Approximated EU GHG inventory for the year 2009

Short report for EU-15 and EU-27

ETC/ACC Technical Paper 2010/4
September 2010

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European Topic Centre on Air and Climate Change

The European Topic Centre on Air and Climate Change (ETC/ACC)
is a consortium of European institutes under contract of the European Environment Agency
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Front page picture:
Industrial greenhouse gas emissions

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DISCLAIMER

This ETC/ACC Technical Paper has not been subjected to European Environment Agency (EEA) member country review. It does not represent the formal views of the EEA.

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Acknowledgements

This paper was prepared for the European Environment Agency (EEA) by its European Topic Centre for Air and Climate Change (ETC/ACC). The ETC/ACC is a consortium of European institutes under contract of the European Environment Agency: MNP, UBA-D, UBA-V, NILU, AEAT, AUTH, CHMI, Met.No, ÖKO, TNO and REC. The coordinating author was Anke Herold (ÖKO). Other authors were, in alphabetical order, Julia Busche, Sabine Gores, Hauke Hermann; Gerhard Penninger. The EEA project managers were Andreas Barkman and Ricardo Fernandez.

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Abbreviations

AF	Adjustment factor
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, Luxemburg, 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
UNFCCC	United Nations Framework Convention on Climate Change

1 Summary

The European Union (EU), as a party to the United Nations Framework Convention on Climate Change (UNFCCC), reports annually on greenhouse gas (GHG) inventories for the year y-2 and within the area covered by its Member States (i.e. domestic emissions taking place within its territory).

National GHG (greenhouse gas) inventories for EU Member States under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol are only available with a delay of 1 ½ years (inventories submitted 15 April of the year y include data up the year y-2). The latest official data available (1990-2008) covering all countries, sectors and gases was released 02 June 2010[1] in connection with the annual submission of the EU greenhouse gas inventory to the UNFCCC[2]. Verified emissions from the EU Emissions Trading Scheme for 2009 are already available[3]. Thus, emissions data for the trading sectors are publicly available one year ahead of inventory data, the latter covering all greenhouse gas emissions for both trading and non-trading 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. An early estimate of 2008 and 2009 can be used to better track progress towards EU targets, for example in the annual EEA report on greenhouse gas emission trends and projections in Europe, which will be published later this year.

The EEA published its first early estimates of greenhouse gas emissions for 2008 at the end of August 2009[4] The actual reduction in greenhouse gas emissions in 2008, as officially reported to UNFCCC earlier this year, was captured by the confidence interval around the early estimates for EU-15 and EU-27.

The present technical report contains GHG emissions for 2009 for the EU-15 and the EU-27 based on methodologies using data sources that were published by mid-July of 2010. The estimates cover total GHG emissions as reported under the Kyoto Protocol and the UNFCCC excluding the LULUCF sector. Estimations are performed 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 y-1 were identified, which were used to calculate emissions. For source categories for which no international datasets with

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1 EEA Greenhouse Gas Data Viewer http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=475

2 European Union's Greenhouse Gas Inventory 2010 (Official submission to the UNFCCC) http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2010

3 European Union Emissions Trading Scheme (EU ETS) data viewer http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=473

4 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

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 linear trend. On this basis, a detailed bottom-up approach was developed that covers the full scope of emissions of a GHG inventory submission.

The EEA estimates are based on, publicly available, verified EU ETS emissions for 2009 and published activity data, as of mid-July, at both national and European level disaggregated by major source categories in all sectors reported under the UNFCCC and the Kyoto Protocol. Because of the inherent uncertainty in the estimations and given the main focus is providing robust EU aggregates, Member State data are not published. Some countries are already publishing their own early greenhouse gas estimates. When relevant, these are used by the EEA to better assess current progress in relation to greenhouse gas emission targets and also as a quality assurance and quality control (QA/QC) and verification of own calculations which progressively should lead to more robust EU estimates.

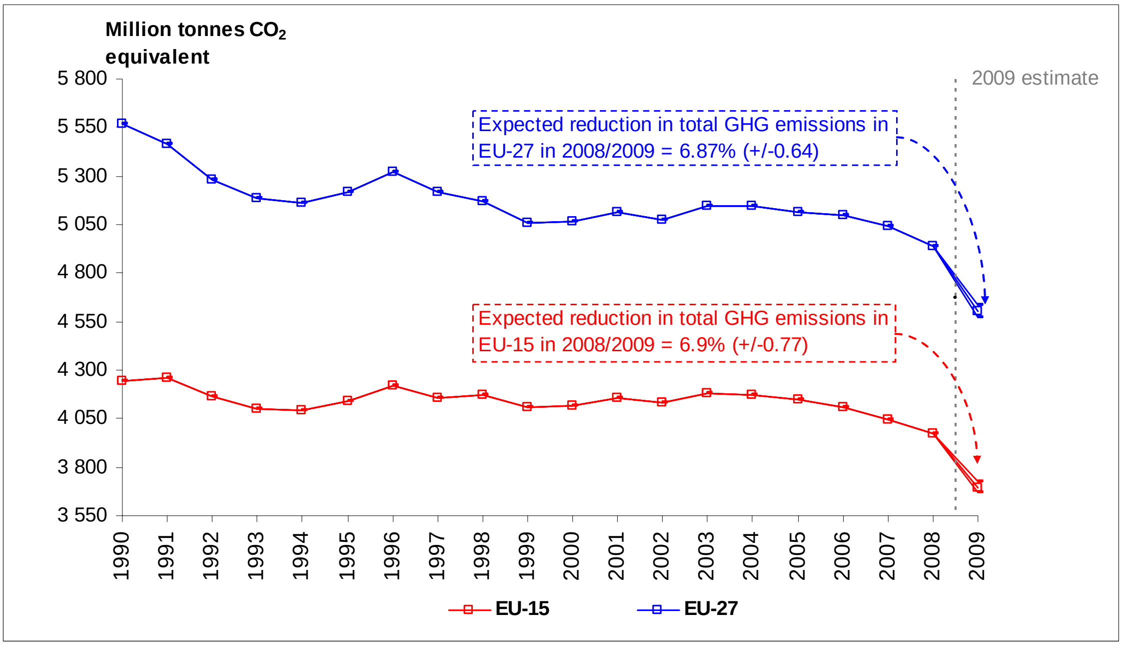
The 2009 EEA estimates indicate that EU greenhouse gas emissions decreased in 2009 for the sixth consecutive year. Compared to the 2008 official emissions published earlier this year, the annual reduction is estimated to be about - 6.9 % for both the EU-15 and for the EU-27.

Based on these 2009 estimates, greenhouse gas emissions in 2009 would be approximately 12.9 % below the Kyoto base year emissions for the EU-15[5], and 17.3 % below the 1990 level for the EU-27[6]. See Figure 1 below

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

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

Figure 1 Trend in total greenhouse gas emissions excluding LULUCF in EU-15 and EU-27, 1990-2008 official data, 2009 EEA estimate



Source: EEA's ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

This strong annual decline in GHG emissions is mainly due to the economic crisis in 2009 leading to substantial emission reductions relative to 2008 in all Member States. Based on the latest official European Commission forecasts published earlier in the Spring, GDP in the EU-27 contracted by 4.2 % in 2009[7]. The economic downturn reduced industrial output and reduced energy consumption by industry. Energy gross inland consumption dropped in 2009 by - 5.5% for EU-27 compared to 2008 to levels of the mid 90's.

Lower demand for energy because of the economic recession was accompanied by lower energy and carbon prices in 2009. Newly-released data by the International Energy Agency (IEA) points to a sharp fall in energy prices during 2009[8] from the high levels of 2008. Eurostat's data also confirms a significant reduction in natural gas prices for industrial consumers and households in most EU Member States[9]. Carbon prices re-

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

[8] Key World Energy Statistics 2010, IEA http://www.iea.org/textbase/nppdf/free/2010/key_stats_2010.pdf

[9] Natural gas prices, Eurostat http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-QA-10-021/EN/KS-QA-10-021-EN.PDF

mained relatively stable during 2009 although significantly lower than during 2008[10]. Relatively cheaper natural gas and a significant increase in renewable energy have also contributed to lower emissions.

The largest absolute emission reductions occurred in the energy sector, which shows - 220.2 Mt CO_2eq for the EU-15 and - 267.7 Mt CO_2eq for the EU-27 – equivalent to an emission reduction by - 6.9 % for both EU-15 and EU-27. Energy statistics from Eurostat based on monthly data show a decline in hard coal and lignite consumption in the EU-27 between 2008 and 2009 of - 12.7 % and of - 13.4 % in the EU-15, gas consumption dropped by - 5.8 % (EU-27) and - 5.4 % (EU-15) and liquid fuel consumption was 4.5 % (EU-27) and 3.7 % (EU-15) lower than in 2008.[11] The reduction in gas consumption was intensified in January 2009 due to the Russia-Ukraine gas dispute, which caused disruptions in supply to eighteen European countries in a very cold phase in winter 2009. According to Eurostat's monthly energy statistics, nuclear energy consumption declined by about – 3 % in the EU-27 between 2008 and 2009. Preliminary renewable energy data for 2009 also points to a significant increase of + 8.3% in renewable energy consumption (excluding biomass) in Europe between 2008 and 2009. Thus, at EU level the most pronounced decline in energy consumption occurred for coal use with the strongest impact on GHG emissions. The second trading period of the EU-ETS with tightened emission caps for the power sector and manufacturing industries that started in 2008 may have contributed to the emission reduction effects in 2009 and the switch in fuel use.

Weather conditions in 2009 had different influences in different European regions. In Europe as a whole, the 2009 winter was colder than 2008's[12]. The number of actual heating degree days (i.e. Eurostat's indicator to estimate changes in heat demand) increased by about + 2 % on average in the European Union between 2008 and 2009. Eastern European countries experienced colder winters in 2009 than in 2008 (Eurostat heating degree days). The colder winter increased the energy demand in these Member States, and counteracted the declining industrial energy consumption. However, the 2009 winter was warmer in some Mediterranean Member States, resulting in additional emission reductions due to lower heating demand.

The largest relative emission reduction occurs in the industrial processes sector with - 12.5 % for the EU-15 and - 13.6 % for the EU-27 (decrease of - 39.0 Mt CO_2eq for the EU-15 and of - 55.9 Mt CO_2eq for the EU-27 in absolute terms). This industrial emissions reduction reflects a decline in emissions in the cement industry, the chemical industry and iron and steel industry. Due to the downturn of the European car market and an

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[10] Carbon prices: http://www.pointcarbon.com/

[11] Shares based on energy data in energy units (TJ)

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

economic slowdown in the construction sector, iron and steel production decreased significantly in all Member States in 2009.

GHG emissions from the agricultural sector show a decrease for the EU-15 (- 3.4 % or - 12.8 Mt CO_2eq) and also decreased in the EU-27 by - 3.0 % or - 14.0 Mt CO_2eq.

The waste sector is expected to show a small emission reduction for the EU-27 (- 1.2 %) and for the EU-15 (-1.7 %).

There is always a degree of uncertainty in the estimation of greenhouse gas emissions. And the uncertainty is higher in the absence of up to date activity data for some source categories, potential changes in implied emission factors and changes in methodology. The uncertainty in 2009 was derived from the comparison of 2008 official data submitted to the UNFCCC and 2008 estimates, at the country level.

The report does not contain 2009 estimates by country. As stated above, the main objective of this exercise is to proxy the evolution of greenhouse gas emissions at the EU level one year ahead of the formal submission to the UNFCCC as an early warning towards meeting the Kyoto targets. It is also a key objective for the EEA to strive and continuously improve the relevance and timeliness of information on Europe's environment to policy-making agents and the public.

Official 2009 greenhouse gas emissions for the EU will be available end May / early June 2011, when the EEA publishes the EU Greenhouse Gas Inventory 1990-2009 and Inventory Report 2011 to the UNFCCC.

2 Background and objective

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 (in terms of the services of the European Commission, the delay will be a few months shorter). This report presents approximated GHG inventory estimates for the EU-15 and the EU-27 for the previous year 2009 aiming at an earlier indication of the recent emission trends.

The Climate Change and Energy package agreed by the European Council in April 2009 encourages trading and non-trading sectors to run on similar timelines. Thus, early estimates of overall greenhouse gas emissions allow a more timely assessment of progress towards targets. UNFCCC emissions run on a year t-2 timeline whereas Kyoto registries and EU ETS information run on a year t-1 timeline. Moreover, the beyond GDP process[13] should also encourage environmental information to be as timely as socio-economic information.

In 2007 a feasibility study was conducted to identify appropriate data sources and methodologies for providing a more recent estimate for GHG 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[14]. The actual reduction in greenhouse gas emissions in 2008, as officially reported to UNFCCC earlier this year, was captured by the confidence interval around the estimates for EU-15 and EU-27 a year earlier (see section 3.2). In this report the methodological approach from 2008 is repeated with several improvements reflecting experiences from the previous report.

The approximated GHG inventory for 2009 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 2009 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 de-

[13] Beyond GDP international initiative http://www.beyond-gdp.eu/

[14] 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

tailed bottom-up approach was developed that covers the full scope of emissions of a GHG inventory submission.

In essence, this technical 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 methods. The calculations make use of publicly available verified EU ETS emissions for 2009 (t-1) and published (t-1) activity data (at national and European levels) disaggregated by major source category in all sectors reported under the UNFCCC and the Kyoto Protocol. Because of the inherent uncertainty in the estimations and given the main focus is providing robust EU aggregates, Member State data are not published. Some countries are already publishing their own early greenhouse gas estimates. When relevant, these are 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 which progressively should lead to more robust EU estimates.

3 General results

3.1 European GHG emissions in 2009

The 2009 EEA estimates indicate that EU greenhouse gas emissions decreased in 2009 for the sixth consecutive year. Compared to the 2008 official emissions published earlier this year, the annual emission reduction is estimated to be about - 6.9 % for both the EU-15 and for the EU-27 (total emissions without LULUCF). According to approximated estimations for 2009 based on aggregate methodologies, total EU emissions (without LULUCF) decreased by - 6.9 % in 2009 for both EU-15 and EU-27 compared to the previous year 2008. Based on these 2009 estimates, total EU-15 emissions in 2009 would be - 12.9 % below the 1990 level. For EU-27, total GHG emissions in 2008 are estimated to be almost - 17.4 % below 1990 emissions. This strong annual decline in GHG emissions is mainly due to the economic recession in 2009 leading to substantial emission reductions relative to 2008 in all Member States. Based on the latest official European Commission forecasts published earlier in the Spring, GDP in the EU-27 contracted by - 4.2 % in 2009.[15]

Table 1 and Figure 2 show the changes between 2008 and 2009 at sectoral level for the EU-15 and the EU-27. The largest absolute emission reduction occurs in the energy sector, which shows a reduction of - 220.2 Mt CO_2eq for the EU-15 and - 267.7 Mt CO_2eq for the EU-27 – equivalent to an emission reduction of - 6.9 % for both EU groups. The largest emission decrease mainly arises from reduced emissions from energy consumption in manufacturing industries and in the industrial processes sector as reflected by strongly reduced verified emissions reported under the EU ETS (- 24 %).

This emission reduction in the energy sector reflects the reduction of gross inland energy consumption by -5.5 % in the EU-27 in 2009 compared to 2008 and shows the effects of the global financial and economic crisis which begun in 2008 and resulted in reduced industrial output and reduced energy consumption by industry, but also for freight transport due to a decrease in transported goods. A similar emission reduction trend is reflected by verified emissions from EU-ETS for 2009 where total EU-27 emissions decrease by - 11.7 % between 2008 and 2009.

Lower demand for energy because of the economic recession was accompanied by lower energy and carbon prices in 2009. Newly-released data by the International Energy Agency (IEA) points to a sharp fall in energy prices during 2009[16] from the high levels of 2008. Eurostat's data also confirms a significant reduction in natural gas prices

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

[16] Key World Energy Statistics 2010, IEA http://www.iea.org/textbase/nppdf/free/2010/key_stats_2010.pdf

for industrial consumers and households in most EU Member States[17]. Carbon prices remained relatively stable during 2009 although significantly lower than during 2008[18]. Relatively cheaper natural gas and a significant increase in renewable energy have also contributed to lower emissions.

Eurostat's monthly energy statistics report a decline in coal and lignite consumption in the EU-27 of - 12.7 % and of - 13.4 % in the EU-15, gas consumption dropped by - 5.8 % (EU-27) and - 5.4 % (EU-15) and liquid fuel consumption was 4.5 % (EU-27) and 3.7 % (EU-15) lower than in 2008.[19] The reduction in gas consumption was intensified in January 2009 due to the Russia-Ukraine gas dispute, which caused disruptions in the gas supply to eighteen European countries in a very cold phase in winter 2009. Bulgaria and Slovakia were among the most affected EU Member States by these supply drops, but supply problems occured most Eastern European Member States. The missing supply had to be compensated by other fuels and could explain the increased coal use in some Member States. According to Eurostat's monthly energy statistics, nuclear energy consumption declined by about - 3 % in the EU-27 between 2008 and 2009. Preliminary renewable energy data for 2009 also points to a significant increase of + 8.3 % in renewable energy consumption (excluding biomass) in Europe between 2008 and 2009. Thus, at EU level the most pronounced decline in energy consumption occurred for coal use with the strongest impact on GHG emissions. The second trading period of the EU-ETS with tightened emission caps for the power sector and manufacturing industries that started in 2008 may have contributed to the emission reduction effects in 2009 and the switch in fuel use.

Weather conditions in 2009 had different influences in different European regions. In Europe as a whole, the 2009 winter was colder than 2008's[20]. The number of actual heating degree days (i.e. Eurostat's indicator to estimate changes in heat demand) increased by about 2 % on average in the European Union between 2008 and 2009. Eastern European countries experienced colder winters in 2009 than in 2008 (based on Eurostat heating degree days[21]). The colder winter increased the energy demand in these countries, and counteracted the declining industrial energy consumption. However, the 2009 winter was warmer than in the previous year in some Mediterranean

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[17] Natural gas prices, Eurostat http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-QA-10-021/EN/KS-QA-10-021-EN.PDF

[18] Carbon prices: http://www.pointcarbon.com/

[19] Shares based on energy data in energy units (TJ)

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

[21] Heating degree days (monthly data):

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_esdgr_m&lang=en

Member States, resulting in additional emission reductions due to a lower heating demand.

The largest relative emission reduction occured in the industrial processes sector with - 12.5 % for EU-15 and - 13.6 % for EU-27 (decrease of - 39.0 Mt CO_2eq for EU-15 and of - 55.9 Mt CO_2eq for EU-27 in absolute terms). This industrial emissions reduction reflects a decline in emissions in the cement industry, the chemical industry and iron and steel industry. Due to the downturn of the European car market and an economic slowdown in the construction sector, iron and steel production decreased significantly in all Member States in 2009. In the cement sector EU-27 production fell by about - 17 % in 2009 compared to 2008.

In the agricultural sector GHG emissions show a decrease of - 12.8 Mt CO_2eq or - 3.4 % and for the EU-15 and a decrease of – 3 % or - 14.0 Mt CO_2eq for the EU-27.

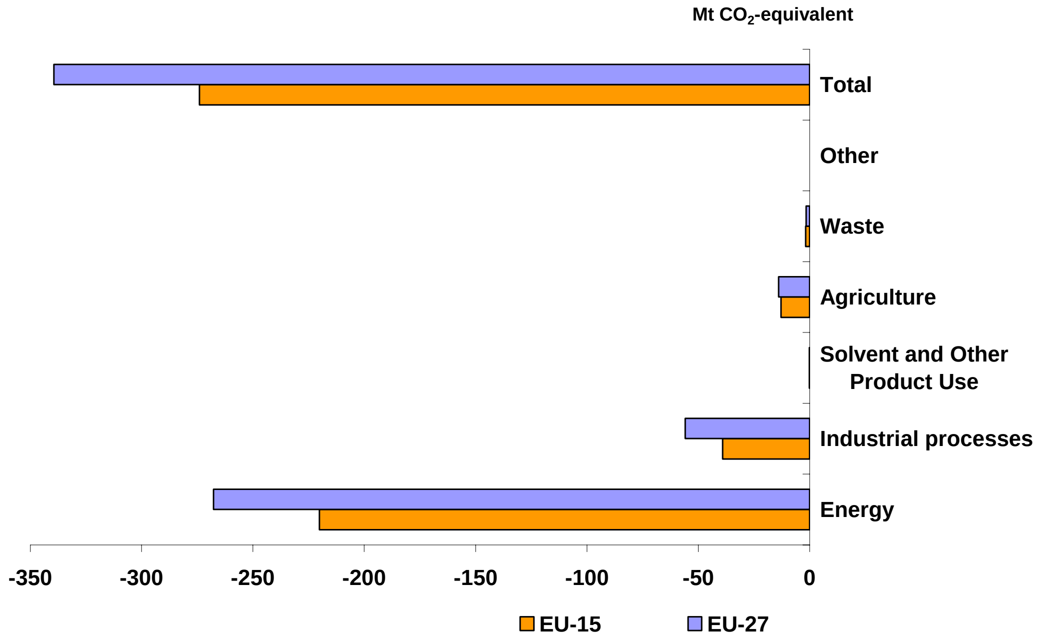
The waste sector is expected to show a rather small decrease of - 1.7 % for the EU-15 and - 1.2 % for the EU-27.

Table 1 Change in GHG emissions between 2008 and 2009 at sectoral level in absolute and relative terms

Sector All	**Change 2008/09**			
	EU-15		**EU-27**	
	Mt CO_2eq	**%**	**Mt CO_2eq**	**%**
Energy	-220.2	-6.95%	-267.7	-6.85%
Industrial processes	-39.0	-12.49%	-55.9	-13.64%
Solvent and Other Product Use	-0.2	-1.56%	-0.2	-1.53%
Agriculture	-12.8	-3.40%	-14.0	-2.96%
Waste	-1.7	-1.72%	-1.6	-1.16%
Other	NE,	NE,	NE,	NE,
Total	***-274.0***	***-6.90%***	***-339.4***	***-6.87%***

Source: EEA’s ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

Figure 2 Change in GHG emissions between 2008 and 2009 at sectoral level



Source: EEA's ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

Table 2 Summary table of approximated GHG emissions for 2009 for EU-15 (total emissions without LULUCF)

SUMMARY 2 SUMMARY REPORT FOR CO2 EQUIVALENT EMISSIONS Inventory 2009
(Sheet 1 of 1) Submission 2010 v1.0
EU-15

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2 (1)	CH4	N2O	HFCs (2)	PFCs (2)	SF6 (2)	Total
	CO2 equivalent (Gg)						
Total (Net Emissions) (1)	**3 062 453.33**	**294 508.75**	**263 377.26**	**64 971.92**	**2 381.93**	**8 804.35**	**3 696 497.55**
1. Energy	**2 878 297.11**	**42 409.12**	**27 112.21**				**2 947 818.44**
A. Fuel Combustion (Sectoral Approach)	2 860 043.81	12 464.59	27 019.70				2 899 528.10
1. Energy Industries	1 046 124.97	2 833.03	8 760.37				1 057 718.37
2. Manufacturing Industries and Construction	395 051.72	1 773.71	4 856.47				401 681.91
3. Transport	809 008.93	1 160.33	7 186.13				817 355.38
4. Other Sectors	IE	IE	IE				IE,
5. Other	609 858.20	6 697.52	6 216.73				622 772.45
B. Fugitive Emissions from Fuels	18 253.30	29 944.53	92.51				48 290.34
1. Solid Fuels	591.97	8 356.80	IE				8 948.77
2. Oil and Natural Gas	17 661.33	21 587.73	IE				39 249.06
2. Industrial Processes	**174 853.08**	**627.08**	**21 875.10**	**64 971.92**	**2 381.93**	**8 804.35**	**273 513.47**
A. Mineral Products	92 911.17	18.25976324	NE				92 929.43
B. Chemical Industry	27 702.71	438.33	21777.05348				49 918.10
C. Metal Production	53 891.81	127.16	8.88		IE	IE	54 027.86
D. Other Production	33.35386452	6.42	82.67				122.4477261
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	314.04	36.902418	6.49047	IE	IE	IE	357.43
3. Solvent and Other Product Use	**6763.78**		**3238.375316**				**10002.16**
4. Agriculture		**165 233.73**	**199 722.85**				**364 956.58**
A. Enteric Fermentation		121 092.77					121 092.77
B. Manure Management		41 250.54	21 355.43				62 605.97
C. Rice Cultivation		2 444.64					2 444.64
D. Agricultural Soils(3)		8.571489456	178 266.95				178 275.52
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		437.21	100.47				537.68
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	**2 539.35**	**86 238.82**	**11 428.73**				**100 206.90**
A. Solid Waste Disposal on Land	12.10	73 394.25	1.29				73 407.63
B. Waste-water Handling		10 760.11	10 245.88				21 006.00
C. Waste Incineration	2 527.26	478.53	245.74				3 251.53
D. Other	NE	1 605.93	935.82				2541.749941
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	3 696 497.55
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

(1) For CO2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(2) Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

(3) Parties which previously reported CO2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

Source: EEA's ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

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

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

Inventory 2009
Submission 2010 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)	**3 772 455.72**	**398 885.32**	**344 447.54**	**72 105.28**	**3 311.19**	**9 178.51**	**4 600 383.56**
1. Energy	**3 526 690.46**	**80 130.82**	**32 447.79**				**3 639 269.06**
A. Fuel Combustion (Sectoral Approach)	3 508 089.66	18 075.33	32 354.80				3 558 519.78
1. Energy Industries	1 394 547.18	3 009.73	10 589.64				1 408 146.55
2. Manufacturing Industries and Construction	480 274.71	2 001.61	5 367.12				487 643.44
3. Transport	928 796.02	1 495.51	9 312.83				939 604.36
4. Other Sectors	IE	IE	IE				IE,
5. Other	704 471.74	11 568.47	7 085.22				723 125.43
B. Fugitive Emissions from Fuels	18 600.80	62 055.49	92.98				80 749.28
1. Solid Fuels	673.55	24 279.95	IE				24 953.50
2. Oil and Natural Gas	17 927.25	37 775.54	IE				55 702.79
2. Industrial Processes	**234 403.86**	**1 185.07**	**33 658.51**	**72 105.28**	**3 311.19**	**9 178.51**	**353 842.43**
A. Mineral Products	119 905.72	22.42253236	NE				119 928.14
B. Chemical Industry	37 628.78	783.95	33537.81697				71 950.55
C. Metal Production	74 747.95	335.38	31.53		IE	IE	75 114.86
D. Other Production	39.67286452	6.42	82.67				128.7667261
E. Production of Halocarbons and SF6				IE	IE	IE	IE,
F. Consumption of Halocarbons and SF6 (2)				IE	IE	IE	IE,
G. Other	2 081.74	36.902418	6.49047	IE	IE	IE	2 125.13
3. Solvent and Other Product Use	**7993.30**		**4090.027173**				**12083.32**
4. Agriculture		**197 418.14**	**260 427.88**				**457 846.01**
A. Enteric Fermentation		144 971.48					144 971.48
B. Manure Management		49 421.82	30 948.35				80 370.18
C. Rice Cultivation		2 511.37					2 511.37
D. Agricultural Soils(3)		8.571489456	229 358.41				229 366.99
E. Prescribed Burning of Savannas		NE	NE				NE,
F. Field Burning of Agricultural Residues		504.89	121.11				626.00
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	**3 368.11**	**120 151.29**	**13 823.34**				**137 342.73**
A. Solid Waste Disposal on Land	12.72	102 311.61	1.29				102 325.61
B. Waste-water Handling		15 639.82	12 485.21				28 125.03
C. Waste Incineration	3 355.39	479.08	273.85				4 108.33
D. Other	NE	1 720.78	1 062.98				2783.765096
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	4 600 383.56
Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	NE,

(1) For CO2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(2) Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

(3) Parties which previously reported CO2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

Source: EEA's ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

3.2 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 GPG 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 improvement can be tracked.

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), which could not be considered for the calculation of the approximated GHG inventory for the EU. Quality improvements are therefore a source of uncertainty for the proxy inventory.

For the approximated GHG inventory uncertainties were estimated on the basis of the deviation of Member States' real GHG inventories in 2008 with the approximated GHG inventory estimated for 2008. This deviation is shown for the EU-15 and the EU-27.

Table 4 Deviation between the approximated GHG inventory estimated for 2008 and the real 2008 inventory submission for the EU-15 and the EU-27.

MS	UNFCCC 2008	Proxy 2008	Deviation 2008 (April)	
	Gg CO_2eq		Gg CO_2eq	%
EU-15	3 970 472.70	4 001 140.20	30 667.50	**0.77%**
EU-27	4 939 738.06	4 971 150.87	31 412.81	**0.64%**

Source: EEA's ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

For the EU-15 the approximated GHG emissions were 0.77 % higher than the real GHG inventory submissions and for the EU-27 0.64 %.

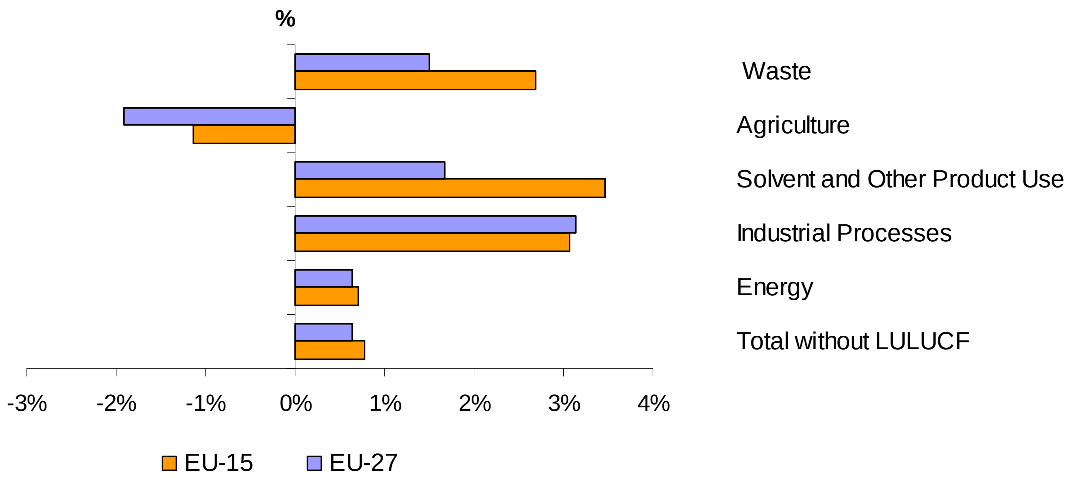
In 2009 it was the first time that EEA has produced estimates of total greenhouse gas emissions for the EU-15 and the EU-27 just months after the year in question. The proxy estimates of the reduction of greenhouse gas emissions 2007/2008 amounted to -1.3 % (-50.8 Mt CO_2eq) for the EU-15 and to -1.5 % (-74.2 Mt CO_2eq) for the EU-27. Greenhouse gas emissions, as officially reported to UNFCCC earlier this year, showed a reduction of emissions of - 1.9 % (- 75.7 Mt CO_2eq) for the EU-15 and - 2.0 % (-99 Mt CO_2eq) for the EU-27. Even though the proxy estimates last year underestimated the mean reductions officially reported to UNFCCC this year, the latter mean reductions were captured by the upper and lower confidence limits around the mean proxy estimates estimated last year (+/-0.9 % for the EU-15, +/-0.6 % for the EU-27).

Thus, the use of the data sources and methodologies for the ealy estimates published last year and the results mirrored rather well the decreasing trend in official emissions as reported to the UNFCCC this year. The accuracy of the 2009 mean estimates given in this report can only be known in the late Spring of 2011 with the EU's official submission to the UNFCCC. The upper and lower uncertainty bounds are meant to capture the true value of these reductions.

The deviations given in Table 4 arise from several sources: 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 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.

Due to the lack of updated (t-1) activity data, emissions from synthetic fertilizers for example might comprise a higher uncertainty for the approximated GHG inventory for the year 2009. Compared to last year's approximated GHG inventory activity data from Eurostat for the year 2009 have not been available until now and could not be used. Thus an extrapolation of official inventory data from previous year was made instead which might result in higher deviations (see Table 58).

Figure 3 Deviations between the approximated GHG inventory estimated for 2008 and the real 2008 inventory submission at sectoral level for EU-15 and EU-27



Source: EEA's ETC ACC based on the 2010 EU greenhouse gas inventory to UNFCCC for 1990-2008 and early estimates for 2009

Figure 3 shows the deviations between approximated data for 2008 and inventory data. The largest relative deviation occurred in the Solvent and Other Product use sector – for the EU-15 the approximated GHG emissions were + 3.5 % higher than the real GHG inventory submissions. Emissions from this source category, by using the proxy methodologies, were overestimated for some Member States.

The uncertainty ranges for the 2009 approximated emissions were based on the deviations that occurred in 2008, thus the uncertainty range provided in the figures reflects the difference related to the real Member States' GHG emissions. For the uncertainty estimation, the deviation found for 2008 was applied in the positive and negative direction to the Member States' estimates for 2008. For the relative change between 2008/2009 this method results in an uncertainty of ± 0.8 % for the EU-15 and ± 0.6 % for the EU-27.

3.3 Methodologies and data sources

For the estimation of approximated emissions, the following data sources for emissions or activities in the year 2009 were used:

- BP's Statistical Review of World Energy 2009[22];
- verified emissions reported under the EU-ETS and recorded in the CITL[23];
- Eurostat monthly production data of hard coal and lignite from Eurostat;
- Eurostat monthly data on crude oil input to refineries (indicator code 101008, product code 3100);
- 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 of the International Iron and Steel Institute (IISI);
- Eurostat annual statistics on livestock population for dairy cattle, non-dairy cattle, swine, sheep, goats.

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

23 http://www.eea.europa.eu/data-and-maps/data/european-union-emissions-trading-scheme-eu-ets-data-from-citl-1

A number of EU Member States (and other EEA member countries such as Switzerland and Norway) prepared their own approximated greenhouse gases estimates for 2009 and provided these estimates to the project team. For some Member States these data were used in the final EU results for 2009. In other cases, the data provided by the countries has been used as verification of own calculations. This approach should progressively lead to more robust EU early-estimates, which is the current objective of this exercise. The detailed methodological overview in Annex 1 indicates in detail where Member States results have been used. Some Member States also published their own approximated greenhouse gas emissions for 2009 and the list below provides the links to these sources for individual EEA member countries:

- Denmark: http://www.ens.dk/en-us/info/news/news_archives/2010/sider/20100318largedropinenergyconsumption2009.aspx
- Germany: http://www.umweltbundesamt.de/uba-info-presse-e/2010/pe10-013_climate_protection_2009_shows_8_4_percent_decline_in_greenhouse_gas_emissions.htm http://www.umweltbundesamt.de/uba-info-presse/2010/pdf/pd10-013_treibhausgasemissionen_grafiken.pdf
- Finland (only CO_2 from energy): http://www.stat.fi/til/ehkh/2009/04/ehkh_2009_04_2010-03-24_tie_001_en.html
- France (only mainland France without overseas departments): http://www.citepa.org/emissions/nationale/Ges/Emissions_FRmt_GES.pdf
- Italy: http://www.isprambiente.it/site/_contentfiles/00001600/1640_comunicato_emiss2010.pdf
- Netherlands: : http://www.cbs.nl/nl-NL/menu/themas/natuur-milieu/publicaties/artikelen/archief/2010/2010-3199-wm.htm
- Norway: http://www.ssb.no/klimagassn/
- Spain: http://www.mma.es/secciones/calidad_contaminacion/atmosfera/emisiones/pdf/Avance_Inventario_de_Emisiones_GEI.pdf
- Switzerland: http://www.bafu.admin.ch/dokumentation/medieninformation/index.html?lang=de
- UK: http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2009_prov/2009_prov.aspx

The activity rates were multiplied by the implied emission factors from the 2010 inventory submissions to achieve the emissions, except when CITL data were used which already include CO_2 emissions.

Based on these data sources, 2009 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 2009 activity data was available that could be combined with IEFs from GHG inventories. These categories were extrapolated from 2008 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2008. Constant values were used when past trends were inconsistent and strongly fluctuating; trend extrapolation was used when historic time series showed good correlations with a linear trend.

Based on the analysis of deviations of the approximated GHG emissions for 2008 compared to final Member States emissions estimates submitted to the UNFCCC in 2008 (see section 3.2) a number of methodological changes were introduced or further applied (2B) for the estimation in this report compared to the approach in 2008:

- 1A2 Manufacturing Industries and construction: improved trend analysis of different ETS sectors to the 1A2 inventory category,;
- 2B Chemical Production: Extrapolation was undertaken at more disaggregate level for all subcategories.
- 2C1 Iron and Steel Production: improved disaggregation of power plants using waste gases from the iron and steel sector (ETS data for iron and steel).

Table 5 Time of data availability of data sources used for the approximated inventory

Data source	Availability
Community Independent Transaction Log (CITL) emissions	March-April, significant updates until July
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 month after reporting
IISI monthly production data for blast furnace iron production	two month after reporting
Eurostat annual statistics on livetsock population for dairy cattle, non-dairy cattle, swine, sheep, goats	April
CRF inventory submissions	End of May (final submitted changes)

4 Sectoral results

4.1 Energy

4.1.1 1.A Energy fuel combustion

4.1.1.1 Methods and data sources used

Based on the results of the National GHG emission inventories in the previous year, 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 (smaller) 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. The data source excludes non-commercial fuels such as wood, peat and animal wastes which, though important in many countries, are unreliably documented in terms of consumption statistics. In addition, wind, geothermal and solar power generation are not covered in the BP data.

The primary energy consumption reported by BP covers the three fossil fuel categories, oil, natural gas, and coal which are relevant to CO_2 emissions as well as nuclear energy and hydroelectric energy. On the basis of the fossil fuels, the respective CO_2 emissions can be calculated with assumed emission factors. As a result, we estimated the changes of total CO_2 emissions from previous year Y-1 to Y of each country.

Based on these data the emissions were calculated as follows:

$$E^{Y}_{\mathrm{1A,CO_2}} = \frac{E^{Y}_{\mathrm{BP(CO_2,\,fossil)}}}{E^{Y-1}_{\mathrm{BP(CO_2,\,fossil)}}} \cdot E^{Y-1}_{\mathrm{1A,CO_2}}$$

with

$E^{Y}_{\mathrm{1A,CO_2}}$ *CO_2 emissions for source category 1A*

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

$E^{Y}_{BP(...)}$ *Calculated CO_2 emissions with BP energy data*

$E^{Y-1}_{BP(...)}$ *Calculated CO_2 emissions with BP energy data from previous year*

For five countries (Cyprus, Estonia, Latvia, Malta and Slovenia), sufficient and consistent data were not available in the BP data. For these countries the calculated data from the source categories 1.A.1 – 1.A.5 were amounted.

The estimation for CH_4 emissions from source category 1.A (Energy fuel combustion) is similar to CO_2 and based on the following equation:

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

with

$E^{Y}_{1A,CH4}$	CH_4 *emissions for source category 1A*
$E^{Y-1}_{1A,CH4}$	CH_4 *emissions for source category 1A from previous year*
$E^{Y}_{BP(...)}$	*Calculated* CO_2 *emissions with BP energy data*
$E^{Y-1}_{BP(...)}$	*Calculated* CO_2 *emissions with BP energy data from previous year*

For five countries (Cyprus, Estonia, Latvia, Malta and Slovenia) sufficient and consistent data were not available in the BP data. For these countries the calculated data from the source categories 1.A.1 – 1.A.5 were amounted..

The estimation for N_2O emissions from source category 1.A (Energy fuel combustion) is similar to CO_2 and based on the following equation:

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

with

$E^{Y}_{1A,N2O}$	N_2O *emissions for source category 1A*
$E^{Y-1}_{1A,N2O}$	N_2O *emissions for source category 1A from previous year*
$E^{Y}_{BP(...)}$	*Calculated* CO_2 *emissions with BP energy data*
$E^{Y-1}_{BP(...)}$	*Calculated* CO_2 *emissions with BP energy data from previous year*

For five countries (Cyprus, Estonia, Latvia, Malta and Slovenia) sufficient and consistent data were not available in the BP data. For these countries the calculated data from the source categories 1.A.1 – 1.A.5 were amounted..

For the CO_2 emissions from 1A Fuel Combustion which represent a very large share of total GHG emissions in the EU additional checks and corrections were applied for this report. The CO_2 emissions from 1A were divided in a share of emissions covered by the EU-ETS and in Non-ETS emissions (1A – total verified emissions in 2008 corrected for scope). Then the change from 2007/2008 of the Non-ETS emissions was checked. For some Member States, in particular those for which insufficient data was available from BP data, these check showed unlikely high annual increases. In these cases the CO_2 emissions for 1A Fuel Combustion were corrected and refined methodologies applied.

4.1.1.2 Results for 2009

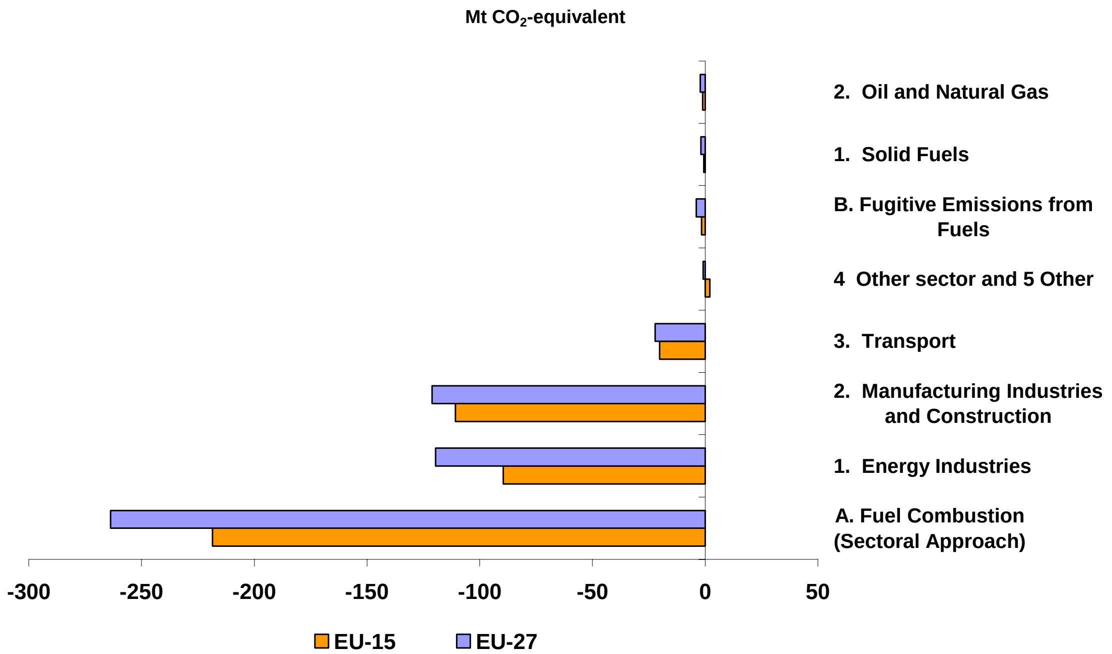
In the energy sector, results show a decline of GHG emissions by 218 Mt CO_2eq for EU-15 between 2008 and 2009. Table 6 indicates the sub-sector contribution to this drop in emissions. The largest reductions occur in the energy industries and manufacturing industries while emissions from ‘Other sectors’ and ‘Other’ representing mainly emissions from residential and services sector grew. The emission reduction from energy industries is more pronounced in the EU-27 than in the EU-15.

Table 6 Change in GHG emissions between 2008 and 2009 for main source categories in the energy sector

Sector Energy	Change 2008/09			
	EU-15		EU-27	
	Mt CO_2eq	%	Mt CO_2eq	%
A. Fuel Combustion (Sectoral Approach)	-218.5	-7.0%	-263.8	-6.9%
1. Energy Industries	-89.6	-7.8%	-119.6	-7.8%
2. Manufacturing Industries and Construction	-110.8	-21.6%	-121.1	-19.9%
3. Transport	-20.2	-2.4%	-22.2	-2.3%
4 Other sector and 5 Other	2.1	0.3%	-0.9	-0.1%
B. Fugitive Emissions from Fuels	-1.6	-3.3%	-3.9	-4.6%
1. Solid Fuels	-0.6	-6.6%	-1.8	-6.9%
2. Oil and Natural Gas	-1.1	-2.7%	-2.2	-3.8%

Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

Figure 4 Change in GHG emissions between 2008 and 2009 for main source categories in the energy sector



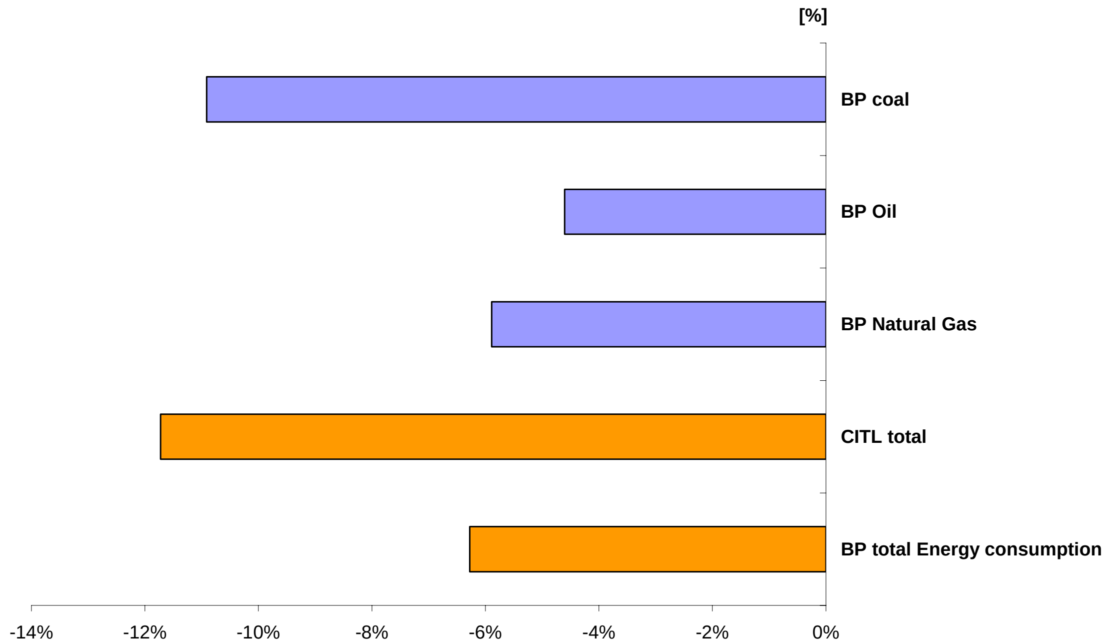
Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

According to BP data for energy consumption in the EU 27 fell by more than – 6 % in 2009. The emissions of all installations covered by the EU ETS indicate a decline of -

11 % in the EU 27 in the same period. This already indicates that the decline of emissions was stronger in the sectors covered by the EU ETS compared to the other sectors.

Coal consumption fell by – 11 % compared to gas (- 6 %) and oil (- 6 %) consumption according to BP energy statistics. The majority of the coal is used by installations covered by the EU ETS, especially in power generation. Around 75 % of CO_2 emissions from 1A1a are from combustion of solid fuels. Thus, the stronger reduction of CITL emissions is due to the high share of solid fuel inputs in the EU ETS (see Figure 5).

Figure 5 Reduction of energy consumption for the EU 27 between 2008 and 2009



Source: BP energy statistics and CITL data

4.1.2 1.A.1 Energy industries

4.1.2.1 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:

$$E^{Y}_{1A1a,CO2} = \frac{E^{Y}_{CITL(1\ w/o\ power)}}{E^{Y-1}_{CITL(1\ w/o\ power)}} \cdot E^{Y-1}_{1A1a,CO2}$$

with

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

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

Two different approaches were used for CH_4 emissions from source category 1.A.1.a (Public electricity and heat production):

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

$$E^{Y}_{1A1a,CH4} = \frac{E^{Y}_{1A1a,\,CO2}}{E^{Y-1}_{1A1a,\,CO2}} \cdot E^{Y-1}_{1A1a,CH4}$$

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, Cyprus, the Czech Republic, Germany, Denmark, Estonia, Spain, Finland, Hungary, Lithuania, Luxembourg, Poland, 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).

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 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:

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

with

$E^{Y}_{1A1a,N2O}$ *N2O emissions for source category 1A1a*

$E^{Y-1}_{1A1a,N2O}$ *N2O emissions for source category 1A1a from previous year*

$E^{Y}_{1A1a,CO2}$ *CO2 emissions for source category 1A1a (see above)*

$E^{Y-1}_{1A1a,CO2}$ *CO2 emissions for source category 1A1a from previous year*

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

The main source for the estimation of CO_2 emissions from source category 1.A.1.b (Petroleum refining) is CITL data. For Lithuania and Poland sufficient and consistent data were not available. For Lithuania CO_2 emissions from the last inventory submission were used. For Poland the Eurostat monthly data on crude oil input to refineries (indicator code 101008, product code 3100). Based on these data the emissions were calculated as follows:

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

with

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

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

$AR^{Y}_{ref-inp}$ *Crude oil input to refineries*

$AR^{Y-1}_{ref-inp}$ *Crude oil 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:

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

with

$E^{Y}_{1A1b,CH4}$	*CH4 emissions for source category 1A1b*
$E^{Y-1}_{1A1b,CH4}$	*CH4 emissions for source category 1A1b from previous year*
$E^{Y}_{1A1b,CO2}$	*CO2 emissions for source category 1A1b (see above)*
$E^{Y-1}_{1A1b,CO2}$	*CO2 emissions for source category 1A1b from previous year*

The first option was used for Austria, Belgium, Cyprus, Denmark, Estonia, Luxembourg, Latvia, Malta, 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.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.

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

with

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

The first option was used for Belgium, Cyprus, Estonia, the UK, Luxembourg, Latvia, Malta, the Netherlands, Poland, Romania, Slovenia, and the Slovak Republic. 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).

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).

4.1.3 1.A.2 Manufacturing industries and construction

4.1.3.1 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) is an analysis of the verified emissions data from the CITL. The trends of different CITL categories were analysed and the trend with a significant correlation between Member States' CO_2 emissions and CITL emissions was used. The different trends represent the sum of verified emissions of:

1. Activity code 1 (Combustion installations with a rated thermal input exceeding 20 MW, without power generation installations from supplementary analysis other combustion), activity code 7 (Installations for the manufacture of glass including glass fibre), activity code 8 (Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain), activity code 9 (Industrial plants for the production of (a) pulp from timber or other fibrous materials (b) paper and board), and activity code 99 (Other activity opted-in pursuant to Article 24 of Directive 2003/87/EC);
2. Activity codes 1 (without power), 7, 8, 9, 99 and activity code 6 (Installations for the production of cement clinker in rotary kilns or lime in rotary kilns or in other furnaces);
3. Activity codes 1 (without power), 6, 7, 8, 9, 99 and activity code 3 (Coke ovens) and 5 (Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting);
4. Activity codes 6, 7, 8, 9 and 99.

Based on these data the emissions were calculated as follows:

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

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*

The trend of the first option was used for Luxembourg and the Czech Republic. Latvia's CO_2 emissions are based on the second trend. The third trend was used for Austria, Belgium, Denmark, Greece, Finland, France, Ireland, Italy, Lithuania and Portugal. For Member States for which more than one trend shows a strong correlation, the mean value of the best fit of trends was used to calculate 2009 emissions from 1A2.

If sufficient and consistent data was not available for Member States and if trends show no correlation, a factor was calculated and multiplied with the sum of verified emissions from CITL activity code 1 (without power) but including those power plants in the CITL that where identified to use waste gases from the iron and steel industry. This trend was used for Estonia, the United Kingdom, Malta, Poland, Romania, Slovenia and the Slovak Republic.

For Cyprus 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 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:

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

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, Cyprus, Germany, Denmark, France, Greece, Hungary, Latvia, Sweden, Slovenia and the Slovak Republic. For all other EU-27 Member States the CH_4 emissions were estimated on the basis of the trend dynamics for CO_2 emissions (option 2).

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

1. For the Member States with no strong correlation between CO_2 and N_2O emissions in the previous years the 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.

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

with

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

The first option was used for Belgium, Estonia, Hungary, Latvia, the Netherlands, Romania, Slovenia and the Slovak Republic. 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).

4.1.4 1.B Fugitive emissions from fuels

4.1.4.1 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. For the Netherlands a strong correlation between CO_2 emissions and verified emissions of the CITL main activity 5 (installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting) was found (the Netherlands report the emissions from coke ovens in this category). This trend dynamic was used in the calculation.

$$E^{Y}_{1B1,CO2} = \frac{E^{Y}_{CITL(...)}}{E^{Y-1}_{CITL(...)}} \cdot E^{Y-1}_{1B1,CO2}$$

with

$E^{Y}_{1B1,CO2}$ *CO_2 emissions for source category 1B1*

$E^{Y-1}_{1B1,CO2}$ *CO_2 emissions for source category 1B1 from previous year*

F

$E^{Y}_{CITL(...)}$ *CITL emissions for installations reported under main activity 5*

$E^{Y-1}_{CITL(...)}$ *CITL emissions for installations reported under main activity 5 from previous year*

or Slovenia the trend of CO_2 emissions is consistent with the trend of Eurostat lignite production and is used for calculating 1B1 (see formula 1B1 CH_4 emissions).

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.

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

with

$E^{Y}_{1B1,CH4}$ *CH4 emissions for source category 1B1*

$E^{Y-1}_{1B1,CH4}$ *CH4 emissions for source category 1B1 from previous year*

$AR^{Y}_{coal-prod}$ *Hard coal or lignite production*

$AR^{Y-1}_{coal-prod}$ *Hard coal or lignite production for previous year*

For the countries in which hard coal production is the main determinant for CH_4 emissions from source category 1.B.1 (Spain and the United Kingdom), the primary hard coal production (Eurostat indicator code 100100, Eurostat product code 2111) was used for the projection of CH_4 emissions arising from this source category. For countries with a dominant lignite production (Bulgaria, Greece, Hungary, Romania, Slovenia, the Slovak Republic), the primary production data for lignite (Eurostat indicator code 100100, Eurostat product code 2210) were used. For countries with hard coal and lignite production (the Czech Republic, Germany and Poland) the average of both trends is used for emission projections. For 16 Member States (Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Latvia, Malta, the Netherlands, Portugal and Sweden) sufficient and consistent data were not available. For these countries, the inventory data 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.

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

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 7: 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 CO2
Oil production	PL	AT	-	-	-
Gas Production	DE	DE	DE, IT	DE, IT	DE
Gas consumption	-		BE, LU, NL, PL	BE, LU, NL, RO, SK	-
CITL refineries	ES, PT	ES, PT	CZ	ES, FR, GB	PL, PT
Inventory 2008	other MS	other MS	other MS	other MS	other MS

For the CH_4 emissions for source category 1.B.2c 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.

4.1.5 1.A.3 Transport

4.1.5.1 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 sources the CO_2 emissions were calculated as follows:

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

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)*

For Malta data for 2009 was not available in the Eurostat database. Therefore the submitted CO_2 emissions for 2008 were used.

For some countries (Denmark, Estonia, the United Kingdom, Greece, Ireland, Slovenia and Slovakia) the application of another method based on the consumption of motor spirit, automotive diesel oil and kerosene/jet fuels resulted in more suitable approximated CO_2 emissions. For these countries the CO_2 emissions were calculated with the following equation:

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

with

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

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

with

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

The estimation for CH_4 emissions from source category 1.A.3 (Transport) is similar to CO_2 (first equation) and based on the following equation:

$$E^{Y}_{1A3,CH4} = \left(\frac{E^{Y}_{MS,CO2} + E^{Y}_{AD,CO2}}{E^{Y-1}_{MS,CO2} + E^{Y-1}_{AD,CO2}}\right) \cdot E^{Y-1}_{1A3b,c,d,e,CH4} + \frac{E^{Y}_{K,CO2}}{E^{Y-1}_{K,CO2}} \cdot E^{Y-1}_{1A3a,CH4}$$

with

$E^{Y}_{1A3,CH4}$ CH_4 *emissions for source category 1A3*

$E^{Y}_{MS,CO2}$ CO_2 *emissions motor spirit (monthly total of internalmarket deliveries) x* CO_2 *factor*

$E^{Y}_{AD,CO2}$ CO_2 *emissions automotive diesel (monthly total of internalmarket deliveries) x* CO_2 *factor*

$E^{Y-1}_{MS,CO2}$ CO_2 *emissions motor spirit (monthly total of internalmarket deliveries) x* CO_2 *factor*

$E^{Y-1}_{AD,CO2}$ CO_2 *emissions automotive diesel (monthly total of internalmarket deliveries) x* CO_2 *factor*

$E^{Y-1}_{1A3b,c,d,e,CH4}$ CH_4 *emissions for source category* $1A3b,c,d,e$ *from previous year*

$E^{Y}_{K,CO2}$ CO_2 *emissions kerosene (monthly total of internal market deliveries) x* CO_2 *factor*

$E^{Y-1}_{K,CO2}$ CO_2 *emissions kerosene (monthly total of internal market deliveries) x* CO_2 *factor*

$E^{Y-1}_{1A3a,CH4}$ CH_4 *emissions for source category 1A3a from previous year (civil aviation)*

For Malta data for 2009 were not available in the Eurostat database. Therefore the submitted CH_4 emissions for 2008 were used.

The estimation for N_2O emissions from source category 1.A3 (Transport) is similar to CO_2 and based on the following equation:

$$E^{Y}_{1A3,N2O} = \left(\frac{E^{Y}_{MS,CO2} + E^{Y}_{AD,CO2}}{E^{Y-1}_{MS,CO2} + E^{Y-1}_{AD,CO2}}\right) \cdot E^{Y-1}_{1A3b,c,d,e,N2O} + \frac{E^{Y}_{K,CO2}}{E^{Y-1}_{K,CO2}} \cdot E^{Y-1}_{1A3a,N2O}$$

with

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

$E^{Y}_{MS,CO2}$ CO_2 *emissions motor spirit (monthly total of internalmarket deliveries) x* CO_2 *factor*

$E^{Y}_{AD,CO2}$ CO_2 *emissions automotive diesel (monthly total of internalmarket 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*

$E^{Y-1}_{1A3b,c,d,e,N2O}$ N_2O *emissions for source category* $1A3b,c,d,e$ *from previous year*

$E^{Y}_{K,CO2}$ CO_2 *emissions kerosene (monthly total of internal market deliveries) x* CO_2 *factor*

$E^{Y-1}_{K,CO2}$ CO_2 *emissions kerosene (monthly total of internal market deliveries) x* CO_2 *factor*

$E^{Y-1}_{1A3a,N2O}$ N_2O *emissions for source category 1A3a from previous year (civil aviation)*

For Malta data for 2009 was not available in the Eurostat database. Therefore the submitted N_2O emissions for 2008 were used.

4.1.6 1.A.4 Other sectors and 1.A.5 Other fuel combustion

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

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

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

with

E^{Y}_{1A3} *Emissions for source category 1A4 and 1A5*

E^{Y}_{i} *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 2009. As a result, the emissions from 1A4 and 1A5 have higher uncertainties than the other source categories in the energy sector.

4.2 Industrial processes

4.2.1 2.A Mineral products

4.2.1.1 Methods and data sources used

The emissions from 2.A Mineral products are based on CO_2 emission data for cement and lime from the CITL data which were used as an index of the evolution of the emissions from the production of cement clinker or lime. In this approach CO_2 emissions from mineral products were calculated as follows:

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

with

E^{Y}_{2A} *Emissions for source category 2A*

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

E^{Y}_{CITL} *CITL emissions for the production of cement clinker or lime*

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

For Malta and Cyprus 2009 verified emissions were not available, therefore emissions have been kept constant.

4.2.1.2 Results for 2009

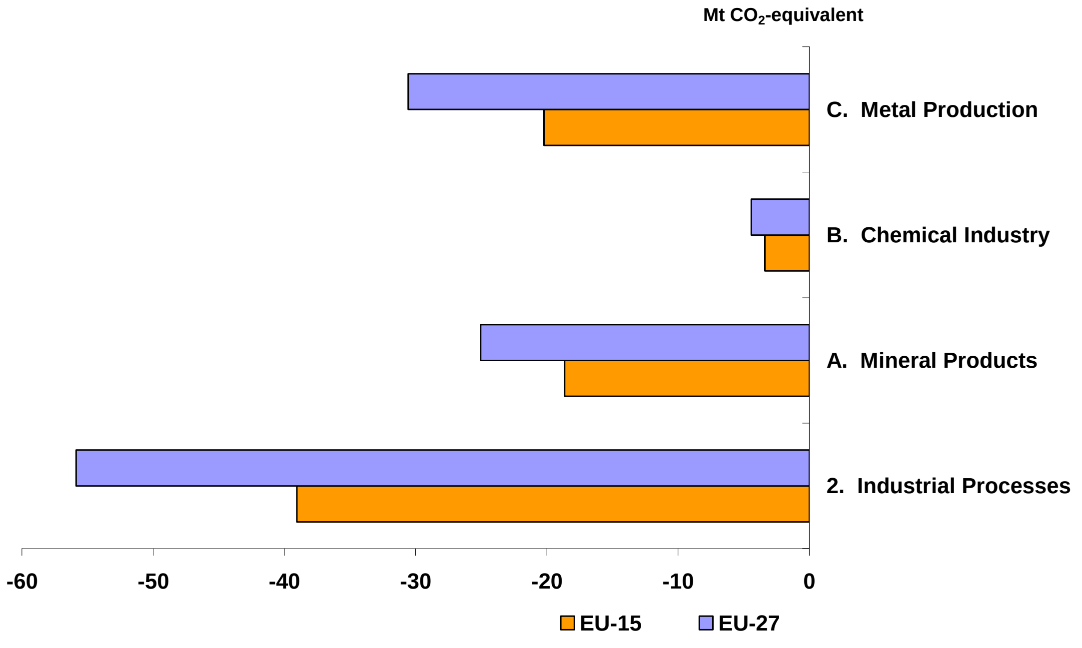
GHG emissions from Industrial processes decreased by - 39.0 Mt CO_2eq for the EU-15 and by - 55.9 Mt CO_2eq for the EU-27 in 2009 compared to 2008. Table 8 indicates the sub-sector contribution to this trend in emissions.

Table 8 Change in GHG emissions between 2008 and 2009 for industrial processes emissions

Sector Industrial Processes	Change 2008/09			
	EU-15		EU-27	
	Mt CO_2eq	%	Mt CO_2eq	%
2. Industrial Processes	-39.0	-12.5%	-55.9	-13.6%
A. Mineral Products	-18.6	-16.7%	-25.0	-17.3%
B. Chemical Industry	-3.4	-6.4%	-4.4	-5.8%
C. Metal Production	-20.2	-27.2%	-30.6	-28.9%

Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

Figure 6 Change in GHG emissions between 2008 and 2009 for industrial processes emissions



Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

4.2.2 2C Metal production

4.2.2.1 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 sub-categories of source category 2.C.

For calculating CO_2 emissions from 2C1 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 acitivity code 5 (Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting).

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

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

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 Bulgaria, the Czech Republic, Hungary, Luxembourg and Portugal. For Sweden the IISI monthly blast furnace iron production data was used. For Austria, Belgium, Germany, Spain, Finland, France, Greece, Poland, Romania, Slovenia and the Slovak Republic emission trends from CITL data were used for the calculation.

For those Member States where both the trends of IISI data and CITL shows a strong correlation, the average of the best fit trends was used to calculate 2009 emissions for 2C1.

For Member States with no strong correlation between one of the trends and CO_2 emissions in the previous years, the emission data from the last inventory submission were used. This includes Cyprus, Denmark, Estonia, the United Kingdom, Ireland, Italy, Lithuania, Latvia, Malta and the Netherlands.

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.

4.2.3 Other source categories covering industrial processes

For all other source categories covering industrial processes, 2009 activity data from alternative data sources are lacking. These categories were extrapolated from 2008 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2008. 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.

4.3 Agriculture

4.3.1 4.A Enteric fermentation

4.3.1.1 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 2010. The proxy CH_4 emissions for source category 4A were calculated based on the following equation:

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

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 2009 emissions, the animal population surveys were chosen which best corresponded with the livestock data reported in GHG inventories for past years. For some Member States and animal categories Eurostat livestock population tended to show a constant deviation over the time series compared to the animal population reported in GHG inventories. In such cases, a scaling factor was applied to achieve a 2009 data set comparable to animal population reported in GHG inventories (see Table 9). The scaling factor was derived on the basis of the most recent inventory data and the best fitting Eurostat dataset.

Table 9 Data from animal livestock surveyed by Eurostat in May/June (June) and December (Dec) used for proxy methodology and including application of a scaling factor if necessary (+AF).

	Dairy cattle	Non-dairy cattle	Swine	Sheep	Goats
AT	Dec	Dec	Dec	Dec	Dec
BE	June	June	June	June + AF	June
BG	Dec	Dec	Dec	Dec	Dec + AF
CY	Dec	Dec	Dec	Dec	Dec
CZ	Dec + AF	Dec + AF	Dec + AF	Dec	Dec
DE	June	June	June	June	June
DK	June	June	June	Dec + AF	–
EE	Dec	Dec	Dec	Dec + AF	Dec + AF
ES	June	Dec	Dec	Dec	Dec + AF
FI	Dec	Dec	Dec + AF	Dec + AF	Dec + AF
FR	Dec	June	June + AF	Dec	Dec
GR	Dec + AF	Dec + AF	Dec + AF	Dec	Dec + AF
HU	Dec	Dec	Dec	Dec	Dec
IE	Dec	Dec	June	June	June
IT	Dec	June	Dec	Dec	Dec
LT	Dec	Dec	Dec	Dec + AF	Dec
LU	June	June	Dec	Dec	Dec
LV	Dec	Dec	Dec	Dec + AF	Dec + AF
MT	Dec	Dec	Dec	Dec	Dec + AF
NL	June	Dec	Dec	Dec + AF	Dec
PL	June	June	Dec	Dec + AF	Dec
PT	Dec	Dec	Dec	Dec	Dec + AF
RO	Dec	Dec	Dec	Dec	Dec
SE	June	June	June	Dec	–
SI	Dec	Dec	Dec	Dec	Dec
SK	Dec + AF	Dec + AF	Dec	Dec	Dec
UK	June	Dec	June	Dec + AF	–

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

Implied emission factors for each animal category were derived from the national inventory data, which Member States submitted to the EU and the UNFCCC for the year Y-2 (Table 10).

Table 10 Implied emission factors from national UNFCCC inventories in 2008 used for the calculation of CH_4 emissions from enteric fermentation (4A, left) and manure management (4B, right) for 2009.

4A	Dairy cattle	Non-dairy cattle	Swine	Sheep	Goats	4B	Dairy cattle	Non-dairy cattle	Swine	Sheep	Goats
	IEF [kg CH_4/head/year]						IEF [kg CH_4/head/year]				
AT	115.6	56.2	1.5	8.0	5.0	AT	8.5	4.0	1.1	0.2	0.1
BE	122.0	45.6	1.5	8.0	5.0	BE	16.0	2.6	9.7	0.6	0.7
BG	81.0	56.0	1.5	8.0	5.0	BG	19.1	13.0	7.2	0.3	0.2
CY	100.0	58.0	1.5	8.0	5.0	CY	42.0	21.0	19.0	0.4	0.3
CZ	115.9	51.9	1.5	8.0	5.0	CZ	14.0	6.0	3.0	0.2	0.1
DE	113.8	44.5	1.0	8.0	5.0	DE	27.1	5.6	3.9	0.2	0.2
DK	130.4	40.4	1.1	17.2	13.0	DK	28.8	4.3	2.0	0.5	0.4
EE	132.5	48.7	0.8	8.0	5.0	EE	10.3	3.4	3.2	0.2	0.1
ES	99.8	54.9	0.9	8.7	5.0	ES	15.6	1.2	9.3	0.2	0.2
FI	125.2	47.6	1.5	8.4	5.0	FI	14.7	3.2	4.3	0.2	0.1
FR	117.3	48.7	1.1	9.8	11.8	FR	18.3	20.3	20.9	0.3	0.2
GR	96.5	56.0	1.5	7.5	5.0	GR	19.0	13.0	7.0	0.3	0.2
HU	132.7	57.4	1.5	8.0	5.0	HU	7.7	2.0	10.9	0.2	0.1
IE	110.5	55.3	0.4	5.9	5.0	IE	20.8	11.4	12.5	0.2	0.1
IT	114.7	45.5	1.5	8.0	5.0	IT	13.2	6.7	6.9	0.2	0.1
LT	102.5	56.7	1.5	8.0	5.0	LT	20.9	10.6	16.0	0.2	0.1
LU	117.8	42.6	1.5	8.0	5.0	LU	36.0	8.6	19.5	0.2	0.1
LV	115.4	52.2	1.5	8.0	5.0	LV	6.0	4.0	4.0	0.2	0.1
MT	100.0	48.0	1.5	8.0	5.0	MT	44.0	20.0	10.0	0.3	0.2
NL	128.3	36.0	1.5	8.0	5.0	NL	37.5	6.7	4.4	0.2	0.3
PL	96.6	47.9	1.5	8.2	5.0	PL	10.5	4.8	6.5	0.2	0.1
PT	122.5	57.5	1.4	9.2	8.5	PT	6.5	1.5	21.4	1.6	1.8
RO	92.6	56.0	1.0	5.0	5.0	RO	19.0	13.0	7.0	0.2	0.2
SE	131.7	54.6	1.5	8.0	5.0	SE	19.5	6.7	3.2	0.2	0.1
SI	104.5	50.9	1.6	8.0	5.0	SI	54.8	21.0	15.2	0.2	0.1
SK	108.3	55.1	1.5	9.8	5.0	SK	4.0	3.8	4.0	0.2	0.1
UK	108.9	43.1	1.5	4.7	5.0	UK	26.8	4.1	7.1	0.1	0.1

Source: 2010 CRF inventory submissions to UNFCCC

4.3.1.2 Results for 2009

Compared to 2008, GHG emissions from agriculture decreased by - 3.4 % in 2009 for the EU-15 and by - 3 % for the EU-27. Figure 7 indicate the sub-sector contribution.

Table 11 Change in GHG emissions between 2008 to 2009 in the agricultural sector

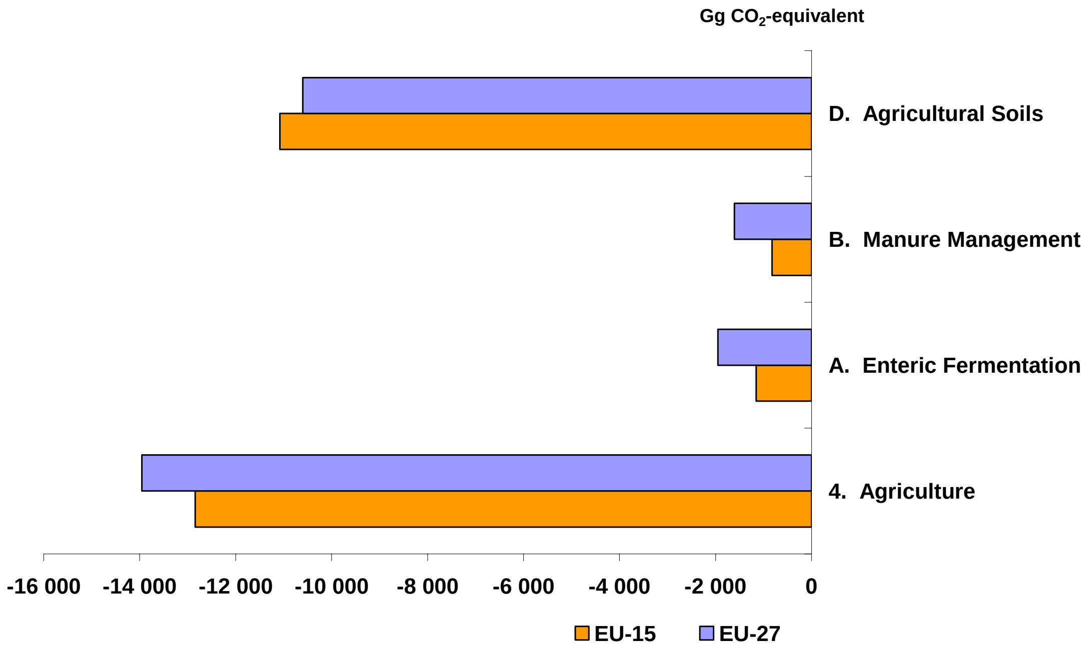
Sector Agriculture	**Change 2008/09**			
	EU-15		**EU-27**	
	Gg CO_2eq	**%**	**Gg CO_2eq**	**%**
4. Agriculture	-12 846	-3.4%	-13 956	-3.0%
A. Enteric Fermentation	-1 154	-0.9%	-1 953	-1.3%
B. Manure Management	-822	-1.3%	-1 604	-2.0%
D. Agricultural Soils	-11 078	-5.9%	-10 600	-4.4%

Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

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 change in GHG emissions from 2008 to 2009 in minor source category amounts to 212 Gg CO_2eq.

The decrease was dominated mainly by the reduction of N_2O emissions in German agricultural soils. According to preliminary estimates from Germany, the decrease in N_2O emissions from agricultural soils 2008 – 2009 was caused by a considerable reduction in the use of mineral fertilizers by - 15 % in that period[24]. In addition GHG emissions from enteric fermentation and manure management decreased also but with minor extent.

Figure 7 Change in GHG emissions between 2008 to 2009 in the agricultural sector



Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

[24] Press Release 013/2010: Climate protection: 2009 shows 8.4% decline in greenhouse gas emissions-http://www.umweltbundesamt.de/uba-info-presse-e/2010/pe10-013_climate_protection_2009_shows_8_4_percent_decline_in_greenhouse_gas_emissions.htm

4.3.2 4.B Manure management

4.3.2.1 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 9. The emission estimation follows a similar equation than the one for 4.A because of the same proxy methodology:

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

with

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

Implied emission factors for each animal category for category 4.B were derived from the national inventory data submitted to the EU and the UNFCCC for the year Y-2, see Table 10.

4.3.3 4.D Agricultural soils

4.3.3.1 Methods and data sources used

Contrary to last year's calculation for the proxy inventory, Eurostat annual statistics on agriculture and fisheries with data on consumption of fertilisers in agriculture have not available this year. This no activity rate for the estimation of emissions from the source category 4D1 could be obtained. Thus, in order to calculate emissions from Agricultural soils the sub-sectors 4D1.1 Synthetic Fertilizers, 4D1.2 Animal Manure applied to Soils, 4D1.3 N-fixing crops, 4D1.4 Crop residue 4D1.5 Cultivation of Histosols and 4D1.6 Other direct emissions were extrapolated from 2008 GHG inventories, either by trend extrapolation or by taking the constant values of the year 2008. 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 4D1.

The emissions of the other categories 4D2 to 4D6 were updated using data of previous years via trend extrapolation of UNFCCC inventory data submitted in 2010.

4.3.4 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.

4.4 Waste

4.4.1 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 2010, among all 27 EU Member States Cyprus and Romania only still used Tier 1 methodologies to estimate emissions from this source category. 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.[25] 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..

[25] Matthes, F. C., Herold, A., Ziesing, H.J. 2007: A ‘Proxy-Inventory’ for GHG Emissions from the EU-27 Member States – Feasibility study. ETC/ACC Technical Paper No 2007/3

4.4.2 Other categories in the waste sector

The other source categories in the waste sector are not very relevant for total GHG emissions in the EU. Total emissions from 6.B. Wastewater handling were 0.5% of EU-15 total emissions in 2007 and total emissions from 6.C Waste incineration contributed to 0.1 % to total EU-15 emissions in that year.

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

4.4.2.1 Results for 2009

GHG emissions from waste sector decrease by - 1.7 Mt CO_2eq for the EU-15 and by - 1.2 Mt CO_2eq for the EU-27 in 2009 compared to 2008. Table 12 indicates the sub-sector contribution to this trend in emissions.

Table 12 Change in GHG emissions between 2008 to 2009 in the waste sector

Sector Waste	Change 2008/09			
	EU-15		EU-27	
	Gg CO_2eq	%	Gg CO_2eq	%
6. Waste	-1 750	-1.7%	-1 607	-1.2%
A. Solid Waste Disposal on Land	-1 933	-2.6%	-1 816	-1.7%
B. Waste-water Handling	137	0.7%	133	0.5%
C. Waste Incineration	25	0.8%	54	1.3%
D. Other	21	0.8%	23	0.8%

Source: 2010 CRF inventory submissions to UNFCCC and EU for 2008 and authors' own calculations for 2009

4.5 Other source categories

For all other source categories, no 2009 activity data was available that could be combined with IEFs from GHG inventories. These categories were extrapolated from 2008 GHG inventories, either by trend extrapolation or by taking the constant values of 2008. 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.

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

Table 13 Methods and data used for CO_2 emissions from 1A Fuel combustion

Source Category	1A	Fuel Combustion (Sectoral Approach)
Gas	CO2	
Member State	**Projection Approach**	**Data Sources**
AT	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
BE	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
BG	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
CY	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
CZ	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
DE	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
DK	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
EE	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
ES	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
FI	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
FR	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
UK	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
GR	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
HU	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
IE	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
IT	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
LT	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
LU	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
LV	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
MT	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
NL	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
PL	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
PT	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
RO	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
SE	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission
SI	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
SK	Emissions calculation based on activity data	BP Statistical Review of World Energy, consumption of oil, gas and coal, June 2009, IEFs from 2010 inventory submission

Table 14 Methods and data used for CH_4 and N_2O emissions from 1A Fuel combustion

Source Category	1A	Fuel Combustion (Sectoral Approach)
Gas	CH4	N2O
Member State	**Projection Approach**	**Data Sources**
AT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
BE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
CY	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
CZ	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
DE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
DK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
EE	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
ES	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
FI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
FR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
UK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
GR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
HU	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
IE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
LT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
LU	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
LV	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
MT	Emission differentials from other sources	Summation of Proxy CRF 1A1, 1A2, 1A3, 1A4, 1A5
NL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
PL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
RO	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
SI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2
SK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A for CO2

Table 15 Methods and data used for CO_2, CH_4 and N_2O emissions for 1A1 Energy industries

Source Category	1A1	Energy Industries
Gas	CO2	
Member State	**Projection Approach**	**Data Sources**
AT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
BE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
BG	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
CY	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
CZ	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
DE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
DK	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
EE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
ES	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
FI	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
FR	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
UK	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
GR	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
HU	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
IE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
IT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
LT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
LU	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
LV	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
MT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
NL	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
PL	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
PT	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
RO	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
SE	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
SI	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c
SK	Total from other source categories	Proxy-inventory source categories 1A1a, 1A1b and 1A1c

Table 16 Methods and data used for CO_2 emissions from 1A1a Public electricity and heat production

Source Category	1A1a 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) 2008-2009	identification of power sector by Öko-Institut's analysis
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
BG	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
CY	Data from previous years	2010 inventory submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
EE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
LT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
LU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
LV	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
MT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
RO	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
SI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis
SK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	identification of power sector by Öko-Institut's analysis

Table 17 Methods and data used for CH_4 emissions from 1A1a Public electricity and heat production

Source Category	1A1a Public Electricity and Heat Production	
Gas	CH4	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2
CY	Data from previous years	2010 inventory submission
CZ	Data from previous years	2010 inventory submission
DE	Data from previous years	2010 inventory submission
DK	Data from previous years	2010 inventory submission
EE	Data from previous years	2010 inventory submission
ES	Data from previous years	2010 inventory submission
FI	Data from previous years	2010 inventory submission
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	2010 inventory submission
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	2010 inventory submission
LU	Data from previous years	2010 inventory submission
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	2010 inventory submission
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2
RO	Data from previous years	2010 inventory submission
SE	Data from previous years	2010 inventory submission
SI	Data from previous years	2010 inventory submission
SK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2

Table 18 Methods and data used for N_2O emissions from 1A1a Public electricity and heat production

Source Category	1A1a	Public Electricity and Heat Production
Gas	N2O	
Member State	**Projection Approach**	**Data Sources**
AT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009
BE	Emission trends (dynamics) from other sources	2010 inventory submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2
CY	Emission trends (dynamics) from other sources	2010 inventory submission
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	2010 inventory submission
EE	Data from previous years	2010 inventory submission
ES	Data from previous years	2010 inventory submission
FI	Data from previous years	2010 inventory submission
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	2010 inventory submission
IE	Data from previous years	2010 inventory submission
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2
LT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2
LU	Data from previous years	2010 inventory submission
LV	Data from previous years	2010 inventory submission
MT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1a for CO2
NL	Data from previous years	2010 inventory submission
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	2010 inventory submission

Table 19 Methods and data used for CO_2 emissions from 1A1b Petroleum refining

Source Category	1A1b Petroleum Refining		
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
BG	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
CY	Data from previous years	2010 inventory submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
EE	Data from previous years	2010 inventory submission	
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
LT	Data from previous years	2010 inventory submission	
LU	Data from previous years	2010 inventory submission	
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
PL	Activity trends (dynamics) from other sources	Eurostat data for Crude oil input to refineries	Indicator code 101008, product code 3100
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
RO	Data from previous years	2010 inventory submission	
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2
SI	Data from previous years	2010 inventory submission	
SK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main acitivity code 2

Table 20 Methods and data used for CH_4 emissions from 1A1b Petroleum refining

Source Category	1A1b	Petroleum Refining
Gas	CH4	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
CY	Data from previous years	2010 inventory 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	2010 inventory submission
EE	Data from previous years	2010 inventory 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	2010 inventory submission
LV	Data from previous years	2010 inventory submission
MT	Data from previous years	2010 inventory 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	Data from previous years	2010 inventory submission
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
SI	Data from previous years	2010 inventory submission
SK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2

Table 21 Methods and data used for N_2O emissions from 1A1b Petroleum refining

Source Category	1A1b	Petroleum Refining
Gas	N2O	
Member State	**Projection Approach**	**Data Sources**
AT	Emission trends (dynamics) from other sources	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
CY	Data from previous years	2010 inventory 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	2010 inventory 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	Data from previous years	2010 inventory submission
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	2010 inventory submission
LV	Data from previous years	2010 inventory submission
MT	Data from previous years	2010 inventory submission
NL	Data from previous years	2010 inventory submission
PL	Data from previous years	2010 inventory submission
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
RO	Data from previous years	2010 inventory submission
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A1b for CO2
SI	Data from previous years	2010 inventory submission
SK	Data from previous years	2010 inventory submission

Table 22 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	Manufacture of Solid Fuels and Other Energy Industries
Gas	CO2	CH4, N2O
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Data from previous years	2010 inventory submission
CY	Data from previous years	2010 inventory submission
CZ	Data from previous years	2010 inventory submission
DE	Data from previous years	2010 inventory submission
DK	Data from previous years	2010 inventory submission
EE	Data from previous years	2010 inventory submission
ES	Data from previous years	2010 inventory submission
FI	Data from previous years	2010 inventory submission
FR	Data from previous years	2010 inventory submission
UK	Data from previous years	2010 inventory submission
GR	Data from previous years	2010 inventory submission
HU	Data from previous years	2010 inventory submission
IE	Data from previous years	2010 inventory submission
IT	Data from previous years	2010 inventory submission
LT	Data from previous years	2010 inventory submission
LU	Data from previous years	2010 inventory submission
LV	Data from previous years	2010 inventory submission
MT	Data from previous years	2010 inventory submission
NL	Data from previous years	2010 inventory submission
PL	Data from previous years	2010 inventory submission
PT	Data from previous years	2010 inventory submission
RO	Data from previous years	2010 inventory submission
SE	Data from previous years	2010 inventory submission
SI	Data from previous years	2010 inventory submission
SK	Data from previous years	2010 inventory submission

Table 23 Methods and data used for CO_2 emissions from 1A2 Manufacturing industries and construction

Source Category	1A2 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) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas and CITL glass, ceramics, paper, 99, cement
BE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas and CITL glass, ceramics, paper, 99, cement
BG	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Mean value of trends from different CITL categories
CY	Data from previous years	2010 inventory submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement
DE	Direct use of emissions data from other sources	MS Proxy	
DK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
EE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
FI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
FR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
UK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas and CITL glass, ceramics, paper, 99, cement
HU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
IE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
IT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
LT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
LU	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99
LV	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement
MT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL glass, ceramics, paper, 99, cement
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL other combustion, glass, ceramics, paper, 99, cement, coke ovens, ore, iron, bf-gas
RO	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
SE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL glass, ceramics, paper, 99, cement
SI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas
SK	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	Factor * CITL combustion and bf-gas

Table 24 Methods and data used for CH_4 emissions from 1A2 Manufacturing industries and construction

Source Category	1A2	Manufacturing Industries and Construction
Gas	CH4	

Member State	Projection Approach	Data Sources
AT	Data from previous years	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Data from previous years	2010 inventory submission
CY	Data from previous years	2010 inventory submission
CZ	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
DE	Data from previous years	Proxy-inventory source categories 1A2 for CO2
DK	Data from previous years	2010 inventory submission
EE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
ES	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
FI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
FR	Data from previous years	2010 inventory submission
UK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
GR	Data from previous years	2010 inventory submission
HU	Data from previous years	2010 inventory submission
IE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
LT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
LU	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
LV	Data from previous years	2010 inventory submission
MT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
NL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
PL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
RO	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
SE	Data from previous years	2010 inventory submission
SI	Data from previous years	2010 inventory submission
SK	Data from previous years	2010 inventory submission

Table 25 Methods and data used for N_2O emissions from 1A2 Manufacturing industries and construction

Source Category	1A2	Manufacturing Industries and Construction
Gas	N2O	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
CY	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
CZ	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
DE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
DK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
EE	Data from previous years	2010 inventory submission
ES	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
FI	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
FR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
UK	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
GR	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
HU	Data from previous years	2010 inventory submission
IE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
IT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
LT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
LU	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
LV	Data from previous years	2010 inventory submission
MT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
NL	Data from previous years	2010 inventory submission
PL	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
PT	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
RO	Data from previous years	2010 inventory submission
SE	Emission trends (dynamics) from other sources	Proxy-inventory source categories 1A2 for CO2
SI	Data from previous years	2010 inventory submission
SK	Data from previous years	2010 inventory submission

Table 26 Methods and data used for CO_2, CH_4 and N_2O emissions from 1A3 Transport

Source Categor	1A3	Transport	
Gas	CO2	CH4, N2O	
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
BE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
BG	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
CY	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
CZ	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
DE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	
DK	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Complex calculation see Report Chapter 4.1.5
EE	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Complex calculation see Report Chapter 4.1.5
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	Complex calculation see Report Chapter 4.1.5
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	Complex calculation see Report Chapter 4.1.5
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	Data from previous years	2010 inventory submission	
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	Complex calculation see Report Chapter 4.1.5
SK	Emissions calculation based on activity data	Eurostat monthly data on internal market deliveries of motor spirit, automotive diesel oil and kerosene/jet fuels	Complex calculation see Report Chapter 4.1.5

Table 27 Methods and data used for CO_2 emissions from 1B1 Fugitive emissions from solid fuels

Source Category	1B1	Fugitive Emissions from Soild Fuels	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	2010 inventory submission	
BE	Data from previous years	2010 inventory submission	
BG	Data from previous years	2010 inventory submission	
CY	Data from previous years	2010 inventory submission	
CZ	Data from previous years	2010 inventory submission	
DE	Data from previous years	2010 inventory submission	
DK	Data from previous years	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Data from previous years	2010 inventory submission	
FI	Data from previous years	2010 inventory submission	
FR	Data from previous years	2010 inventory submission	
UK	Data from previous years	2010 inventory submission	
GR	Data from previous years	2010 inventory submission	
HU	Data from previous years	2010 inventory submission	
IE	Data from previous years	2010 inventory submission	
IT	Data from previous years	2010 inventory submission	
LT	Data from previous years	2010 inventory submission	
LU	Data from previous years	2010 inventory submission	
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL Main activity code 5
PL	Data from previous years	2010 inventory submission	
PT	Data from previous years	2010 inventory submission	
RO	Data from previous years	2010 inventory submission	
SE	Data from previous years	2010 inventory submission	
SI	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
SK	Data from previous years	2010 inventory submission	

Table 28 Methods and data used for CH_4 emissions from 1B1 Fugitive emissions from solid fuels

Source Category	1B1 Fugitive Emissions from Soild Fuels		
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	2010 inventory submission	
BE	Data from previous years	2010 inventory submission	
BG	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
CY	Data from previous years	2010 inventory submission	
CZ	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal and Lignite Production (monthly data)	Indicator code 100100, product code 2111 and 2210
DE	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal and Lignite Production (monthly data)	Indicator code 100100, product code 2111 and 2210
DK	Data from previous years	2010 inventory submission	
EE	Data from previous years	2010 inventory 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	2010 inventory submission	
FR	Data from previous years	2010 inventory submission	
UK	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal Production (monthly data)	Indicator code 100100, product code 2111
GR	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
HU	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
IE	Data from previous years	2010 inventory submission	
IT	Data from previous years	2010 inventory submission	
LT	Data from previous years	2010 inventory submission	
LU	Data from previous years	2010 inventory submission	
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Data from previous years	2010 inventory submission	
PL	Activity trends (dynamics) from other sources	Eurostat Primary Hard Coal and Lignite Production (monthly data)	Indicator code 100100, product code 2111 and 2210
PT	Data from previous years	2010 inventory submission	
RO	Activity trends (dynamics) from other sources	Eurostat Primary Lignite Production (monthly data)	Indicator code 100100, product code 2210
SE	Data from previous years	2010 inventory submission	
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 29 Methods and data used for CO_2 emissions from 1B2a Fugitive emissions from oil

Source Category	1B2a Oil		
Gas	CO2		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous years	2010 inventory submission	
BE	Data from previous years	2010 inventory submission	
BG	Data from previous years	2010 inventory submission	
CY	Data from previous years	2010 inventory submission	
CZ	Data from previous years	2010 inventory submission	
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	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL refineries
FI	Data from previous years	2010 inventory submission	
FR	Data from previous years	2010 inventory submission	
UK	Data from previous years	2010 inventory submission	
GR	Data from previous years	2010 inventory submission	
HU	Data from previous years	2010 inventory submission	
IE	Data from previous years	2010 inventory submission	
IT	Data from previous years	2010 inventory submission	
LT	Data from previous years	2010 inventory submission	
LU	Data from previous years	2010 inventory submission	
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Data from previous years	2010 inventory submission	
PL	Activity trends (dynamics) from other sources	Eurostat Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
PT	Emission trends (dynamics) from other sources	CITL data	CITL refineries
RO	Data from previous years	2010 inventory submission	
SE	Data from previous years	2010 inventory submission	
SI	Data from previous years	2010 inventory submission	
SK	Data from previous years	2010 inventory submission	

Table 30 Methods and data used for CH_4 emissions from 1B2a Fugitive emissions from oil

Source Category	1B2a	Oil	
Gas	CH4		
Member State	Projection Approach	Data Sources	Notes
AT	Activity trends (dynamics) from other sources	Eurostat Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
BE	Data from previous years	2010 inventory submission	
BG	Data from previous years	2010 inventory submission	
CY	Data from previous years	2010 inventory submission	
CZ	Data from previous years	2010 inventory submission	
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	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Emission trends (dynamics) from other sources	CITL data	CITL refineries
FI	Data from previous years	2010 inventory submission	
FR	Data from previous years	2010 inventory submission	
UK	Data from previous years	2010 inventory submission	
GR	Data from previous years	2010 inventory submission	
HU	Data from previous years	2010 inventory submission	
IE	Data from previous years	2010 inventory submission	
IT	Data from previous years	2010 inventory submission	
LT	Data from previous years	2010 inventory submission	
LU	Data from previous years	2010 inventory submission	
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Data from previous years	2010 inventory submission	
PL	Emission trends (dynamics) from other sources	Eurostat Crude Oil Production (monthly data)	Indicator code 100100, product code 3100
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL refineries
RO	Data from previous years	2010 inventory submission	
SE	Data from previous years	2010 inventory submission	
SI	Data from previous years	2010 inventory submission	
SK	Data from previous years	2010 inventory submission	

Table 31 Methods and data used for CO_2 emissions from 1B2b Fugitive emissions from gas

Source Category	1B2b Natural Gas		
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	2010 inventory submission	
BE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
BG	Data from previous years	2010 inventory submission	
CY	Data from previous years	2010 inventory submission	
CZ	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL refineries
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	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Data from previous years	2010 inventory submission	
FI	Data from previous years	2010 inventory submission	
FR	Data from previous years	2010 inventory submission	
UK	Data from previous years	2010 inventory submission	
GR	Data from previous years	2010 inventory submission	
HU	Data from previous years	2010 inventory submission	
IE	Data from previous years	2010 inventory 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	2010 inventory 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	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	Indicator code 100900, product code 4100
PT	Data from previous years	2010 inventory submission	
RO	Data from previous years	2010 inventory submission	
SE	Data from previous years	2010 inventory submission	
SI	Data from previous years	2010 inventory submission	
SK	Data from previous years	2010 inventory submission	

Table 32 Methods and data used for CH_4 emissions from 1B2b Fugitive emissions from gas

Source Category	1B2b	Natural Gas	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	2010 inventory submission	
BE	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas Consumption (monthly data)	
BG	Data from previous years	2010 inventory submission	
CY	Data from previous years	2010 inventory submission	
CZ	Data from previous years	2010 inventory submission	
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	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Emission trends (dynamics) from other so	CITL data (operator holding accounts) 2008-2009	CITL refineries
FI	Data from previous years	2010 inventory submission	
FR	Emission trends (dynamics) from other so	CITL data (operator holding accounts) 2008-2009	CITL refineries
UK	Emission trends (dynamics) from other so	CITL data (operator holding accounts) 2008-2009	CITL refineries
GR	Data from previous years	2010 inventory submission	
HU	Data from previous years	2010 inventory submission	
IE	Data from previous years	2010 inventory 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	2010 inventory submission	
LU	Activity trends (dynamics) from other sou	Eurostat Total Natural Gas consumption (monthly data)	Indicator code 100100, product code 4100
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas consumption (monthly data)	Indicator code 100100, product code 4100
PL	Data from previous years	2010 inventory submission	
PT	Data from previous years	2010 inventory submission	
RO	Activity trends (dynamics) from other sou	Eurostat Total Natural Gas consumption (monthly data)	Indicator code 100100, product code 4100
SE	Data from previous years	2010 inventory submission	
SI	Data from previous years	2010 inventory submission	
SK	Activity trends (dynamics) from other sources	Eurostat Total Natural Gas consumption (monthly data)	Indicator code 100100, product code 4100

Table 33 Methods and data used for CO_2 emissions from 1B2c Venting and flaring

Source Category	1B2c	Venting and flaring	
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	2010 inventory submission	
BE	Data from previous years	2010 inventory submission	
BG	Data from previous years	2010 inventory submission	
CY	Data from previous years	2010 inventory submission	
CZ	Data from previous years	2010 inventory submission	
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	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Data from previous years	2010 inventory submission	
FI	Data from previous years	2010 inventory submission	
FR	Data from previous years	2010 inventory submission	
UK	Data from previous years	2010 inventory submission	
GR	Data from previous years	2010 inventory submission	
HU	Data from previous years	2010 inventory submission	
IE	Data from previous years	2010 inventory submission	
IT	Data from previous years	2010 inventory submission	
LT	Data from previous years	2010 inventory submission	
LU	Data from previous years	2010 inventory submission	
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Data from previous years	2010 inventory submission	
PL	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL refineries
PT	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL refineries
RO	Data from previous years	2010 inventory submission	
SE	Data from previous years	2010 inventory submission	
SI	Data from previous years	2010 inventory submission	
SK	Data from previous years	2010 inventory submission	

Table 34 Methods and data used for CH_4 emissions from 1B2c Venting and flaring

Source Category	1B2c	Venting and flaring
Gas	CH4	
Member State	**Projection Approach**	**Data Sources**
AT	Data from previous years	2010 inventory submission
BE	Data from previous years	2010 inventory submission
BG	Data from previous years	2010 inventory submission
CY	Data from previous years	2010 inventory submission
CZ	Data from previous years	2010 inventory submission
DE	Data from previous years	2010 inventory submission
DK	Data from previous years	2010 inventory submission
EE	Data from previous years	2010 inventory submission
ES	Data from previous years	2010 inventory submission
FI	Data from previous years	2010 inventory submission
FR	Data from previous years	2010 inventory submission
UK	Data from previous years	2010 inventory submission
GR	Data from previous years	2010 inventory submission
HU	Data from previous years	2010 inventory submission
IE	Data from previous years	2010 inventory submission
IT	Data from previous years	2010 inventory submission
LT	Data from previous years	2010 inventory submission
LU	Data from previous years	2010 inventory submission
LV	Data from previous years	2010 inventory submission
MT	Data from previous years	2010 inventory submission
NL	Data from previous years	2010 inventory submission
PL	Data from previous years	2010 inventory submission
PT	Data from previous years	2010 inventory submission
RO	Data from previous years	2010 inventory submission
SE	Data from previous years	2010 inventory submission
SI	Data from previous years	2010 inventory submission
SK	Data from previous years	2010 inventory submission

Table 35 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 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
BE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
BG	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
CY	Data from previous year		
CZ	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
DE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
DK	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
EE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
ES	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
FI	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
FR	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
UK	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
GR	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
HU	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
IE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
IT	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
LT	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
LU	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
LV	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
MT	Data from previous year		
NL	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
PL	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
PT	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
RO	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
SE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
SI	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
SK	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions

Table 36 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 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
BE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
BG	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
CY	Data from previous year		
CZ	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
DE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
DK	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
EE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
ES	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
FI	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
FR	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
UK	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
GR	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
HU	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
IE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
IT	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
LT	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
LU	Data from previous year		
LV	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
MT	Data from previous year		
NL	Data from previous year		
PL	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
PT	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
RO	Data from previous year		
SE	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
SI	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions
SK	Direct use of emissions data from other sources	CITL data as of 12 July 2010 from EU ETS data viewer	CITL trend 2008/2009 applied to 2008 CRF emissions

Table 37 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 2010 submission	Value of 2008
DE			
DK			
EE			
ES			
FI			
FR			
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO			
SE			
SI			
SK			

Table 38 Methods and data used for CO_2 emissions from 2B1 Ammonia Production

Source Category	2B1 Ammonia Production		
Gas	CO2		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Data from previous year	UNFCCC 2010 submission	Value of 2008
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK			
EE	Data from previous year	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI			
FR	Data from previous year	UNFCCC 2010 submission	Value of 2008
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Data from previous year	UNFCCC 2010 submission	Value of 2008
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE			
SI			
SK	Data from previous year	UNFCCC 2010 submission	Value of 2008

Table 39 Methods and data used for N_2O emissions from 2B2 Nitric Acid Production

Source Category	2B2 Nitric Acid Production		
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous year	UNFCCC 2010 submission	Value of 2008
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous year	UNFCCC 2010 submission	Value of 2008
LU			
LV			
MT			
NL	Data from previous year	UNFCCC 2010 submission	Value of 2008
PL	Data from previous year	UNFCCC 2010 submission	Value of 2008
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Data from previous year	UNFCCC 2010 submission	Value of 2008
SI			
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 40 Methods and data used for N_2O emissions from 2B3 Adipic Acid Production

Source Category	2B3 Adipic Acid Production		
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK			
EE			
ES			
FI			
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR			
HU			
IE			
IT	Data from previous year	UNFCCC 2010 submission	Value of 2008
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 41 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 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2
DK			
EE			
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2 emissions
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2 emissions
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2
LT			
LU			
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT			
NL			
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT			
RO			
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI			
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 42 Methods and data used for CO_2 emissions from 2.C Metal production

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

Table 43 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			
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI			
FR			
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CO2
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT			
RO			
SE			
SI			
SK			

Table 44 Methods and data used for CO_2 emissions from 2.C.1 Iron and steel production

Source Category	2C1	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) 2008-2009	CITL categories coke, ore,iron, bf-gas
BE	Emission trends (dynamics) from alternative calculations	CITL data and International Iron and Steel Institute (IISI)	CITL iron, Iron production
BG	Activity trends (dynamics) from other sources	International Iron and Steel Institute (IISI)	Steel production
CY	Data from previous years	2010 inventory submission	
CZ	Activity trends (dynamics) from other sources	International Iron and Steel Institute (IISI)	Steel and Iron production
DE	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL iron
DK	Data from previous years	2010 inventory submission	
EE	Data from previous years	2010 inventory submission	
ES	Emission trends (dynamics) from alternative calculations	CITL data and International Iron and Steel Institute (IISI)	CITL iron, Steel production
FI	Emission trends (dynamics) from alternative calculations	CITL data and International Iron and Steel Institute (IISI)	CITL iron, Iron production
FR	Emission trends (dynamics) from alternative calculations	CITL data and International Iron and Steel Institute (IISI)	Mean Value of different trends
UK	Data from previous years	2010 inventory submission	
GR	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL iron
HU	Activity trends (dynamics) from other sources	International Iron and Steel Institute (IISI)	Steel production
IE	Data from previous years	2010 inventory submission	
IT	Data from previous years	2010 inventory submission	
LT	Data from previous years	2010 inventory submission	
LU	Activity trends (dynamics) from other sources	International Iron and Steel Institute (IISI)	Steel production
LV	Data from previous years	2010 inventory submission	
MT	Data from previous years	2010 inventory submission	
NL	Data from previous years	2010 inventory submission	
PL	Emission trends (dynamics) from alternative calculations	CITL data and International Iron and Steel Institute (IISI)	Mean Value of different trends
PT	Activity trends (dynamics) from other sources	International Iron and Steel Institute (IISI)	Steel production
RO	Activity trends (dynamics) from other sources	CITL data and International Iron and Steel Institute (IISI)	Mean Value of different trends
SE	Activity trends (dynamics) from other sources	International Iron and Steel Institute (IISI)	Iron production
SI	Emission trends (dynamics) from other sources	CITL data (operator holding accounts) 2008-2009	CITL iron
SK	Activity trends (dynamics) from other sources	CITL data and International Iron and Steel Institute (IISI)	Mean Value of different trends

Table 45 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	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO			
SE			
SI			
SK			

Table 46 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 2010 submission	linear trend projection via minimum square deviation
SI			
SK			

Table 47 Methods and data used for SF_6 emissions

Source Category	2 2. Industrial Processes		
Gas	SF6		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 48 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 2010 submission	Value of 2008
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY	Data from previous years	UNFCCC 2010 submission	Value of 2008
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 49 Methods and data used for PFC emissions

Source Category	2 2. Industrial Processes		
Gas	PFC		
Member State	Projection Approach	Data Sources	Notes
AT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Data from previous years	UNFCCC 2010 submission	Value of 2008
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2010 submission	Value of 2008
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 50 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 2010 submission	linear trend projection via minimum square deviation
EE			
ES			
FI			
FR			
UK			
GR			
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE			
IT			
LT			
LU			
LV			
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT			
RO			
SE			
SI			
SK			

Table 51 Methods and data used for CH_4 and N_2O emissions from 2.G Other

Source Category	2.G	2.G Other	
Gas	CH4	N2O	
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE			
BG			
CY			
CZ			
DE			
DK			
EE			
ES			
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL			
PT			
RO			
SE			
SI			
SK			

Table 52 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	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE			
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Data from previous years	UNFCCC 2010 submission	Value of 2008
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE			
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK			
GR	Data from previous years	UNFCCC 2010 submission	Value of 2008
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Data from previous years	UNFCCC 2010 submission	Value of 2008
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI			
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 53 Methods and data used for N_2O emissions from 3 Solvent and other product use

Source Category	3 3. Solvent and Other Product Use		
Gas	N2O		
Member State	Projection Approach	Data Sources	Notes
AT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY			
CZ	Data from previous years	UNFCCC 2010 submission	Value of 2008
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE			
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE			
IT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LT			
LU	Data from previous years	UNFCCC 2010 submission	Value of 2008
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO			
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 54 Methods and data used for CH_4 emissions from 4.A. Enteric fermentation and from 4.B Manure management

Source Category	A. Enteric Fermentation, 4.B Manure Management:		
Gas	CH4 Dairy Cattle, Non-dairy Cattle, Sheep, Goats, Swine		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
BE	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Goats, Swine: EUROSTAT June survey; Sheep: EUROSTAT June survey plus adjustment factor
BG	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Swine: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
CY	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
CZ	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey plus adjustment factor; Sheep, Goats: EUROSTAT December survey
DE	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT June survey
DK	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Swine: EUROSTAT June survey; Sheep: EUROSTAT December survey plus adjustment factor; Goats:
EE	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey plus adjustment factor
ES	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle: EUROSTAT June survey; Non-dairy cattle, Sheep, Swine: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
FI	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle: EUROSTAT December survey; Sheep, Goats, Swine: EUROSTAT December survey plus adjustment factor
FR	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Sheep, Goats: EUROSTAT December survey; Non-dairy cattle: EUROSTAT June survey; Swine: EUROSTAT June survey plus adjustment factor
UK	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Swine: EUROSTAT June survey; Non-dairy cattle: EUROSTAT December survey; Sheep: EUROSTAT December survey plus adjustment factor; Goats: no population data available, extrapolation of UNFCCC CH4 emissions
GR	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Goats, Swine: EUROSTAT December survey plus adjustment factor; Sheep: EUROSTAT December survey
HU	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
IE	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle: EUROSTAT December survey; Sheep, Goats, Swine: EUROSTAT June survey
IT	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey; Non-dairy cattle: EUROSTAT June survey
LT	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Goats, Swine: EUROSTAT December survey; Sheep: EUROSTAT December survey plus adjustment factor
LU	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle: EUROSTAT June survey; Sheep, Goats, Swine: EUROSTAT December survey

Source Category	A. Enteric Fermentation, 4.B Manure Management:		
Gas	CH4 Dairy Cattle, Non-dairy Cattle, Sheep, Goats, Swine		
Member State	**Projection Approach**	**Data Sources**	**Notes**
LV	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Swine: EUROSTAT December survey; Sheep, Goats: EUROSTAT December survey plus adjustment factor
MT	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Swine: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
NL	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle: EUROSTAT June survey; Non-dairy cattle, Swine, Goats: EUROSTAT December survey; Sheep: EUROSTAT December survey plus adjustment factor
PL	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle: EUROSTAT June survey; Sheep: EUROSTAT December survey plus adjustment factor; Goats, Swine: EUROSTAT December survey
PT	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Swine: EUROSTAT December survey; Goats: EUROSTAT December survey plus adjustment factor
RO	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
SE	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Swine: EUROSTAT June survey; Sheep: EUROSTAT December survey; Goats: no population data available, extrapolation of UNFCCC CH4 emissions
SI	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine: EUROSTAT December survey
SK	Emissions calculation based on activity data	Livestock activity data (Dairy cattle, Non-dairy cattle, Sheep, Goats, Swine) from EUROSTAT, IEF from UNFCCC 2008 inventories	Dairy cattle, Non-dairy cattle: EUROSTAT December survey plus adjustment factor; Sheep, Goats, Swine: EUROSTAT December survey

Table 55 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	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Data from previous years	UNFCCC 2010 submission	Value of 2008
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Data from previous years	UNFCCC 2010 submission	Value of 2008
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CH4
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Data from previous years	UNFCCC 2010 submission	Value of 2008
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation, adjustment to CH4
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 56 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 2010 submission	linear trend projection via minimum square deviation
CY			
CZ			
DE			
DK			
EE			
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI			
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK			
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT			
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE			
SI			
SK			

Table 57 Methods and data used for CH_4 emissions from 4.D Agricultural soils

Source Category	4.D	D. Agricultural Soils	
Gas	CH4		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2010 submission	Value of 2008
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 58 Methods and data used for N_2O emissions from 4.D.1.1 Synthetic fertilizer

Source Category	4.D.1.1 1. Synthetic Fertilizers		
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Data from previous years	UNFCCC 2010 submission	Value of 2008
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 59 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 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Data from previous years	UNFCCC 2010 submission	Value of 2008
CZ	Data from previous years	UNFCCC 2010 submission	Value of 2008
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 60 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 2010 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR	Data from previous years	UNFCCC 2010 submission	Value of 2008
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 61 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 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CZ	Data from previous years	UNFCCC 2010 submission	Value of 2008
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 62 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 2010 submission	Value of 2008
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES			
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR			
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR	Data from previous years	UNFCCC 2010 submission	Value of 2008
HU			
IE			
IT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU			
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK			

Table 63 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 2010 submission	Value of 2008
BE			
BG			
CY			
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Data from previous years	UNFCCC 2010 submission	Value of 2008
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK			
GR			
HU			
IE			
IT			
LT			
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT			
RO			
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI			
SK			

Table 64 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 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Data from previous years	UNFCCC 2010 submission	Value of 2008
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 65 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 2010 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2010 submission	Value of 2008
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Data from previous years	UNFCCC 2010 submission	Value of 2008
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT			
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 66 Methods and data used for N_2O emissions from 4.D.4 Other

Source Category	4.D.4 4. Other		
Gas	N2O		
Member State	**Projection Approach**	**Data Sources**	**Notes**
AT			
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG			
CY			
CZ			
DE	Data from previous years	UNFCCC 2010 submission	Value of 2008
DK			
EE			
ES			
FI			
FR			
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL			
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO			
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI			
SK			

Table 67 Methods and data used for CH_4 emissions from 4.F Field burning of agricultural residues

Source Category	4.F	F. Field Burning of Agricultural Residues	
Gas	CH4		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE			
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR			
UK			
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT			
NL			
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO			
SE			
SI			
SK			

Table 68 Methods and data used for N_2O emissions from 4.F Field burning of agricultural residues

Source Category	4.F	F. Field Burning of Agricultural Residues	
Gas	N2O		
Member State	Projection Approach	Data Sources	Notes
AT	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE			
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CZ			
DE			
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR			
UK			
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT			
NL			
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO			
SE			
SI			
SK			

Table 69 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	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI			
FR			
UK			
GR			
HU			
IE			
IT			
LT			
LU			
LV			
MT			
NL			
PL			
PT			
RO			
SE			
SI			
SK			

Table 70 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	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Data from previous years	UNFCCC 2010 submission	Value of 2008
CY	Data from previous years	UNFCCC 2010 submission	Value of 2008
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 71 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 FI FR UK GR HU IE IT LT LU LV MT NL PL PT RO SE SI SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 72 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**	**xtrapolation from previous yea**	**Notes**
AT	Data from previous years	UNFCCC 2010 submission	Value of 2008
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY	Data from previous years	UNFCCC 2010 submission	Value of 2008
CZ	Data from previous years	UNFCCC 2010 submission	Value of 2008
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE	Data from previous years	UNFCCC 2010 submission	Value of 2008
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR	Data from previous years	UNFCCC 2010 submission	Value of 2008
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU	Data from previous years	UNFCCC 2010 submission	Value of 2008
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SE			
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 73 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	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
CY			
CZ	Data from previous years	UNFCCC 2010 submission	Value of 2008
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
FI	Data from previous years	UNFCCC 2010 submission	Value of 2008
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LV	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
MT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
NL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 74 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 2010 submission	Value of 2008
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE			
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE			
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI			
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LU			
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL			
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Data from previous years	UNFCCC 2010 submission	Value of 2008
RO	Data from previous years	UNFCCC 2010 submission	Value of 2008
SE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 75 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 2010 submission	Value of 2008
BE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE			
DK	Data from previous years	UNFCCC 2010 submission	Value of 2008
EE			
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI			
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK	Data from previous years	UNFCCC 2010 submission	Value of 2008
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
IE			
IT	Data from previous years	UNFCCC 2010 submission	Value of 2008
LT			
LU			
LV			
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL			
PL			
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI			
SK			

Table 76 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 2010 submission	Value of 2008
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG			
CY			
CZ	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DE			
DK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
EE			
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI			
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
GR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
HU	Data from previous years	UNFCCC 2010 submission	Value of 2008
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT			
LU			
LV			
MT	Data from previous years	UNFCCC 2010 submission	Value of 2008
NL			
PL	Data from previous years	UNFCCC 2010 submission	Value of 2008
PT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
RO			
SE	Data from previous years	UNFCCC 2010 submission	Value of 2008
SI	Data from previous years	UNFCCC 2010 submission	Value of 2008
SK	Data from previous years	UNFCCC 2010 submission	Value of 2008

Table 77 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	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
BE	Data from previous years	UNFCCC 2010 submission	Value of 2008
BG			
CY			
CZ			
DE	Data from previous years	UNFCCC 2010 submission	Value of 2008
DK			
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES	Data from previous years	UNFCCC 2010 submission	Value of 2008
FI	Data from previous years	UNFCCC 2010 submission	Value of 2008
FR	Data from previous years	UNFCCC 2010 submission	Value of 2008
UK			
GR			
HU			
IE			
IT	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
LT			
LU	Data from previous years	UNFCCC 2010 submission	Value of 2008
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL			
PT			
RO			
SE			
SI			
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation

Table 78 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 2010 submission	linear trend projection via minimum square deviation
BE			
BG			
CY			
CZ			
DE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
DK			
EE	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
ES			
FI	Data from previous years	UNFCCC 2010 submission	Value of 2008
FR	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
UK			
GR			
HU			
IE			
IT			
LT			
LU	Data from previous years	UNFCCC 2010 submission	Value of 2008
LV	Data from previous years	UNFCCC 2010 submission	Value of 2008
MT			
NL	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation
PL			
PT			
RO			
SE			
SI			
SK	Extrapolation from previous years	UNFCCC 2010 submission	linear trend projection via minimum square deviation