391.258,03	1.580,53	4.849,52				397.688,08
1. Energy Industries	130.048,29	102,30	502,67				130.653,27
2. Manufacturing Industries and Construction	60.538,70	111,54	1.305,34				61.955,58
3. Transport	116.379,02	320,88	1.131,85				117.831,74
4. Other Sectors	IE	IE	IE				IE,
5. Other	84.292,02	1.045,81	1.909,66				87.247,49
B. Fugitive Emissions from Fuels	2.295,93	5.115,31	12,41				7.423,66
1. Solid Fuels	NA	60,74	IE				60,74
2. Oil and Natural Gas	2.295,93	5.054,57	IE				7.350,50
2. Industrial Processes	**20.113,84**	**5,58**	**188,47**	**9.310,70**	**1.330,83**	**367,53**	**31.316,97**
A. Mineral Products	17.088,60	NA	NE				17.088,60
B. Chemical Industry	1.431,20	5,58	188,47				1.625,25
C. Metal Production	1.594,05	NA	NA		IE	IE	1.594,05
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	**1.031,78**		**626,44**				**1.658,22**
4. Agriculture		**15.007,27**	**18.998,11**				**34.005,38**
A. Enteric Fermentation		10.840,24					10.840,24
B. Manure Management		2.589,30	3.788,66				6.377,97
C. Rice Cultivation		1.565,24					1.565,24
D. Agricultural Soils(3)		NA	15.205,62				15.205,62
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		12,48	3,83				16,31
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	**157,91**	**15.916,60**	**2.091,99**				**18.166,51**
A. Solid Waste Disposal on Land	NA,NO	12.891,67	0,00				12.891,67
B. Waste-water Handling		2.751,88	1.974,54				4.726,42
C. Waste Incineration	157,91	267,99	117,45				543,36
D. Other	NA	5,06	NA				5,06
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							490.258,81
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 2011
Submission 2012 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)	**14.416,00**	**3.219,55**	**3.562,69**	**187,32**	**NA,NE,NO,**	**10,70**	**21.396,27**
1. Energy	**12.788,63**	**466,78**	**121,31**				**13.376,72**
A. Fuel Combustion (Sectoral Approach)	12.779,23	215,78	121,28				13.116,29
1. Energy Industries	4.381,93	8,59	19,49				4.410,01
2. Manufacturing Industries and Construction	1.079,46	4,04	6,05				1.089,55
3. Transport	4.491,94	13,92	54,98				4.560,84
4. Other Sectors	IE	IE	IE				IE,
5. Other	2.825,91	189,23	40,75				3.055,89
B. Fugitive Emissions from Fuels	9,40	251,00	0,03				260,43
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	9,40	251,00	IE				260,40
2. Industrial Processes	**1.536,49**	**0,00**	**578,04**	**187,32**	**NA,NO**	**10,70**	**2.312,55**
A. Mineral Products	373,83	NA,NE,NO	NE				373,83
B. Chemical Industry	1.150,30	0,00	578,04				1.728,34
C. Metal Production	4,11	NA,NE,NO	NO		IE	IE	4,11
D. Other Production	8,25	0,00	0,00				8,25
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	**88,95**		**3,37**				**92,32**
4. Agriculture		**1.673,34**	**2.779,92**				**4.453,26**
A. Enteric Fermentation		1.233,90					1.233,90
B. Manure Management		439,44	283,81				723,25
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA	2.496,11				2.496,11
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	**1,93**	**1.079,43**	**80,06**				**1.161,42**
A. Solid Waste Disposal on Land	NA	954,42	0,00				954,42
B. Waste-water Handling		125,01	79,95				204,96
C. Waste Incineration	1,93	NA	0,11				2,03
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							21.396,27
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 2011
Submission 2012 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)	**10.889,23**	**430,42**	**462,40**	**71,22**	**0,20**	**8,14**	**11.861,62**
1. Energy	**10.281,91**	**54,99**	**97,95**				**10.434,85**
A. Fuel Combustion (Sectoral Approach)	10.281,91	15,98	97,95				10.395,84
1. Energy Industries	1.030,35	1,44	2,70				1.034,49
2. Manufacturing Industries and Constructic	1.376,11	2,14	28,21				1.406,46
3. Transport	6.557,52	5,66	70,53				6.633,71
4. Other Sectors	IE	IE	IE				IE,
5. Other	1.317,94	6,73	-3,50				1.321,17
B. Fugitive Emissions from Fuels	NA,NO,	39,01	NA,NO				39,01
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	NA,NO	39,01	IE				39,01
2. Industrial Processes	**597,34**	**0,00**	**0,00**	**71,22**	**0,20**	**8,14**	**676,90**
A. Mineral Products	463,99	NO	NE				463,99
B. Chemical Industry	0,00	0,00	0,00				0,00
C. Metal Production	133,35	NO	NA		IE	IE	133,35
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	**9,99**		**4,87**				**14,86**
4. Agriculture		**330,31**	**340,95**				**671,25**
A. Enteric Fermentation		235,79					235,79
B. Manure Management		94,52	27,20				121,72
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA,NE	313,75				313,75
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,**	**45,12**	**18,64**				**63,76**
A. Solid Waste Disposal on Land	NA,NO	34,75	0,00				34,75
B. Waste-water Handling		2,89	10,82				13,72
C. Waste Incineration	IE	IE	IE				IE,
D. Other	NO	7,48	7,82				15,30
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							11.861,62
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 2011
Submission 2012 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)	**8.556,18**	**1.735,45**	**1.737,25**	**105,17**	**NA,NE,NO,**	**14,03**	**12.148,08**
1. Energy	**7.910,13**	**357,10**	**121,17**				**8.388,41**
A. Fuel Combustion (Sectoral Approach)	7.910,13	252,51	121,17				8.283,81
1. Energy Industries	2.091,61	4,12	7,94				2.103,68
2. Manufacturing Industries and Construction	941,16	7,08	12,37				960,61
3. Transport	3.356,61	4,67	52,29				3.413,57
4. Other Sectors	IE	IE	IE				IE,
5. Other	1.520,74	236,64	48,58				1.805,96
B. Fugitive Emissions from Fuels	NO,	104,59	NO				104,59
1. Solid Fuels	NO	NO	IE				IE,NO,
2. Oil and Natural Gas	NO	104,59	IE				104,59
2. Industrial Processes	**608,41**	**0,00**	**0,00**	**105,17**	**NA,NO**	**14,03**	**727,61**
A. Mineral Products	596,90	IE,NA,NE,NO	NE				596,90
B. Chemical Industry	0,00	0,00	0,00				0,00
C. Metal Production	11,51	IE,NA,NE,NO	NO		IE	IE	11,51
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	**37,30**		**4,65**				**41,95**
4. Agriculture		**767,90**	**1.556,13**				**2.324,03**
A. Enteric Fermentation		672,83					672,83
B. Manure Management		95,07	127,93				223,01
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NA	1.428,20				1.428,20
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**	**610,45**	**55,29**				**666,09**
A. Solid Waste Disposal on Land	NA,NO	435,35	0,00				435,35
B. Waste-water Handling		173,55	53,56				227,11
C. Waste Incineration	0,34	NA,NO	0,01				0,35
D. Other	NA	1,56	1,73				3,28
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	12.148,08
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 2012 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)	**2.513,97**	**250,75**	**48,34**	**97,50**	**0,00**	**1,75**	**2.912,30**
1. Energy	**2.513,20**	**4,52**	**13,56**				**2.531,28**
A. Fuel Combustion (Sectoral Approach)	2.513,20	4,52	13,56				2.531,28
1. Energy Industries	1.940,68	1,59	4,69				1.946,97
2. Manufacturing Industries and Construct	46,04	0,04	0,11				46,18
3. Transport	613,19	2,89	8,79				624,88
4. Other Sectors	IE	IE	IE				IE,
5. Other	-86,71	0,01	-0,04				-86,75
B. Fugitive Emissions from Fuels	NA,NE,NO,	NA,NE,	NA				NA,NE,NO,
1. Solid Fuels	NA	NA	IE				IE,NA,
2. Oil and Natural Gas	NA,NE,NO	NA,NE	IE				IE,NA,NE,NO,
2. Industrial Processes	**0,25**	**0,00**	**0,00**	**97,50**	**0,00**	**1,75**	**99,49**
A. Mineral Products	0,15	NO	NE				0,15
B. Chemical Industry	0,10	0,00	0,00				0,10
C. Metal Production	NA,NO	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**		**1,29**				**1,29**
4. Agriculture		**50,22**	**21,70**				**71,92**
A. Enteric Fermentation		28,45					28,45
B. Manure Management		21,77	4,26				26,03
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA,NE	17,44				17,44
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	**0,52**	**196,01**	**11,79**				**208,32**
A. Solid Waste Disposal on Land	NA	180,76	0,00				180,76
B. Waste-water Handling		15,25	11,57				26,82
C. Waste Incineration	0,52	0,00	0,22				0,74
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							2.912,30
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 2012 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)	**169.487,19**	**16.148,82**	**9.234,32**	**2.274,14**	**208,86**	**146,71**	**197.500,03**
1. Energy	**163.084,40**	**2.373,01**	**728,46**				**166.185,87**
A. Fuel Combustion (Sectoral Approach)	161.109,25	1.589,97	728,46				163.427,67
1. Energy Industries	60.914,72	105,13	236,65				61.256,50
2. Manufacturing Industries and Construction	26.619,31	53,85	31,01				26.704,18
3. Transport	35.490,18	52,75	449,49				35.992,42
4. Other Sectors	IE	IE	IE				IE,
5. Other	38.085,03	1.378,24	11,31				39.474,58
B. Fugitive Emissions from Fuels	1.975,15	783,04	IE,NA,NO				2.758,19
1. Solid Fuels	972,43	20,21	IE				992,64
2. Oil and Natural Gas	1.002,72	762,83	IE				1.765,55
2. Industrial Processes	**6.275,03**	**254,73**	**993,56**	**2.274,14**	**208,86**	**146,71**	**10.153,02**
A. Mineral Products	1.259,49	NO	NE				1.259,49
B. Chemical Industry	3.679,28	219,09	982,16				4.880,53
C. Metal Production	1.014,58	NO	NO		IE	IE	1.014,58
D. Other Production	29,07	0,00	0,00				29,07
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	292,61	35,63	11,40	IE	IE	IE	339,64
3. Solvent and Other Product Use	**127,76**		**41,31**				**169,07**
4. Agriculture		**9.377,61**	**6.988,31**				**16.365,93**
A. Enteric Fermentation		6.537,03					6.537,03
B. Manure Management		2.840,58	1.004,45				3.845,04
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NE,NO	5.983,86				5.983,86
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,**	**4.143,47**	**482,68**				**4.626,15**
A. Solid Waste Disposal on Land	NA,NO	3.925,31	0,00				3.925,31
B. Waste-water Handling		197,82	449,18				647,00
C. Waste Incineration	IE	IE	IE				IE,
D. Other	NA	20,35	33,50				53,85
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							197.500,03
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 2012 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)	**336.656,29**	**34.195,31**	**27.584,08**	**7.348,11**	**86,40**	**39,82**	**405.910,01**
1. Energy	**312.772,94**	**15.291,15**	**2.234,38**				**330.298,47**
A. Fuel Combustion (Sectoral Approach)	312.586,87	3.541,15	2.234,19				318.362,21
1. Energy Industries	173.173,95	87,30	842,47				174.103,73
2. Manufacturing Industries and Construction	31.819,99	74,35	202,73				32.097,07
3. Transport	49.265,56	118,57	642,80				50.026,93
4. Other Sectors	IE	IE	IE				IE,
5. Other	58.327,37	3.260,93	546,19				62.134,49
B. Fugitive Emissions from Fuels	186,07	11.749,99	0,20				11.936,26
1. Solid Fuels	1,55	7.284,42	IE				7.285,97
2. Oil and Natural Gas	184,52	4.465,58	IE				4.650,10
2. Industrial Processes	**23.006,11**	**234,42**	**1.164,40**	**7.348,11**	**86,40**	**39,82**	**31.879,27**
A. Mineral Products	10.513,37	NA	NE				10.513,37
B. Chemical Industry	3.682,79	234,42	1.150,32				5.067,53
C. Metal Production	7.442,69	NA	14,09		IE	IE	7.456,78
D. Other Production	8,60	0,00	0,00				8,60
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	1.358,66	NO	NO	IE	IE	IE	1.358,66
3. Solvent and Other Product Use	**655,40**		**124,00**				**779,40**
4. Agriculture		**11.531,24**	**22.936,98**				**34.468,21**
A. Enteric Fermentation		8.779,64					8.779,64
B. Manure Management		2.733,79	5.120,12				7.853,91
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NA	17.806,90				17.806,90
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		17,81	9,96				27,76
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	**221,84**	**7.138,51**	**1.124,32**				**8.484,67**
A. Solid Waste Disposal on Land	NA,NO	6.017,03	0,00				6.017,03
B. Waste-water Handling		1.121,48	1.115,01				2.236,49
C. Waste Incineration	221,84	NA	9,31				231,15
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							405.910,01
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 2012 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)	**52.363,69**	**11.650,71**	**4.675,06**	**1.280,85**	**0,00**	**7,11**	**69.977,43**
1. Energy	**48.527,11**	**857,09**	**571,93**				**49.956,14**
A. Fuel Combustion (Sectoral Approach)	47.818,27	285,05	569,29				48.672,61
1. Energy Industries	16.186,22	7,54	132,00				16.325,76
2. Manufacturing Industries and Construction	9.035,54	48,96	95,69				9.180,19
3. Transport	17.624,63	32,02	173,27				17.829,92
4. Other Sectors	IE	IE	IE				IE,
5. Other	4.971,88	196,52	168,34				5.336,74
B. Fugitive Emissions from Fuels	708,84	572,05	2,64				1.283,52
1. Solid Fuels	IE,NO	IE,NO	IE				IE,NO,
2. Oil and Natural Gas	708,84	572,05	IE				1.280,89
2. Industrial Processes	**3.637,38**	**12,13**	**271,91**	**1.280,85**	**0,00**	**7,11**	**5.209,38**
A. Mineral Products	3.509,15	1,39	NE				3.510,54
B. Chemical Industry	108,62	9,34	271,91				389,87
C. Metal Production	19,36	1,39	NO		IE	IE	20,75
D. Other Production	0,25	0,00	0,00				0,25
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	**197,35**		**57,84**				**255,19**
4. Agriculture		**4.206,24**	**3.178,93**				**7.385,17**
A. Enteric Fermentation		2.743,67					2.743,67
B. Manure Management		1.076,26	279,42				1.355,68
C. Rice Cultivation		367,02					367,02
D. Agricultural Soils(3)		NE,NO	2.884,03				2.884,03
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		19,30	15,49				34,78
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	**1,85**	**6.575,26**	**594,44**				**7.171,55**
A. Solid Waste Disposal on Land	NA	4.633,48	NO				4.633,48
B. Waste-water Handling		1.941,43	584,25				2.525,68
C. Waste Incineration	1,85	0,35	10,07				12,27
D. Other	NO	0,01	0,11				0,12
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							69.977,43
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 2012 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)	**92.131,89**	**19.390,45**	**11.480,83**	**695,05**	**7,93**	**5,09**	**123.711,25**
1. Energy	**80.813,31**	**9.152,62**	**954,05**				**90.919,97**
A. Fuel Combustion (Sectoral Approach)	80.169,78	1.242,24	952,08				82.364,11
1. Energy Industries	36.609,87	12,28	126,16				36.748,30
2. Manufacturing Industries and Construction	19.453,24	38,16	50,95				19.542,34
3. Transport	14.789,04	133,09	542,15				15.464,28
4. Other Sectors	IE	IE	IE				IE,
5. Other	9.317,63	1.058,72	232,83				10.609,18
B. Fugitive Emissions from Fuels	643,52	7.910,38	1,97				8.555,87
1. Solid Fuels	NA	924,77	IE				924,77
2. Oil and Natural Gas	643,52	6.985,60	IE				7.629,13
2. Industrial Processes	**11.185,56**	**11,60**	**1.152,25**	**695,05**	**7,93**	**5,09**	**13.057,48**
A. Mineral Products	5.295,55	NA,NE	NE				5.295,55
B. Chemical Industry	2.542,69	11,60	1.152,25				3.706,55
C. Metal Production	3.347,31	NA,NE	NA		IE	IE	3.347,31
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	**124,74**		**NE**				**124,74**
4. Agriculture		**5.146,94**	**8.696,79**				**13.843,72**
A. Enteric Fermentation		4.653,93					4.653,93
B. Manure Management		363,62	809,80				1.173,41
C. Rice Cultivation		27,31					27,31
D. Agricultural Soils(3)		NA,NE	7.851,26				7.851,26
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		102,08	35,73				137,80
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	**8,29**	**5.079,30**	**677,74**				**5.765,34**
A. Solid Waste Disposal on Land	NA	3.012,23	0,00				3.012,23
B. Waste-water Handling		2.067,07	677,74				2.744,82
C. Waste Incineration	8,29	NE	NE				8,29
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							123.711,25
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 2012 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)	**49.937,68**	**5.016,76**	**6.826,01**	**906,09**	**66,36**	**73,34**	**62.826,23**
1. Energy	**44.195,62**	**625,01**	**1.401,00**				**46.221,64**
A. Fuel Combustion (Sectoral Approach)	43.344,33	531,24	1.397,01				45.272,58
1. Energy Industries	9.049,86	67,62	361,22				9.478,71
2. Manufacturing Industries and Construction	8.620,33	44,66	437,53				9.102,52
3. Transport	18.480,86	51,62	148,71				18.681,19
4. Other Sectors	IE	IE	IE				IE,
5. Other	7.193,28	367,34	449,54				8.010,16
B. Fugitive Emissions from Fuels	851,29	93,78	3,99				949,06
1. Solid Fuels	5,01	0,00	IE				5,01
2. Oil and Natural Gas	846,28	93,77	IE				940,06
2. Industrial Processes	**5.426,29**	**3,73**	**348,90**	**906,09**	**66,36**	**73,34**	**6.824,70**
A. Mineral Products	2.147,96	NA	NE				2.147,96
B. Chemical Industry	130,77	3,73	348,90				483,40
C. Metal Production	3.147,56	NA	NA,NO		IE	IE	3.147,56
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	NO	NO	NO	IE	IE	IE	IE,NO,
3. Solvent and Other Product Use	**211,42**		**108,50**				**319,92**
4. Agriculture		**2.980,89**	**4.801,62**				**7.782,50**
A. Enteric Fermentation		2.690,25					2.690,25
B. Manure Management		290,63	450,44				741,08
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	4.351,17				4.351,17
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	**104,35**	**1.407,13**	**165,99**				**1.677,47**
A. Solid Waste Disposal on Land	NO	1.107,65	0,00				1.107,65
B. Waste-water Handling		299,46	161,31				460,77
C. Waste Incineration	104,35	0,02	4,68				109,05
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							62.826,23
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 2011
Submission 2012 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)	**16,473.53**	**1,947.24**	**1,126.17**	**207.98**	**13.68**	**15.35**	**19,783.95**
1. Energy	**15,781.78**	**401.31**	**184.25**				**16,367.33**
A. Fuel Combustion (Sectoral Approach)	15,701.15	148.03	184.25				16,033.42
1. Energy Industries	6,212.43	2.24	26.95				6,241.62
2. Manufacturing Industries and Construction	1,726.83	5.78	24.39				1,756.99
3. Transport	5,710.50	10.09	88.60				5,809.19
4. Other Sectors	IE	IE	IE				IE,
5. Other	2,051.39	129.93	44.30				2,225.61
B. Fugitive Emissions from Fuels	80.63	253.28	NA,NO				333.91
1. Solid Fuels	80.63	253.28	IE				333.91
2. Oil and Natural Gas	0.00	0.00	IE				0.00
2. Industrial Processes	**686.37**	**4.38**	**0.00**	**207.98**	**13.68**	**15.35**	**927.76**
A. Mineral Products	573.10	NA	NE				573.10
B. Chemical Industry	1.14	4.38	0.00				5.53
C. Metal Production	112.12	NA	NO		IE	IE	112.12
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	**NA,NE,NO**		**32.2111644**				**32.21**
4. Agriculture		**1,067.35**	**850.61**				**1,917.95**
A. Enteric Fermentation		655.84					655.84
B. Manure Management		411.51	139.19				550.71
C. Rice Cultivation		NO					NO,
D. Agricultural Soils(3)		NO	711.41				711.41
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	**5.39**	**474.20**	**59.11**				**538.70**
A. Solid Waste Disposal on Land	NA,NO	317.09	0.00				317.09
B. Waste-water Handling		157.12	59.10				216.22
C. Waste Incineration	5.39	NA,NO	0.00				5.39
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	19,783.95
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 2012 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)	**38.054,07**	**4.283,14**	**3.199,85**	**344,72**	**29,67**	**15,35**	**45.926,79**
1. Energy	**30.318,12**	**1.278,85**	**154,95**				**31.751,92**
A. Fuel Combustion (Sectoral Approach)	30.318,12	152,05	154,95				30.625,12
1. Energy Industries	8.894,26	4,69	35,24				8.934,19
2. Manufacturing Industries and Constructi	9.544,56	9,02	19,25				9.572,83
3. Transport	6.549,38	15,15	80,21				6.644,73
4. Other Sectors	IE	IE	IE				IE,
5. Other	5.329,92	123,19	20,26				5.473,37
B. Fugitive Emissions from Fuels	0,00	1.126,80	0,00				1.126,80
1. Solid Fuels	NA,NO	319,32	IE				319,32
2. Oil and Natural Gas	0,00	807,48	IE				807,48
2. Industrial Processes	**7.615,29**	**22,83**	**740,95**	**344,72**	**29,67**	**15,35**	**8.768,81**
A. Mineral Products	2.641,20	NA	NE				2.641,20
B. Chemical Industry	703,75	22,83	740,95				1.467,53
C. Metal Production	4.270,34	NA	NA		IE	IE	4.270,34
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	**83,56**		**76,58**				**160,14**
4. Agriculture		**950,47**	**2.074,81**				**3.025,27**
A. Enteric Fermentation		840,32					840,32
B. Manure Management		110,15	362,00				472,15
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		NO	1.712,81				1.712,81
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	**37,09**	**2.031,00**	**152,56**				**2.220,66**
A. Solid Waste Disposal on Land	NO	1.615,26	0,00				1.615,26
B. Waste-water Handling		359,52	87,07				446,59
C. Waste Incineration	37,09	NO	3,25				40,34
D. Other	NO	56,22	62,24				118,46
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							45.926,79
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 2011
Submission 2012 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)	**464.822,29**	**39.746,68**	**34.298,60**	**14.700,08**	**220,45**	**595,70**	**554.383,80**
1. Energy	**454.645,34**	**7.390,23**	**4.509,33**				**466.544,89**
A. Fuel Combustion (Sectoral Approach)	449.986,09	1.194,65	4.461,77				455.642,51
1. Energy Industries	174.131,43	258,72	1.271,73				175.661,89
2. Manufacturing Industries and Construction	66.087,92	211,65	1.087,49				67.387,05
3. Transport	115.923,48	79,10	1.145,66				117.148,24
4. Other Sectors	IE	IE	IE				IE,
5. Other	93.843,26	645,17	956,90				95.445,33
B. Fugitive Emissions from Fuels	4.659,25	6.195,59	47,55				10.902,39
1. Solid Fuels	219,64	1.932,24	IE				2.151,89
2. Oil and Natural Gas	4.439,61	4.263,34	IE				8.702,95
2. Industrial Processes	**9.902,23**	**75,97**	**1.000,29**	**14.700,08**	**220,45**	**595,70**	**26.494,72**
A. Mineral Products	5.241,42	0,24	NE				5.241,66
B. Chemical Industry	2.947,80	75,49	994,49				4.017,78
C. Metal Production	1.713,02	0,24	5,80		IE	IE	1.719,06
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		**17.597,19**	**27.625,59**				**45.222,78**
A. Enteric Fermentation		14.998,89					14.998,89
B. Manure Management		2.598,29	1.614,54				4.212,83
C. Rice Cultivation		NA,NO					NA,NO,
D. Agricultural Soils(3)		IE,NA,NE	26.011,06				26.011,06
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	**274,72**	**14.683,29**	**1.163,39**				**16.121,40**
A. Solid Waste Disposal on Land	NA,NE,NO	14.348,67	0,00				14.348,67
B. Waste-water Handling		332,13	1.116,88				1.449,01
C. Waste Incineration	274,72	2,49	46,51				323,72
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							554.383,80
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 2011
Submission 2012 v1.0
EU-15

GREENHOUSE GAS SOURCE AND	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
SINK CATEGORIES	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3.017.680,39**	**296.154,84**	**266.556,24**	**75.321,15**	**2.801,14**	**5.542,36**	**3.664.056,12**
1. Energy	**2.846.206,78**	**38.236,92**	**28.635,88**				**2.913.079,57**
A. Fuel Combustion (Sectoral Approach)	2.827.986,89	13.029,59	28.537,80				2.869.554,28
1. Energy Industries	1.011.708,46	2.707,12	8.379,22				1.022.794,80
2. Manufacturing Industries and Construction	473.904,90	1.494,71	5.577,55				480.977,17
3. Transport	787.263,08	1.187,08	7.825,97				796.276,14
4. Other Sectors	IE	IE	IE				IE,
5. Other	555.110,45	7.640,68	6.755,05				569.506,17
B. Fugitive Emissions from Fuels	18.219,88	25.207,33	98,08				43.525,29
1. Solid Fuels	1245,02	6.188,83	IE				7.433,85
2. Oil and Natural Gas	16.974,86	19.018,49	IE				35.993,36
2. Industrial Processes	**163.758,96**	**458,64**	**16.269,07**	**75.321,15**	**2.801,14**	**5.542,36**	**264.151,32**
A. Mineral Products	88.861,94	1,631179712	NE				88.863,57
B. Chemical Industry	31.311,84	419,74	16237,4725				47.969,06
C. Metal Production	43.230,96	1,63	20,21		IE	IE	43.252,79
D. Other Production	30,87705164	0,00	0,00				30,87705164
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	323,35	35,63330962	11,39715	IE	IE	IE	370,38
3. Solvent and Other Product Use	**5569,46**		**3453,798507**				**9023,26**
4. Agriculture		**163.566,71**	**206.946,10**				**370.512,81**
A. Enteric Fermentation		120.873,79					120.873,79
B. Manure Management		39.724,61	20.272,23				59.996,83
C. Rice Cultivation		2.472,85					2.472,85
D. Agricultural Soils(3)		9,686891707	186.560,03				186.569,72
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		485,77	113,84				599,61
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	**2.145,20**	**93.892,57**	**11.251,39**				**107.289,16**
A. Solid Waste Disposal on Land	2,29	82.011,90	1,17				82.015,36
B. Waste-water Handling		10.589,64	9.942,37				20.532,01
C. Waste Incineration	2.122,48	294,49	261,84				2.678,81
D. Other	20,43	996,53	1.046,01				2062,976271
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	3.664.056,12
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 2011
Submission 2012 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)	**3.777.567,64**	**391.211,82**	**335.758,19**	**87.415,03**	**2.945,87**	**5.949,13**	**4.600.847,67**
1. Energy	**3.540.315,56**	**74.022,95**	**34.477,48**				**3.648.815,99**
A. Fuel Combustion (Sectoral Approach)	3.520.684,99	19.955,63	34.376,94				3.575.017,56
1. Energy Industries	1.368.148,36	2.898,35	9.953,42				1.381.000,14
2. Manufacturing Industries and Construction	573.564,44	1.712,40	6.031,11				581.307,95
3. Transport	912.595,22	1.567,04	10.463,63				924.625,89
4. Other Sectors	IE	IE	IE				IE,
5. Other	666.376,97	13.777,84	7.928,78				688.083,59
B. Fugitive Emissions from Fuels	19.630,57	54.067,32	100,54				73.798,44
1. Solid Fuels	1586,50	19.074,33	IE				20.660,82
2. Oil and Natural Gas	18.044,08	34.992,99	IE				53.037,07
2. Industrial Processes	**227.630,17**	**783,73**	**20.638,11**	**87.415,03**	**2.945,87**	**5.949,13**	**345.362,03**
A. Mineral Products	116.582,26	4,982825813	NE				116.587,25
B. Chemical Industry	41.187,36	738,13	20592,42				62.517,90
C. Metal Production	67.175,27	4,98	34,29		IE	IE	67.214,55
D. Other Production	47,72744291	0,00	0,00				47,72744291
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	2.637,55	35,63330962	11,39715	IE	IE	IE	2.684,58
3. Solvent and Other Product Use	**6893,89**		**4189,50203**				**11083,39**
4. Agriculture		**192.718,09**	**262.306,64**				**455.024,73**
A. Enteric Fermentation		143.278,44					143.278,44
B. Manure Management		46.188,59	29.343,67				75.532,26
C. Rice Cultivation		2.610,92					2.610,92
D. Agricultural Soils(3)		9,686891707	232.791,13				232.800,81
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		630,46	171,84				802,30
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	**2.728,01**	**123.687,04**	**14.146,46**				**140.561,51**
A. Solid Waste Disposal on Land	2,29	105.253,59	1,17				105.257,05
B. Waste-water Handling		17.023,43	12.682,10				29.705,53
C. Waste Incineration	2.705,29	295,50	286,56				3.287,36
D. Other	20,43	1.114,51	1.176,63				2311,574542
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	4.600.847,67
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.