Ministry of the Environment
of the Czech Republic

2015

SECOND BIENNIAL REPORT OF THE CZECH REPUBLIC

Table of Contents

1 Introduction

The 2nd Biennial Report of the Czech Republic (BR2) was prepared in accordance with the Decision 2/CP.17 of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

This document is structured according to an outline defined in Annex 1 of the Decision 2/CP.17. It builds on information presented in the 6th National Communication and the 1st Biennial Report, taking into account recommendations provided by the ERT in its report of the technical review of the 1st Biennial Report of the Czech Republic (November 2014). Tabular information as defined and required by the UNFCCC Biennial report guidelines are enclosed in the CTF annex at the end of the BR2 and also submitted electronically through UNFCCC Application and Network Access Portal.

2 Information on GHG emissions and trends

This chapter describes greenhouse gas (GHG) emissions trends over time, covering period between 1990 and 2013. It is based on the official inventory submission to the Secretariat of the UNFCCC from November 2015. The GHG inventory was prepared in line with the new reporting guidelines (Decision 24/CP.19).

2.1 Introduction and summary information from the Czech national GHG inventory

Annual monitoring of GHG emissions and removals is one of the obligations resulting from the *UNFCCC* and its *Kyoto Protocol* (KP). In addition, as a result of membership in the European Union, the Czech Republic must also fulfil its reporting requirements concerning GHG emissions and removals resulting from Regulation (EU) No 525/2013. The inventory covers anthropogenic emissions of direct GHGs: CO_2, CH_4, N_2O, HFC, PFC, SF_6, NF_3; and indirect GHGs: NO_X, CO, NMVOC and SO_2.

The results of the Czech GHG inventory for the 1990 – 2013 period are presented in the CTF Table 1. These results are taken from the National Inventory Report (NIR), which was submitted to the Secretariat of the UNFCCC in November 2015. CTF Table 1 gives four trend tables related to the main GHGs (CO_2, CH_4 and N_2O) and also to the overall (aggregate) GHG emissions expressed in CO_2 equivalents.

In accordance with the UNFCCC requirements on data outputs, the total emissions in the CTF Table 1 are given both including emissions and sinks in the Land Use, Land Use Change and Forestry (LULUCF) sector and also without inclusion of this sector. Overall (aggregated) emissions for all the sectors (excluding LULUCF) decreased by 34.24% from 1990 to 2013.

Tab. 2-1 presents a summary of GHG emissions excl. bunkers for the period from 1990 to 2013. For CO_2, CH_4 and N_2O the base year is 1990; for F-gases the base year is 1995.

Tab. 2-1 GHG emissions from 1990-2013 excl. bunkers [Gg CO_2 eq.]

	CO_2[1]	CH_4[3]	N_2O[3]	HFCs	PFCs	NF_3	SF_6	Total emissions	
								excl. LULUCF	incl. LULUCF
1990	161 700.15	21 181.49	10 600.22	NE			15.68	193 356.07	187 036.19
1991	146 084.41	19 519.16	9 162.02				15.60	174 671.89	165 639.37
1992	141 597.75	18 326.59	8 364.57				15.78	168 191.44	158 569.04
1993	135 616.44	17 470.23	7 444.25				15.95	160 419.50	151 274.45
1994	129 208.13	16 593.02	7 240.57				16.11	152 928.42	146 423.65
1995	129 784.76	16 304.41	7 422.64	0.23	0.01	NO	16.28	153 407.26	146 700.29
1996	132 189.65	16 113.61	7 273.10	34.68	0.48	NO	25.19	155 483.37	148 365.22
1997	128 537.94	15 728.14	7 951.03	99.06	1.58	NO	22.79	152 177.67	146 085.83
1998	123 307.54	15 192.66	7 122.63	134.36	1.54	NO	21.37	145 634.04	139 266.93
1999	114 947.67	14 575.85	6 978.86	148.10	0.83	NO	23.75	136 539.91	130 075.57
2000	125 307.13	13 634.70	7 020.54	204.66	3.97	NO	37.93	146 084.02	138 968.89
2001	124 967.12	13 325.83	7 092.23	309.36	7.79	NO	28.76	145 602.09	138 166.81

	CO_2[1]	CH_4[3]	N_2O[3]	HFCs	PFCs	NF_3	SF_6	Total emissions	
								excl. LULUCF	incl. LULUCF
2002	122 033.47	12 955.24	6 865.58	402.50	14.06	NO	49.88	142 182.99	134 850.49
2003	125 590.29	12 950.73	6 593.61	511.65	6.99	NO	73.22	145 556.45	139 836.50
2004	126 331.76	12 590.27	6 941.10	606.87	10.30	NO	50.53	146 374.47	140 258.24
2005	124 040.97	12 989.43	6 773.64	706.22	11.83	NO	47.16	144 419.67	137 987.47
2006	125 340.30	13 272.52	6 633.54	945.84	27.03	NO	30.83	146 066.99	142 124.52
2007	126 337.27	12 862.67	6 622.75	1292.53	24.92	NO	24.37	146 929.37	145 724.80
2008	121 212.68	12 965.64	6 648.23	1524.96	33.85	NO	25.06	142 222.65	137 456.38
2009	113 369.49	12 557.92	6 196.98	1654.24	39.15	NO	28.97	133 686.63	127 650.88
2010	115 033.97	12 761.89	5 986.84	1962.06	42.59	NO	15.00	135 633.72	130 330.63
2011	113 284.33	13 055.92	6 090.35	2240.49	10.24	NO	21.11	134 622.33	127 625.63
2012	109 011.19	13 180.88	6 028.60	2427.74	8.19	1.80	25.09	130 597.99	123 560.41
2013	106 067.07	12 491.29	5 959.94	2666.73	5.88	3.82	28.98	127 143.93	120 402.15
%	-34.41	-41.03	-43.78	100	100		84.91	-34.24	-35.63

Note: Global warming potentials (GWPs) used (100 years time horizon): CO_2 = 1; CH_4 = 25; N_2O = 298; SF_6 = 22 800; NF_3 = 17 200; HFCs and PFCs consist of different substances, therefore GWPs have to be calculated individually depending on substances

[1]GHG emissions excluding emissions/removals from LULUCF

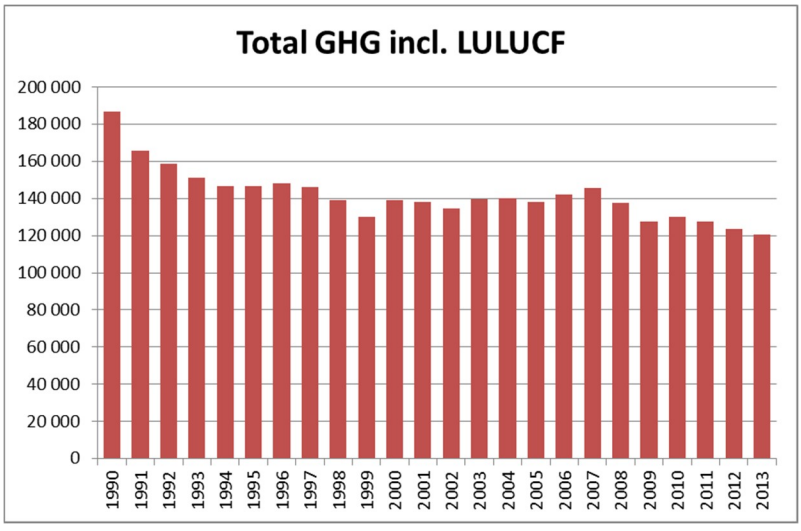
[2] relative to base year

[3]incl. LULUCF

Source: CHMI

The GHG emissions and removals have significantly decreased in the period 1990 – 1994, mainly driven by the economy transition and pursuing major drop in heavy industry activities in the country. The rapid decrease has stopped around 145 000 Gg CO_2 eq. and continues fluctuating ever since (see Fig. 2-1). From 2010 to 2013 the total GHG emissions (incl. LULUCF) decreased by 7.62% or 9 928.47 Gg CO_2 eq. resulting in total emissions of 120 402.15 Gg CO_2 eq. This decrease was due to development in CO_2, CH_4, PFCs emissions (decreased by 2.6%; 5.2%; 28.25%) despite increase in HFC and SF_6 emissions (raised by 9.8% and 15.5% respectively) compared to previous year. The total GHG emissions and removals in 2013 were – 35.63% below the base year level including LULUCF and – 34.24% excluding LULUCF.

Fig. 2-1 Total trend of GHG emissions, [Gg CO_2 eq.]



Source: CHMI

The decrease in CO_2, CH_4 and N_2O between 2012 and 2013 was 2.6%, 5.2% and 1.13% resp. Although F-gases show an increase of 9.85% the total emissions decreased between 2012 and 2013 by 2.56% (including LULUCF) and 2.64% (excluding LULUCF).In 1989 then Czechoslovak economy was one of the centrally planned economies with high level of monopolization. All economic processes were controlled through the central planning. For all practical purposes, there was no real market and this situation resulted in an ever deepening economic and technological lag which resulted in high energy and material intensity. Since 1989 the economy has

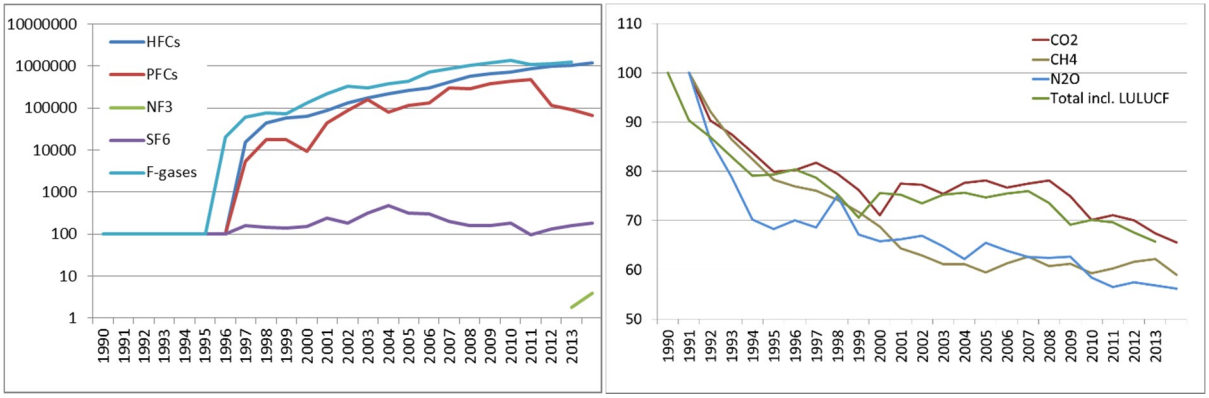
successfully transformed to a developed market-driven economy. The transformation led to a decline in production and consequent pollution. On the other hand investments in environmental protection were significantly increased, together with improved energy efficiency, fuel switching and increased use of renewable energy.

The GHG emission trend between 2007 and 2009 and most likely up to now passed through significant change driven mainly by economic recession. It is remarkable that in 2013 some of the industrial and energy subsectors reached its lowest level of emitted GHG emissions according to the overall reported time-series.

The rapid decrease in total GHG emissions after 1990 was due to the reduction in production and subsequently also the restructuring of the economy, as one of the consequences of the substantial changes in the political system. Conditions have been relatively stable since 1994 and the existing fluctuations can be attributed to various factors (e.g. different winter temperatures, inter-annual changes in GDP and the degree of adoption of policies and measures to reduce GHG emissions, etc.). The uncertainty in determination of emissions in the individual years is also reflected in the inter-annual changes. The decrease in emissions from the Energy sector (stationary combustion) and the Agricultural sector has been substantial, but emissions from Transport are growing constantly.

2.2 Description and interpretation of emission trends

Fig. 2-2 Trend in CO_2, CH_4 and N_2O emissions 1990 - 2013 in index form (base year = 100%) and Trend in HFCs, PFCs (1995 – 2013) and SF_6 (1990 – 2013) actual emissions in index form (base year = 100%)



Source: CHMI

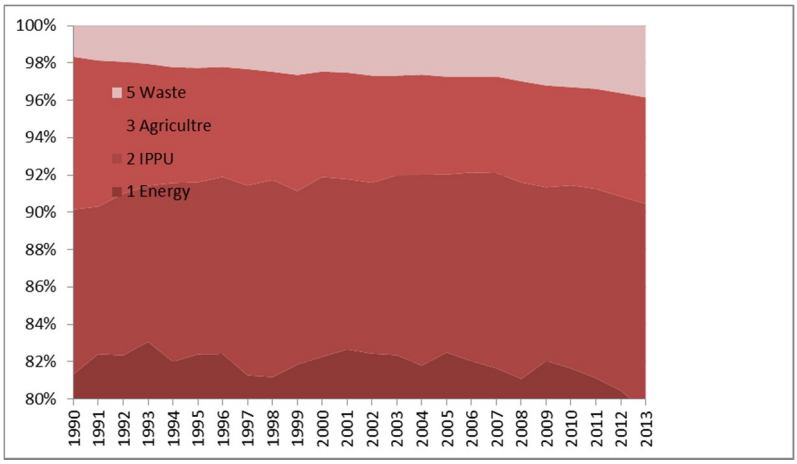
2.2.1 Description and interpretation of emission trends by gas

The major GHG in the Czech Republic is CO_2, which represents 83.42% of total GHG emissions and removals in 2013, compared to 83.63% in the base year. It is followed by CH_4 (10.37% in 2013, 11.32% in the base year), N_2O (4.95% in 2013, 5.67% in the base year) and F-gases (2.25% in 2013, 0.01% in the base year). The trend of individual GHG emissions relative to emissions in the respective base years is presented in Fig. 2-2.

CO_2

CO_2 emissions have been rapidly decreasing in early 90's, after 1994 the emissions have kept at average of 68% of the amount produced in 1990. Inter-annual decrease in CO_2 emissions (excl. LULUCF) from 2010 to 2013 by 7.80% results the total decrease of 34.41% from 1990 to 2013 (36.07% decrease incl. LULUCF). Quoting in absolute figures, CO_2 emissions and removals decreased from 161 700.15 to 106 067.07 Gg CO_2 in the period from 1990 to 2013, mainly due to the lower emissions from the 1 Energy category (mainly 1.A.2 Manufacturing Industries & Construction, 1.A.4.a Commercial/Institutional and 1.A.4.b Residential).

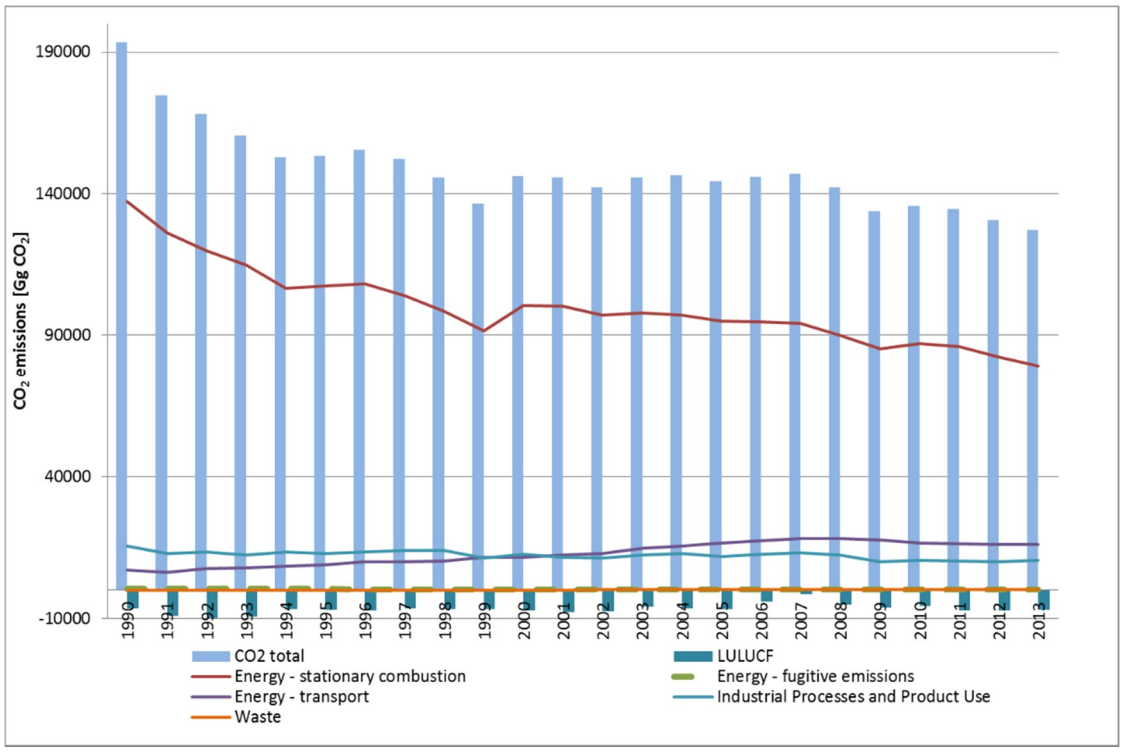
Fig. 2-3 Percentage share of GHG emissions (Y-axis begins at 80% - part of CO_2 share is hidden)



Source: CHMI

The main source of CO_2 emissions is fossil fuel combustion; within the 1.A Fuel Combustion category, 1.A.1 Energy Industry and 1.A.2 Manufacturing Industries & Construction sub-categories are the most important. CO_2 emissions from the 1.A.3 Transport category increased remarkably from 7 284 to

Fig. 2-4 Share of categories on CO_2 emission [Gg CO_2]



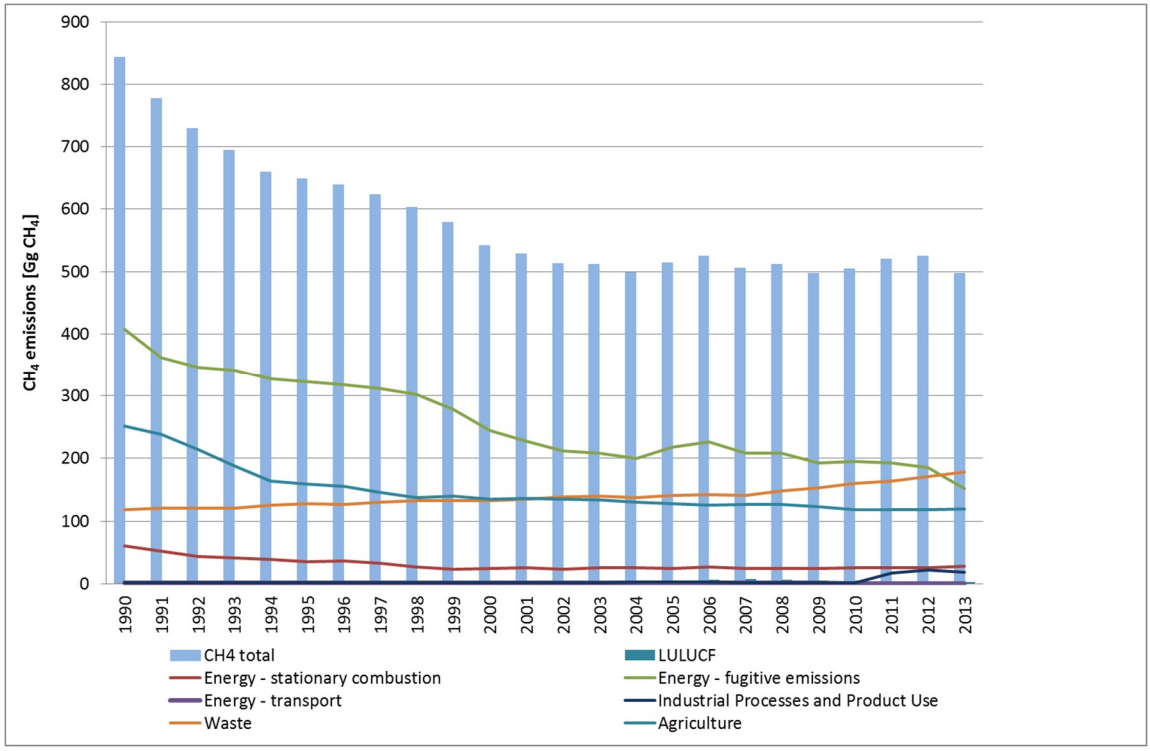
Source: CHMI

16 649 Gg CO_2 between 1990 and 2013.

CH_4

CH_4 emissions share decreased almost steadily during the period from 1990 to 2004, from 2004 methane fluctuated around 60% of its base year emissions. In 2013 CH_4 emissions were 41.03% below the base year level, mainly due to lower contribution of 1.B Fugitive Emissions from Fuels and emissions from 3 Agriculture and despite increase from the 5 Waste category. The main sources of CH_4 emissions are 1.B Fugitive Emissions from Fuels (solid fuel), 3 Agriculture (3.A Enteric Fermentation and 3.B Manure Management) and 5 Waste (5.A Solid Waste Disposal on Land and 5.B Wastewater Treatment and Discharge).

Fig. 2-5 Share of categories on CH_4 emission [Gg CH_4]



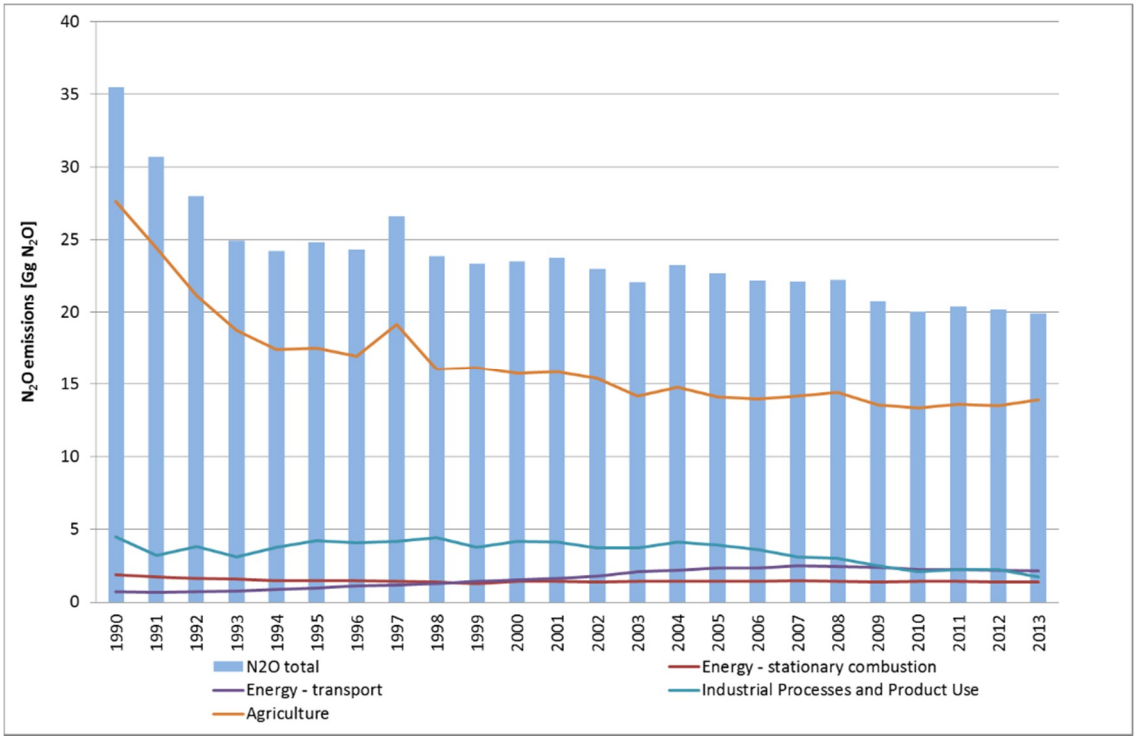
Source: CHMI

N_2O

N_2O emissions strongly decreased in the period 1990 - 1994 (by 31.69%), which was followed by slow decreasing trend with inter-annual fluctuation. N_2O emissions decreased between 1990 and 2013 from 10 600.22 to 5 959.94 Gg CO_2 eq. In 2013 N_2O emissions were 43.78% below the base year level, mainly due to lower emissions from 3 Agriculture and 2.B Chemical Industry and despite increase from the 1.A.3 Transport category.

The main source of N_2O emission is category 3.D Agricultural Soils (others less important sources are 1.A Fossil Fuel Combustion and 2 Industrial Processes – 2.B Chemical Industry).

Fig. 2-6 Share of categories on N_2O emission [Gg N_2O]



Source: CHMI

HFCs

HFCs actual emissions increased remarkably between 1995 and 2013 from 0.23 to 2 666.73 Gg CO_2 eq. Emissions of HFCs have been rapidly increasing since the base year 1995. In 2013, HFCs emissions were more than 2000-times higher than in the base year 1995. The main sources of HFCs emissions are 2.F Product Uses as ODS substitutes (Refrigeration and Air Conditioning).

PFCs

PFCs actual emissions show very similar trend as HFCs emissions but on much lower scale. They increased between 1995 and 2013 from 0.01 to 5.88 Gg CO_2 eq. In 2013, PFCs emissions are over 200 times higher than in the base year 1995. HFCs and PFCs have not been imported and used before 1995. The main sources of PFCs emissions are Semiconductor Manufacture, Refrigeration and Air Conditioning equipment.

SF_6

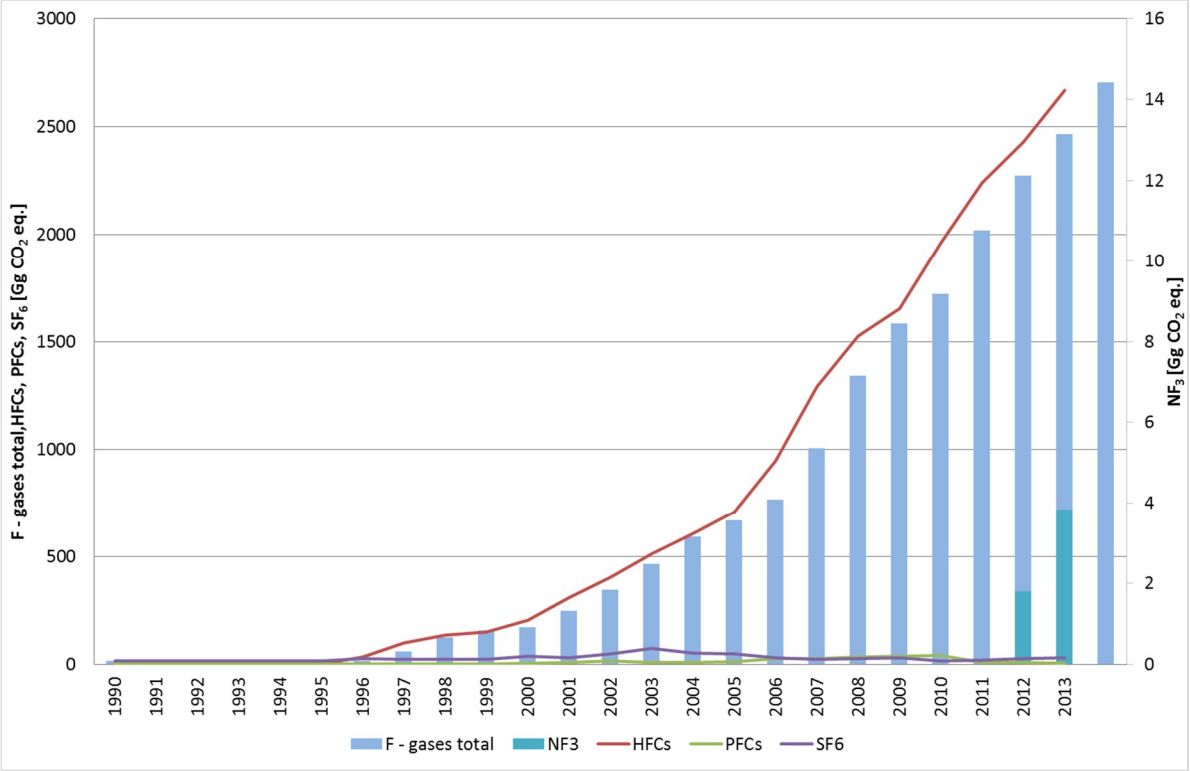
SF_6 actual emissions in 1995 accounted for 15.68 Gg CO_2 eq. They inter-annually fluctuated between 1995 and 2013 with maximum of 73.22 Gg CO_2 eq. in 2003 and minimum of 15.00 Gg CO_2 eq. in 2010. In 2013 SF_6 emissions reached amount of 28.98 Gg, the level was 84.91% higher compared to the base year. The main source of SF_6 emissions is 2.G Other product manufacture and use.

NF_3

With the technological progress a new gas was included in 2015 inventory submission. NF_3 is a gas, used mainly for manufacturing of LCD displays, solar panels and etching semiconductors. Base year

for this gas is 1995. In 2013 the emissions of NF_3 equalled to 3.82 Gg CO_2 eq., which is 53% increase, compared to year 2012.

Fig. 2-7 Share of F-gases on total F-gas emissions [Gg CO_2 eq.]



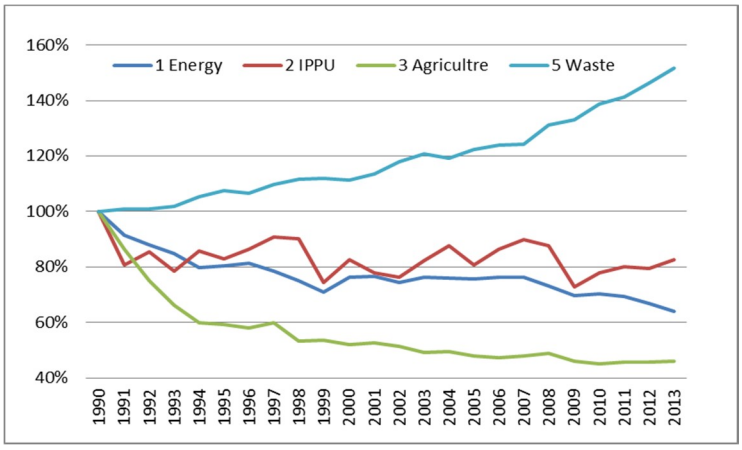
Source: CHMI

2.2.2 Description and interpretation of emission trends by category

Fig. 2-8 presents a summary of GHG emissions by categories for the period from 1990 to 2013:

- Category 1 Energy
- Category 2 Industrial Processes and Product Use
- Category 3 Agriculture
- Category 4 LULUCF
- Category 5 Waste

Fig. 2-8 Emission trends in 1990-2013 by categories in index form (base year = 100)



Source: CHMI

The dominant category is the 1 Energy category, which caused 79.34% of total GHG emissions in 2013 (81.33% in 1990) excluding LULUCF, followed by the categories 2 Industrial Processes and Product Use and 3 Agriculture, which caused 11.11% and 5.71% of total GHG emissions in 2013 (8.82% and 8.18% in 1990, resp.), 5 Waste category covered 3.84% and

4 LULUCF category removed 6 741.78 Gg CO_2 eq., which represents share of 5.3% of all GHG emissions.

The trend of GHG emissions by categories is presented in Fig. 2-8 (indexed relative to the base year), see also the percentage share of individual sectors (Fig. 2-8).

Tab. 2-2 Summary of GHG emissions by category 1990-2013 [Gg CO_2 eq.]

	1 Energy	*2 IPPU*	*3 Agriculture*	*4 LULUCF*	*5 Waste*
1990	*157 253.80*	*17 062.33*	*15 820.23*	*-6 319.88*	*3 219.71*
1991	*143 943.16*	*13 803.05*	*13 676.07*	*-9 032.52*	*3 249.61*
1992	*138 488.70*	*14 566.60*	*11 887.20*	*-9 622.40*	*3 248.93*
1993	*133 253.99*	*13 410.41*	*10 476.81*	*-9 145.05*	*3 278.29*
1994	*125 394.25*	*14 648.84*	*9 490.24*	*-6 504.77*	*3 395.10*
1995	*126 404.83*	*14 137.56*	*9 403.36*	*-6 706.97*	*3 461.51*
1996	*128 143.87*	*14 744.45*	*9 158.28*	*-7 118.14*	*3 436.77*
1997	*123 670.88*	*15 471.44*	*9 503.11*	*-6 091.84*	*3 532.24*
1998	*118 215.63*	*15 380.73*	*8 444.79*	*-6 367.11*	*3 592.88*
1999	*111 752.79*	*12 691.88*	*8 494.12*	*-6 464.34*	*3 601.12*
2000	*120 169.81*	*14 079.47*	*8 248.24*	*-7 115.13*	*3 586.50*
2001	*120 354.31*	*13 280.52*	*8 312.59*	*-7 435.27*	*3 654.66*
2002	*117 199.66*	*13 022.75*	*8 159.39*	*-7 332.50*	*3 801.20*
2003	*119 863.72*	*14 031.87*	*7 769.86*	*-5 719.95*	*3 891.00*
2004	*119 716.75*	*14 961.43*	*7 857.43*	*-6 116.23*	*3 838.86*
2005	*119 132.44*	*13 769.33*	*7 573.95*	*-6 432.21*	*3 943.95*
2006	*119 818.79*	*14 763.45*	*7 496.10*	*-3 942.48*	*3 988.65*
2007	*119 972.53*	*15 353.71*	*7 604.54*	*-1 204.58*	*3 998.59*
2008	*115 308.90*	*14 975.06*	*7 712.44*	*-4 766.27*	*4 226.26*
2009	*109 681.39*	*12 430.82*	*7 293.19*	*-6 035.75*	*4 281.23*
2010	*110 727.68*	*13 305.09*	*7 137.90*	*-5 303.09*	*4 463.06*
2011	*109 201.85*	*13 650.36*	*7 218.74*	*-6 996.69*	*4 551.38*
2012	*105 069.02*	*13 579.87*	*7 237.88*	*-7 037.58*	*4 711.23*
2013	*100 876.57*	*14 122.69*	*7 263.34*	*-6 741.78*	*4 881.34*
[1]%	*-3.99%*	*4.00%*	*0.35%*	*-4.20%*	*3.61%*
[2]%	*-35.85%*	*-17.23%*	*-54.09%*	*6.68%*	*51.61%*

[1] Difference relative to previous year

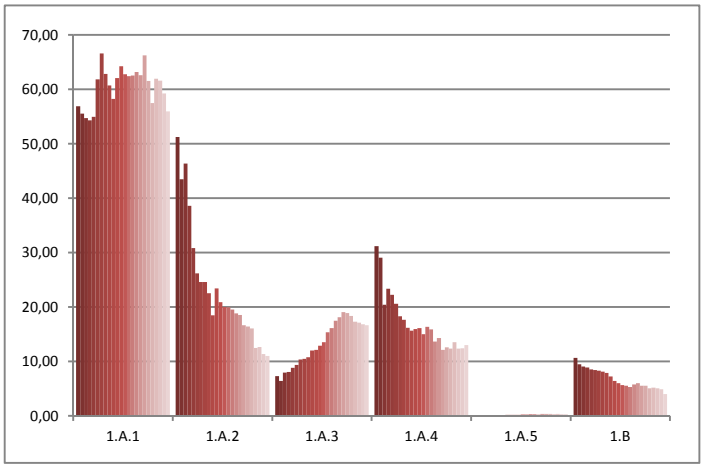
[2] Difference relative to base year

Source: CHMI

Energy (IPCC Category 1)

The GHG emissions from 1 Energy category show decreasing trend. They strongly decreased from 1990 to 1994 and then fluctuated by 2002. After 2002 they stayed relatively stable until 2007. In the period 2002 – 2007 emissions kept around 120 000 Gg CO_2 eq. Total decrease between 1990 and 2013 is 35.85%. GHG emissions from category 1 Energy slightly decreased by 3.99% between 2012 and 2013.

Fig. 2-9 Trends in Energy by categories 1990-2013 [Tg CO_2 eq.]



Source: CHMI

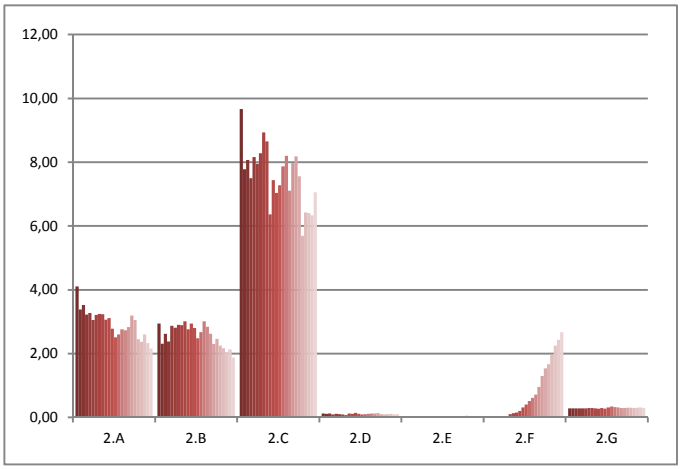
From the total 100 876.57 Gg CO_2 eq. in 2013 96.05% comes from 1.A Fuel Combustion, the rest are 1.B Fugitive Emissions from Fuels (mainly Solid Fuels). 1.B Fugitive Emissions from Fuels is the largest source for CH_4, which represented 30.32% of all CH_4 emissions in 2013. 30.12% of all CH_4 emissions in 2013 originated from Energy category.

CO_2 emissions from fossil fuels combustion (category 1 Energy) are the main source in the Czech Republic's inventory with a share of 89.87% in national CO_2 emissions (excl. LULUCF). In 2013 CO_2 from category 1 Energy contributed to total GHG emissions by 77.59%, CH_4 by 3.67% and N_2O by 0.84%.

Industrial Processes (IPCC Category 2)

In 2015 submission the IPPU[1] category has undergone significant change, due to the application of 2006 Guidelines. Category Solvents and Other Product Use was combined with category 2 IPPU. Further two new categories were developed (2.E Electronic Industry and 2.G Other Product Manufacture and Use).

Fig. 2-10 Trends in IPPU by categories 1990-2013 [Tg CO_2 eq.]



Source: CHMI

The GHG emissions from the category 2 Industrial Processes and Product Use category fluctuated with decreasing trend during the whole period 1990 - 2013. In early 90's emissions decreased rather rapidly, then reached decade minimum in 1999 and subsequently decreased with total minimum in 2009 (global economic recession). Between 1990 and 2013 emissions from this category decreased by 17.23%. In 2013 emissions amounted to 14 122.69 Gg CO_2 eq.

The main categories in the category 2 Industrial Processes and Product Use category are 2.C Metal Industry (49.97%), 2.A Mineral Industry (15.27%), 2.B Chemical Industry (13.3%) and 2.F Product Uses as ODS substitutes (18.92%) of the sectoral emissions in 2013 (Fig. 2-10).

The most important GHG of the 2 Industrial Processes and Product Use category was CO_2 with 73.46% of sectoral emissions, followed by F-gases (18.79%).

[1] Industrial Processes and Product Use

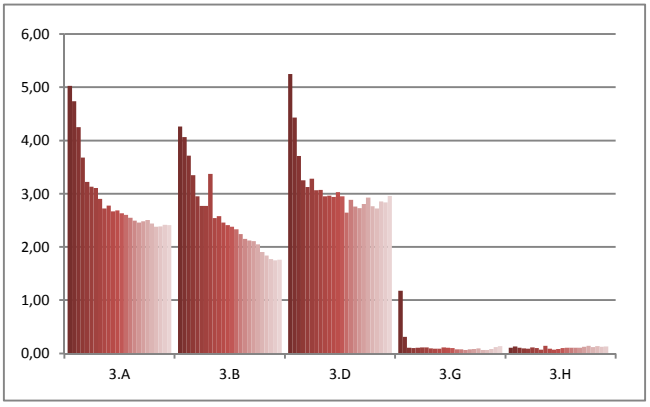
Agriculture (IPCC Category 3)

GHG emissions from the category 3 Agriculture decreased relatively steadily over the period from 1990 to 2003 and then fluctuated. In 2010 emissions reached minimum level which is 54.88% below the base year level.

Agriculture amounted 7 263.34 Gg CO_2 eq. in 2013 which corresponds to 5.71% of total national GHG emissions (excluding LULUCF). The most important sub-category 3.D Agricultural Soils (N_2O emissions) contributed by 40.69% to sectoral total in 2013, followed by the 3.A Enteric Fermentation (CH_4 emissions, 33.21%).

Category 3 Agriculture is the largest source of N_2O and second largest source of CH_4 emissions (69.03% of total emissions of N_2O and 23.83% of total emissions of CH_4, excluding LULUCF). However its emission trend steadily decreases over the overall observed period.

Fig. 2-11 Trends in Agriculture by categories 1990-2013 [Tg CO_2 eq.]



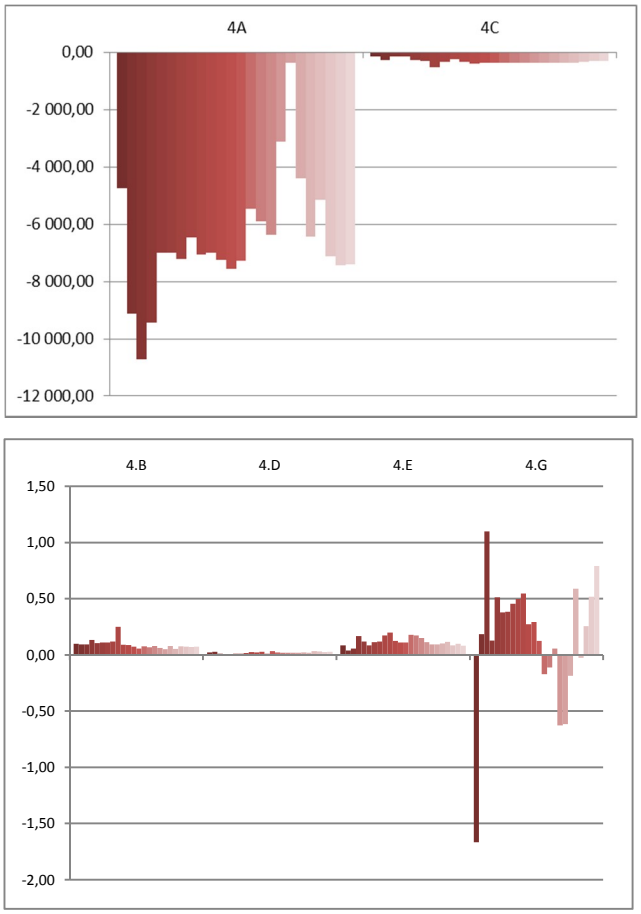
Source: CHMI

Land Use, Land-Use Change and Forestry (IPCC Category 4)

GHG removals from the 5 Land Use, Land-Use Change and Forestry category vary through the overall time series with minimum of – 9 622.4 Gg CO_2 eq. in 1992 and maximum – 1 204.58 CO_2 eq. in 2007. In 2013 removals were by 6.68% above the base year level.

Emissions and removals amounted to – 6 741.78 Gg CO_2 eq. in 2013, which corresponds to 5.3% of total national emissions. Emissions and removals are calculated from all categories and in line with Good Practice Guidelines for LULUCF; IPCC 2003.

Fig. 2-12 Trends in LULUCF by separate source and sink categories 1990-2013 [Tg CO_2 eq.]



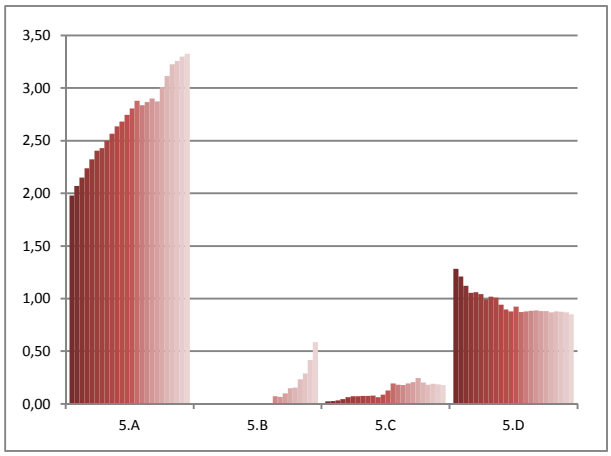
Source: CHMI

LULUCF category is the largest sink of CO_2. Net CO_2 removals from this category amounted to – 6 741.78 Gg CO_2 in 2013. CH_4 emissions amounted to 64.78 Gg CO_2 eq., N_2O to 15 Gg CO_2 eq. Trends of the sub-categories in LULUCF sector are presented in Fig. 2-12.

Waste (IPCC Category 5)

The GHG emissions in the category 5 Waste substantially increased during the overall period. In 2013 emissions amounted for 4 881.34 Gg CO_2 eq., which is 51.61% above the base year level. The increase in emissions is mainly due to higher emissions of CH_4 from 5.A Solid Waste Disposal (and partly due to increase in N_2O emissions from 5.B Wastewater Treatment and Discharge), which are the most important categories. As a result of CH_4 recovery systems installed in 5.B Wastewater Treatment and Discharge total emissions from this category decreased by approx. 34% compared to the base year. The share of category 5 Waste in total emissions was 3.84% in 2013.

Fig. 2-13 Trends in Waste by categories 1990-2013 [Tg CO_2 eq.]



Source: CHMI

The main source is 5.A Solid Waste Disposal, which accounted for 68.10% of sectoral CH_4 emissions in 2013, followed by 5.D Wastewater Treatment and Discharge (16.24%) and 5.B Biological treatment of solid waste (11.98%). Trends of the separate sub-categories in Waste sector can be observed on Fig. 2-13.

91.34% of all emissions from Waste category are CH_4 emissions; CO_2 contributes by 3.59% and N_2O by 5.06%.

2.3 Inventories of Greenhouse Gases

Introduction

Inventories of GHGs for the purposes of the UNFCCC emissions and sinks monitoring of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), partly or completely fluorinated hydrocarbons (HFCs, PFCs), sulphur fluoride (SF_6) and nitrogen trifluorid (NF_3). In addition, precursors are registered: volatile organic compounds (NMVOC), carbon monoxide (CO), nitrogen oxides (NO_x) and sulphur dioxide (SO_2). Emphasis is placed on accurate calculations of GHG emissions with direct radiation absorption effect (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3). The total impact of emissions of these gases is given as the aggregated emissions, expressed as the equivalent amount of carbon dioxide, taking into account the Global Warming Potentials (GWPs) for a time period of 100 years.

Institutional arrangements

Person responsible for international reporting of GHG emissions:
Mr. Pavel Zámyslický, Director of Energy and Climate Protection Dept., Ministry of the Environment
pavel.zamyslicky@mzp.cz.

Person responsible for coordination and compilation of the GHG inventory:
Ms. Eva Krtková, NIS Coordinator, Czech Hydrometeorological Institute
eva.krtkova@chmi.cz

The *Czech Hydrometeorological Institute* (CHMI), under the supervision of the *Ministry of the Environment* (MoE), is designated as the coordinating and managing authority responsible for the compilation of the national GHG inventory and reporting of its results. The main tasks of CHMI consist of inventory management, general and cross-cutting issues, including QA/QC, communication with the relevant UNFCCC and EU bodies, etc. MoE also provides financial resources for the NIS performance to CHMI, which concludes contracts with sector-solving institutions.

In 2015 the Czech National Inventory System has undergone important organizational changes:

- The role of a coordinator of national inventory process is currently under responsibility of Ms. Eva Krtková, who has been part of the national inventory team of the Czech Republic for 6 years; Ms. Eva Krtková replaced former NIS coordinator Mr. Ondřej Miňovský.
- Mr. Martin Beck has been appointed as a new sectoral expert to support inventory in Industrial Processes and Product Use sector;
- Ms. Denitsa Troeva Grozeva has been appointed to support national inventory team in the scope of QA/QC process and Waste sector.

No other significant changes occurred and the main pillars of the national inventory system declared in the Czech Republic's Initial Report under the Kyoto Protocol are operational.

Sectoral inventories are prepared by sectoral experts from sector-solving institutions, which are coordinated and controlled by CHMI:

- KONEKO marketing Ltd. (KONEKO), Prague, is responsible for compilation of the inventory in sector 1. Energy, for stationary sources including fugitive emissions;
- Transport Research Centre (CDV), Brno, is responsible for compilation of the inventory in sector 1. Energy, for mobile sources;
- Czech Hydrometeorological Institute (CHMI), Prague, is responsible for compilation of the inventory in sector 2. Industrial Processes and Product Use;
- Institute of Forest Ecosystem Research Ltd. (IFER), Jilove u Prahy, is responsible for compilation of the inventory in sectors 3. Agriculture and 4. Land Use, Land Use Change and Forestry;
- Charles University Environment Centre (CUEC), Prague, is responsible for compilation of the inventory in sector 5. Waste.

Official submission of the national GHG Inventory is prepared by CHMI and approved by MoE. Moreover, MoE provides contacts and cooperation with other relevant governmental bodies, such as the *Czech Statistical Office*, the *Ministry of Industry and Trade* and the *Ministry of Agriculture, etc*.

One of the main pillars of NIS is allocation of responsibilities to institutions involved in inventory of individual sectors. The NIS Coordinator (CHMI) is primarily responsible for:

- Management (coordination of cooperation among individual sector experts);
- General and cross-section issues including determining the uncertainties;
- QA/QC control procedures;
- Data reporting in prescribed format – CRF (Common Reporting Format);
- Preparation of National Inventory Report (NIR);
- Cooperation with relevant UNFCCC and EU bodies;
- Operation of complete archiving and documentation management system for the inventory.

Methodological aspects

Inventories of emissions and removals of GHGs were prepared according to the IPCC methodology: IPCC 2006 Guidelines (IPCC, 2006), Good Practice Guidance for LULUCF (IPCC, 2003). A detailed description of the methodology, emission factors employed and activity data is contained in the National Inventory Report, which is updated annually.

Inventory of GHG emissions is a multi-level process including data collection, estimating emission sources and sinks, checks and verification, determining uncertainties and reporting. The main phases of inventory are as following:

Data collection: Data collection is the most significant stage and in many cases it is the most difficult phase, directly affecting accuracy of emission determination. Methodological instructions require assessment as to the appropriateness of existing data sources, and potentially undertaking own emission measurements, or searching for new and more exact data sources.

Data collection process utilizes expertise and methods in place at data providers. Various data sources, from official national data to international statistics, to authorized collecting at operators or sectoral associations, are relevant. Regular communication and consulting takes place throughout the process (from data collection until final completion).

Determining uncertainties: This process provides valuable information for inventory compilers and for inventory users. Uncertainties must be defined for each separate category of sources, as well as for total emissions and their trends. Determination of uncertainties is one of the important principles of good practice as it helps inventory compilers to better focus on those categories, which considerably contribute to larger uncertainty in emission estimates (including allocation of funding) and to gradual improvement of quality respectively.

Identification of key categories: Good practice requires that key categories will be identified. Key categories are important for use of development diagrams during selection of appropriate method, and the inventory coordinator seeks to apply more sophisticated higher tiers methods of inventory to these key categories.

QA/QC control procedures: Application of QA/QC processes represents an important phase in compiling NIR. QA/QC processes include planning, conducting controls and reviewing relevant documentation, verification of data and their review by independent providers. Correct application

of QA/QC processes is also one of good practice principles, allowing removal of potential errors and discrepancies.

Reporting inventory results: Reporting to the UNFCCC takes place annually on April 15. Documents submitted include:

- National Inventory Report
- Export of complete data inventory – in xml format
- CRF tables (Common Reporting Format)
- SEF tables (Standard Electronic Format)

Reporting to the European Commission takes place in two stages, first as of 15 January and final version as of 15 March each year, reporting for the European Commission matches the extent and quality of the report for the UNFCCC.

The Good Practice Guidance represents a set of instructions, recommendations and advices prepared by the IPCC, whose aim is to achieve the required quality of the result and ensure that the inventory is not under- or over-estimated.

Text below specifies some other tools ensuring the required quality of reporting:

Tier approach: Tiers are level of methodological complexity. Usually there are three tiers. Tier 1 represents the basic method, using standard recommended default emission factors, directly tabulated in manuals (IPCC, 2006); Tier 2 requires territorial (national) specific information (such as territory-specific emission factors, or other parameters necessary to estimate emissions). Tier 3 represents the most complex and sophisticated methods, emissions estimates are often based on modelling. Tier 2 and Tier 3 are called higher tiers and their use is required for those categories of sources, which have significant impact on total national GHG emissions or which could contribute to uncertainties (these are the so-called “key categories,” see below).

Key categories: The key categories concept lies in identification of categories, which have significant impact on total national GHG emissions or which could contribute to uncertainties (trends) since 1990. Key categories contribute to total uncertainty of emission estimate in actual year or determining its trends. Key categories enjoy special attention in compiling the national inventory, demanding more complex methods and thorough application of QA/QC processes, and conducting more rigorous methods in planning the inventory improvement. Prioritization of funding allocation is directly tied to the output of key categories’ analyses.

Adherence to good practice principles leads to achieving all required quality criteria, which include: transparency, completeness, consistency, comparability and accuracy.

Transparency: Transparency means transparent and clear documenting of applied processes, allowing understanding how the inventory was compiled and whether all relevant principles of good practice were observed.

Completeness: National inventory must include all categories of sources and sinks of GHG emissions. Any missing categories must be clearly identified and appropriate justification provided why they could not be included in the inventory or what steps are being taken for their future inclusion.

Consistency: Ensuring consistency of time series is important for demonstrating credibility of trends. Methodological manual describes ways of ensuring this consistency. Inventory emissions in the entire period must be determined using identical methods and same or similar data sources. Time series should encompass development of emissions over time and not potential changes in methods applied during the monitored period.

Comparability: National inventory of GHGs shall be complied in a manner allowing comparison with inventories taken in other countries. This may be achieved by application of unified IPCC methods, including identical classification of sources and sinks, identification of key sources, prescribed manner of reporting etc.

Accuracy: National inventory should not be over or under-estimated. It is therefore necessary to avoid systematic mistakes in estimating emissions.

Following the IPCC methodology (IPCC, 2006) recalculations in estimating emissions and sinks are undertaken also in those cases when new and more credible data are obtained, or when there is a change in methodology leading to more accurate result. Having in mind the principle of consistency, these recalculations are undertaken for the entire time series. In 2015 complete inventory was recalculated since the IPCC 2006 Guidelines methodology was applied. Any other recalculations in the Czech national inventory in recent years were undertaken mainly in connection to the international reviews organized by the UNFCCC as well as the consequence of improving the inventory using country specific aspects for emission estimation. These recalculations usually only slightly amended the previously estimated figures. For more detailed description of recalculations see Chapter 10 of the National Inventory Report submitted in November 2015. For quantified effect of the recalculations see individual sectoral chapters of the NIR.

2.3.1 Key source categories

Inventories of GHG emissions are based on a differentiated approach to important and less important emission categories. Key categories by definition contribute to ninety percent of the overall uncertainty in a level (in emissions per year) or in a trend. This is related to the individual sectors or subsectors of the inventories and the individual GHGs or groups (F-gases). Key categories were identified both on the basis of level assessment (LA) and also on the basis of trend assessment (TA). A total of 29 key categories were identified, of which 20 met the criteria for level assessment. The key categories are listed in Tab. 2-3 below. The combustion of solid fuels is the most important key category, corresponding to roughly 40% of total GHG emissions. More detailed information about key categories can be found in Chapter 1.5 of the NIR, as well as in the Annex 1 of the same document.

Tab. 2-3 Identification of key categories by level assessment (LA) and trend assessment (TA) for 2013 evaluated with and without LULUCF (Approach 1)

IPCC Source Categories	GHG	LA,%	TA,%	Cumulative Total (LA,%)	Cumulative Total (TA,%)	KC type
1.A Stationary Combustion - Solid Fuels	CO_2	39.53	28.40	39.53	28.40	LA,TA
1.A Stationary Combustion - Liquid Fuels	CO_2	12.02	4.28	51.56	73.03	LA,TA
1.A Stationary Combustion - Gaseous Fuels	CO_2	10.30	12.47	61.85	58.82	LA,TA
1.A.3.b Transport - Road Transportation	CO_2	10.23	17.95	72.08	46.35	LA,TA
4.A.1 Forest Land remaining Forest Land	CO_2	4.66	1.78	76.74	83.84	LA,TA
2.C.1 Iron and Steel Production	CO_2	4.28	0.41	81.03	94.88	LA,TA
5.A Solid Waste Disposal on Land	CH_4	2.18	3.07	83.20	80.25	LA,TA
1.B.1.a Coal Mining and Handling	CH_4	2.07	5.23	85.27	64.04	LA,TA
2.F.1 Refrigeration and Air Conditioning Equipment (CO_2 eq.)	HFC	1.71	4.15	86.98	77.18	LA,TA
3.A Enteric Fermentation	CH_4	1.58	1.80	88.56	82.06	LA,TA
3.D.1 Agricultural Soils, Direct N_2O emissions	N_2O	1.45	0.79	90.01	90.66	LA,TA
2.A.1 Cement Production	CO_2	0.87	0.68	90.88	92.10	LA,TA
3.B Manure Management	N_2O	0.78	1.45	91.66	85.29	LA,TA
2.B.8 Petrochemical and carbon black production	CO_2	0.62	0.62	92.28	93.39	LA,TA
4.G Harvested wood products	CO_2	0.52	4.70	92.80	68.75	LA,TA
3.D.2 Agricultural Soils, Indirect N_2O emissions	N_2O	0.48	0.40	93.28	95.68	LA
1.A Stationary Combustion - Liquid Fuels	N_2O	0.43	0.76	93.72	91.42	LA,TA
1.B.2 Fugitive Emission from Oil, Natural Gas	CH_4	0.41	0.21	94.13	97.68	LA
2.A.2 Lime Production	CO_2	0.40	0.54	94.52	94.47	LA,TA
2.B.1 Ammonia Production	CO_2	0.39	0.16	94.92	98.20	LA
1.A.3.b Transport - Road Transportation	N_2O	0.39	0.80	95.31	89.87	LA,TA
5.D Wastewater treatment and discharge	CH_4	0.39	0.17	95.70	98.05	LA
1.A Stationary Combustion - Solid Fuels	CH_4	0.17	0.96	97.89	87.36	TA
5.B Biological treatment of solid waste	CH_4	0.36	0.87	96.36	88.23	TA
2.B.2 Nitric Acid Production	N_2O	0.14	0.84	98.49	89.07	TA
2.C.2 Ferroalloys Production	CH_4	0.28	0.67	96.64	92.77	TA
3.B Manure Management	CH_4	0.38	0.54	96.00	93.93	TA
1.A Stationary Combustion - Biomass	CH_4	0.28	0.41	96.92	95.27	TA

Source: CHMI

2.3.2 Inventory uncertainties

Determination of uncertainties is one of the most important principles of good practice in the emission inventory. Analysis of uncertainties characterizes extent (i.e. possible interval) of results of the entire national inventory, as well as of its individual components. Knowledge of partial and overall uncertainties allows compilers to better understand the inventory process, which includes collecting of appropriate input data and their evaluation. Analysis of uncertainties assists in identifying those categories of emission sources and shares, which contribute the most to total uncertainties and determining priorities for further quality improvement.

Analysis of uncertainties is based on partial uncertainties of activity data for individual categories of sources and their shares, as well as on uncertainties corresponding to emission factors and other parameters required for calculation. These partial uncertainties are expressed in the form of

statistical characteristics, or on the basis of an expert assessment (if there is a lack of data for determining statistical characteristics). Resulting values are then uncertainties of total GHG emissions and their trends. To this end, one can use the method of error propagation based on mathematical-statistical relations for calculation of sum variations or product from corresponding variations of its individual terms. IPCC methodological manuals (IPCC, 2000, 2003 and 2006) provide a solid ground for this calculation, which is also being used for the Czech national inventory of GHGs. The recommended more robust method for determining uncertainties (Tier 2), which better works with partially dependent values (which is also the case in national inventory) and asymmetric interval of reliability is based on stochastic modelling using the Monte Carlo method. Preparation for use of this more sophisticated method has already been completed by the Czech team in 2013 and it will be implemented further on.

Numerically, uncertainties on all levels are expressed using reliability interval at 95% level of probability. In practice uncertainty is usually expressed by relative value expressed in per cent.

Total uncertainty inventory according to volume of emissions 3.31%

Total uncertainty inventory according to emissions trends 2.41%

2.3.3 QA/QC control procedures

QA/QC processes are carried out annually pursuant to updated plan. Plan preparation reflects institutional arrangement: each institution prepares its own QA/QC procedures, including authorization of responsible QA/QC expert for each sector. Sector QA/QC plan is an integral part of the entire QA/QC plan, which is prepared by NIS coordinator. National inventory of GHGs is a part of client processes at CHMI, which follow the ISO 9001 quality standard (CHMI obtained certification in 2007). Processes relating to national inventory are elaborated in the form of development diagrams and include all main principles that need to be adhered to during compilation of the inventory including QA/QC processes.

QC processes include routine technical inspections of inventory quality so as to ensure consistency, integrity, accuracy and completeness of the data and to reveal and remove any error and omissions. QC processes are applied to all fundamental processes carried out during inventory: data collection, selection of appropriate method and emission factors, and calculations of emissions and processes documentation. These QC procedures are carried out in line with IPCC methodology (IPCC, 2006). Sector compilers undertake parts of these processes; the rest is carried out by NIS coordinator. Sector compilers focus primarily on activity data control, emission factors and applied sector-specific methods, NIS coordinator reviews appropriateness of method selection, analyses trends and compares data from several possible sources. Sector compilers and NIS coordinator use control tools available in CRF Reporter.

QA processes include control activities and review by third parties not directly involved in national inventory compilation, but rather competent experts in the given field. CHMI cooperates on QA

processes with Slovak experts from SHMI, who are involved in preparation and compilation of the Slovak national inventory.

Regular international inspections undertaken by the UNFCCC play a significant role in increasing the quality of national inventory. Inspections identify shortcomings and provide recommendations that are thoroughly analysed by the Czech NIS team; inspection conclusions are used in order to improve quality of the Czech national inventory.

More detailed description of the quality assurance and quality control plan and its implementation is provided in Chapter 1.2.3 “Quality assurance, quality control and verification plan” of the National Inventory Report submitted in November 2015.

2.3.4 Systematic improvement of inventory quality

The plan for improvement of inventory quality also constitutes one of the good practice tools besides being one of the fundamental provisions of the Kyoto Protocol (KP) (Art.10, para a-f). NIS has prepared and annually updates the improvement plan for the existing inventory system. One of the basic tools for this planning is, among other, analysis of the key categories.

Newly evaluated country specific computational approaches are used every year; either emission, oxidation or other computational factors needed for specific sectors.

3 Quantified economy-wide emission reduction target

In 2010, the EU submitted a pledge to reduce its GHG emissions by 2020 by 20% compared to 1990 levels. Since this target under the UNFCCC has only been submitted by EU-28 and not by each of its Member States (MS), there are no specified targets for single MS. Therefore, the Czech Republic as part of the EU-28, takes on a quantified economy-wide emission reduction target jointly with all Member States.

The definition of the EU target under the UNFCCC for 2020 is documented in the revised note provided by the UNFCCC Secretariat on the "Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention"[2]. In addition, the EU provided additional information relating to its quantified economy-wide emission reduction target in a submission as part of the process of clarifying the developed country Parties' targets in 2012[3].

The EU clarified that the accounting rules for the target under the UNFCCC are more ambitious than the current rules under the KP, for example, including international aviation, adding an annual compliance cycle for emissions under the Effort Sharing Decision (ESD) or higher Clean Development Mechanism (CDM) quality standards under the EU Emissions Trading System (EU ETS)[4]. Accordingly, the following assumptions and conditions apply to the EU's 20% target under the UNFCCC:

- The EU pledge under the UNFCCC does not include emissions/removals from Land Use, Land-Use Change and Forestry, but it is estimated to be a net sink over the relevant period. EU inventories also include information on emissions and removals from LULUCF in accordance with relevant reporting commitments under the UNFCCC. Accounting for LULUCF activities only takes place under the Kyoto Protocol.
- The target refers to 1990 as a single base year for all gases and all MS.
- Emissions from international aviation to the extent it is included in the EU ETS are included in the target[5].
- A limited number of CERs, ERUs and units from new market-based mechanisms may be used to achieve the target: in the ETS, the use of international credits is capped (up to 50% of the reduction required from EU ETS sectors by 2020). Quality standards also apply to the use of international credits in the EU ETS, including a ban on credits from LULUCF projects and certain industrial gas projects. In the ESD sectors, the annual use of international credits is limited to up to 3% of each MS's ESD emissions in 2005, with a limited number of MS being permitted to use an additional 1% from projects in Least Developed Countries (LDCs) or Small Island Developing States (SIDS), subject to conditions.

[2] FCCC/SB/2011/INF.1/Rev.1 of 7 June 2011

[3] FCCC/AWGLCA/2012/MISC.1

[4] FCCC/TP/2013/7

[5] In the EU, emissions covered by category 'international aviation' go beyond the scope of the EU target, as emissions from international aviation are included in the EU Climate and Energy Package and the EU target under the UNFCCC to the extent to which aviation is part of the EU ETS. As such emissions cannot be separated in the EU inventory nor in the projections for the entire time series, emissions from international aviation have been considered in their entirety throughout the report. Over the period, total emissions from international aviation were between 1.2-2.9% of the annual total EU GHG emissions.

- The Global Warming Potentials (GWPs) used to aggregate GHG emissions up to 2020 under EU legislation were those based on the Second Assessment Report of the IPCC when the target was submitted. In its submission to clarify the 2020 target from 20 March 2012, the EU announced that the implications of the CMP Decision to revise the GWPs to those from the IPCC Fourth Assessment Report (AR4) are under review. This review has been completed and revised GWPs from AR4 were adopted for the EU ETS. For the revision of ESD targets the revised GWPs were taken into account. For the implementation until 2020, GWPs from AR4 will be used consistently with the UNFCCC reporting guidelines for GHG inventories.
- The target covers the gases CO_2, CH_4, N_2O, HFCs, PFCs and SF_6.

Tab. 3-1 Key facts of the UNFCCC target of the EU-28

Parameters	Target
Base Year	1990
Target Year	2020
Emission Reduction target	-20% in 2020 compared to 1990
Gases covered	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6
Global Warming Potential	AR4
2Sectors Covered	All IPCC sources and sectors, as measured by the full annual inventory and international aviation to the extent it is included in the EU ETS.
Land Use, Land-Use Change, and Forests (LULUCF)	Accounted under KP, reported in EU inventories under the UNFCCC. Assumed to produce net removals
Use of international credits (JI and CDM)	Possible subject to quantitative and qualitative limits.
Other	Conditional offer to move to a 30% reduction by 2020 compared to 1990 levels as part of a global and comprehensive agreement for the period beyond 2012, provided that other developed countries commit themselves to comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities.

Source: European Commission

With the 2020 climate and energy package the EU has set internal rules which underpin the implementation of the target under the UNFCCC. The 2020 climate and energy package introduced a clear approach to achieving the 20% reduction of total GHG emissions from 1990 levels, which is equivalent to a 14% reduction compared to 2005 levels. This 14% reduction objective is divided between two sub-targets, equivalent to a split of the reduction effort between ETS and non-ETS sectors of two thirds vs one third (EU, 2009[6]).

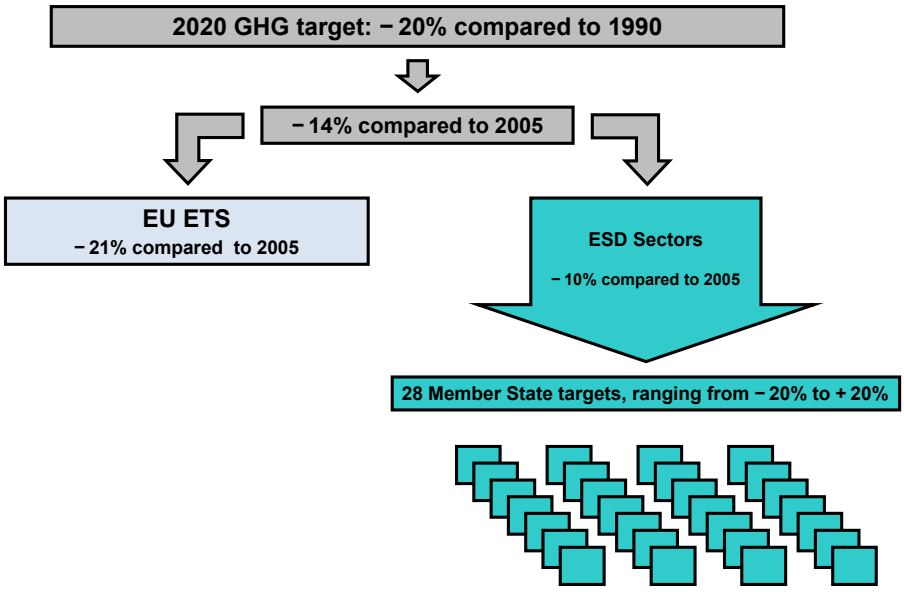
These two sub-targets are:

- a 21 % reduction target compared to 2005 for emissions covered by the ETS (including domestic and international aviation);
- a 10 % reduction target compared to 2005 for ESD sectors, shared between the 28 MS through individual national GHG targets.

[6] Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (OJ L 140, 05.06.2009, p. 63) (http://eur-lex.europa.eu/ LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:00 63:0087:en:PDF)

The distribution of the total target across the ETS and ESD is shown in Fig. 3-1.

Fig. 3-1 GHG targets under the 2020 climate and energy package



Source: European Commission

Under the revised EU ETS Directive[7], one single EU ETS cap covers the EU Member States and the three participating non-EU Member States (Norway, Iceland and Liechtenstein), i.e. there are no further differentiated caps by country. For allowances allocated to the EU ETS sectors, annual caps have been set for the period from 2013 to 2020; these decrease by 1.74% annually, starting from the average level of allowances issued by MS for the second trading period (2008–2012). The annual caps imply interim targets for emission reductions in sectors covered by the EU ETS for each year until 2020. For further information on the EU ETS and for information on the use of flexible mechanisms in the EU ETS see 2nd Biennial Report of the European Union (EU-BR2), Chapter 4.2.2.

Non-ETS emissions are addressed under the Effort Sharing Decision (ESD)[8]. The ESD covers emissions from all sources outside the EU ETS, except for emissions from international maritime, domestic and international aviation (which were included in the EU ETS from 1 January 2012) and emissions and removals from land use, land-use change and forestry (LULUCF). It thus includes a diverse range of small-scale emitters in a wide range of sectors: transport (cars, trucks), buildings (in particular heating), services, small industrial installations, fugitive emissions from the energy sector, emissions of fluorinated gases from appliances and other sources, agriculture and waste. Such sources currently account for about 60% of total GHG emissions in the EU.

While the EU ETS target is to be achieved by the EU as a whole, the ESD target was divided into national targets to be achieved individually by each MS. In the Effort Sharing Decision national emission targets for 2020 are set, expressed as percentage changes from 2005 levels. The Czech Republic is allowed to increase its emissions in the ESD sectors by 9% against 2005. These changes have been transferred into binding quantified annual reduction targets for the period from 2013 to

[7] Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community

[8] Decision No 406/2009/EC

2020 (EC 2013)[9+10], expressed in Annual Emission Allocations (AEAs). The quantified annual reduction targets 2013-2020 of the Czech Republic start from 62.5 million AEAs in 2013 and increase to 67.7 million AEAs in 2020. In the year 2013 verified emissions of stationary installations covered under the EU-ETS in the Czech Republic summed up to 67.7 Mt CO_2 eq. With total GHG emissions of 127.1 Mt CO_2 eq. (without LULUCF) the share of ETS emissions was 53%.

The monitoring process is harmonized for all European MS, especially laid down in the Monitoring Mechanism Regulation[11]. The use of flexible mechanisms is possible under the EU ETS and the ESD. For the use of CER and ERU under the ETS, please refer to the EU-BR2.

The ESD allows Member States to make use of flexibility provisions for meeting their annual targets, with certain limitations. There is an annual limit of 3% for the use of project-based credits for each MS. If these are not used in any specific year, the unused part for that year can be transferred to other MS or be banked for own use until 2020.

For more detailed explanation how the EU climate and energy package, EU target under the UNFCCC and KP are set up and related, please also refer to the EU-BR2.

[9] Commission decision of 26 March 2013 on determining Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC of the European Parliament and of the Council (2013/162/EU)

[10] Commission Implementing Decision of 31 October 2013 on the adjustments to Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/ EC of the European Parliament and of the Council (2013/634/EU)

[11] Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC

4 Progress in achievement of quantified economy-wide emission reduction targets and relevant information

For the quantification of the progress to 2020 targets, the development of GHG emissions is the key indicator. The UNFCCC target of emissions reduction by 20% from 1990 to 2020 only refers to the emissions of the EU-28. GHG emissions of EU-28 are calculated as the sum of MS emissions.

The development of GHG emissions is reported in CTF Table 4. Emissions in the sector of LULUCF are not included under the UNFCCC target, therefore they are not included in CTF Tables 4 and 4(a).

The use of flexible mechanisms takes place on the one hand by operators in the EU ETS, on the other hand by governments for the achievement of ESD targets. For information on the use in the ETS please see the EU-BR2.

The use of flexible mechanisms under the ESD cannot be quantified in the moment: As the compliance assessment for the first year 2013 under the ESD will only take place in 2016, any potential use of units for the first year will only take place in 2016. Thus, for the BR2 the EU and its MS can only report that no units have been used under the ESD so far. This is why no quantitative information can be given for the use of flexible mechanisms in the CTF Table 4b.

Nevertheless, the Czech Republic currently does not plan to make any use of flexibility provisions under the ESD to fulfil its target by 2020.

Climate policy development

The Ministry of the Environment (MoE) is responsible for the compliance with the UNFCCC and its KP in the Czech Republic; MoE is also the supreme State administration body in the area of environmental protection. The climate change agenda is addressed primarily by the Department of Energy and Climate Protection; which also serves as a National Focal Point for the UNFCCC and its KP in the Czech Republic. Having in mind the cross-sectoral nature of climate change, which affects many other agendas attributed to different MoE Departments or Ministries, MoE is responsible primarily for the preparation of national policies and strategies with focus on mitigation and adaptation. Individual Ministries such as Ministry of Industry and Trade, Ministry of Transport, Ministry of Agriculture, Ministry of Regional Development etc. are responsible for preparation and implementation of sector-specific policies and measures aiming to reduce GHG emissions and adapt to climate change impacts, according to the nature of relevant measures. Interministerial Working Group with the focus on climate change issues has been established in January 2015. This national platform shall contribute and improve cooperation, exchange of information and coordination of the planning and implementation of specific climate change measures and policies at the level of individual ministries. Also other stakeholders and non-governmental representatives are actively involved in the Interministerial Working Group in order to ensure transparency within the governmental and non-governmental level.

The Interministerial Working Group has its important role also regarding the development of new Climate Protection Policy of the Czech Republic. This strategic document will replace the National Programme to Abate the Impacts of Climate Change in the Czech Republic from 2004 and will serve

as a Low Carbon Development Strategy until 2030 with outlook by 2050. The Climate Protection Policy should be presented to the Government by 31 March 2016 and is envisaged to be finally adopted after the completion of the strategic environmental impact assessment process (SEA) in late 2016 or early 2017.

Since 2000, an integrated and complex system of strategic and operational planning has gradually been created, which is further modified in line with international commitments of the Czech Republic whether assumed pursuant to post-2012 processes or EU policies and legislation. Legislative measures also lay down rules for institutional responsibilities for coordination and implementation of various programs and impose obligations for their regular evaluation.

Wider strategic framework is created primarily by the following documents:

- Strategic Framework for Sustainable Development,
- National Reform Program (updated annually, last update in 2015),
- Strategy of the Regional Development 2014 – 2020.

The most important strategic documents with direct or indirect effects on GHG emissions include:

- State Environmental Policy 2012-2020
- National Emission Reduction Program of the Czech Republic
- State Energy Policy – adopted in May 2015
- Climate Protection Policy in the Czech Republic – to be submitted to the Government in 2016

4.1 Mitigation actions and their effects

The 6th National Communication (Chapter 4) and the 1st Biennial Report of the Czech Republic (Chapter 4) already gave an overview of the key legislation, programming tools and other sectoral measures especially in the area of air protection, industrial emissions, emission trading system, energy sector, agriculture and waste. Following list of measures should be considered as an update of the previous information. The main changes and development for individual IPCC sectors are described below.

4.1.1 Crosscutting measures

EU level

- ***Energy Taxation Directive***

The European Commission (EC) proposal for the revision of Directive 2003/96/EC of 2011 was withdrawn by the EC due to lack of agreement within the Council of the EU. Directive 2003/96/EC as implemented by the Act No. 261/2007 Coll. remains applicable to taxation of energy products and electricity.

Sectors: Energy, Transport
Greenhouse gas coverage: CO_2

- ***Application of the IPPC Directive***

IPPC Directive 2008/1/EC was repealed with effect from January 2014 and replaced by the Industrial Emissions Directive 2010/75/EC (IED). IED sets out the main principles for the permission and control of installations based on an integrated approach and the application of the Best Available Techniques (BAT). The IED affects climate change by regulation of GHGs (CO_2, CH_4, N_2O, fluorinated gases) to the extent in which they are not covered by the EU ETS or where this would be necessary to prevent significant local pollution, and by regulation of indirect greenhouse gases such as NO_x and SO_x and short-lived climate forcers such as black carbon. Furthermore, the IED promotes energy efficiency and makes fuel switching more attractive. The Directive governs various types of industrial installations, and thus affects the energy sector, the agriculture sector and the waste sector. It is complemented by other EU-wide policies, such as the National Emission Ceilings (NEC) Directive. Best available techniques are not fixed over time but are subject to an updating process. Currently, the BAT reference document for large combustion plants is under review.

Sectors: Energy, Industrial Processes, Agriculture
Greenhouse gas coverage: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6

- ***Application of the Ecodesign Directive***

A set of implementing regulations providing standards and technical requirements for individual product categories was adopted. The list of such products and appliances is continuously extended and keep updated. The most important for GHG emission reductions are standards for space heaters and boilers. In July 2015 the EC proposed a revision of the energy labels, namely to simplify the energy label scale and to adapt the scale to current market efficiency standards.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***EU ETS***

In October 2014 the European Council has decided on the 2030 Climate and Energy Framework. The reformed EU ETS will constitute the main mechanism to achieve the reduction of GHG emissions covered by EU ETS by 43% in 2030 compared to 2005.

The creation of the Market Stability Reserve (MSR) has been politically agreed by the European Parliament and the Council in May 2015 and adopted by the EU Council in September 2015. The MSR will be operationalized in January 2019. It will neutralize the negative impacts of the existing allowances surplus and improve the system's resilience to future shocks by adjusting the supply of allowances to be auctioned.

On 15 July 2015, the European Commission presented a legislative proposal on the revision of the EU ETS for Phase 4 (2021 - 2030) in line with the 2030 Climate and Energy Policy Framework which will be further discussed among MS including the European Commission and its adoption is foreseen in 2017.

Sectors: Energy, Industrial Processes
Greenhouse gas coverage: CO_2, N_2O, PFCs
National level

- ***Act No. 76/2002 Coll., on integrated pollution prevention and control, on the integrated pollution register (Integrated Prevention Act), as amended***

The new Industrial Emission Directive 2010/75/EU has been transposed into national legislation in 2013 by amending the Act via regulation 288/2013 Coll. The procedure for issuance of integrated permit was amended. The amended Act allows the regulator to apply the BAT concept, which should lead to increased energy efficiency of production. BAT includes technologies used as well as the manner in which the facility is designed, built, operated, maintained and decommissioned. This Act also allows application of emission limits or equivalent technical parameters, which are based on advanced technologies used in affected industrial sectors. Nevertheless, the possibility of imposing emission limits directly with respect to GHG emissions remains limited by law on integrated prevention only in cases where it is required, in order to prevent serious air pollution at the site.

Sectors: Energy, Industrial Processes, Agriculture
Greenhouse gas coverage: CO_2, CH_4, N_2O, fluorinated gases

- ***Act No. 201/2012 Coll., on Air Protection***

Act No. 201/2012 Coll., on Air Protection replaced Act No. 86/2002 Coll., and its objective is to achieve targets of air quality and further decrease of pollutants discharged into the air. The Act transposes a number of EU Directives in the area of air protection (such as Directive 2010/75/EU, 2008/50/ES, 2001/81/ES etc.); it regulates obligations of source operators, defines emission limits and other operational conditions for stationary source operators. It introduces additional mechanisms for improvement of air quality (such as compensation measures for sources placed in local areas already suffering from polluted air), restricts emission limits for a number of sources, introduces new measures in transport sector (by establishing the so-called low-emission zones), prescribes fundamental change in existing sources regarding household heating and solid fuels, aiming at lower primary particle matter emissions (PM 2,5 and PM 10) generated by combustion processes by 2022, i.e. the “black carbon” fraction. The Act sets stricter limits for air pollution from boilers and minimal energy efficiency requirements for domestic boilers. The new law also anticipates a more flexible approach of the permitting bodies, which are able to modify conditions for sources with respect to local quality of air. The Act also sets emissions ceilings for stationary combustion sources. The revision of the National Emissions Ceiling Directive 2001/81/EC is currently being discussed at the EU level which should set national emission reduction commitments for each MS for 2030 (with interim targets also set for 2025) for six specific pollutants: NO_x, SO_2, NMVOC, NH_3, $PM_{2.5}$ and CH_4.

Sectors: Energy, Industrial Processes, Agriculture, Waste
Greenhouse gas coverage: CO_2, N_2O, CH_4

- ***Act No 257/2014 Coll., amending Act No 383/2012 Coll., on the conditions of greenhouse gas emission allowance trading***

The amendment of the Act on the conditions of GHG emission allowance trading further clarifies the use of EU ETS auction revenues and introduces changes in administrative fees. The EU ETS revenues will be significantly used as a source for the New Green Savings Program, which supports energy savings and low emission heating projects in households. A part of EU ETS revenues which is attributed to the Ministry of Industry and Trade should be primarily used to contribute to cover a share of RES electricity subsidies costs. The distribution of EU ETS revenues is equal between MoE and MoIT until the revenues reaches 6 bn. CZK annually. Any revenues which would excide this limit are attributed to the state budget without any specific earmarking.

Sectors: Energy, Industrial Processes
Greenhouse gas coverage: CO_2, N_2O, PFCs

4.1.2 Energy

EU level

- ***Energy Efficiency Directive 2012/27/EU***

The Energy Efficiency Directive establishes a set of binding measures to help the EU to reach its 20% energy efficiency target by 2020. Under the Directive, all EU countries are required to use energy more efficiently at all stages of the energy chain from its production to its final consumption. The purpose of the Directive is to enhance the cost-effective improvement of energy end-use efficiency in MS. The Directive is applied to providers of energy efficiency improvement measures, energy distributors, distribution system operators and retail energy sales companies. Energy counts for all forms of commercially available energy and fuels. Among other things, the Directive sets the indicative energy saving goals for each MS, the obligations for national public authorities as regards energy savings and energy efficient procurement, and measures to promote energy efficiency and energy services. In line with the Directive the Czech Republic has set a national indicative target for energy efficiency at level of 47.84 PJ (13.29 TWh) of new final energy savings by 2020.[12] This target and further details are described in the National Energy Efficiency Action Plan (NAPEE) of the Czech Republic.

Sectors: Energy
Greenhouse gas coverage: CO_2

National level

- ***Act No. 318/2012 Coll., on energy management, which amends Act No. 406/2000 Coll.***

The Act No. 318/2012 Coll. stipulates specific measures leading to energy savings and thus also to a reduction in CO_2 emissions, in particular:

Efficiency of energy use

[12] Additional information is available in the Third National Energy Efficiency Plan of the Czech Republic: https://ec.europa.eu/energy/sites/ener/files/documents/NEEAPCzechRepublic_en2014.pdf

A producer of electricity or thermal energy is obliged, in newly established installations, to provide for at least the minimum efficiency of energy use stipulated by an implementing legal regulation. This obligation also applies to installations for production of electricity or thermal energy in which a change is introduced in previously completed structures. Owners are obliged to provide regularly control of operating boilers, heat distribution and air conditioning systems.

Energy intensity of buildings

A builder, building owner or association of owners of units must provide for compliance with the requirements on the energy intensity of buildings and compliance with comparative indicators and also compliance with the requirements stipulated by the relevant technical standards. An implementing legal regulation stipulates the requirements on the energy intensity of buildings, comparison indicators, the method of calculation of the energy intensity of buildings and other details. Buildings, which are owned by public sector have to have almost zero energy consumption from 1 January 2018.

Building energy performance certificate

Owner of the building is obliged to provide energy performance certificate when the building is new or is refurbished. The building must have certificate also during its sale or lease. All collective houses must have building energy certificate from 1 January 2019.

Energy labels

Domestic producers or importers of mass-produced energy-consuming appliances, a list of which is stipulated by a Decree, are obliged to place energy labels on these appliances prior to placing them on the market. The information on the label must be accurate and in the Czech language.

Energy audit

The Act regulates conditions for the performance of the obligatory energy audit of energy management and of buildings and for the use of the results of the energy audit.

Eco-design

A producer or importer of energy-consuming appliances stipulated by a regulation for implementation is obliged, prior to placing it on the market or into use, to issue a declaration of conformity, declaring compliance with the requirements on eco-design of the energy consuming appliance stipulated in an implementing legal regulation.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***State Energy Policy***

New State Energy Policy (SEP), adopted by the government in May 2015, defines political, legislative and administrative framework for reliable, affordable and long-term sustainable energy supply for the population and national economy. It is anchored in Act no. 406/2000 Coll., on energy management. Within the meaning of this act, it is the strategic document expressing objectives in the energy management of the state in accordance with the needs and requirements of economic and social development, including environmental protection, for the period until 2040.

The top strategic objectives of the SEP are the following:

- **Security** of energy supplies: ensuring essential energy supplies for consumers in standard operation and in the case of step changes in external conditions (outages in supplies of primary sources, price fluctuations on the markets, malfunctions and attacks) in the context of the EU; the aim is to guarantee the rapid restoration of supplies in the case of outages and also to guarantee full provision of supplies of all forms of energy to the extent necessary to keep the economy functioning in "emergency" mode and to keep the population supplied in any emergency situations;
- **Competitiveness** (of the energy sector and social acceptability): final energy prices (electricity, gas, oil products) for industrial consumers and for households that are comparable with prices in other countries in the region and those of other direct competitors and energy businesses able to create economic added value in the long term;
- **Sustainability** (sustainable development): energy structure that is sustainable in the long term from the viewpoint of the environment (no further damage to the environment), finance and the economy (financial stability of energy enterprises and the ability to provide the necessary investment in renovation and development), human resources (level of education), social impact (employment), and primary sources (availability).

The strategic direction of the energy sector in the Czech Republic is defined mainly by the following:

Tab. 4-1 Diversified mix of gross electricity production (in proportion to the total gross annual amount of electricity generated) with the target structure in corridors

Type of source	Minimum	Maximum
Nuclear fuel	46 %	58 %
Renewable and secondary sources	18 %	25 %
Natural gas	5%	15 %
Brown and black coal	11 %	21 %

Source: Ministry of Industry and Trade

Tab. 4-2 Diversified mix of primary sources (in proportion to the total gross annual consumption of primary energy sources) with the target structure in corridors

Type of source	Minimum	Maximum
Nuclear fuel	25 %	33 %
Solid fuels	11 %	17 %
Gaseous fuels	18 %	25 %
Liquid fuels	14 %	17 %
Renewable and secondary sources	17 %	22 %

Source: Ministry of Industry and Trade

In order to ensure reliable, secure and environmentally-friendly energy supplies for the people and the economy of the Czech Republic at competitive and acceptable prices, there are defined the following key priorities:

- **Balanced energy mix:** A balanced mix of primary energy sources and electricity generation sources based on a broad portfolio, efficient use of all available domestic energy sources and coverage of the consumption needs of the Czech Republic by guaranteed electricity generation to the energy system with adequate reserves. Maintaining available strategic reserves of domestic forms of energy.

- **Savings and efficiency:** Increasing energy efficiency and achieving energy savings throughout the energy chain in the economy and in households. Meeting the EU strategic objectives for cutting consumption and achieving energy efficiency at least at the level of the EU-28 average.
- **Infrastructure and international cooperation:** Development of the Czech Republic's network infrastructure in the context of the nations of Central Europe, strengthening international cooperation and integration of the electricity and gas markets in the region including support for the creation of an effective and operational joint EU energy policy.
- **Research, development and innovations:** Support research, development and innovations so as to ensure the competitiveness of the Czech energy industry and support education, with the aim of achieving generational exchange and improving the quality of technical intelligence in the field of energy.
- **Energy security:** Increasing energy security and resilience of the Czech Republic and enhancing its ability to ensure essential energy supplies in cases of accumulated outages, multiple attacks against critical infrastructure and in cases of prolonged fuel supply crises.

The SEP also includes the indicative target for reducing CO_2 emissions by 40% by 2030 against the 1990 levels and further reducing emissions in line with the transition to low carbon economy by 2050.

Sectors: Energy, Transport, Industrial Processes (in general all combustion processes)
Greenhouse gas coverage: CO_2

- ***State Program to Support Energy Savings and Use of Renewable Energy Sources***

This Program promotes measures to increase energy efficiency and to incentivize use of renewable and secondary energy sources in accordance with the approved State Energy Policy and sustainable development principles. The Ministry of Industry and Trade prepares the Program for a period of one year and submits it to the Government for approval.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Act No. 165/2012 Coll., on supported energy resources and on the amendment of certain legislation***

In 2013 the share of renewable energy sources in gross final energy consumption reached 12.4% and the Czech Republic is very close to reach its 13% target of RES share by 2020. However this development has caused a great level of costs due to regulatory failures in design of the feed-in tariff system. The amendment Act No 310/2013 Coll. cancels support provided to new RES electricity installations from 2014, with one-year transition, allowing completion of projects in progress. It also defined the maximum fee levied for the support of renewable sources, which will be collected from customers within the regulated prices of electricity and introduced levy on electricity generated from PV effective since 1 January 2014 for facilities put into operation in 2010. The amendment Act No 131/2015 Coll. removed some administrative barriers for small photovoltaic installations (until 10 kW), which are no longer subject to licencing and introduced support for heat from biomass installations.

Sectors: Energy

Greenhouse gas coverage: CO_2, CH_4

- ***Operational Program Enterprise and Innovation for Competitiveness***

Activities supported within the period 2014 – 2020 include the following:

- Modernization or replacement of existing energy production facilities for internal purposes, which will increase their efficiency;
- Introduction and upgrade of measurement and control systems;
- Modernization, reconstruction and loss reduction in electricity and heat distribution systems in buildings and production plants;
- Implementation of measures to improve the energy performance of buildings in the business sector (building envelope insulation, the replacement and renovation of windows and doors, other structural measures having a demonstrable influence on the energy performance of buildings, the installation of ventilation technology with waste heat recuperation);
- Re-use of waste energy in production processes;
- Improvements in energy performance and energy efficiency in production and technological processes;
- Installation of renewable energy sources for own / internal consumption;
- Installation of a cogeneration unit with maximum use of electricity and thermal energy for own / internal consumption;
- Support of extra costs in achieving the standard of a nearly zero-energy building and a passive energy standard in the reconstruction or construction of new business buildings.

Sectors: Energy, Industrial Processes
Greenhouse gas coverage: CO_2

- ***New Green Savings Program 2013***

New Green Savings Program 2013 was a subsidy program of Ministry of Environment (administrated by the State Environmental Fund) focused on energy savings and use of renewable energy in family houses. This Program was an intermediate measure before the adoption of the long-term New Green Savings Program 2014 – 2020.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***New Green Savings Program 2014 – 2020***

This program is a follow-up of previously implemented Green Savings Program and New Green Savings Program 2013. It aims to improve energy efficiency and utilization of renewable sources in both residential and public sector buildings and supports construction of family houses with very high energy performance. The Program is financed from EU ETS auction revenues and the expected allocation until 2021 is 27 billion CZK.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Program PANEL/NEW PANEL/PANEL 2013+***

Program PANEL (NEW PANEL since 2009, PANEL 2013+ since 2013) supports complex refurbishments and modernizations of panel houses leading to improve utility value and substantially prolong their lifetime. The program is managed by the State Housing Development Fund.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Joint Boiler Replacement Promotion Scheme***

This measure offers subsidies for replacements of old non-automatic solid fuel boilers by new efficient low-carbon heat sources in households. The main goal is to decrease emissions of air pollutants especially in the areas with very bad air quality but it also contributes to increase energy efficiency, use of renewables and decrease GHG emissions. The support is provided under the Operational Program Environment 2014 - 2020.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Operational Program Environment 2014 – 2020***

The aim of the Operational Program Environment 2014 – 2020 is to protect and improve the quality of the environment in line with the principles of sustainable development. Two priority axes relevant for GHG emissions reduction are priority axis 2 - Improvement of Air Quality and priority axis 5 – Energy Savings. For the programming period 2014 – 2020 the total allocation is more than € 3 billion including about € 1 billion for activities improving air quality and energy efficiency. The priority axis 5 supports insulation and other energy efficiency measures in public sector and promotes increased use of renewable energy sources. It also supports the exemplary role of public administration by subsidizing construction of new public buildings in passive energy standard.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Program JESSICA***

The program offers long-term low-interest loans for reconstruction or modernization of residential buildings. The program is designed for all owners of residential houses:

  - Municipalities;
  - Housing Cooperatives;
  - Other legal and natural persons owning residential building;
  - Community of apartment owners;
  - Non-profit organizations for social housing.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Integrated Regional Operating Program 2014 - 2020***

The priority axis 2 „Improvement of public services and living conditions for residential regions" will support the following measures influencing the energy performance of buildings or improvements in the quality of the indoor climate:

  - Insulation of the envelope of a multi-family buildings;
  - replacement and renovation of windows and doors;
  - components of passive heating and cooling, shading;
  - installation of controlled ventilation systems with waste heat recuperation;
  - Installations for special heating or for the production of hot water;
  - replacement of the heat source of a multi-family building used for spatial heating and burning solid or liquid fossil fuels with an efficient biomass source;
  - replacement of the heat source of a multi-family building used for the production of hot water and burning solid or liquid fossil fuels with an efficient biomass source;
  - heat pumps;
  - gas condensing boilers or installations for cogeneration using renewable sources or natural gas.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Provision and Support of Energy Services in Tertiary Sector using the EPC Method***

The purpose of this measure is to remove legal obstacles for the application of the EPC method (energy performance contracting) and to prepare methodology for project preparation and implementation using EPC in government and public administration so that the EPC becomes the main financing method of energy savings in buildings.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Extension of Public Sector Role in Demonstration of New Technologies***

The main purpose of this measure is to introduce the green procurement in the public administration. The green procurement should become mandatory for the organization under the effect of the law on public procurement.

Sectors: Energy
Greenhouse gas coverage: CO_2

- ***Operational Program Prague - Pole of Growth – Part buildings***

The aim of the Operational Program Prague – Pole of Growth is to contribute to the EU strategy for intelligent and sustainable growth, promoting the incorporation and attainment of economic, social and territorial cohesion. The Operational Program contains five priority axes. From the perspective of energy savings and GHG emissions, investment priority 1 of priority axis 2 (Sustainable mobility and

energy savings) is relevant. This priority aims to reduce the consumption of energy in urban structures and increase the use of renewable energy sources, energy efficient equipment and smart management systems. The Operational Program will also support demonstration projections for highly energy efficient public administration buildings in Prague.

Sectors: Energy
Greenhouse gas coverage: CO_2

4.1.3 Transport

EU level

- ***Fuel Quality Directive and Renewable Energy Directive***

The EU agreed in April 2015 to amend both the Renewable Energy Directive 2009/28/EC and the Fuel quality Directive 2009/30/EC in order to limit negative effects of indirect land use changes (ILUC) which may be associated with the production of biofuels. ILUC can reduce the GHG savings associated with the use of biofuels if their production diverts food and feed production to new land. For this purpose, the amendment foresees that biofuels from food crops and some energy crops should be limited to a share of 7% of the total fuel consumption. Other contributors to the 10% target would be advanced biofuels made from waste, residues, non-food cellulosic material or ligno-cellulosic biomass and renewable electricity in road and rail. In addition, the GHG performance of the biofuel production processes will be improved and a minimum threshold of 60% for the GHG emission savings is set for new biofuel production installations.

Sectors: Energy, Transport
Greenhouse gas coverage: CO_2

- ***Deployment of Alternative Fuels Infrastructure***

The Directive 2014/94/EU on Deployment of Alternative Fuels Infrastructure requires MS to adopt national policy frameworks for the market development of alternative fuels and their infrastructure. It also sets binding targets for the development of alternative fuel infrastructure, including common technical specifications, as well as defines the method of fuel labelling at refuelling points and on vehicles to ensure clarity in the consumer information on vehicle/fuel compatibility.

Sectors: Transport
Greenhouse gas coverage: CO_2, CH_4

National level

The transport emissions in the Czech Republic are generally subjected to Law 56/2001 on rules for vehicle traffic and to Decree 283/2009 amending Decree 341/2002 concerning road vehicle technical standards. Regulation 2007/715/EC regarding EURO 5 and 6 standards was transposed into Czech legislation by this Decree 283/2009. The EURO 6 standard is in force since September 2014.

- ***Promotion of biofuels and fuel quality***

The Fuel Quality Directive 2009/30/EC has been implemented into the Czech legislation (as regards GHG emissions) via the amendment to the act on air protection No. 201/2012 Coll., which sets the minimal shares of biofuels in gasoline and diesel in accordance with EU directive 2009/28/EC. Government Decree 351/2012 Coll. sets sustainability criteria for biofuels.

Sectors: Energy, Transport
Greenhouse gas coverage: CO_2

- ***Operational Program Transport 2014 - 2020***

The Operational Program provides support to the construction, upgrading and development of the Trans-European Transport Networks (TEN-T) and regional rail transport networks. It implements in particular transport aspects and strategic objectives of the National Development Plan. It is focused on modernization of railway and road networks. The main program indicators include reduction of the accident rate, increase of transport capacity, time savings and GHG emissions reduction. The Operational Program is primarily focused on developing railway and road networks and supports also further development of public transport systems. Basic overview of priority axes and areas of intervention:

  - Priority Axis 1 – Upgrading the TEN-T
  - Priority Axis 2 – Construction and modernization of the road network TEN-T
  - Priority Axis 3 – Modernization of the railway network outside TEN-T
  - Priority Axis 4 – Upgrading of roads outside TEN-T
  - Priority 5 – Modernization and Development of the Prague Underground and systems of management of road transport in the City of Prague
  - Priority 6 – Support of Multimodal Freight Transport and Development IWT

Sectors: Transport
Greenhouse gas coverage: CO_2

- ***Operation Program Prague - Pole of Growth – part transport***

Priority axis 2 provides support for the improvement of the energy efficiency of objects and buildings serving to public city transport in the city of Prague, as well as objects, buildings and technical equipment serving to operate the city and road transport.

Sectors: Transport
Greenhouse gas coverage: CO_2

- ***National Strategy of Cycling Transport Development***

The measure introduces support to the construction of cycling infrastructure in the period 2014 - 2020. It is financed mainly from the State Transport Infrastructure Fund, which provides funding for the following measures:

  - construction and maintenance of cycling infrastructure;
  - connection of cyclists with public transport;

- use of existing roads also for the needs of cyclists;
- construction and reconstruction of new cycling lanes, paths, walkways and underpasses.

Sectors: Transport
Greenhouse gas coverage: CO_2

4.1.4 Industrial Processes

EU level

- ***Regulation (EU) No 517/2014 of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006***

New F-Gas Regulation (EU) No 517/2014 retains many important and successful features of the previous F-Gas Regulation related to leak prevention, F-gas recovery and technical training. As its main measure is to reduce the use of HFCs, the new Regulation prescribes a cap and subsequent reduction of HFCs that can be placed on the EU market ("phase-down"). The new F-Gas Regulation also includes a number of bans. F-gases with high GWPs are restricted from use in new equipment in refrigeration, small air conditioners, fire protection, foams and technical aerosols. In addition, a "service ban" requires operators of existing equipment to start using more climate-friendly alternatives from 2020 onwards.

Sectors: Industrial Processes
Greenhouse gas coverage: HFCs, PFCs, SF_6

National level

- ***Act No. 73/2012 Coll., on ozone depleting substances and fluorinated greenhouse gases***

This Act regulates the rights and obligations of persons and competence of administrative bodies in the field of ozone layer protection and climate system protection against negative effects of regulated substances and fluorinated GHG. The implementing regulation to Act No. 73/2012 Coll. is regulation No. 257/2012 Coll., on emission prevention of substances damaging ozone layer and fluorinated GHG. This Act is currently under revision in order to implement the provisions of the new F-Gas Regulation.

Sectors: Industrial Processes
Greenhouse gas coverage: HFCs, PFCs, SF_6

4.1.5 Agriculture

The concept of sustainable and multifunctional agriculture in the Czech Republic takes into account the reduction of GHG emissions and possible needs for adaptation measures, along with other environmental and socio-economic considerations. These objectives can be achieved by the Common

Agricultural Policy of the EU, as well as through national measures. New national measures to reduce GHG emissions are being prepared and introduced continuously.

The implemented agricultural policies and measures should undoubtedly increase CO_2 fixation in the agriculture sector. The policies and measures in agriculture leading to GHG mitigation are based on prudent application of fertilizers, cultivation of cover crops, adoption of ecological and organic farming, implementation of modern and innovative technologies, monitoring fermentation of crop residues, etc. Recent agricultural policy has declared the goal of reducing nitrogen leaching and run-off.

Important measures to reduce GHG emissions in agriculture are optimal timing of fertilization, the exact amount of fertilizer application to crop use and optimal (covered) storage of manure.

EU level

- ***Reform of the Common Agricultural Policy (CAP) and Transition Rules for 2014***

Regulations for the reformed CAP as well as the Transition Rules for 2014 were formally adopted on 16 December 2013 by the EU Council of Agriculture Ministers. With these new rules, the vast majority of CAP legislation will be defined under four following consecutive Regulations covering Rural development, "Horizontal" issues (including cross compliance), Direct payments for farmers and Market issues:

1. Regulation (EU) No 1307/2013 - Direct payments
2. Regulation (EU) No 1308/2013 - Common organization of the markets
3. Regulation (EU) No 1305/2013 - Rural development
4. Regulation (EU) No 1306/2013 - Financing, management and monitoring
5. Supporting Regulation (EU) No 1310/2013 - Transitional provisions

In 2013, the EU has agreed that at least 20% of the Union's budget for 2014 – 2020 should be spent on climate related action. This also affects the CAP and its specific funding programs, which consequently take climate mitigation and adaptation as an additional criterion for support. The agreed changes to cross compliance controls are also very important for decreasing GHG emissions in the agriculture sector.

Sectors: Agriculture, Energy
Greenhouse gas coverage: CO_2, CH_4, N_2O

National level

- ***Czech Rural Development Program (2014-2020)***

The Rural Development Program for the Czech Republic was formally adopted by the European Commission on 26 May 2015, outlining the Czech priorities for using the nearly € 3.1 billion of public money that is available for the 7-year period 2014-2020. The Rural Development Program for the Czech Republic focuses mainly on ensuring the sustainable management of natural resources and encouraging climate friendly farming practices, with around 25% of agricultural land under contract to protect biodiversity, 11% to improve water management and 12% to protect soil. The second

focus is to increase the competitiveness of agriculture and forestry as well as that of the food industry. The Program also supports organic farming, increased utilization of renewables (especially biogas), measures focused on increasing energy efficiency in the agriculture sector and afforestation of agricultural land.

Sectors: Agriculture, Energy
Greenhouse gas coverage: CO_2, CH_4, N_2O

- ***Biomass Action Plan for the Czech Republic (2012-2020)***

The main aim of the Biomass Action Plan (2012-2020) is to define appropriate measures and principles that will help to the effective and efficient use of the energy potential of biomass in the Czech Republic. The main objectives include a determination of energy potential of agricultural and forest woody biomass and quantifying the amount of energy that can be produced by biomass in the Czech Republic by 2020.

Sectors: Agriculture, Energy, Waste
Greenhouse gas coverage: CO_2, CH_4, N_2O

Other changes in national legislation relating to Agriculture include:

- *Agriculture Law no. 179/2014 Coll.,* Amending Act no. 252/1997 Coll., and other related laws, provides framework for the provision of support from the EU funds for sustainable crop production and rural development.
- *Government Regulation No 117/2014 Coll*. determines vulnerable areas and sets rules and restrictions regarding the use of nitrogen fertilizers, the prohibition period for fertilization, limiting the use of organic nitrogen storage of nitrogen fertilizing substances in vulnerable areas, crop rotation in vulnerable areas, farming on sloping agricultural land and the limits of each crop fertilization.

4.1.6 LULUCF

The land use, land use change and forestry (LULUCF) sector is linked to Agriculture and some of the policies listed above are partly common for both sectors. Policies and measures in the LULUCF sector are generally focused on sustainable use of natural resources, preserving biodiversity and securing all functions and services that these resources provide to society.

EU level

- ***LULUCF Decision***

LULUCF Decision No 529/2013/EU sets out reporting obligations and processes for the development and improvement of national reporting systems for LULUCF including obligations on reporting of emissions and removals from cropland and grassland management activities.

In October 2014 the European Council has decided on the 2030 Climate and Energy Framework. According to the Council conclusions LULUCF should be included in the EU emission reduction target for 2030. In 2016 the European Commission should prepare a legislative proposal on how the LULUCF sector will be included in the EU target.

Sectors: LULUCF, Agriculture
Greenhouse gas coverage: CO_2, CH_4, N_2O

National level

The Conclusions of the Coordinating Council for the implementation of the National Forestry Program II (2013) summarized the recommendations for implementing the proposed measures of the Program after lengthy consultations among forestry experts. Elaborated recommendations of Key Action 6 are particularly important for the emission balance of the LULUCF sector. They directly aim to reduce the impacts of climate change and extreme weather events. Further information on LULUCF actions in the Czech Republic is available in the report submitted to the European Commission under Article 10 of the LULUCF Decision.[13]

Sectors: LULUCF, Agriculture
Greenhouse gas coverage: CO_2, CH_4, N_2O

4.1.7 Waste

Greenhouse gas emissions generated by the waste sector in Czech Republic have been growing due to organic carbon that is accumulated in landfills, increasing amount of produced municipal solid waste (MSW) and unfavorable mix of MSW treatment options. Recently this trend starts to change and partial stagnation of emission levels from landfills (a key source of this sector in the Czech Republic) can be observed. Policies and measures in the waste sector aim to reduce the amount of produced waste, minimizing the delivery of the biodegradable waste in landfills, promote the incineration and digestion of non-recyclable waste, increase the landfill gas recovery and improve the waste water treatment in sparsely populated areas.

EU level

- ***Directive on Waste of Electrical and Electronic Equipment***

The Directive on Waste of Electrical and Electronic Equipment (WEEED) 2012/19/EC requires MS to take measures to encourage producers to design and produce electrical and electronic equipment, which take into account and facilitate dismantling and recovery. Moreover, it sets ambitious collection targets in order to minimize the disposal of WEEE in the form of unsorted municipal waste. It also sets targets for re-use and recycling as well as targets for recovery of WEEE to ensure the correct treatment of all collected WEEE.

[13] Available at: http://www.mzp.cz/C1257458002F0DC7/cz/reporting_lulucf/$FILE/OEOK-LULUCF_action_reporting_Art10-20150303.pdf

Sectors: Waste
Greenhouse gas coverage: CO_2

National level

- ***Waste Management Plan of the Czech Republic the period 2015 - 2024***

The most important instrument on the national level is the waste management plan (WMP). New WMP for the period 2015 – 2024 was adopted by the Government in December 2014.

WMP of the Czech Republic establishes in accordance with the principles of sustainable development the objectives, policies, and measures of waste management in the Czech Republic. WMP is the reference document for the development of Regional waste management plans. The binding part of WMP constitutes the mandatory basis for decision-making and other activities of the relevant administrative authorities, regions, and municipalities in area of waste management. WMP has been prepared for the period of 10 years, and will be changed immediately following any fundamental change in the conditions under which it has been developed (e.g. new legislation on waste management, which will fundamentally affect the waste management strategy, including establishment of new objectives or redefinition of existing objectives, policies, and measures).

From 2024 certain waste categories will be prohibited from being deposited in landfills. For those categories landfilling fee will be gradually increased so that a gradual decrease in the quantity of this waste deposited at landfills is achieved.

Other important objectives include:

- Introduce separate collection at least for waste consisting of paper, plastic, glass and metals by 2015;
- Increase to at least 50% by weight the rate of preparing for re-use and recycling from at least such materials such as paper, metal, plastic and glass coming from the household waste by 2020;
- Use mixed municipal waste (after sorting of materially recoverable components, hazardous substances and biodegradable waste) especially for energy recovery in facilities designed for this purpose in accordance with effective legislation;
- Reduce the maximum quantity of biodegradable municipal waste deposited at landfills in such a way, so that the share of this component in 2020 would account for maximum 35% by weight of the total quantity of biodegradable municipal waste produced in 1995;
- Increase to at least 70% by weight the rate of preparing for re-use and the rate of recycling of construction and demolition waste by 2020;
- Objectives are also set for packaging recycling, separate collection of waste electric and electronic equipment, batteries and accumulators and processing of car wrecks and tyres.

Sectors: Waste, Energy
Greenhouse gas coverage: CO_2, CH_4, N_2O

4.1.8 Response measures

Information on minimization of adverse impacts in accordance with the Article 3.14 of the Kyoto Protocol is provided annually in the National Inventory Report. Regarding the Article 2.3 of the KP, we do see strong link and similarities regarding matters relating to both Articles 2.3 and 3.14 focused on possible adverse effects of policies and measures, including similarities in our obligations and concrete actions.

The Czech Republic strives to implement its Kyoto Protocol commitments in a way, which minimizes adverse impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the UNFCCC. The impact of mitigation actions on overall objectives of sustainable development is also given due consideration. More information is available in NIR, Chapter 15.

5 Projections

The greenhouse gas (GHG) emissions projections were prepared by the Czech Hydrometeorological Institute (CHMI) in accordance with the methodology employed for preparation of projections for the Third to Sixth National Communications which allows the comparison between the latest and previous projections. CHMI also compiled the GHG emissions inventory presented in Chapter 2 of BR2.

The year 2012 was selected as the base year for the projections purposes. It was the latest year with available information on macroeconomic development, energy and emission balances and the national GHG emission inventory. The year 2030 was selected as the final year for projections of GHG emissions, in accordance with the UNFCCC Reporting Guidelines on National Communications[14]. The years 2012, 2015, 2020, 2025 and 2030 were selected as cross-cutting years for preparing the projections. For some sectors also projections for the year 2035 are provided.

The projections comprise two scenarios "with existing measures" (WEM) and "with additional measures" (WAM). Measures introduced before 1st January 2015 are considered as existing measures. Measures expected to be introduced on this date and later are considered as additional measures.

The following table shows the summary results of the projections.

Tab. 5-1 Summary results of the 2015 GHG emissions projections (LULUCF excluded) [Mt CO_2eq]

Scenario	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	1990 - 2020	1990 - 2030
WEM	199.0	154.0	148.1	147.7	138.9	133.5	131.8	119.6	108.0	104.7	-39.9%	-47.4%
WAM	199.0	154.0	148.1	147.7	138.9	133.5	130.1	114.0	102.4	98.9	-42.7%	-50.3%

Source: CHMI

For comparison, the following table shows the results from the previous projections.

Tab. 5-2 Summary results of the 2013 GHG emissions projections (LULUCF excluded) [Mt CO_2eq]

Scenario	1990	1995	2000	2005	2010	2015	2020	2025	2030	1990 - 2020	1990 - 2030
WEM	196.3	151.0	146.2	146.7	139.5	130.8	122.3	107.3	106.5	-37.7%	-45.7%
WAM	196.3	151.0	146.2	146.7	139.5	130.3	120.9	104.7	103.9	-38.4%	-47.1%

Source: CHMI

There are quite remarkable differences between the old and the new projections due to several reasons:

- Some changes were made in the historical data in the CRF tables due to methodological improvements in the latest GHG emissions inventory.

[14] FCCC/CP/1999/7, part II

- The difference between WEM scenarios have their origin mainly in lower economic growth and availability of domestic hard and brown coal in the new projections.
- The WAM scenario is much more ambitious in expected energy savings on the demand side in the new projections.
- Introduction of new nuclear power plants is postponed from the period 2020 – 2025 in the old projections to 2030 – 2035 in the new projections.

The 6th National Communication (Chapter 5) and the 1st Biennial Report of the Czech Republic (Chapter 5) already provided an overview of GHG emission projections. Thus following information should be considered as an update.

Initial assumptions and scenarios

Economic development scenario

The scenarios of long-term trends in the GDP used in this projection are based on predictions made by company EGÚ Brno, a. s., for the Electricity Market Operator (OTE) in April 2014.

Tab. 5-3 Projection of trends in gross added value (constant prices[15] of 2010) in bill. €

	1995	2000	2005	2010	2015	2020	2025	2030
Industry	18.0	24.7	34.7	43.3	47.5	55.6	64.0	71.3
Construction	10.1	6.9	7.5	8.4	7.8	8.8	10.0	11.0
Agriculture	2.4	2.4	2.8	2.1	1.9	2.1	2.3	2.5
Transport	6.2	6.8	7.5	8.5	8.6	10.0	11.6	13.2
Services	46.8	49.9	58.5	66.0	69.1	80.5	94.2	108.6
Total of gross value added	**83.4**	**90.6**	**111.0**	**128.4**	**134.8**	**157.1**	**182.1**	**206.6**

Source: CSO, EGÚ Brno, a. s.

Development of global fuel and energy prices

Petroleum, natural gas and hard coal are commonly traded energy commodities on the global market. Price trend scenarios are also regularly prepared for these three basic energy commodities. Recently, electricity has been increasingly traded; however, due to the regional character of the electricity market, no scenarios have been published for price trends. The prices of fuels on the global market were applied taking into account the European Commission document "Recommended parameters for reporting on GHG projections in 2015 (*June 2014*)".

Tab. 5-4 Global prices of fuels (€/GJ, constant prices of 2010)

€ (2010)/GJ	2010	2015	2020	2025	2030	2035
Oil	9.3	11.9	13.7	13.8	14.4	14.8
Gas	5.9	7.7	9.5	9.1	10.0	10.2
Coal	2.5	2.3	3.5	3.7	3.7	3.9

Source: Recommended parameters for reporting on GHG projections in 2015, European Commission

[15] Exchange rate 25.29 CZK/€ – average for 2010

Tab. 5-5 Prices of emission allowances (€/GJ, constant prices of 2010)

€2010/tCO_2	2015	2020	2025	2030	2035
EU ETS carbon price	7	10	14	35	57

Source: Recommended parameters for reporting on GHG projections in 2015, European Commission

Availability of domestic coal

Solid fuels, especially brown coal, will continue to be a decisive domestic primary energy source in the near future. These sources will depend on the binding nature of administrative territorial environmental limits on brown coal mining. Tab. 5-65-6 presents trends in the capacities of mining. It is not expected that environmental limits for brown coal mining will be relaxed at the ČSA mine. As regards brown coal prices, they are moving from the costs-based price to a price derived from hard coal prices. It is expected the brown coal price will reach about 75% of hard coal price.

There is a substantial cut in hard coal production in comparison with the previous projections. The domestic hard coal mining is not competitive any more with current coal prices and the companies decided to shorten the lifetime of the mines. The projection of brown coal mining is lower as well, but not so dramatically.

Tab. 5-6 Projections of domestic coal mining

Category of coal (company – mine)	Maximum mining (units)	2013	2015	2020	2025	2030	2035
Hard coking coal	PJ	142.0	127.1	64.8	0.0	0.0	0.0
	thousand t	5 400	4 800	2 400	0	0	0
Hard steam coal	PJ	94.7	84.7	43.2	0.0	0.0	0.0
	thousand t	3 600	3 200	1 600	0	0	0
Brown steam coal (SD – Libouš)	PJ	159.6	166.8	115.0	92.0	69.0	69.0
	thousand t	13 880	14 500	10 000	8 000	6 000	6 000
Brown steam coal (SD – Bílina)	PJ	138.3	134.0	111.5	96.0	90.3	90.3
	thousand t	9,800	9 500	7 900	6 800	6 400	6 400
Brown steam coal (CC - Vršanská uhelná)	PJ	71.3	72.8	63.9	63.9	63.9	63.9
	thousand t	6 850	7 000	6 140	6 140	6 140	6 140
Brown steam coal (Severní energetická – ČSA and Centrum)	PJ	61.7	59.0	64.8	0.0	0.0	0.0
	thousand t	3 430	3 280	3 600	0	0	0
Brown steam coal (SU – total)	PJ	77.8	67.0	65.8	59.8	59.8	59.8
	thousand t	6 500	5 600	5 500	5 000	5 000	5 000

Source: VUPEK-ECONOMY, spol. s r. o

Energy production scenario

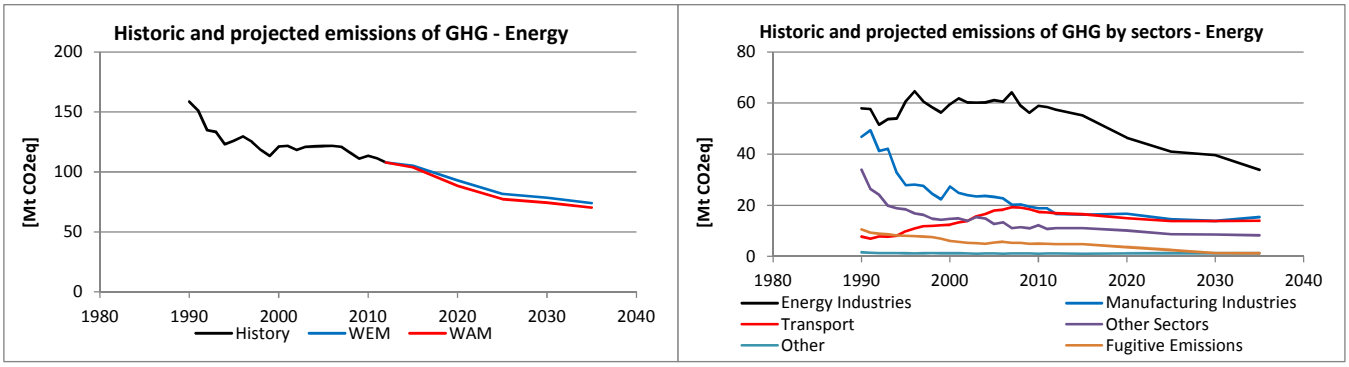
The energy consumption and production scenario takes into account the "Optimized scenario" proposed in the State Energy Policy, adopted by the Czech Government in May 2015, which represents the preferred way of energy system development. Thus model calculation of GHG emissions is based on the following key assumptions:

a. The Temelín nuclear power plant will operate for the entire monitored period (2000 – 2030).
b. The operation license of the Dukovany nuclear power plant will be prolonged and the power plant will be decommissioned gradually in the period 2035 – 2037.
c. The tender for new nuclear units in the nuclear power plant Temelin was cancelled and possible introduction of new nuclear units was postponed to and after the year 2033.
d. The territorial environmental limits on brown coal mining are retained at the ČSA mine and partly relaxed at the Bílina mine.
e. No limits will be introduced on the oil, gas and hard coal imports.
f. Electricity import and export will be limited by technical capacity of the transmission network.

5.1 Sectoral projections

5.1.1 Energy (sector 1)

Fig. 5-1 Historic and projected emissions of GHG – Energy; Breakdown by sectors – Energy



Source: CHMI

Tab. 5-7 Historic and projected emissions of GHG – Energy

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
WEM	158.6	126.1	121.2	121.5	113.4	107.9	105.0	92.9	81.7	78.5	74.0	-41.4%	-50.5%
WAM	158.6	126.1	121.2	121.5	113.4	107.9	103.9	88.3	77.4	74.4	70.3	-44.3%	-53.1%

Source: CHMI

The expected drop of GHG emissions in the WEM scenario in the energy sector is 41.4% between the years 1990 and 2020. Implementation of additional measures would increase the drop to 44.3%. The drop between years 2005 and 2030 equals to 35.2% for the WEM scenario and 38.6% for the WAM scenario.

Regarding sectors, the dominant GHG emissions source is represented by energy industries (53.2%), followed by transport (15.7%), manufacturing industries (15.4%), and other sectors (10.3%). Fugitive emissions constituted about 3.8% of the Energy sector emissions in the year 2012. We could observe a big reduction of GHG emission in manufacturing industries and others sectors in the past years which resulted mainly from switch from domestic coal to other fuels, mainly gas. As easily accessible domestic reserves of brown coal are getting near depletion we predict similar tendency for energy industries for the future.

Tab. 5-8 Breakdown of historic and projected emissions of GHG by gases in energy sector – scenario with existing measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
CO_2	146.1	116.7	113.9	114.7	106.9	101.6	98.6	87.8	77.7	75.6	71.1	-39.9%	-48.3%
CH_4	11.9	8.7	6.4	5.8	5.4	5.2	5.3	4.1	3.1	2.0	1.9	-65.2%	-83.5%
N_2O	0.7	0.7	0.9	1.1	1.1	1.1	1.1	1.0	0.9	1.0	1.0	43.5%	36.4%
Total	158.6	126.1	121.2	121.5	113.4	107.9	105.0	92.9	81.7	78.5	74.0	-41.4%	-50.5%

Source: CHMI

Tab. 5-9 Breakdown of historic and projected emissions of GHG by gases in energy sector – scenario with additional measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
CO_2	146.1	116.7	113.9	114.7	106.9	101.6	97.6	83.3	73.4	71.6	67.5	-43.0%	-51.0%
CH_4	11.9	8.7	6.4	5.8	5.4	5.2	5.3	4.1	3.0	1.9	1.9	-65.7%	-84.1%
N_2O	0.7	0.7	0.9	1.1	1.1	1.1	1.1	1.0	0.9	0.9	0.9	39.7%	32.3%
Total	158.6	126.1	121.2	121.5	113.4	107.9	103.9	88.3	77.4	74.4	70.3	-44.3%	-53.1%

Source: CHMI

Carbon dioxide with its share of 94.2% in the year 2012 is the decisive greenhouse gas produced in the energy sector. Methane is released mainly as a result of coal mining and its share was 4.8% in 2012. Since energy sector is the most important in terms of GHG emissions the projections for energy balances are also shown in the following tables.

Tab. 5-10 Domestic consumption of primary energy sources

Domestic consumption of primary energy sources [PJ]	2012	2015	2020	2025	2030	2035
Brown coal	544	519	444	347	306	306
Hard coal + coke	188	185	158	157	195	151
Coal tar	9	11	12	12	12	12
Crude oil	306	306	301	280	280	255
Liquid fuels	39	29	-3	-6	-15	6
Gaseous fuels	287	302	328	342	329	325
Nuclear fuel	328	350	376	327	327	449
Electricity	-62	-80	-59	-22	-12	-30
Wastes non-renewable	2	3	3	3	3	3
Non-energy products	25	23	24	25	24	25
Renewable energy	141	167	196	222	242	266
TOTAL	**1 808**	**1 815**	**1 780**	**1 687**	**1 691**	**1 769**

Source: ENVIROS, s. r. o.

Tab. 5-11 Domestic consumption of renewable energy sources

Domestic consumption of renewable energy sources [PJ]	2012	2015	2020	2025	2030	2035
Biomass	86.1	94.6	104.7	116.6	130.4	144.6
Biogas	15.7	22.1	27.1	28.8	31.1	33.5
Liquid biofuels	11.5	19.7	29.1	29.1	28.1	28.1
Geothermal energy	0.0	0.0	0.7	1.0	1.2	1.7
Wastes renewable	10.6	10.4	11.7	16.9	20.3	20.3
Solar electricity	7.7	8.2	8.7	12.8	12.8	17.0
Solar heat	0.6	0.8	1.4	3.0	3.5	5.0
Wind energy	1.4	2.3	3.6	4.8	5.8	7.0
Hydro energy	7.7	8.9	9.1	9.1	9.1	9.1
TOTAL	**141.3**	**167.0**	**196.1**	**222.1**	**242.3**	**266.3**

Source: ENVIROS, s. r. o.

Tab. 5-12 Final energy consumption

Final energy consumption [PJ]	2012	2015	2020	2025	2030	2035
Brown coal	51	51	38	5	6	22
Hard coal + coke	64	66	69	66	66	70
Coal tar	3	3	2	1	1	2
Liquid fuels	261	252	217	196	188	186
Gaseous fuels	246	250	268	277	281	268
Electricity	204	204	215	232	242	255
Heat	89	84	83	80	80	80
Wastes non-renewable	1	1	1	1	1	1
Renewable energy	89	103	118	123	126	128
TOTAL	**1 007**	**1 014**	**1 010**	**980**	**990**	**1 013**

Source: ENVIROS, s. r. o.

Tab. 5-13 Final consumption of renewable energy

Final consumption of RES [PJ]	2012	2015	2020	2025	2030	2035
Biomass	65.8	71.0	73.9	77.2	79.8	81.2
Biogas	4.2	4.1	5.2	5.5	5.6	5.8
Liquid biofuels	11.5	19.7	29.1	29.1	28.1	28.1
Wastes renewable	7.0	7.9	8.0	8.1	8.5	8.1
Solar heat	0.6	0.8	1.4	3.0	3.5	5.0
TOTAL	**89.1**	**103.4**	**117.6**	**122.8**	**125.5**	**128.1**

Source: ENVIROS, s. r. o.

Tab. 5-14 Final consumption of electricity

Final electricity consumption [TWh]	2012	2015	2020	2025	2030	2035
Households	14.6	14.2	14.1	15.0	14.5	14.8
Transport	2.2	2.2	2.7	3.4	4.3	5.7
Industry	22.7	22.7	24.4	27.7	30.1	30.8
Services	13.9	14.3	15.4	15.3	15.0	16.4
Agriculture	1.0	0.9	0.9	1.0	1.0	1.0
Other	2.2	2.2	2.2	2.2	2.2	2.2
TOTAL	**54.4**	**54.4**	**57.6**	**62.3**	**65.0**	**68.7**

Source: ENVIROS, s. r. o.

Tab. 5-15 Structure of electricity generation

Structure of electricity generation [TWh]	2012	2015	2020	2025	2030	2035
Brown coal	38.77	37.30	31.94	27.76	26.08	23.74
Hard coal	4.75	3.76	2.89	3.67	4.41	2.79
Coal tar	0.00	0.00	0.00	0.14	0.23	0.00
Liquid fuels	0.13	0.03	0.03	0.02	0.02	0.01
Gaseous fuels	4.24	8.22	7.64	7.37	6.89	6.73
Nuclear fuel	30.33	32.29	34.55	30.03	30.03	41.93
Wastes non-renewable	0.05	0.06	0.04	0.06	0.05	0.03
Renewable energy	8.58	10.58	12.21	14.69	16.22	18.41
TOTAL	**86.85**	**92.24**	**89.31**	**83.74**	**83.93**	**93.64**

Source: ENVIROS, s. r. o.

Emission projections for individual subsectors are shown in the following tables and brief descriptions of trends and measures in individual subsectors are provided in the following sections.

Tab. 5-16 Historic and projected emissions of GHG by Energy subsectors – with existing measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
1.A.1 – Energy industries	57.9	60.7	59.5	61.1	58.8	57.4	55.1	46.4	40.9	39.7	33.8	-19.9%	-31.6%
1.A.2 – Manufacturing industries and construction	46.8	27.9	27.3	23.3	18.8	16.6	16.4	16.7	14.5	13.9	15.3	-64.3%	-70.2%
1.A.3. – Transport	7.8	9.9	12.4	17.9	17.4	16.9	16.6	14.9	13.8	13.8	14.0	92.7%	78.4%
1.A.4. – Other sectors	34.0	18.3	14.7	12.6	12.2	11.0	11.0	10.2	8.7	8.5	8.2	-70.0%	-75.0%
1.A.5 – Other	1.6	1.2	1.3	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	-29.6%	-24.5%
1.B – Fugitive emissions	10.6	8.1	6.1	5.4	5.0	4.8	4.8	3.6	2.5	1.3	1.3	-65.8%	-87.7%
Total	158.7	126.1	121.3	121.4	113.3	107.8	105.0	92.9	81.6	78.4	73.9	-41.4%	-50.5%

Source: CHMI

Tab. 5-17 Historic and projected emissions of GHG by Energy subsectors – with additional measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
1.A.1 – Energy industries	57.9	60.7	59.5	61.1	58.8	57.4	55.0	45.8	40.4	39.2	33.4	-21.0%	-32.4%
1.A.2 – Manufacturing industries and construction	46.8	27.9	27.3	23.3	18.8	16.6	15.9	15.1	13.0	12.4	13.9	-67.7%	-73.4%
1.A.3. – Transport	7.8	9.9	12.4	17.9	17.4	16.9	16.6	14.9	13.8	13.8	14.0	92.7%	78.4%
1.A.4. – Other sectors	34.0	18.3	14.7	12.6	12.2	11.0	10.6	7.9	6.4	6.4	6.4	-80.2%	-81.1%
1.A.5 – Other	1.6	1.2	1.3	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	-29.6%	-24.5%
1.B – Fugitive emissions	10.6	8.1	6.1	5.4	5.0	4.8	4.8	3.6	2.5	1.3	1.3	-65.8%	-87.7%
Total	158.7	126.1	121.3	121.4	113.3	107.8	104.0	88.4	77.3	74.3	70.3	-44.3%	-53.1%

Source: CHMI

5.1.1.1 Energy industries

The emission projections of public electricity and heat production indicate a break in the trend after 2010. This sudden change happens in electricity generation as a result of depleting reserves of domestic brown coal. The previous projection was based on the assumption that one integrated gas and steam unit of 840 MW would be put into operation in the period 2010 – 2015 and other two between 2015 and 2020. The first unit was built in the power plant Pocerady but it is not regularly utilized because it is not economically competitive with current fuel and energy prices relations. Plans to build other two gas units were discarded. The installed capacity in coal-fired plants will decrease by 1,550 MW in the period 2012 – 2020 and by another 743 MW between the years 2020 and 2030. However, two new 660 MW brown coal units are considered in the power plant Pocerady in the period 2020 – 2025. This is the only plant in the Czech Republic having coal reserves sufficient beyond 2055. Introduction of new nuclear units was postponed by 10 years in comparison with the previous projections and now is expected around the year 2035.

Scenario with additional measures

The projected drop of the GHG emissions of scenario WEM between years 1990 and 2020 is 19.9% and in the WAM scenario the GHG emissions decrease by 21.0%. None of the selected additional measures is supposed to influence directly the energy industries. The GHG emissions reduction is induced by energy savings in energy consuming sectors.

5.1.1.2 Manufacturing industries and construction

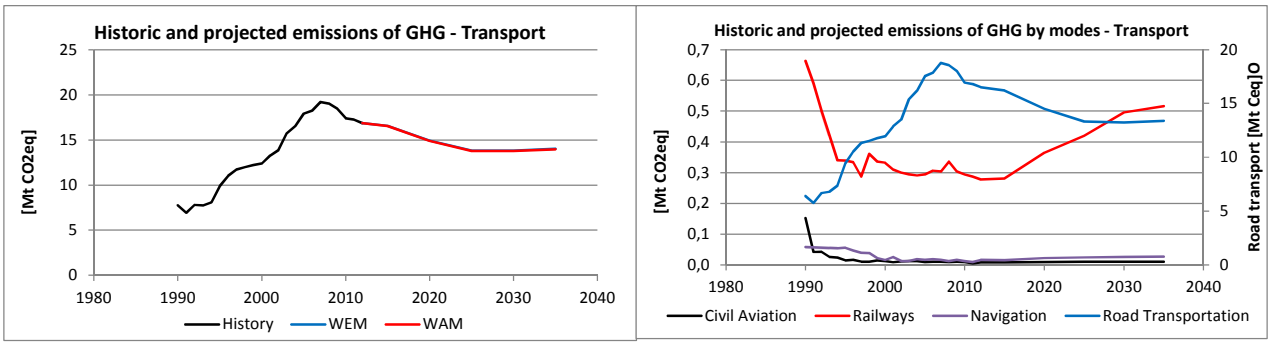
The GHG emission projections in manufacturing industries and construction are based on the expected final energy consumption which is more or less stagnating. The electricity consumption is, after the crisis related drop in 2010, growing and the share of fossil fuels is decreasing. The drop of GHG emission is 64.3% in the period 1990 – 2020 and 40.3% between the years 2005 and 2030.

Scenario with additional measures

The WAM scenario is influenced by two additional measures - *Support of voluntary commitments to energy savings and Operational Program Enterprise and Innovation for Competitiveness* – in the manufacturing sector. The expected energy savings are 20 PJ in the year 2020 according to the third National Action Plan for Energy Efficiency. These energy savings lead to additional drop CO_2 emissions by 3.4% between the years 1990 and 2020.

5.1.1.3 Transport

Fig. 5-2 Historic and projected emissions of GHG – Transport; Breakdown by modes - Transport



Source: CHMI

Tab. 5-18 Breakdown of historic and projected emissions of GHG by modes in transport

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
Civil Aviation	0.15	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-93.8%	-93.4%
Road Transportation	6.4	9.4	12.0	17.5	16.9	16.5	16.2	14.5	13.3	13.2	13.4	126.3%	106.8%
Railways	0.66	0.34	0.33	0.29	0.29	0.28	0.28	0.36	0.42	0.50	0.52	-45.1%	-25.3%
Navigation	0.06	0.06	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.03	0.03	-61.2%	-55.7%

Source: CHMI

Transport is a sector with steadily growing activity and consequently energy consumption and GHG emissions. After the year 2007, transport, especially freight transport, was hit by the economic crisis. However, the growing trend of transport activity is supposed to continue also in the period 2010 – 2020. Although, improved efficiency of new cars induce that energy consumption will reach its peak around the year 2015 and then it will be slightly decreasing. The projection expects continuing growing trend of road transport and civil aviation. Improving quality of railways will likely attract more customers. The inland water transport is supposed to stagnate. The projected structure of energy carriers in the transport sector is shown in the following table.

Tab. 5-19 Projection of final fuel and energy consumption of the transport sector (WEM)

Final energy consumption in transport [PJ]	2012	2015	2020	2025	2030	2035
Brown coal	0.0	0.0	0.0	0.0	0.0	0.0
Liquid biofuels	11.5	19.7	29.1	29.1	28.1	28.1
Electricity	8.0	8.0	9.7	12.1	15.6	20.4
Gasoline	68.7	65.9	53.9	50.2	50.5	46.7
Diesel fuel	146.9	143.0	119.5	99.6	92.4	95.7
Aviation fuels	13.2	13.4	15.6	16.4	16.7	17.2
Liquefied petroleum gas	3.1	3.2	2.6	2.7	3.8	3.6
Natural gas	1.8	5.3	23.8	35.1	44.1	48.1
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	**253.2**	**258.5**	**254.1**	**245.2**	**251.1**	**259.8**

Source: CHMI

The projection counts with growing shares of bio fuels (up to 2020) and natural gas. Gradual introduction of electric and hybrid cars is supposed to start after the year 2015. The GHG emissions from transport will be dropping to the year 2025, then they will stagnate. Such development can be

attributed to the fuel switches in favor of fuels with lower carbon content and obligatory improved energy efficiency of new personal cars.

Scenario with additional measures

Two additional measures will influence GHG emissions - *National Strategy of Cycling* and *Operational Program Prague - Pole of Growth*. They will bring about 0.5% of additional emission drop in the period 1990 – 2020 and 0.6% in the period 1990 – 2030.

5.1.1.4 Commercial/Institutional sector

The tertiary sector is a sector with the fastest economic growth. We assume that energy consumption driven by the economic grow may almost negate the energy efficiency improvement.

As regards mixture of energy carriers, electricity consumption grows with a higher rate than other carriers. The GHG emission will decline between the years 2010 and 2025, then may occur a slight increase. The GHG emissions from the tertiary sector decrease by 65.6% between the years 1990 and 2020 and only by 62.2% between 1990 and 2030.

Scenario with additional measures

There are three additional measures applied in the service sector: *Operational Program Environment 2014 – 2020*, *Operational Program Enterprise* and *Innovation for Competitiveness* and *Operational Program Prague - Pole of Growth*. The energy savings reached by these measures were estimated to 6 PJ in the third National Energy Efficiency Action Plan for the year 2020. These measures add 5.3% to the sector's GHG emission drop in the period 1990 – 2020 and beyond.

5.1.1.5 Residential sector

Households represent the only sector where we predict a remarkable decrease of energy consumption between the years 2010 and 2030. The drop is attributed to the quickly proceeding process of thermal insulation improvement of the residential buildings. Massive incentives financed from sold emission allowances started similar process even for family houses. Due to lower equipment of Czech households with electrical appliances in comparison with more developed countries we expect stagnation or even a slight increase in electricity consumption in households. The total drop of GHG emissions between the years 1990 and 2020 is estimated to 69.7%.

Scenario with additional measures

There are three additional measures influencing GHG emissions from residential sector: *New Green Savings Program*, *Integrated Regional Operating Program* and *Operational Program Environment 2014 – 2020*. Those measures should bring energy savings of 26.3 PJ to the year 2020 and increase GHG emissions drop from 69.7% to 78% between the years 1990 – 2020 and from 78.2% to 85.6% in the period 1990 – 2030.

5.1.1.6 Agriculture/Forestry/Fisheries

The projections of final energy consumption in the agricultural sector count with a slight decrease and unimportant changes in the fuel mix. The GHG emission projection is mainly based on the projections of final energy consumption. Possible increased planting of energy biomass will lead to a slight increase of energy demand in agriculture after the year 2020.

Scenario with additional measures

No additional measures were identified for this sector.

5.1.1.7 Fugitive emissions

The projections of fugitive emissions are based on fuel quantities calculated using the EFOM/ENV model as indicated in the following table.

Tab. 5-20 Projection of activities for calculation of fugitive emissions

	2012	2015	2020	2025	2030	2035
Hard coal mining [Mt]	11.7	7.6	4.0	0.0	0.0	0.0
Brown coal mining [Mt]	43.2	41.6	34.6	29.0	26.6	26.5
Crude oil mining [PJ]	6.6	0.0	0.0	0.0	0.0	0.0
Oil cracking [PJ]	306.0	306.0	300.9	280.0	280.0	255.0
Natural gas mining [PJ]	9.0	5.5	5.5	5.5	5.5	5.5
Natural gas transit [PJ]	1,350	1,350	1,350	1,350	1,350	1,350
Natural gas distribution [PJ]	115.0	116.8	126.8	132.3	137.6	129.1
Natural gas losses in power and heat generation	90.9	109.8	109.7	117.6	113.5	100.7

Source: CHMI

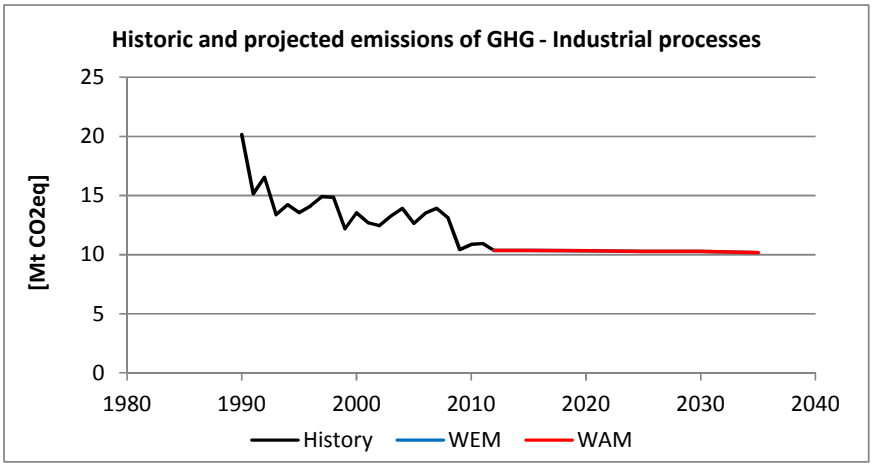
The projected decline of fugitive emissions results mainly from decreasing mining of hard coal.

Scenario with additional measures

No additional measures were identified directly in this sector, but energy savings in other sectors lead to decrease in fugitive emissions as well. The difference between WEM and WAM scenarios is attributed mainly to decreased power and heat generation from coal leading to lower production of coal mines.

5.1.2 Industrial processes (incl. fluorinated gases) (sector 2)

Fig. 5-3 Historic and projected emissions of GHG – Industrial processes



Source: CHMI

Tab. 5-21 Historic and projected emissions of GHG – Industrial processes

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030	2005 - 2020	2005 - 2030
WEM	20.2	13.5	13.5	12.6	10.9	10.4	10.4	10.3	10.3	10.3	10.2	-48.7%	-49.0%	-18.3%	-18.7%
WAM	20.2	13.5	13.5	12.6	10.9	10.4	10.4	10.3	10.3	10.3	10.2	-48.7%	-49.0%	-18.3%	-18.7%

Source: CHMI

Tab. 5-22 Breakdown of historic and projected emissions of GHG by gases in Industrial processes

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030	2005 - 2020	2005 - 2030
CO_2	18.6	12.1	12.1	11.3	10.1	9.5	9.5	9.5	9.5	9.4	9.4	-48.9%	-49.3%	-16.0%	-16.6%
CH_4	0.15	0.11	0.09	0.10	0.08	0.08	0.09	0.08	0.08	0.09	0.08	-45.2%	-39.7%	-18.2%	-9.9%
N_2O	1.42	1.34	1.34	1.25	0.70	0.75	0.75	0.75	0.75	0.75	0.75	-47.1%	-47.1%	-39.9%	-39.9%
Total	20.2	13.5	13.5	12.6	10.9	10.4	10.4	10.3	10.3	10.3	10.2	-48.7%	-49.0%	-18.3%	-18.7%

Source: CHMI

The economic crisis caused serious problems to some industries (mainly metallurgy and construction). Currently, it is very difficult to forecast production of tracked products.

A combined procedure with the EFOM/ENV model and a table processor was used for projections of trends in GHG emissions from industrial processes. The projection was applied only to activities and emissions with a major contribution to GHG emissions. Other emissions and activities with a minor contribution to GHG emissions were derived on the basis of an increase in GDP in the processing industry, amongst other things, because of the lack of information on potential future trends (e.g. production of steel, coke, polymers, nitric acid, etc.). There is an expected increase of clinker production related to the construction of new nuclear units. Another foreseeable tendency is decrease of lime use for desulphurization of flue gases as a consequence of decreasing coal use. The emissions from metallurgy of ferrous metals were calculated by the EFOM/ENV model.

Tab. 5-23 Final energy consumption of industry

Final energy consumption in industry [PJ]	2012	2015	2020	2025	2030	2035
Brown coal	30.5	32.9	27.8	3.4	5.0	19.6
Hard coal	16.7	16.3	17.3	13.0	12.7	17.4
Coke	42.7	44.3	46.1	46.7	47.9	49.0
Coal tar	2.7	3.0	2.0	1.1	1.1	1.8
Diesel fuel	2.7	2.8	2.9	3.1	3.3	3.3
Fuel oils	1.9	3.7	4.0	3.7	4.2	3.3
Liquefied petroleum gas	1.1	0.6	0.3	2.3	0.0	0.0
Other liquid fuels	7.8	4.5	2.8	2.8	0.6	0.0
Natural gas	84.9	84.5	87.4	98.3	95.5	83.3
Coke oven gas	4.8	4.6	5.1	5.0	4.9	4.8
Blast furnace gas	10.3	10.5	8.9	7.0	6.1	5.2
Other gaseous fuels	1.1	1.1	0.7	0.4	0.2	0.0
Electricity	81.7	81.8	87.9	99.7	108.2	111.0
Heat	26.9	24.8	25.6	22.8	23.4	23.8
Biomass	17.2	18.4	19.6	19.7	20.0	20.2
Biogas	0.1	0.2	0.2	0.2	0.2	0.2
Wastes renewable	6.0	6.7	6.8	6.8	6.7	6.2
Solar heat	0.0	0.0	0.0	0.4	0.4	0.4
TOTAL	**339.1**	**340.6**	**345.3**	**336.3**	**340.4**	**349.4**

Source: ENVIROS, s. r. o.

Tab. 5-24 Projection of activity data for industrial processes

[kt]	2009	2010	2011	2012	2015	2020	2025	2030	2035
Clinker production	2 923	2 748	3 132	2 838	2 900	3 000	3 100	3 200	3 200
Lime production	853	915	943	830	850	850	850	850	850
Lime use	2 168	2 344	2 642	2 537	2 339	2 028	1 756	1 661	1 457
Soda Ash Use	0 995	2 073	2 559	2 620	2 600	2 600	2 600	2 600	2 600
Road Paving with Asphalt	4 800	4 800	4 800	4 800	4 800	4 800	4 800	4 800	4 800
Glass production	1 329	1 023	1 381	1 058	1 100	1 200	1 200	1 200	1 200
Bricks an ceramics production	1 180	1 117	1 140	993	1 100	1 200	1 300	1 400	1 400
Ammonia production	264	257	230	239	250	250	250	250	250
Nitric acid production	505	442	562	550	550	550	550	550	550
Carbon black	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Ethylene production	416	455	412	441	440	440	440	440	440
Dichlorethylene production	144	136	122	116	120	120	120	120	120
Styrene production	150	170	170	170	170	170	170	170	170
Kaprolaktam	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steel production	4 663	5 274	5 678	5 164	5 400	5 400	5 400	5 400	5 400
Pig iron production	3 490	3 987	4 137	3 935	4 100	4 100	4 100	4 100	4 100
Sinter production	4 309	4 628	5 148	5 089	4 800	4 800	4 800	4 800	4 800
Metallurgic coke production	2 295	2 548	2 586	2 467	2 860	2 255	2 335	2 970	2 166

Source: CRF tables 2009 – 2012, Czech Statistical Office, ENVIROS, s. r. o.

5.1.2.1 Fluorinated gases

Tab. 5-25 Historic and projected emissions of GHG – Fluorinated gases

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
WEM	0.1	0.1	0.3	0.8	2.1	2.5	2.5	2.0	1.5	1.1	0.8	2558.8%	1401.4%
WAM	0.1	0.1	0.3	0.8	2.1	2.5	2.5	2.0	1.5	1.1	0.8	2558.8%	1401.4%

Source: CHMI

Tab. 5-26 Breakdown of historic and projected emissions of GHG by gases in Fluorinated gases

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
PFCs	0.000	0.000	0.001	0.013	0.048	0.008	0.015	0.013	0.012	0.012	0.012	-	-
HFCs	0.00	0.00	0.20	0.68	1.95	2.42	2.38	1.92	1.41	1.03	0.75	-	-
SF_6	1 805	1 908	2 022	2 130	1 590	2 116	1 890	1 886	2 579	2 307	1 814	4.5%	27.8%
Total	0.08	0.08	0.29	0.78	2.06	2.52	2.47	2.01	1.53	1.13	0.84	2558.8%	1401.4%

Source: CHMI

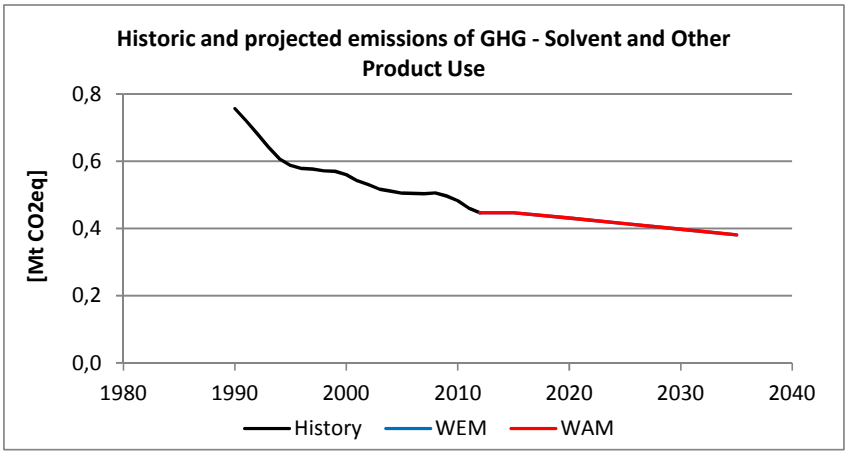
Emissions of fluorinated gases have origin only in their use. There is no production of fluorinated gases in the Czech Republic. These are strongly influenced by the Regulation (EU) No 517/2014 of 16 April 2014 on fluorinated GHG and repealing Regulation (EC) No 842/2006. Especially cooling and freezing appliances for households are mostly using coolants with high GWPs, which should be replaced by other coolants. Since we expect refrigerators lifetime of 15 years, the GHG emissions will significantly drop in the next 15 years. Temporary increase of SF_6 emissions is caused by expected life end of sound proof windows installed during past two decades.

Scenario with additional measures

No additional measures were identified for this sector.

5.1.3 Solvent and Other Product Use (sector 3)

Fig. 5-4 Historic and projected emissions of GHG – Solvent and Other Product Use



Source: CHMI

Tab. 5-27 Historic and projected emissions of GHG – Solvent and Other Product Use [Mt CO_2 eq.]

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
WEM	0.76	0.59	0.56	0.51	0.48	0.45	0.45	0.43	0.41	0.40	0.38	-43.0%	-47.4%
WAM	0.76	0.59	0.56	0.51	0.48	0.45	0.45	0.43	0.41	0.40	0.38	-43.0%	-47.4%

Source: CHMI

Tab. 5-28 Breakdown of historic and projected emissions of GHG by gases in solvent and other product use

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 – 2030
CO_2	18.6	12.1	12.1	11.3	10.1	9.5	9.5	9.5	9.5	9.4	9.4	-48.9%	-49.3%
CH_4	0.15	0.11	0.09	0.10	0.08	0.08	0.09	0.08	0.08	0.09	0.08	-45.2%	-39.7%
N_2O	1.42	1.34	1.34	1.25	0.70	0.75	0.75	0.75	0.75	0.75	0.75	-47.1%	-47.1%
Total	20.2	13.5	13.5	12.6	10.9	10.4	10.4	10.3	10.3	10.3	10.2	-48.7%	-49.0%

Source: CHMI

We can observe a remarkable decrease of solvents use in "Degreasing and Dry cleaning" and continuous decrease in "Paint application" and "Chemical Products, Manufacture and Processing". We expect further decrease of solvents use in all three mentioned applications. As regards N_2O use for anesthesia and in aerosol cans, we forecast keeping the today's figures.

Tab. 5-29 Projection of activity data for production and use of solvents and paints

[kt]	2010	2011	2012	2015	2020	2025	2030	2035
A. Paint Application	33.52	30.85	30.87	30.91	26.85	22.72	18.59	14.47
B. Degreasing and Dry Cleaning	13.91	8.89	8.38	7.87	7.36	6.85	6.33	5.82
C. Chemical Products, Manufacture and Processing	13.30	14.33	12.20	12.90	12.28	11.67	11.05	10.43
D. Other								
1. Use of N_2O for Anesthesia	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
2. N_2O from Fire Extinguishers								
3. N_2O from Aerosol Cans	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
4. Other Use of N_2O								

Source: CRF tables 2010 – 2012, ENVIROS, s. r. o.

The implied emission coefficient of 3.14286 kg/t from the latest inventory was used for emissions of CO_2 from paint application, degreasing and dry cleaning, chemical products, manufacture and processing and other solvent use.

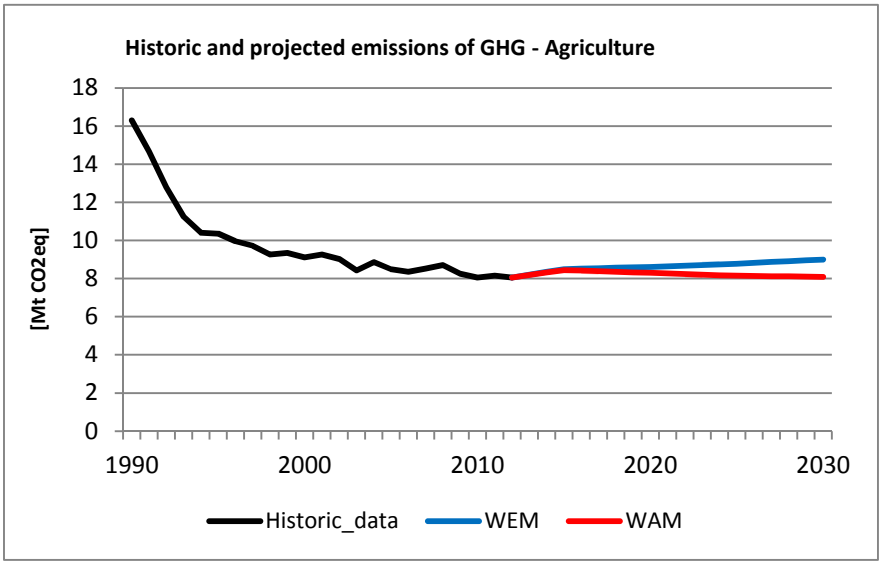
Scenario with additional measures

No additional measures were identified for this sector.

5.1.4 Agriculture (sector 4)

This chapter describes how each policy and measure (from Chapter 4) is included in the two employed scenarios: i) with measures (WEM) and ii) with additional measures (WAM).

Fig. 5-5 Historic and projected emissions of GHG in sector Agriculture under WEM and WAM scenarios



Source: CHMI

Tab. 5-30 Projected total GHG emissions in sector of Agriculture [Gg CO_2 eq.]

Scenario	1990	2012	2015	2020	2025	2030	1990 - 2030	2012 - 2030
WEM	16 307	8 058	8 498	8 616	8 782	9 005	**- 44.8%**	**11.8%**
WAM	16 307	8 058	8 450	8 300	8 150	8 093	**- 50.3%**	**0.5%**

Source: CHMI

Tab. 5-31 Activity data – animal population (thous. of heads)

	1990	2012	2015	2020	2025	2030
Cattle	3 532	1 354	1 380	1 450	1 500	1 600
Swine	4 790	1 579	1 650	2 000	2 600	3 200
Sheep	430	221	225	250	280	300
Goats	41	24	28	30	35	35
Horses	27	33	36	40	42	45
Poultry	31 971	20 691	24 000	25 000	27 000	27 000

Source: 1990, 2012 – CSO data; 2015, 2020, 2025 and 2030 – estimated by MA

With existing measures (WEM) scenario

WEM scenario takes into account the policies and measures implemented until 2012. The breakdown of historical and projected (WEM scenario) emissions by individual categories are shown in Tab. 5-32 and Tab. 5-33. The breakdown of emissions by individual gases shows that the decisive share of emissions and changes in emissions in Agriculture is determined by N_2O.

Tab. 5-32 Methane emission projections in scenario WEM [kt CH_4]

Category	1990	2012	2015	2020	2025	2030	1990 - 2030	2012 - 2030
Enteric Ferm.	200.92	96.52	99.44	105.37	110.38	117.7	-41.42%	21.94%
Manure Man.	51.19	22.36	23.55	25.32	27 .95	30.9	-39.64%	38.19%
Total CH_4	252.11	118.88	122.99	130.69	138.33	148.6	-41.06%	25.00%

Source: CHMI

Tab. 5-33 Nitrous oxide emission projections in scenario WEM [kt NO_2]

Category	1990	2012	2015	2020	2025	2030	1990 - 2030	2012 - 2030
Manure Manag.	5.51	2.13	2.40	2.46	2.57	2.67	-51.5 %	25.4%
Direct emis.	17.69	9.15	9.48	9.28	9.16	9.09	-48.6 %	-0.7%
Pasture manure	1.02	0.83	1.07	1.10	1.11	1.13	10.8 %	36.1%
Indirect emis.	11.30	5.83	6.13	6.10	6.11	6.09	-46.1 %	4.5%
Total N_2O	35.52	17.94	19.08	18.94	18.96	18.98	-46.6 %	5.8%

Source: CHMI

Tab. 5-34 Emissions in WEM scenario by gas

Category	1990	2012	2015	2020	2025	2030	1990 - 2030	2012 - 2030
CH_4 (Gg CH_4)	252.11	118.88	122.99	130.69	138.33	148.6	-41.1%	25.0%
N_2O (Gg N_2O)	35.52	17.94	19.08	18.94	18.96	18.98	-46.6%	5.8%
Gg CO_2 eq.								
CH_4	5 294	2 496	2 583	2 745	2 905	3 121	-41.0%	25.0%
N_2O	11 013	5 562	5 915	5 871	5 877	5 884	-46.6%	5.8%
Total	16 307	8 058	8 498	8 616	8 782	9 005	-44,8%	11,8%

Source: CHMI

With additional measures (WAM) scenario

The WAM scenario takes into account the policies and measures implemented in the conceptual documents (Strategy for growth - Czech agriculture after 2013), in particular the Nitrate Directives and Action Plan for Organic Farming (agro-environmental measures and ecological management, Good Agricultural Practices etc.).

Application of agro-environmental measures should lead to a slow decline of emissions in agricultural sector. Expert estimate of emission reduction for the WEM scenario is 11.8% in 2030. The total emission reduction of emissions by WAM scenario is ca. 0.4%, related to reference year 2012.

Tab. 5-35 Methane emission projections in scenario WAM [kt CH_4]

Category	1990	2012	2015	2020	2025	2030	1990 -2030	2012 -2030
Enteric Ferm.	200.92	96.52	103.82	104.83	106.44	110	-45.3%	14.0%
Manure Man.	51.19	22.36	24.75	25.17	22.13	20	-51.2%	11.8%
Total CH_4	252.11	118.88	128.57	130.00	128.57	130	-46.5%	13.6%

Source: CHMI

Tab. 5-36 Emissions in WAM scenario by gas

Category	1990	2012	2015	2020	2025	2030	1990 - 2020	1990 - 2030
CH_4 (Gg CH_4)	252.11	118.88	128.57	130.00	128.57	130	-48.4%	9.4%
N_2O (Gg N_2O)	35.52	17.94	18.55	17.97	17.58	17.30	-51.3 %	-3.6%
Gg CO_2 eq.								
CH_4	5 294	2 496	2 700	2 730	2 700	2 730	-48.4%	9.4%
N_2O	11 013	5 562	5 750	5 570	5 450	5 363	-51.3%	-3.6%
Total	16 307	8 058	8 450	8 300	8 150	8 093	-50.4%	0.4%

Source: CHMI

5.1.5 LULUCF (sector 5)

The historical data and projections using the WEM and WAM scenarios are shown in Fig.5-6. It can be observed that for the nearest decades, the LULUCF sector remains to act as a sink of emissions under the current harvest demand remain for both WEM and WAM scenario. The difference between the WEM and WAM scenarios is insignificant in relation to both the overall trend and annual fluctuations of emissions in this sector.

For the projected period until 2030, the emissions under the WAM scenario tend to be somewhat lower as compared to WEM (

Tab.5-37). It should be noted that there are additional benefits associated with WAM. Specifically, the WAM scenario should result in more resilient and stable forest stands, which is essential for long-term sustainability of forest production and wide spectrum of services that forests provide.

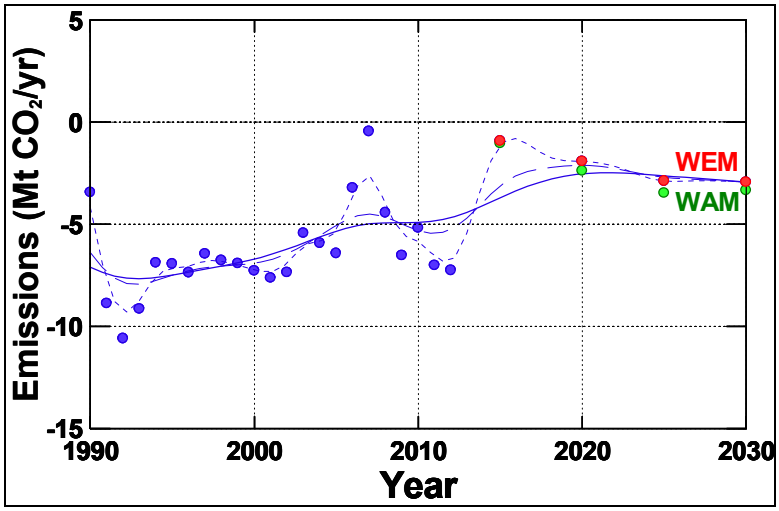
Tab. 5-37 Historic and projected emissions of GHG for the LULUCF sector [Mt CO_2 eq.]

Scenario	1990	2012	2015	2020	2025	2030	1990 - 2020	1990 - 2030
Historic data and WEM	-3.44	-7.25	-0.92	-1.92	-2.89	-2.94	44.18%	14.5 %
Historic data and WAM	-3.44	-7.25	-1.05	-2.38	-3.47	-3.34	30.81%	2.90 %

Source: CHMI

It can be seen that the sink of CO_2 observed in LULUCF for the previous decades to a large extent diminishes. In relation to the base year 1990, the sink of emissions would decrease by about 14.5 and 2.9% in 2030 for the WEM and WAM scenarios, respectively.

Fig. 5-6 Historic and projected (scenarios WEM and WAM) emissions of GHG for the LULUCF sector. The historic data (blue) and the WEM scenarios are accompanied by a least square smooth lines using different tension values that determine the local flex.



Source: CHMI

The breakdown of historical and projected emissions by individual land use categories is shown in Tab. 5-38 (here also including the categories 5F Other Land and 5F Other). The emissions in the LULUCF sector are mostly determined by carbon stock changes in the category 5A Forest Land. The sinks in category 5A Forest Land decrease by 58.9% in the period 1990 – 2020 and by 37.6% in the period 1990 – 3030 in the WEM scenario and by 49.35% and 29.37% respectively in the WAM scenario

Tab. 5-38 Breakdown of historic and projected emissions of GHG by the major sub-categories of the LULUCF sector for WEM and WAM scenario

Gas [Mt CO_2eq]	1990	2012	2015	2020	2025	2030
WEM scenario						
5A Forest Land	-4.68	-7.26	-0.93	-1.92	-2.88	-2.92
5B Cropland	1.21	0.18	0.18	0.18	0.18	0.18
5C Grassland	-0.08	-0.30	-0.31	-0.31	-0.32	-0.32
5D Wetlands	0.02	0.02	0.02	0.02	0.02	0.02
5E Settlements	0.08	0.10	0.10	0.10	0.10	0.10
5F Other land	NO	0.0	0.0	0.0	0.0	0.0
5G Other	0.01	0.0	0.0	0.0	0.0	0.0
WAM scenario						
5A Forest Land	-4.68	-7.26	-1.05	-2.37	-3.46	-3.31
5B Cropland	1. 21	0.18	0.18	0.18	0.18	0.18
5C Grassland	-0.08	-0.30	-0.31	-0.31	-0.32	-0.32
5D Wetlands	0.02	0.02	0.02	0.02	0.02	0.02
5E Settlements	0.08	0.10	0.10	0.10	0.10	0.10
5F Other land	NO	0.0	0.0	0.0	0.0	0.0
5G Other	0.01	0.0	0.01	0.01	0.01	0.01

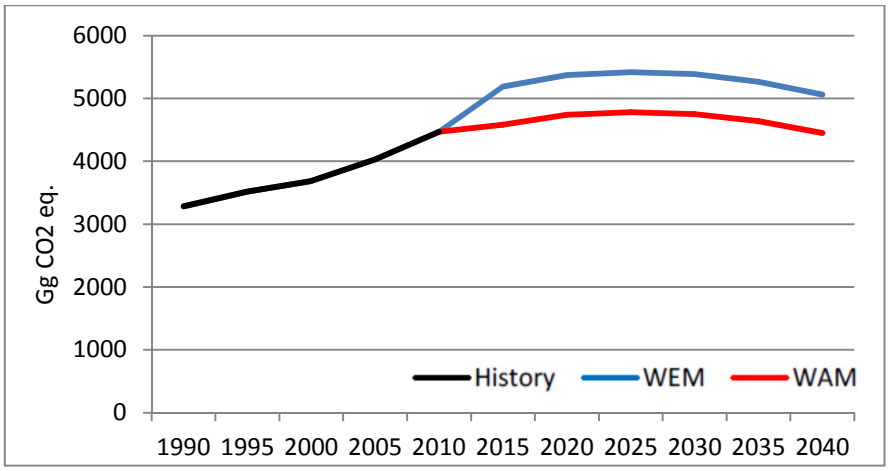
Source: CHMI

5.1.6 Waste (sector 6)

Even with adoption of new measures emissions in the Waste sector change rather slowly mainly due to the amount of waste that is presently deposited in the landfills and as such will influence emissions in upcoming decades. Moreover, there is technology lock-in between landfilling and incineration that is hard to overcome. With regard to GHG emission reduction there is certain need to address also those past burdens.

GHG emission projections from waste sector covers emissions from four source categories – 4A – Solid waste disposal sites, 4B Biological treatment of waste – mainly composting and anaerobic digestion of organic waste, 4C – Waste incineration, although this category include only emissions from waste not incinerated for energy purposes – hazardous, clinical and industrial waste, waste incinerated for energy generation is located in 1A category. Last category is 4D Wastewater treatment.

Fig. 5-7 Historic and projected emissions of GHG – Waste



Source: CHMI

Tab. 5-39 Historic and projected emissions of GHG – Waste [Gg CO_2 eq.]

Scenario	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
Total WEM	3285	3520	3685	4025	4469	5191	5370	5420	5385	5265	5062
Total WAM	3285	3520	3685	4025	4469	4582	4740	4783	4748	4638	4452

Source: CHMI

With existing measures (WEM) scenario

Tab. 5-40 Breakdown of historic and projected emissions of GHG by source categories in waste - scenario with existing measures [Gg CO_2 eq.]

	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
4A - SWDS	1979	2405	2682	2899	3224	3590	3800	3880	3875	3784	3607
4B - Biological treatment	0	0	0	64	179	561	561	561	561	561	561
4C - Waste incineration	24	72	64	178	183	200	200	200	200	200	200
4D - Wastewater treatment	1283	1043	939	884	883	840	809	779	749	721	694
Total	3286	3520	3685	4025	4469	5191	5370	5420	5385	5266	5062

Source: CHMI

4A solid waste disposal sites: Production rate of waste remains on the present level. Dematerialization, separation of selected waste compounds, present economic incentives and legislation - all those tools and measures are enough to compensate further increase in municipal solid waste (MSW). As most of MSW is still landfilled (new landfill capacity is created) newly build landfills are equipped with gas recovery system and the efficiency of Landfill gas collection is generally high and increasing in time. Waste composition changes with time; there is a decrease of plastics and biologically degradable waste (influencing both landfill and waste incineration). Key assumptions for this source category is amount of waste, and methane recovery that effectively cuts GHG emissions.

4B biological treatment of waste: This category is new in the inventory and we have limited knowledge about its possible development. In recent 5 years it boomed from almost zero to substantive part of the waste inventory. This rapid increase can be attributed to support for renewable energy from anaerobic digestion. In WEM scenario we assume this support will last at present levels increasing current volume slightly in following years. Key assumption for this source category is amount of anaerobic digestion facility and their efficiency in capturing produced methane. Current assumption based on IPCC 2006 methodology assumes losses amounting 5% of production.

4C waste incineration: Most of this category is unaffected by measures as main bulk of waste is incinerated in 1A public energetics. WEM assumes slight increase of this source category mainly due to economic growth, but there is limited space for new capacities for industrial/hazardous/clinical waste incineration. Development is expected in municipal waste incineration.

4D waste water treatment: Waste water treatment is gradually producing less GHG, this is due to more favorable mix of aerobic and anaerobic technologies (with capture). Also the share of people connected to wastewater treatment plants increases. Key assumption here is decreasing IEF (implied emission factor) and population as well as steady nutrition habit of projected population as nitrous oxide production is influenced by protein availability in food.

With additional measures (WAM) scenario

Tab. 5-41 Breakdown of historic and projected emissions of GHG by gases in waste – scenario with additional measures [Gg CO_2 eq.]

	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
4A - SWDS	1979	2405	2682	2899	3224	3231	3420	3492	3487	3405	3246
4B - Biological treatment	0	0	0	64	179	312	312	312	312	312	312
4C - Waste incineration	24	72	64	178	183	200	200	200	200	200	200
4D - Wastewater treatment	1283	1043	939	884	883	840	809	779	749	721	694
Total	3286	3520	3685	4025	4469	4583	4741	4783	4748	4638	4452

Source: CHMI

4A solid waste disposal sites: As most of MSW is still landfilled (new landfill capacity is created) newly build landfills are equipped with gas recovery system and the efficiency of LFG collection is higher than WEM scenario and increasing in time. Waste composition changes with time; there is a

decrease of plastics and biologically degradable waste (influencing both landfill and waste incineration) in comparison with WEM scenario this decrease is sharper. Key assumptions for this source category are amount of waste, and methane recovery that effectively cuts GHG emissions.

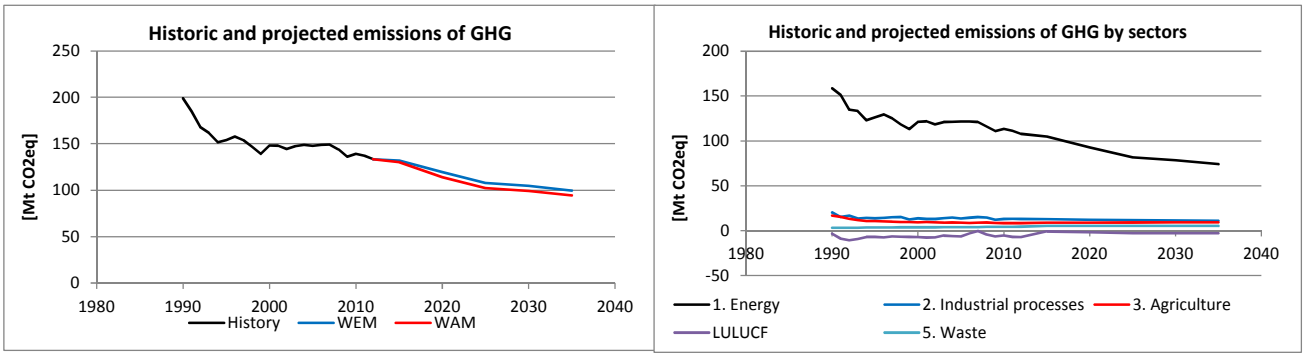
4B biological treatment of waste: In WAM scenario we assume support for renewable energy from anaerobic digestion will last at present levels increasing current volume slightly in following years. Key assumption for this source category is amount of anaerobic digestion facilities and their efficiency in capturing produced methane. In WAM scenario we assume that there will be additional pressure to maintain technological quality of the installations. WAM assumption based on IPCC 2006 methodology assumes losses amounting 2.5% of production.

4C waste incineration: Most of this category is unaffected by measures as main bulk of waste is incinerated in 1A public energetics. WAM scenario assumes identical assumptions as WEM.

4D waste water treatment: WAM scenario assumes identical assumptions as WEM.

5.2 Total projections

Fig. 5-8 Historic and projected emissions of GHG (LULUCF excluded); Breakdown by sectors



Source: CHMI

The projected decrease of GHG emissions between years 1990 and 2020 reaches 39.9% in the WEM scenario. Implementation of additional measures would add another 3.0% to this decrease. Between the years 2005 – 2030, the decrease amounts 28.0% in the WEM scenario and 32.3% in the WAM scenario. Carbon dioxide is the dominant GHG and its share in the total GHG emissions was 83.4% in 2012. Since methane and nitrous monoxide are influenced by other sectors than energy, they show different percentage drops than CO_2. Emissions of fluorinated gases culminate around the year 2015, then they quite rapidly drop.

Tab. 5-42 Breakdown of historic and projected emissions of GHG by gases (LULUCF excluded) – scenario with existing measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
CO_2	164.7	128.9	126.1	126.2	117.1	111.3	108.4	97.5	87.3	85.2	80.6	-40.8%	-48.3%
CH_4	21.3	16.0	13.3	12.6	12.3	12.2	13.4	12.7	11.8	11.0	10.8	-40.6%	-48.5%

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
N_2O	13.0	9.0	8.4	8.2	7.4	7.4	7.5	7.4	7.3	7.3	7.3	-43.1%	-43.3%
HFC	0.00	0.00	0.20	0.68	1.95	2.42	2.38	1.92	1.41	1.03	0.75		
PFC	0.00	0.00	0.00	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01		
SF_6	0.08	0.08	0.08	0.09	0.07	0.09	0.08	0.08	0.11	0.10	0.08	4.5%	27.8%
Total	199.0	154.0	148.1	147.7	138.9	133.5	131.8	119.6	108.0	104.7	99.6	-39.9%	-47.4%

Source: CHMI

Tab. 5-43 Breakdown of historic and projected emissions of GHG by gases (LULUCF excluded) – scenario with additional measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
CO_2	164.7	128.9	126.1	126.2	117.1	111.3	107.3	93.0	83.1	81.2	77.0	-43.5%	-50.7%
CH_4	21.3	16.0	13.3	12.6	12.3	12.2	13.0	12.0	10.9	9.8	9.6	-43.9%	-54.0%
N_2O	13.0	9.0	8.4	8.2	7.4	7.4	7.3	7.1	6.9	6.8	6.8	-45.5%	-47.4%
HFC	0.00	0.00	0.20	0.68	1.95	2.42	2.38	1.92	1.41	1.03	0.75		
PFC	0.00	0.00	0.00	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01		
SF_6	0.08	0.08	0.08	0.09	0.07	0.09	0.08	0.08	0.11	0.10	0.08	4.5%	27.8%
Total	199.0	154.0	148.1	147.7	138.9	133.5	130.1	114.0	102.4	98.9	94.3	-42.7%	-50.3%

Source: CHMI

The decisive amount of GHG is emitted from energy producing and consuming activities – 85.5% in the year 2012. This sector has also the highest contribution to the total drop of GHG emissions. This tendency results mainly from fuel switch and also from increased energy efficiency on the demand side and development of renewable energy sources.

Tab. 5-44 Breakdown of historic and projected emissions of GHG by sectors – scenario with existing measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
1. Energy	158.6	126.1	121.2	121.5	113.4	107.9	105.0	92.9	81.7	78.5	74.0	-41.4%	-50.5%
2. Industrial processes	20.2	13.6	13.8	13.4	12.9	12.9	12.8	12.3	11.8	11.4	11.0	-39.0%	-43.6%
3. Agriculture	16.9	10.7	9.4	8.8	8.3	8.3	8.8	8.9	9.1	9.4	9.4	-47.2%	-44.5%
4. LULUCF	-3.4	-6.9	-7.3	-6.4	-5.2	-7.2	-0.9	-1.9	-2.9	-2.9	-2.9	-44.1%	-14.3%
5. Waste	3.3	3.5	3.6	3.9	4.3	4.4	5.2	5.4	5.4	5.4	5.3	63.4%	63.9%
Total including LULUCF	195.6	147.0	140.8	141.3	133.8	126.2	130.9	117.6	105.1	101.7	96.7	-39.9%	-48.0%

Source: CHMI

Tab. 5-45 Breakdown of historic and projected emissions of GHG by sectors – scenario with additional measures

[Mt CO_2eq]	1990	1995	2000	2005	2010	2012	2015	2020	2025	2030	2035	1990 - 2020	1990 - 2030
1. Energy	158.6	126.1	121.2	121.5	113.4	107.9	103.9	88.3	77.4	74.4	70.3	-44.3%	-53.1%
2. Industrial processes	20.2	13.6	13.8	13.4	12.9	12.9	12.8	12.3	11.8	11.4	11.0	-39.0%	-43.6%
3. Agriculture	16.9	10.7	9.4	8.8	8.3	8.3	8.7	8.6	8.5	8.4	8.4	-49.1%	-50.2%
4. LULUCF	-3.4	-6.9	-7.3	-6.4	-5.2	-7.2	-1.0	-2.4	-3.5	-3.3	-3.3	-30.7%	-2.8%
5. Waste	3.3	3.5	3.6	3.9	4.3	4.4	4.6	4.7	4.8	4.7	4.6	44.3%	44.5%
Total including LULUCF	195.6	147.0	140.8	141.3	133.8	126.2	129.1	111.7	98.9	95.6	91.0	-42.9%	-51.1%

Source: CHMI

6 Provisions of financial, technological and capacity-building support to developing country Parties

The Czech Republic as a Party not included in Annex II to the Convention is not obliged to adopt measures, in line with Article 12.3 of the UNFCCC and fulfil obligations pursuant to Articles 4.3, 4.4 and 4.5 of the UNFCCC and provide additional financial sources. Nevertheless, the Czech Republic is pleased to submit on voluntary basis available information on the financial support provided to developing countries in the years 2013 and 2014.

The climate financial support provided to developing countries through the Czech bilateral or multilateral cooperation is partially or fully credible as the Official Development Assistance in accordance with the OECD-DAC methodology. More detailed information about sectoral and territorial priorities is available in Chapter 7 of the 6th National Communication of the Czech Republic.

The climate specific funding provided through the Czech bilateral or multilateral channels has been identified in accordance with the OECD-DAC methodology. Only projects with adaptation or mitigation RIO Markers (significant or principal objective) have been considered as the climate specific funding. Other financial support provided to developing countries, which is also accountable for Official Development Assistance, but where the exact climate related component could not be quantified, has been reported as the core/general funding in the BR2 CTF tables.

All the funds reported are in Czech crowns (CZK). The methodology used for calculating currency exchange is the Annual Average Exchange Rates announced by the Czech Statistical Office. The exchange rates are as follows: 2013: 1 USD = 19.565CZK, 2014: 1 USD = 20,746 CZK.

For the reason that the Czech Republic has not contributed to any program specifically aimed at capacity building or technology transfer in developing countries, the CTF Table 8 and Table 9 remain blank. However, many Czech bilateral projects also have the capacity building or the technology transfer element and these projects are reported among the other projects in CTF Table 7(b).

7 Abbreviations

AEAs	Annual Emission Allocations
AR4	Fourth Assessment Report IPCC
BAT	Best Available Techniques
BR2	Second Biennial Report
CAP	Common Agricultural Policy
CDM	Clean Development Mechanism
CDV	Transport Research Centre
CER	Certified Emission Reduction
CNG	Compressed Natural Gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CRF	Common Reporting Format
CTF	Common Tabular Format
CUEC	Charles University Environment Centre
CZK	Czech crown
EC	European Commission
EFOM/ENV	Energy Flow Optimisation Model for the Czech Republic
EGR	Exhaust Gases Recirculation
EPC	Energy Performance Contracting
eq.	Equivalent
ERU	Emission Reduction Unit
ESD	Effort Sharing Decision
EU	European Union
EU ETS	EU Emissions Trading System
F-gases	Fluorinated gases
GDP	Gross Domestic Product
Gg	Gigagram
GHG	Greenhouse Gas
GJ	Gigajoule
GPG	Good Practice Guidance
GWP	Global Warming Potentials
HFC	Hydrofluorocarbons
CH_4	Methane
CHMI	Czech Hydrometeorological Institute
IDS	Integrated Transport System
IED	Industrial Emissions Directive
IEF	Implied Emission Factor
IFER	Institute of Forest Ecosystem Research Ltd.
ILUC	Indirect Land Use Changes
IPCC	The Intergovernmental Panel on Climate Change

IPPU	Industrial Processes and Product Use
IWT	Inland Waterway Transport
JI	Joint Implementation
KC	Key Categories
KONEKO	KONEKO marketing Ltd.
KP	Kyoto Protocol
kt	Kilo-tonne
LA	Level Assessment
LCD	Liquid-crystal display
LDCs	Least Developed Countries
LFG	Landfill Gas
LULUCF	Land Use, Land Use Change and Forestry
MoE	Ministry of the Environment
MS	Member States
MSR	Market Stability Reserve
MSW	Municipal Solid Waste
Mt	Mega-tonne
MW	Megawatt
N_2O	Nitrous oxide
NEC	National Emission Ceilings
NF_3	Nitrogen trifluoride
NIR	National Inventory Report
NIS	National Inventory System
NMVOC	Non-methane volatile organic compound
NO_x	Mono-nitrogen oxides
ODS	Ozone Depleting Substances
OTE	Electricity Market Operator
PFC	Perfluorinated compound
PJ	Petajoule
Program	The State Program in Support of Energy Savings and the Usage of Renewable Energy Sources
QA/QC	Quality Assurance / Quality Control
SCR	Selective Catalytic Reduction
SEA	Strategic Environmental Assessment
SEF	Standard Electronic Format
SEP	State Energy Policy
SF_6	Sulfur hexafluoride
SIDS	Small Island Developing States
SO_2	Sulfur dioxide
SWDS	Solid Waste Disposal Sites
TA	Trend Assessment
TEN-T	Trans-European Transport Networks
Tg	Tera-gram

TWh	Terawatt-hours
UNFCCC	United Nations Framework Convention on Climate Change
WAM	With additional measures
WEEED	Directive on Waste of Electrical and Electronic Equipment
WEM	With existing measures
WMP	Waste Management Plan

CTF Annex: Common Tabular Format workbook for the 2nd Biennial Report of the Czech Republic

Overview of CTF tables provided with the 2nd Biennial Report of the Czech Republic:

CTF Table 1: Emission trends

CTF Table 2: Description of quantified economy-wide emission reduction target

CTF Table 3: Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects

CTF Table 4: Reporting on progress

CTF Table 4(a)II: Progress in achievement of the quantified economy-wide emission reduction targets – further information on mitigation actions relevant to the counting of emissions and removals from the land use, land-use change and forestry sector in relation to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

CTF Table 4(b): Reporting on progress

CTF Table 5: Summary of key variables and assumptions used in the projections analysis

CTF Table 6(a)/(c): Information on updated greenhouse gas projections under a 'with measures' scenario and under a 'with additional measures' scenario

CTF Table 7: Provision of public financial support: summary information

CTF Table 7a Provision of public financial support: contribution through multilateral channels

CTF Table 7(b): Provision of public financial support: contribution through bilateral, regional and other channels

Emission trends: summary [1]
(Sheet 1 of 3)

GREENHOUSE GAS EMISSIONS	Base year[a]	1990	1991	1992	1993	1994	1995	1996	1997
	kt CO_2 eq								
CO_2 emissions without net CO_2 from LULUCF	161,700.15	161,700.15	146,084.41	141,597.75	135,616.44	129,208.13	129,784.76	132,189.65	128,537.94
CO_2 emissions with net CO_2 from LULUCF	155,238.81	155,238.81	136,942.58	131,862.09	126,344.01	122,573.95	122,956.72	124,918.16	122,283.23
CH_4 emissions without CH_4 from LULUCF	21,066.33	21,066.33	19,433.31	18,236.40	17,366.19	16,485.85	16,203.76	15,981.24	15,585.35
CH_4 emissions with CH_4 from LULUCF	21,181.49	21,181.49	19,519.16	18,326.59	17,470.23	16,593.02	16,304.41	16,113.61	15,728.14
N_2O emissions without N_2O from LULUCF	10,573.92	10,573.92	9,138.56	8,341.51	7,420.91	7,218.33	7,402.22	7,252.14	7,930.95
N_2O emissions with N_2O from LULUCF	10,600.22	10,600.22	9,162.02	8,364.57	7,444.25	7,240.57	7,422.64	7,273.10	7,951.03
HFCs	NO	NO	NO	NO	NO	NO	0.23	34.68	99.06
PFCs	NO	NO	NO	NO	NO	NO	0.01	0.48	1.58
Unspecified mix of HFCs and PFCs	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE
SF_6	15.68	15.68	15.60	15.78	15.95	16.11	16.28	25.19	22.79
NF3	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total (without LULUCF)	193,356.07	193,356.07	174,671.89	168,191.44	160,419.50	152,928.42	153,407.26	155,483.37	152,177.67
Total (with LULUCF)	187,036.19	187,036.19	165,639.37	158,569.04	151,274.45	146,423.65	146,700.29	148,365.22	146,085.83
Total (without LULUCF, with indirect)	196,994.19	196,994.19	178,241.46	171,679.71	163,908.37	156,285.26	156,454.74	158,662.50	155,373.92
Total (with LULUCF, with indirect)	190,674.31	190,674.31	169,208.94	162,057.31	154,763.32	149,780.49	149,747.77	151,544.35	149,282.09

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[a]	1990	1991	1992	1993	1994	1995	1996	1997
	kt CO_2 eq								
1. Energy	157,253.80	157,253.80	143,943.16	138,488.70	133,253.99	125,394.25	126,404.83	128,143.87	123,670.88
2. Industrial processes and product use	17,062.33	17,062.33	13,803.05	14,566.60	13,410.41	14,648.84	14,137.56	14,744.45	15,471.44
3. Agriculture	15,820.23	15,820.23	13,676.07	11,887.20	10,476.81	9,490.24	9,403.36	9,158.28	9,503.11
4. Land Use, Land-Use Change and Forestry[b]	-6,319.88	-6,319.88	-9,032.52	-9,622.40	-9,145.05	-6,504.77	-6,706.97	-7,118.14	-6,091.84
5. Waste	3,219.71	3,219.71	3,249.61	3,248.93	3,278.29	3,395.10	3,461.51	3,436.77	3,532.24
6. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total (including LULUCF)	187,036.19	187,036.19	165,639.37	158,569.04	151,274.45	146,423.65	146,700.29	148,365.22	146,085.83

Note: All footnotes for this table are given on sheet 3.

[1] The common tabular format will be revised, in accordance with relevant decisions of the Conference of the Parties and, where applicable, with decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol."

Emission trends: summary [(1)]
(Sheet 2 of 3)

GREENHOUSE GAS EMISSIONS	*1998*	1999	2000	2001	2002	2003	2004	2005	2006	2007
CO_2 emissions without net CO_2 from LULUCF	123,307.54	114,947.67	125,307.13	124,967.12	122,033.47	125,590.29	126,331.76	124,040.97	125,340.30	126,337.27
CO_2 emissions with net CO_2 from LULUCF	116,794.37	108,348.17	118,067.11	117,402.84	114,563.24	119,700.32	120,059.16	117,459.18	121,214.75	124,897.56
CH_4 emissions without CH_4 from LULUCF	15,067.92	14,460.47	13,528.79	13,215.63	12,836.66	12,802.31	12,454.33	12,859.69	13,111.86	12,653.89
CH_4 emissions with CH_4 from LULUCF	15,192.66	14,575.85	13,634.70	13,325.83	12,955.24	12,950.73	12,590.27	12,989.43	13,272.52	12,862.67
N_2O emissions without N_2O from LULUCF	7,101.31	6,959.09	7,001.55	7,073.43	6,846.44	6,572.01	6,920.69	6,753.79	6,611.13	6,596.39
N_2O emissions with N_2O from LULUCF	7,122.63	6,978.86	7,020.54	7,092.23	6,865.58	6,593.61	6,941.10	6,773.64	6,633.54	6,622.75
HFCs	134.36	148.10	204.66	309.36	402.50	511.65	606.87	706.22	945.84	1,292.53
PFCs	1.54	0.83	3.97	7.79	14.06	6.99	10.30	11.83	27.03	24.92
Unspecified mix of HFCs and PFCs	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE
SF_6	21.37	23.75	37.93	28.76	49.88	73.22	50.53	47.16	30.83	24.37
NF3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total (without LULUCF)	145,634.04	136,539.91	146,084.02	145,602.09	142,182.99	145,556.45	146,374.47	144,419.67	146,066.99	146,929.37
Total (with LULUCF)	139,266.93	130,075.57	138,968.89	138,166.81	134,850.49	139,836.50	140,258.24	137,987.47	142,124.52	145,724.80
Total (without LULUCF, with indirect)	148,516.59	139,186.60	148,535.86	148,048.53	144,484.14	148,093.20	148,840.02	146,775.23	148,443.92	149,312.39
Total (with LULUCF, with indirect)	142,149.48	132,722.26	141,420.73	140,613.26	137,151.64	142,373.25	142,723.79	140,343.02	144,501.45	148,107.81

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1998*	1999	2000	2001	2002	2003	2004	2005	2006	2007
1. Energy	118,215.63	111,752.79	120,169.81	120,354.31	117,199.66	119,863.72	119,716.75	119,132.44	119,818.79	119,972.53
2. Industrial processes and product use	15,380.73	12,691.88	14,079.47	13,280.52	13,022.75	14,031.87	14,961.43	13,769.33	14,763.45	15,353.71
3. Agriculture	8,444.79	8,494.12	8,248.24	8,312.59	8,159.39	7,769.86	7,857.43	7,573.95	7,496.10	7,604.54
4. Land Use, Land-Use Change and Forestry[b]	-6,367.11	-6,464.34	-7,115.13	-7,435.27	-7,332.50	-5,719.95	-6,116.23	-6,432.21	-3,942.48	-1,204.58
5. Waste	3,592.88	3,601.12	3,586.50	3,654.66	3,801.20	3,891.00	3,838.86	3,943.95	3,988.65	3,998.59
6. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total (including LULUCF)	139,266.93	130,075.57	138,968.89	138,166.81	134,850.49	139,836.50	140,258.24	137,987.47	142,124.52	145,724.80

Note: All footnotes for this table are given on sheet 3.

Emission trends: summary [(1)]
(Sheet 3 of 3)

GREENHOUSE GAS EMISSIONS	*2008*	2009	2010	2011	2012	2013	Change from base to latest reported year
							(%)
CO_2 emissions without net CO_2 from LULUCF	121,212.68	113,369.49	115,033.97	113,284.33	109,011.19	106,067.07	-34.41
CO_2 emissions with net CO_2 from LULUCF	116,258.64	107,173.62	109,562.24	106,207.53	101,888.11	99,245.50	-36.07
CH_4 emissions without CH_4 from LULUCF	12,800.63	12,418.56	12,614.76	12,990.78	13,110.95	12,426.51	-41.01
CH_4 emissions with CH_4 from LULUCF	12,965.64	12,557.92	12,761.89	13,055.92	13,180.88	12,491.29	-41.03
N_2O emissions without N_2O from LULUCF	6,625.47	6,176.22	5,965.35	6,075.37	6,013.02	5,944.93	-43.78
N_2O emissions with N_2O from LULUCF	6,648.23	6,196.98	5,986.84	6,090.35	6,028.60	5,959.94	-43.78
HFCs	1,524.96	1,654.24	1,962.06	2,240.49	2,427.74	2,666.73	
PFCs	33.85	39.15	42.59	10.24	8.19	5.88	
Unspecified mix of HFCs and PFCs	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	
SF_6	25.06	28.97	15.00	21.11	25.09	28.98	84.91
NF3	NO	NO	NO	NO	1.80	3.82	
Total (without LULUCF)	142,222.65	133,686.63	135,633.72	134,622.33	130,597.99	127,143.93	-34.24
Total (with LULUCF)	137,456.38	127,650.88	130,330.63	127,625.63	123,560.41	120,402.15	-35.63
Total (without LULUCF, with indirect)	144,585.23	135,803.56	137,704.40	136,693.41	132,560.19	129,392.92	-34.32
Total (with LULUCF, with indirect)	139,818.96	129,767.81	132,401.31	129,696.72	125,522.61	122,651.14	-35.68

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2008*	2009	2010	2011	2012	2013	Change from base to latest reported year
							(%)
1. Energy	115,308.90	109,681.39	110,727.68	109,201.85	105,069.02	100,876.57	-35.85
2. Industrial processes and product use	14,975.06	12,430.82	13,305.09	13,650.36	13,579.87	14,122.69	-17.23
3. Agriculture	7,712.44	7,293.19	7,137.90	7,218.74	7,237.88	7,263.34	-54.09
4. Land Use, Land-Use Change and Forestry[b]	-4,766.27	-6,035.75	-5,303.09	-6,996.69	-7,037.58	-6,741.78	6.68
5. Waste	4,226.26	4,281.23	4,463.06	4,551.38	4,711.23	4,881.34	51.61
6. Other	NO	NO	NO	NO	NO	NO	
Total (including LULUCF)	137,456.38	127,650.88	130,330.63	127,625.63	123,560.41	120,402.15	-35.63

Notes:

(1) Further detailed information could be found in the common reporting format tables of the Party's greenhouse gas inventory, namely "Emission trends (CO_2)", "Emission trends (CH_4)", "Emission trends (N_2O)" and "Emission trends (HFCs, PFCs and SF_6)", which is included in an annex to this biennial report.

(2) 2011 is the latest reported inventory year.

(3) 1 kt CO_2 eq equals 1 Gg CO_2 eq.

Abbreviation: LULUCF = land use, land-use change and forestry.

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

[b] Includes net CO_2, CH_4 and N_2O from LULUCF.

Emission trends (CO_2)
(Sheet 1 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[a]	1990	1991	1992	1993	1994	1995	1996	1997
	kt								
1. Energy	144,726.02	144,726.02	132,819.52	127,969.86	122,944.73	115,484.11	116,673.58	118,482.15	114,248.08
A. Fuel combustion (sectoral approach)	144,267.58	144,267.58	132,421.47	127,573.56	122,566.64	115,116.18	116,311.31	118,132.18	113,903.53
1. Energy industries	56,654.44	56,654.44	55,285.12	54,453.45	54,063.79	54,708.73	61,554.84	66,272.46	62,577.92
2. Manufacturing industries and construction	50,930.37	50,930.37	43,222.51	46,079.31	38,356.19	30,666.73	26,029.52	24,483.33	24,466.59
3. Transport	7,031.87	7,031.87	6,163.34	7,709.20	7,809.38	8,509.81	9,022.43	9,981.62	10,061.06
4. Other sectors	29,650.90	29,650.90	27,750.49	19,331.61	22,337.28	21,230.92	19,704.52	17,394.78	16,797.95
5. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Fugitive emissions from fuels	458.44	458.44	398.05	396.30	378.09	367.93	362.27	349.97	344.55
1. Solid fuels	456.24	456.24	395.10	392.83	373.45	362.60	356.21	343.65	337.79
2. Oil and natural gas and other emissions from energy production	2.20	2.20	2.95	3.47	4.64	5.33	6.06	6.32	6.76
C. CO2 transport and storage	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Industrial processes	15,664.63	15,664.63	12,791.86	13,378.52	12,431.24	13,466.76	12,820.87	13,423.52	14,055.48
A. Mineral industry	4,102.86	4,102.86	3,387.54	3,527.61	3,221.88	3,275.61	3,050.14	3,210.48	3,246.58
B. Chemical industry	1,783.27	1,783.27	1,533.29	1,664.92	1,626.13	1,923.09	1,725.67	1,854.99	1,814.00
C. Metal industry	9,652.94	9,652.94	7,761.38	8,059.84	7,490.10	8,154.28	7,941.31	8,267.85	8,918.27
D. Non-energy products from fuels and solvent use	125.56	125.56	109.65	126.15	93.14	113.77	103.75	90.19	76.63
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NO	NO	NO	NO	NO	NO	NO	NO	NO
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
3. Agriculture	1,286.35	1,286.35	445.32	216.84	196.06	194.30	219.61	212.90	159.89
A. Enteric fermentation									
B. Manure management									
C. Rice cultivation									
D. Agricultural soils									
E. Prescribed burning of savannas									
F. Field burning of agricultural residues									
G. Liming	1,177.82	1,177.82	313.32	108.31	102.92	103.36	110.34	112.43	92.42
H. Urea application	108.53	108.53	132.00	108.53	93.13	90.93	109.27	100.47	67.47
I. Other carbon-containing fertilizers	NO	NO	NO	NO	NO	NO	NO	NO	NO
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
4. Land Use, Land-Use Change and Forestry	-6,461.34	-6,461.34	-9,141.83	-9,735.66	-9,272.43	-6,634.18	-6,828.04	-7,271.48	-6,254.71
A. Forest land	-4,855.93	-4,855.93	-9,215.12	-10,824.90	-9,543.65	-7,103.08	-7,105.44	-7,372.22	-6,608.02
B. Cropland	89.97	89.97	86.24	86.02	126.58	98.89	103.35	106.08	113.85
C. Grassland	-134.84	-134.84	-264.63	-164.33	-159.06	-270.46	-299.39	-513.11	-350.18
D. Wetlands	22.44	22.44	27.73	10.26	8.56	7.91	9.84	11.28	16.15
E. Settlements	84.38	84.38	38.75	57.55	168.67	119.01	86.27	113.45	118.69
F. Other land	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Harvested wood products	-1,667.36	-1,667.36	185.20	1,099.73	126.46	513.55	377.33	383.04	454.80
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Waste	23.15	23.15	27.71	32.52	44.41	62.97	70.70	71.07	74.49
A. Solid waste disposal	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
B. Biological treatment of solid waste									
C. Incineration and open burning of waste	23.15	23.15	27.71	32.52	44.41	62.97	70.70	71.07	74.49
D. Waste water treatment and discharge									
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:									
International bunkers	523.72	523.72	430.45	498.13	414.11	515.34	558.03	419.43	483.25
Aviation	523.72	523.72	430.45	498.13	414.11	515.34	558.03	419.43	483.25
Navigation	NO	NO	NO	NO	NO	NO	NO	NO	NO
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 emissions from biomass	5,400.43	5,400.43	4,665.38	5,066.49	5,045.25	5,563.33	4,703.85	4,831.87	5,232.86
CO2 captured	NO	NO	NO	NO	NO	NO	NO	NO	NO
Long-term storage of C in waste disposal sites	4,243.13	4,243.13	4,453.13	4,671.58	4,895.21	5,120.42	5,350.91	5,590.53	5,839.13
Indirect N2O									
Indirect CO2 (3)	3,638.12	3,638.12	3,569.57	3,488.27	3,488.87	3,356.84	3,047.48	3,179.13	3,196.26
Total CO2 equivalent emissions without land use, land-use change and forestry	193,356.07	193,356.07	174,671.89	168,191.44	160,419.50	152,928.42	153,407.26	155,483.37	152,177.67
Total CO2 equivalent emissions with land use, land-use change and forestry	187,036.19	187,036.19	165,639.37	158,569.04	151,274.45	146,423.65	146,700.29	148,365.22	146,085.83
Total CO2 equivalent emissions, including indirect CO2, without land use, land-use change and forestry	165,338.27	165,338.27	149,653.99	145,086.02	139,105.31	132,564.97	132,832.24	135,368.78	131,734.19
Total CO2 equivalent emissions, including indirect CO2, with land use, land-use change and forestry	158,876.93	158,876.93	140,512.16	135,350.36	129,832.88	125,930.79	126,004.20	128,097.29	125,479.48

Note: All footnotes for this table are given on sheet 3.

Emission trends (CO_2)

(Sheet 2 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1998*	1999	2000	2001	2002	2003	2004	2005	2006	2007
1. Energy	109,145.19	103,357.15	112,532.22	113,050.60	110,312.72	112,923.84	112,958.57	111,919.83	112,335.17	112,902.69
A. Fuel combustion (sectoral approach)	108,805.25	103,043.19	112,209.78	112,718.96	109,978.75	112,601.10	112,644.08	111,606.07	111,999.37	112,599.36
1. Energy industries	60,442.79	57,952.82	61,773.04	63,944.85	62,506.50	62,149.16	62,262.55	62,870.75	62,320.70	65,948.98
2. Manufacturing industries and construction	22,383.09	18,400.32	23,292.99	20,761.55	19,874.70	19,822.34	19,453.42	18,715.26	18,412.64	16,537.28
3. Transport	10,323.62	11,512.11	11,650.42	12,367.84	12,937.97	14,675.90	15,415.94	16,721.58	17,369.69	18,276.31
4. Other sectors	15,485.92	15,013.94	15,316.68	15,486.62	14,425.11	15,715.92	15,246.73	13,033.38	13,644.78	11,500.91
5. Other	169.82	163.99	176.66	158.10	234.48	237.78	265.44	265.10	251.57	335.89
B. Fugitive emissions from fuels	339.95	313.96	322.44	331.64	333.97	322.74	314.48	313.77	335.79	303.33
1. Solid fuels	332.53	306.33	315.13	324.03	322.98	309.65	301.87	300.85	324.80	293.09
2. Oil and natural gas and other emissions from energy production	7.41	7.63	7.30	7.62	10.99	13.09	12.61	12.92	10.99	10.24
C. CO2 transport and storage	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Industrial processes	13,854.45	11,339.24	12,532.13	11,642.97	11,399.55	12,287.30	13,008.09	11,773.41	12,628.19	13,028.30
A. Mineral industry	3,237.31	3,065.25	3,110.59	2,777.88	2,505.73	2,596.33	2,762.92	2,734.22	2,835.74	3,190.81
B. Chemical industry	1,861.45	1,802.28	1,852.80	1,726.91	1,536.03	1,731.30	1,941.46	1,823.60	1,705.77	1,537.29
C. Metal industry	8,636.03	6,357.34	7,428.44	7,027.35	7,261.70	7,857.11	8,186.40	7,094.74	7,962.88	8,164.62
D. Non-energy products from fuels and solvent use	119.67	114.36	140.30	110.83	96.09	102.57	117.31	120.85	123.79	135.58
E. Electronic industry										
F. Product uses as ODS substitutes										
G. Other product manufacture and use	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
3. Agriculture	233.05	174.82	179.74	187.43	197.15	187.07	184.63	172.51	186.28	204.47
A. Enteric fermentation										
B. Manure management										
C. Rice cultivation										
D. Agricultural soils										
E. Prescribed burning of savannas										
F. Field burning of agricultural residues										
G. Liming	90.05	86.82	112.28	104.56	98.88	78.53	76.10	63.98	77.74	79.80
H. Urea application	143.00	88.00	67.47	82.87	98.27	108.53	108.53	108.53	108.53	124.67
I. Other carbon-containing fertilizers	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4. Land Use, Land-Use Change and Forestry	-6,513.17	-6,599.49	-7,240.02	-7,564.28	-7,470.23	-5,889.97	-6,272.59	-6,581.80	-4,125.54	-1,439.71
A. Forest land	-7,198.71	-7,115.60	-7,354.24	-7,669.78	-7,418.97	-5,631.80	-6,041.31	-6,511.53	-3,309.65	-610.12
B. Cropland	243.63	85.13	83.90	68.09	53.00	72.94	62.10	73.41	57.84	46.85
C. Grassland	-256.63	-336.28	-395.33	-377.16	-372.74	-359.08	-373.41	-371.18	-379.51	-372.22
D. Wetlands	24.39	23.69	27.28	11.56	33.17	22.42	18.98	20.22	19.67	19.37
E. Settlements	174.67	197.78	124.27	110.60	110.01	177.71	172.03	151.68	112.30	92.36
F. Other land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Harvested wood products	499.47	545.80	274.10	292.40	125.31	-172.15	-110.99	55.60	-626.19	-615.95
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Waste	74.84	76.46	63.04	86.13	124.05	192.08	180.46	175.22	190.66	201.80
A. Solid waste disposal	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
B. Biological treatment of solid waste										
C. Incineration and open burning of waste	74.84	76.46	63.04	86.13	124.05	192.08	180.46	175.22	190.66	201.80
D. Waste water treatment and discharge										
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:										
International bunkers	571.33	537.68	588.73	625.64	540.28	726.64	933.92	970.50	1,006.00	1,055.54
Aviation	571.33	537.68	588.73	625.64	540.28	726.64	933.92	970.50	1,006.00	1,055.54
Navigation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 emissions from biomass	5,737.87	5,827.43	5,370.93	5,930.84	6,138.39	6,394.72	7,130.47	7,241.63	7,807.12	8,901.98
CO2 captured	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Long-term storage of C in waste disposal sites	6,097.93	6,345.15	6,613.29	6,888.87	7,172.20	7,457.08	7,744.98	8,037.83	8,339.57	8,660.47
Indirect N2O										
Indirect CO2 (3)	2,882.55	2,646.69	2,451.83	2,446.45	2,301.15	2,536.75	2,465.55	2,355.56	2,376.93	2,383.02
Total CO2 equivalent emissions without land use, land-use change and forestry	145,634.04	136,539.91	146,084.02	145,602.09	142,182.99	145,556.45	146,374.47	144,419.67	146,066.99	146,929.37
Total CO2 equivalent emissions with land use, land-use change and forestry	139,266.93	130,075.57	138,968.89	138,166.81	134,850.49	139,836.50	140,258.24	137,987.47	142,124.52	145,724.80
Total CO2 equivalent emissions, including indirect CO2, without land use, land-use change and forestry	126,190.09	117,594.36	127,758.96	127,413.57	124,334.61	128,127.03	128,797.31	126,396.53	127,717.23	128,720.29
Total CO2 equivalent emissions, including indirect CO2, with land use, land-use change and forestry	119,676.92	110,994.86	120,518.94	119,849.29	116,864.38	122,237.06	122,524.72	119,814.73	123,591.68	127,280.58

Note: All footnotes for this table are given on sheet 3.

Emission trends (CO_2)
(Sheet 3 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2008*	2009	2010	2011	2012	2013	Change from base to latest reported year
							%
1. Energy	108,306.89	103,083.32	104,054.49	102,629.36	98,688.72	95,327.06	-34.13
A. Fuel combustion (sectoral approach)	108,008.85	102,823.87	103,787.77	102,366.96	98,422.75	95,125.71	-34.06
1. Energy industries	61,235.84	57,175.08	61,623.30	61,287.95	58,948.94	55,645.22	-1.78
2. Manufacturing industries and construction	16,298.07	15,961.54	12,380.52	12,585.23	11,289.88	10,930.35	-78.54
3. Transport	18,141.52	17,633.96	16,622.51	16,431.34	16,131.27	15,995.78	127.48
4. Other sectors	11,968.05	11,700.01	12,842.07	11,687.33	11,746.16	12,254.03	-58.67
5. Other	365.37	353.28	319.37	375.11	306.49	300.33	
B. Fugitive emissions from fuels	298.04	259.45	266.72	262.40	265.97	201.35	-56.08
1. Solid fuels	288.00	250.22	259.30	255.45	259.41	194.88	-57.29
2. Oil and natural gas and other emissions from energy production	10.04	9.23	7.42	6.96	6.56	6.47	193.79
C. CO2 transport and storage	NO	NO	NO	NO	NO	NO	
2. Industrial processes	12,430.92	9,903.02	10,601.95	10,262.19	9,897.06	10,428.03	-33.43
A. Mineral industry	3,051.96	2,451.10	2,370.30	2,601.65	2,330.33	2,156.01	-47.45
B. Chemical industry	1,728.36	1,677.79	1,716.41	1,546.31	1,630.88	1,546.16	-13.30
C. Metal industry	7,549.79	5,685.12	6,413.25	6,002.23	5,841.53	6,625.06	-31.37
D. Non-energy products from fuels and solvent use	100.80	89.01	101.98	112.00	94.32	100.80	-19.72
E. Electronic industry							
F. Product uses as ODS substitutes							
G. Other product manufacture and use	NO	NO	NO	NO	NO	NO	
H. Other	NO	NO	NO	NO	NO	NO	
3. Agriculture	234.13	184.24	197.86	205.41	243.17	136.31	-89.40
A. Enteric fermentation							
B. Manure management							
C. Rice cultivation							
D. Agricultural soils							
E. Prescribed burning of savannas							
F. Field burning of agricultural residues							
G. Liming	94.80	63.97	61.46	80.01	115.57	135.50	-88.50
H. Urea application	139.33	120.27	136.40	125.40	127.60	0.81	-99.26
I. Other carbon-containing fertilizers	NO	NO	NO	NO	NO	NO	
J. Other	NO	NO	NO	NO	NO	NO	
4. Land Use, Land-Use Change and Forestry	-4,954.04	-6,195.87	-5,471.73	-7,076.80	-7,123.08	-6,821.56	5.58
A. Forest land	-4,581.00	-6,589.62	-5,299.30	-7,190.16	-7,521.38	-7,473.56	53.91
B. Cropland	74.10	48.94	73.16	70.02	64.73	69.65	-22.59
C. Grassland	-377.27	-365.49	-368.59	-329.22	-307.46	-322.01	138.82
D. Wetlands	22.02	20.25	33.81	31.19	24.55	29.38	30.96
E. Settlements	92.75	100.75	115.18	85.75	99.26	83.16	-1.45
F. Other land	NO	NO	NO	NO	NO	NO	
G. Harvested wood products	-184.64	589.30	-26.00	255.62	517.22	791.82	-147.49
H. Other	NO	NO	NO	NO	NO	NO	
5. Waste	240.74	198.91	179.67	187.37	182.23	175.67	658.87
A. Solid waste disposal	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	
B. Biological treatment of solid waste							
C. Incineration and open burning of waste	240.74	198.91	179.67	187.37	182.23	175.67	658.87
D. Waste water treatment and discharge							
E. Other	NO	NO	NO	NO	NO	NO	
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	
Memo items:							
International bunkers	1,118.55	1,021.55	957.18	948.92	884.22	853.09	62.89
Aviation	1,118.55	1,021.55	957.18	948.92	884.22	853.09	62.89
Navigation	NO	NO	NO	NO	NO	NO	
Multilateral operations	NO	NO	NO	NO	NO	NO	
CO2 emissions from biomass	9,029.56	9,578.22	10,701.85	11,033.93	11,716.51	12,716.68	135.48
CO2 captured	NO	NO	NO	NO	NO	NO	
Long-term storage of C in waste disposal sites	8,982.70	9,312.76	9,621.38	9,910.22	10,180.15	10,416.85	145.50
Indirect N2O							
Indirect CO2 (3)	2,362.58	2,116.93	2,070.68	2,071.09	1,962.21	2,248.99	-38.18
Total CO2 equivalent emissions without land use, land-use change and forestry	142,222.65	133,686.63	135,633.72	134,622.33	130,597.99	127,143.93	-34.24
Total CO2 equivalent emissions with land use, land-use change and forestry	137,456.38	127,650.88	130,330.63	127,625.63	123,560.41	120,402.15	-35.63
Total CO2 equivalent emissions, including indirect CO2, without land use, land-use change and forestry	123,575.26	115,486.41	117,104.65	115,355.42	110,973.40	108,316.05	-34.49
Total CO2 equivalent emissions, including indirect CO2, with land use, land-use change and forestry	118,621.22	109,290.54	111,632.92	108,278.61	103,850.32	101,494.49	-36.12

Abbreviations : CRF = common reporting format, LULUCF = land use, land-use change and forestry.

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

[b] Fill in net emissions/removals as reported in CRF table Summary 1.A of the latest reported inventory year. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

Emission trends (CH_4)

(Sheet 1 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[a]	1990	1991	1992	1993	1994	1995	1996	1997
	kt								
1. Energy	470.02	470.02	416.66	392.46	384.58	368.25	360.31	355.55	346.01
A. Fuel combustion (sectoral approach)	62.02	62.02	53.94	45.37	43.03	41.21	37.29	38.06	34.66
1. Energy industries	0.66	0.66	0.65	0.65	0.66	0.69	0.77	0.86	0.85
2. Manufacturing industries and construction	4.33	4.33	3.72	3.95	3.27	2.79	2.14	2.06	2.06
3. Transport	1.54	1.54	1.39	1.79	1.71	1.84	1.85	1.95	1.87
4. Other sectors	55.48	55.48	48.18	38.98	37.39	35.89	32.53	33.19	29.88
5. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Fugitive emissions from fuels	407.99	407.99	362.73	347.10	341.55	327.04	323.01	317.49	311.35
1. Solid fuels	364.79	364.79	325.61	312.73	307.93	293.98	289.78	281.55	275.93
2. Oil and natural gas and other emissions from energy production	43.20	43.20	37.11	34.37	33.62	33.07	33.23	35.94	35.42
C. CO2 transport and storage									
2. Industrial processes	2.04	2.04	1.67	1.51	1.50	1.71	1.86	1.91	1.93
A. Mineral industry									
B. Chemical industry	1.45	1.45	1.14	1.26	1.28	1.45	1.40	1.46	1.48
C. Metal industry	0.59	0.59	0.53	0.25	0.22	0.26	0.46	0.45	0.45
D. Non-energy products from fuels and solvent use	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NO	NO	NO	NO	NO	NO	NO	NO	NO
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
3. Agriculture	252.12	252.12	238.33	214.56	187.45	164.04	158.63	155.64	145.43
A. Enteric fermentation	200.92	200.92	189.53	169.89	147.05	128.79	125.32	124.19	115.99
B. Manure management	51.20	51.20	48.81	44.66	40.40	35.25	33.30	31.46	29.44
C. Rice cultivation	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural soils	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Liming									
H. Urea application									
I. Other carbon-containing fertilizers									
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
4. Land use, land-use change and forestry	4.61	4.61	3.43	3.61	4.16	4.29	4.03	5.30	5.71
A. Forest land	4.61	4.61	3.43	3.61	4.16	4.29	4.03	5.30	5.71
B. Cropland	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Other land	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Harvested wood products									
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Waste	118.48	118.48	120.66	120.93	121.12	125.43	127.36	126.15	130.04
A. Solid waste disposal	79.17	79.17	82.79	85.97	89.48	92.95	96.20	97.12	99.89
B. Biological treatment of solid waste	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO
C. Incineration and open burning of waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D. Waste water treatment and discharge	39.31	39.31	37.88	34.96	31.64	32.48	31.16	29.02	30.16
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total CH4 emissions without CH4 from LULUCF	842.65	842.65	777.33	729.46	694.65	659.43	648.15	639.25	623.41
Total CH4 emissions with CH4 from LULUCF	847.26	847.26	780.77	733.06	698.81	663.72	652.18	644.54	629.13
Memo items:									
International bunkers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Navigation	NO	NO	NO	NO	NO	NO	NO	NO	NO
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 emissions from biomass									
CO2 captured									
Long-term storage of C in waste disposal sites									
Indirect N2O									
Indirect CO2 (3)									

Note: All footnotes for this table are given on sheet 3.

Table 1(b) CZE_BR2_v0.1

Emission trends (CH_4)

(Sheet 2 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1998*	1999	2000	2001	2002	2003	2004	2005	2006	2007
1. Energy	331.43	303.43	270.84	255.64	237.52	236.04	226.99	243.63	253.95	235.23
A. Fuel combustion (sectoral approach)	29.10	25.88	26.80	27.55	25.36	27.17	27.50	25.70	28.01	26.48
1. Energy industries	0.88	0.86	0.86	0.90	0.90	1.03	1.11	0.91	0.92	1.01
2. Manufacturing industries and construction	1.84	1.56	1.93	1.72	1.83	1.60	1.61	1.83	1.85	1.73
3. Transport	1.80	1.86	1.72	1.72	1.67	1.72	1.63	1.57	1.49	1.47
4. Other sectors	24.57	21.58	22.26	23.19	20.94	22.80	23.11	21.35	23.72	22.23
5. Other	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04
B. Fugitive emissions from fuels	302.33	277.55	244.04	228.08	212.16	208.86	199.50	217.93	225.94	208.75
1. Solid fuels	265.02	241.00	209.27	195.29	177.67	176.74	169.54	182.62	190.37	173.30
2. Oil and natural gas and other emissions from energy production	37.31	36.56	34.76	32.80	34.49	32.12	29.95	35.31	35.57	35.45
C. CO2 transport and storage										
2. Industrial processes	2.06	2.11	2.09	2.19	2.11	2.05	2.51	2.52	2.41	2.26
A. Mineral industry										
B. Chemical industry	1.63	1.72	1.68	1.76	1.68	1.63	2.08	2.12	1.99	1.83
C. Metal industry	0.43	0.39	0.41	0.42	0.43	0.42	0.43	0.41	0.42	0.43
D. Non-energy products from fuels and solvent use	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA
E. Electronic industry										
F. Product uses as ODS substitutes										
G. Other product manufacture and use	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
3. Agriculture	137.08	139.97	135.24	136.21	134.94	134.29	130.83	127.67	125.91	126.95
A. Enteric fermentation	108.77	111.13	106.72	107.46	105.22	104.09	101.85	99.73	98.29	99.22
B. Manure management	28.31	28.84	28.52	28.74	29.72	30.19	28.99	27.95	27.62	27.73
C. Rice cultivation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural soils	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Liming										
H. Urea application										
I. Other carbon-containing fertilizers										
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4. Land use, land-use change and forestry	4.99	4.62	4.24	4.41	4.74	5.94	5.44	5.19	6.43	8.35
A. Forest land	4.99	4.62	4.24	4.41	4.74	5.94	5.44	5.19	6.43	8.35
B. Cropland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Other land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Harvested wood products										
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Waste	132.15	132.91	132.98	134.60	138.90	139.72	137.84	140.56	142.20	141.72
A. Solid waste disposal	102.65	105.48	107.27	109.78	112.26	115.14	113.40	114.69	115.95	114.85
B. Biological treatment of solid waste	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	1.55	1.38	2.38
C. Incineration and open burning of waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D. Waste water treatment and discharge	29.50	27.43	25.71	24.81	26.64	24.57	24.44	24.33	24.87	24.49
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total CH4 emissions without CH4 from LULUCF	602.72	578.42	541.15	528.63	513.47	512.09	498.17	514.39	524.47	506.16
Total CH4 emissions with CH4 from LULUCF	607.71	583.03	545.39	533.03	518.21	518.03	503.61	519.58	530.90	514.51
Memo items:										
International bunkers	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Aviation	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Navigation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 emissions from biomass										
CO2 captured										
Long-term storage of C in waste disposal sites										
Indirect N2O										
Indirect CO2 (3)										

Note: All footnotes for this table are given on sheet 3.

Emission trends (CH_4)

(Sheet 3 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2008*	2009	2010	2011	2012	2013	Change from base to latest reported year
							%
1. Energy	233.97	218.79	223.08	219.30	212.82	180.48	-61.60
A. Fuel combustion (sectoral approach)	25.56	26.26	27.40	26.47	27.03	28.96	-53.31
1. Energy industries	1.03	1.06	1.19	1.23	1.26	1.23	84.58
2. Manufacturing industries and construction	1.71	1.74	1.31	1.39	1.32	1.34	-68.97
3. Transport	1.36	1.24	1.08	1.01	0.95	0.92	-40.28
4. Other sectors	21.42	22.18	23.79	22.80	23.47	25.43	-54.16
5. Other	0.04	0.04	0.03	0.04	0.03	0.03	
B. Fugitive emissions from fuels	208.41	192.53	195.68	192.82	185.80	151.52	-62.86
1. Solid fuels	175.83	158.19	160.09	159.54	158.68	126.40	-65.35
2. Oil and natural gas and other emissions from energy production	32.59	34.35	35.59	33.28	27.11	25.12	-41.85
C. CO2 transport and storage							
2. Industrial processes	2.36	2.15	2.37	17.95	21.76	19.17	839.63
A. Mineral industry							
B. Chemical industry	2.00	1.85	2.05	1.81	1.97	1.85	27.89
C. Metal industry	0.36	0.30	0.32	16.15	19.80	17.32	2,817.13
D. Non-energy products from fuels and solvent use	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	
E. Electronic industry							
F. Product uses as ODS substitutes							
G. Other product manufacture and use	NO	NO	NO	NO	NO	NO	
H. Other	NO	NO	NO	NO	NO	NO	
3. Agriculture	127.18	122.68	118.56	118.07	118.89	119.07	-52.77
A. Enteric fermentation	100.14	97.48	95.18	95.38	96.52	96.50	-51.97
B. Manure management	27.04	25.20	23.38	22.69	22.36	22.57	-55.91
C. Rice cultivation	NO	NO	NO	NO	NO	NO	
D. Agricultural soils	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	
F. Field burning of agricultural residues	NO	NO	NO	NO	NO	NO	
G. Liming							
H. Urea application							
I. Other carbon-containing fertilizers							
J. Other	NO	NO	NO	NO	NO	NO	
4. Land use, land-use change and forestry	6.60	5.57	5.89	2.61	2.80	2.59	-43.75
A. Forest land	6.60	5.57	5.89	2.61	2.80	2.59	-43.75
B. Cropland	NO	NO	NO	NO	NO	NO	
C. Grassland	NO	NO	NO	NO	NO	NO	
D. Wetlands	NO	NO	NO	NO	NO	NO	
E. Settlements	NO	NO	NO	NO	NO	NO	
F. Other land	NO	NO	NO	NO	NO	NO	
G. Harvested wood products							
H. Other	NO	NO	NO	NO	NO	NO	
5. Waste	148.51	153.11	160.58	164.31	170.97	178.34	50.53
A. Solid waste disposal	120.39	124.46	128.96	130.22	131.90	132.98	67.96
B. Biological treatment of solid waste	3.64	4.46	7.07	9.51	14.77	21.80	
C. Incineration and open burning of waste	0.00	0.00	0.00	0.00	0.00	0.00	658.87
D. Waste water treatment and discharge	24.49	24.19	24.55	24.57	24.29	23.57	-40.05
E. Other	NO	NO	NO	NO	NO	NO	
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	
Total CH4 emissions without CH4 from LULUCF	512.03	496.74	504.59	519.63	524.44	497.06	-41.01
Total CH4 emissions with CH4 from LULUCF	518.63	502.32	510.48	522.24	527.24	499.65	-41.03
Memo items:							
International bunkers	0.01	0.01	0.01	0.01	0.01	0.01	62.89
Aviation	0.01	0.01	0.01	0.01	0.01	0.01	62.89
Navigation	NO	NO	NO	NO	NO	NO	
Multilateral operations	NO	NO	NO	NO	NO	NO	
CO2 emissions from biomass							
CO2 captured							
Long-term storage of C in waste disposal sites							
Indirect N2O							
Indirect CO2 (3)							

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change an

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

Emission trends (N_2O)

(Sheet 1 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[a]	1990	1991	1992	1993	1994	1995	1996	1997
	kt								
1. Energy	2.61	2.61	2.37	2.37	2.33	2.36	2.43	2.59	2.59
A. Fuel combustion (sectoral approach)	2.61	2.61	2.37	2.37	2.33	2.36	2.43	2.59	2.59
1. Energy industries	0.77	0.77	0.75	0.74	0.74	0.75	0.85	0.89	0.84
2. Manufacturing industries and construction	0.62	0.62	0.53	0.56	0.47	0.40	0.30	0.29	0.29
3. Transport	0.72	0.72	0.65	0.74	0.75	0.86	0.96	1.12	1.18
4. Other sectors	0.50	0.50	0.45	0.34	0.37	0.36	0.32	0.29	0.28
5. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Fugitive emissions from fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Solid fuels	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA
2. Oil and natural gas and other emissions from energy production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. CO2 transport and storage									
2. Industrial processes	4.47	4.47	3.20	3.81	3.11	3.77	4.21	4.07	4.18
A. Mineral industry									
B. Chemical industry	3.77	3.77	2.51	3.12	2.41	3.08	3.51	3.38	3.48
C. Metal industry	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Non-energy products from fuels and solvent use	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
3. Agriculture	27.62	27.62	24.40	21.16	18.77	17.43	17.51	16.96	19.15
A. Enteric fermentation									
B. Manure management	10.00	10.00	9.53	8.72	7.85	6.94	6.49	6.67	8.84
C. Rice cultivation									
D. Agricultural soils	17.62	17.62	14.87	12.44	10.92	10.49	11.02	10.29	10.31
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Liming									
H. Urea application									
I. Other carbon containing fertlizers									
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
4. Land use, land-use change and forestry	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07
A. Forest land	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.04	0.04
B. Cropland	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.01
C. Grassland	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Other land	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Harvested wood products									
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Waste	0.79	0.79	0.69	0.65	0.69	0.66	0.69	0.71	0.69
A. Solid waste disposal									
B. Biological treatment of solid waste	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO
C. Incineration and open burning of waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D. Waste water treatment and discharge	0.79	0.79	0.69	0.65	0.69	0.66	0.69	0.71	0.69
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total direct N2O emissions without N2O from LULUCF	35.48	35.48	30.67	27.99	24.90	24.22	24.84	24.34	26.61
Total direct N2O emissions with N2O from LULUCF	35.57	35.57	30.75	28.07	24.98	24.30	24.91	24.41	26.68
Memo items:									
International bunkers	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Aviation	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Navigation	NO	NO	NO	NO	NO	NO	NO	NO	NO
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 emissions from biomass									
CO2 captured									
Long-term storage of C in waste disposal sites									
Indirect N2O	11.08	11.08	10.17	9.33	8.62	6.86	6.72	6.64	6.75
Indirect CO2 (3)									

Note: All footnotes for this table are given on sheet 3.

Emission trends (N_2O)

(Sheet 2 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1998*	1999	2000	2001	2002	2003	2004	2005	2006	2007
1. Energy	2.63	2.72	2.91	3.06	3.18	3.49	3.64	3.76	3.81	3.99
A. Fuel combustion (sectoral approach)	2.63	2.72	2.91	3.06	3.18	3.49	3.64	3.76	3.81	3.99
1. Energy industries	0.82	0.79	0.84	0.87	0.85	0.87	0.88	0.86	0.85	0.92
2. Manufacturing industries and construction	0.26	0.22	0.27	0.24	0.25	0.22	0.22	0.25	0.25	0.24
3. Transport	1.27	1.43	1.50	1.65	1.80	2.08	2.20	2.34	2.37	2.49
4. Other sectors	0.27	0.27	0.28	0.29	0.26	0.30	0.31	0.29	0.31	0.31
5. Other	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.02	0.03
B. Fugitive emissions from fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Solid fuels	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA
2. Oil and natural gas and other emissions from energy production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. CO2 transport and storage										
2. Industrial processes	4.42	3.78	4.19	4.15	3.70	3.70	4.10	3.92	3.59	3.11
A. Mineral industry										
B. Chemical industry	3.73	3.09	3.50	3.46	3.01	3.00	3.41	3.23	2.90	2.42
C. Metal industry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Non-energy products from fuels and solvent use	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA
E. Electronic industry										
F. Product uses as ODS substitutes										
G. Other product manufacture and use	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
3. Agriculture	16.06	16.17	15.73	15.84	15.40	14.18	14.77	14.13	13.97	14.18
A. Enteric fermentation										
B. Manure management	6.16	6.23	5.86	5.67	5.50	5.30	5.09	4.87	4.80	4.76
C. Rice cultivation										
D. Agricultural soils	9.89	9.94	9.87	10.16	9.90	8.88	9.68	9.26	9.16	9.43
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Liming										
H. Urea application										
I. Other carbon containing fertlizers										
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4. Land use, land-use change and forestry	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.09
A. Forest land	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.06
B. Cropland	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
C. Grassland	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Other land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Harvested wood products										
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Waste	0.72	0.68	0.67	0.68	0.69	0.69	0.71	0.85	0.82	0.85
A. Solid waste disposal										
B. Biological treatment of solid waste	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	0.12	0.10	0.14
C. Incineration and open burning of waste	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
D. Waste water treatment and discharge	0.71	0.67	0.66	0.68	0.68	0.68	0.70	0.73	0.70	0.70
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total direct N2O emissions without N2O from LULUCF	23.83	23.35	23.50	23.74	22.97	22.05	23.22	22.66	22.19	22.14
Total direct N2O emissions with N2O from LULUCF	23.90	23.42	23.56	23.80	23.04	22.13	23.29	22.73	22.26	22.22
Memo items:										
International bunkers	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Aviation	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Navigation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 emissions from biomass										
CO2 captured										
Long-term storage of C in waste disposal sites										
Indirect N2O	6.30	6.13	6.10	5.80	5.69	5.49	5.56	5.10	5.13	5.18
Indirect CO2 (3)										

Note: All footnotes for this table are given on sheet 3.

Emission trends (N_2O)

(Sheet 3 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2008*	2009	2010	2011	2012	2013	Change from base to latest reported year
							%
1. Energy	3.87	3.79	3.68	3.66	3.56	3.48	33.47
A. Fuel combustion (sectoral approach)	3.87	3.79	3.68	3.66	3.56	3.48	33.47
1. Energy industries	0.86	0.81	0.89	0.88	0.86	0.82	6.32
2. Manufacturing industries and construction	0.23	0.24	0.18	0.19	0.18	0.18	-71.05
3. Transport	2.44	2.40	2.26	2.24	2.17	2.12	195.32
4. Other sectors	0.30	0.30	0.32	0.31	0.32	0.34	-32.30
5. Other	0.03	0.03	0.03	0.04	0.03	0.03	
B. Fugitive emissions from fuels	0.00	0.00	0.00	0.00	0.00	0.00	213.57
1. Solid fuels	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	
2. Oil and natural gas and other emissions from energy production	0.00	0.00	0.00	0.00	0.00	0.00	213.57
C. CO2 transport and storage							
2. Industrial processes	3.02	2.52	2.09	2.24	2.27	1.71	-61.69
A. Mineral industry							
B. Chemical industry	2.27	1.77	1.34	1.49	1.52	0.96	-74.54
C. Metal industry	NA	NA	NA	NA	NA	NA	
D. Non-energy products from fuels and solvent use	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	
E. Electronic industry							
F. Product uses as ODS substitutes							
G. Other product manufacture and use	0.75	0.75	0.75	0.75	0.75	0.75	8.38
H. Other	NO	NO	NO	NO	NO	NO	
3. Agriculture	14.43	13.56	13.34	13.63	13.50	13.93	-49.58
A. Enteric fermentation							
B. Manure management	4.60	4.28	4.21	4.05	3.98	4.01	-59.93
C. Rice cultivation							
D. Agricultural soils	9.83	9.28	9.14	9.58	9.52	9.92	-43.70
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	
F. Field burning of agricultural residues	NO	NO	NO	NO	NO	NO	
G. Liming							
H. Urea application							
I. Other carbon containing fertlizers							
J. Other	NO	NO	NO	NO	NO	NO	
4. Land use, land-use change and forestry	0.08	0.07	0.07	0.05	0.05	0.05	-42.94
A. Forest land	0.05	0.04	0.04	0.02	0.02	0.02	-43.75
B. Cropland	0.02	0.02	0.02	0.02	0.02	0.02	-42.49
C. Grassland	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	
D. Wetlands	NO	NO	NO	NO	NO	NO	
E. Settlements	NO	NO	NO	NO	NO	NO	
F. Other land	NO	NO	NO	NO	NO	NO	
G. Harvested wood products							
H. Other	NO	NO	NO	NO	NO	NO	
5. Waste	0.91	0.85	0.90	0.86	0.86	0.83	5.34
A. Solid waste disposal							
B. Biological treatment of solid waste	0.20	0.15	0.19	0.17	0.16	0.13	
C. Incineration and open burning of waste	0.01	0.01	0.01	0.01	0.01	0.01	658.87
D. Waste water treatment and discharge	0.70	0.69	0.70	0.68	0.68	0.68	-13.01
E. Other	NO	NO	NO	NO	NO	NO	
6. Other (as specified in the summary table in CRF)	NO	NO	NO	NO	NO	NO	
Total direct N2O emissions without N2O from LULUCF	22.23	20.73	20.02	20.39	20.18	19.95	-43.78
Total direct N2O emissions with N2O from LULUCF	22.31	20.80	20.09	20.44	20.23	20.00	-43.78
Memo items:							
International bunkers	0.03	0.03	0.03	0.03	0.03	0.02	63.30
Aviation	0.03	0.03	0.03	0.03	0.03	0.02	63.30
Navigation	NO	NO	NO	NO	NO	NO	
Multilateral operations	NO	NO	NO	NO	NO	NO	
CO2 emissions from biomass							
CO2 captured							
Long-term storage of C in waste disposal sites							
Indirect N2O	5.05	4.74	4.62	4.54	4.46	8.11	-26.76
Indirect CO2 (3)							

Abbreviations : CRF = common reporting format, LULUCF = land use, land-use change an

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

Emission trends (HFCs, PFCs and SF_6)
(Sheet 1 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*Base year* [a]	1990	1991	1992	1993	1994	1995	1996	1997
	kt								
Emissions of HFCs and PFCs - (kt CO2 equivalent)	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	0.24	35.15	100.64
Emissions of HFCs - (kt CO2 equivalent)	NO	NO	NO	NO	NO	NO	0.23	34.68	99.06
HFC-23	NO	NO	NO	NO	NO	NO	NO	NO	0.00
HFC-32	NO	NO	NO	NO	NO	NO	NO	NO	0.00
HFC-41	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-43-10mee	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-125	NO	NO	NO	NO	NO	NO	NO	0.00	0.00
HFC-134	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-134a	NO	NO	NO	NO	NO	NO	0.00	0.02	0.05
HFC-143	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-143a	NO	NO	NO	NO	NO	NO	NO	0.00	0.00
HFC-152	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-152a	NO	NO	NO	NO	NO	NO	NO	0.00	0.00
HFC-161	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-227ea	NO	NO	NO	NO	NO	NO	NO	0.00	0.00
HFC-236cb	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-236ea	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-236fa	NO	NO	NO	NO	NO	NO	NO	NO	0.00
HFC-245ca	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-245fa	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-365mfc	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of HFCs(4) - (kt CO_2 equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Emissions of PFCs - (kt CO2 equivalent)	NO	NO	NO	NO	NO	NO	0.01	0.48	1.58
CF_4	NO	NO	NO	NO	NO	NO	NO	NO	0.00
C_2F_6	NO	NO	NO	NO	NO	NO	NO	NO	NO
C_3F_8	NO	NO	NO	NO	NO	NO	0.00	0.00	0.00
C_4F_{10}	NO	NO	NO	NO	NO	NO	NO	NO	NO
c-C_4F_8	NO	NO	NO	NO	NO	NO	NO	NO	NO
C_5F_{12}	NO	NO	NO	NO	NO	NO	NO	NO	NO
C_6F_{14}	NO	NO	NO	NO	NO	NO	NO	NO	NO
C10F18	NO	NO	NO	NO	NO	NO	NO	NO	NO
c-C3F6	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of PFCs(4) - (kt CO_2 equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of HFCs and PFCs - (kt CO2 equivalent)	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE
Emissions of SF6 - (kt CO2 equivalent)	15.68	15.68	15.60	15.78	15.95	16.11	16.28	25.19	22.79
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions of NF3 - (kt CO2 equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO
NF3	NO	NO	NO	NO	NO	NO	NO	NO	NO

Note: All footnotes for this table are given on sheet 3.

Emission trends (HFCs, PFCs and SF_6)
(Sheet 2 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1998*	1999	2000	2001	2002	2003	2004	2005	2006	2007
Emissions of HFCs and PFCs - (kt CO2 equivalent)	135.90	148.93	208.63	317.14	416.56	518.63	617.17	718.05	972.87	1,317.45
Emissions of HFCs - (kt CO2 equivalent)	134.36	148.10	204.66	309.36	402.50	511.65	606.87	706.22	945.84	1,292.53
HFC-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07
HFC-41	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-43-10mee	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-125	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.07	0.11
HFC-134	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-134a	0.07	0.06	0.08	0.12	0.16	0.20	0.25	0.29	0.35	0.43
HFC-143	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-143a	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.05
HFC-152	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-152a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-161	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-227ea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-236cb	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-236ea	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-236fa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-245ca	NO	NO	NO	NO	NO	NO	0.00	0.00	0.00	0.00
HFC-245fa	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-365mfc	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of HFCs(4) - (kt CO_2 equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Emissions of PFCs - (kt CO2 equivalent)	1.54	0.83	3.97	7.79	14.06	6.99	10.30	11.83	27.03	24.92
CF_4	0.00	0.00	0.00	0.00	0.00	NO	NO	NO	0.00	0.00
C_2F_6	NO	NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_3F_8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_4F_{10}	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
c-C_4F_8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C_5F_{12}	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C_6F_{14}	NO	NO	NO	NO	NO	0.00	0.00	0.00	0.00	0.00
C10F18	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
c-C3F6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of PFCs(4) - (kt CO_2 equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of HFCs and PFCs - (kt CO2 equivalent)	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE
Emissions of SF6 - (kt CO2 equivalent)	21.37	23.75	37.93	28.76	49.88	73.22	50.53	47.16	30.83	24.37
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions of NF3 - (kt CO2 equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NF3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Note: All footnotes for this table are given on sheet 3.

Emission trends (HFCs, PFCs and SF_6)
(Sheet 3 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2008*	2009	2010	2011	2012	2013	Change from base to latest reported year
							%
Emissions of HFCs and PFCs - (kt CO2 equivalent)	1,558.81	1,693.39	2,004.65	2,250.73	2,435.93	2,672.61	
Emissions of HFCs - (kt CO2 equivalent)	1,524.96	1,654.24	1,962.06	2,240.49	2,427.74	2,666.73	
HFC-23	0.00	0.00	0.00	0.00	0.00	0.00	
HFC-32	0.10	0.11	0.14	0.17	0.19	0.21	
HFC-41	NO	NO	NO	NO	NO	NO	
HFC-43-10mee	NO	NO	NO	NO	NO	NO	
HFC-125	0.15	0.16	0.20	0.24	0.26	0.29	
HFC-134	NO	NO	NO	NO	NO	NO	
HFC-134a	0.48	0.51	0.58	0.64	0.69	0.76	
HFC-143	NO	NO	NO	NO	NO	NO	
HFC-143a	0.05	0.06	0.07	0.07	0.08	0.09	
HFC-152	NO	NO	NO	NO	NO	NO	
HFC-152a	0.00	0.00	0.00	0.00	0.00	0.00	
HFC-161	NO	NO	NO	NO	NO	NO	
HFC-227ea	0.00	0.00	0.00	0.00	0.00	0.00	
HFC-236cb	NO	NO	NO	NO	NO	NO	
HFC-236ea	NO	NO	NO	NO	NO	NO	
HFC-236fa	0.00	0.00	0.00	0.00	0.00	0.00	
HFC-245ca	0.00	0.00	0.00	0.00	0.00	0.00	
HFC-245fa	NO	NO	NO	NO	NO	NO	
HFC-365mfc	NO	NO	NO	NO	NO	NO	
Unspecified mix of HFCs(4) - (kt CO_2 equivalent)	NO	NO	NO	NO	NO	NO	
Emissions of PFCs - (kt CO2 equivalent)	33.85	39.15	42.59	10.24	8.19	5.88	
CF_4	0.00	0.00	NO	NO	NO	NO	
C_2F_6	0.00	0.00	0.00	0.00	0.00	0.00	
C_3F_8	0.00	0.00	0.00	0.00	0.00	0.00	
C_4F_{10}	NO	NO	NO	NO	NO	NO	
c-C_4F_8	NO	NO	NO	NO	NO	NO	
C_5F_{12}	NO	NO	NO	NO	NO	NO	
C_6F_{14}	0.00	0.00	0.00	0.00	0.00	0.00	
C10F18	NO	NO	NO	NO	NO	NO	
c-C3F6	NO	NO	NO	NO	NO	NO	
Unspecified mix of PFCs(4) - (kt CO_2 equivalent)	NO	NO	NO	NO	NO	NO	
Unspecified mix of HFCs and PFCs - (kt CO2 equivalent)	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	NO, IE	
Emissions of SF6 - (kt CO2 equivalent)	25.06	28.97	15.00	21.11	25.09	28.98	84.91
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	84.91
Emissions of NF3 - (kt CO2 equivalent)	NO	NO	NO	NO	1.80	3.82	
NF3	NO	NO	NO	NO	0.00	0.00	

Abbreviations : CRF = common reporting format, LULUCF = land use, land-use change and forestry.

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

[c]Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO2 equivalent emissions.

[d]In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories", HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is kt of CO2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.)

Table 2(a) CZE_BR2_v0.1

Description of quantified economy-wide emission reduction target: base year[a]

Party	*Czech Republic*	
Base year /base period	1990	
Emission reduction target	% of base year/base period	% of 1990 [b]
	20.00%	20.00%
Period for reaching target	BY-2020	

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Optional.

Table 2(b) CZE_BR2_v0.1

Description of quantified economy-wide emission reduction target: gases and sectors covered[a]

Gases covered		*Base year for each gas (year):*
CO_2		1990
CH_4		1990
N_2O		1990
HFCs		1995
PFCs		1995
SF_6		1995
NF_3		1995
Other Gases (specify)		
Sectors covered[b]	Energy	Yes
	Transport[f]	Yes
	Industrial processes[g]	Yes
	Agriculture	Yes
	LULUCF	No
	Waste	Yes
	Other Sectors (specify)	

Abbreviations : LULUCF = land use, land-use change and forestry.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] More than one selection will be allowed. If Parties use sectors other than those indicated above, the explanation of how these sectors relate to the sectors defined by the IPCC should be provided.

[f] Transport is reported as a subsector of the energy sector.

[g] Industrial processes refer to the industrial processes and solvent and other product use sectors.

Table 2(c) CZE_BR2_v0.1

Description of quantified economy-wide emission reduction target: global warming potential values (GWP)[a]

Gases	*GWP values* [b]
CO_2	4th AR
CH_4	4th AR
N_2O	4th AR
HFCs	4th AR
PFCs	4th AR
SF_6	4th AR
NF_3	4th AR
Other Gases (specify)	

Abbreviations : GWP = global warming potential

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Please specify the reference for the GWP: Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) or the Fourth Assessment Report of the IPCC.

Table 2(d) CZE_BR2_v0.1

Description of quantified economy-wide emission reduction target: approach to counting emissions and removals from the LULUCF sector[a]

Role of LULUCF	LULUCF in base year level and target	Excluded
	Contribution of LULUCF is calculated using	

Abbreviation : LULUCF = land use, land-use change and forestry.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

Table 2(e)I CZE_BR2_v0.1

Description of quantified economy-wide emission reduction target: market-based mechanisms under the Convention[a]

Market-based mechanisms under the Convention	*Possible scale of contributions (estimated kt CO_2 eq)*
CERs	NE
ERUs	NE
AAUs[i]	NE
Carry-over units[j]	NE
Other mechanism units under the Convention (specify)[d]	

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction, ERU = emission reduction unit.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[d] As indicated in paragraph 5(e) of the guidelines contained in annex I of decision 2/CP.17.

[i] AAUs issued to or purchased by a Party.

[j] Units carried over from the first to the second commitment periods of the Kyoto Protocol, as described in decision 13/CMP.1 and consistent with decision 1/CMP.8.

Table 2(e)II CZE_BR2_v0.1

Description of quantified economy-wide emission reduction target: other market-based mechanisms[a]

Other market-based mechanisms (Specify)	*Possible scale of contributions (estimated kt CO_2 eq)*

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

Description of quantified economy-wide emission reduction target: any other information [a,b]

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] This information could include information on the domestic legal status of the target or the total assigned amount of emission units for the period for reaching a target. Some of this information is presented in the narrative part of the biennial report.

Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects

Name of mitigation action[a]	*Sector(s) affected*[b]	*GHG(s) affected*	*Objective and/or activity affected*	*Type of instrument*[c]	*Status of implementation*[d]	*Brief description*[e]	*Start year of implementation*	*Implementing entity or entities*	*Estimate of mitigation impact (not cumulative, in kt CO_2 eq)*	
									2012	*2020*
Program PANEL/NEW PANEL/PANEL 2013 +*	Energy	CO_2	Efficiency improvements of buildings	Economic	Implemented	The programme offers credit guarantees and subsidy to credit interest for credits for retrofits of panel houses.	2001	State Housing Fund		225
State programme for the support of energy savings and use of renewable energy sources*	Energy	CO_2	Efficiency improvements of buildings, Efficiency improvement in services/ tertiary sector, Efficiency improvement of appliances, Efficiency improvement in industrial end-use sectors, Increase in renewable energy	Economic	Implemented	The programme financially supports energy savings, the increase of energy effectiveness and the use of renewable energy sources. It is a cross-cutting plan at a national level with sectorial structure; the target areas are the state administration and local governments, private sector, households and NGO's This programme also provides information on energy efficiency issues (guidebooks, seminars, energy efficiency consulting centres etc. In detail the program supports the following activities: • Measures to reduce the energy intensity of public street lighting; • the reconstruction of a heating system and the heat generation in a building; • energy consulting provided by energy consulting and information centres; • courses and seminars about the energy sector; • publications, guides and informative materials about the energy sector; • the introduction of an energy management system; • the preparation of energy-saving projects financed using the EPC method.	2000	Ministry of Industry and Trade		55
IPPC*	Energy	CO_2	Installation of abatement technologies, Reduction of emissions of fluorinated gases	Regulatory	Implemented	The IPPC directive sets among others emission limits of pollutants and requires use of the best avaliable technologies (BAT).	2003	Ministry of Environment		2600

Preferential feed-in tariffs for electricity produced from renewable energy sources*	Energy	CO_2	Increase in renewable energy Switch to less carbon-intensive fuels	Regulatory	Implemented	This is the principal measure for support of RES use in power generation. The law defines minimal feed-in tariffs for electricity produced from RES and garantees its long-term validity and obligation of distributors to connect sources using RES and purchase the electricity from RES.	2004	Energy Regulatory Authority	3242
Directive on energy performance of buildings*	Energy	CO_2	Efficiency improvements of buildings	Regulatory	Implemented	The measure stipulates minimum requirements as regards the energy performance of new and existing buildings, requires the certification of their energy performance and the regular inspection of boilers and air conditioning systems in buildings.	2002	Constuction industries.	406
Implementation of directive on co-generation*	Energy	CO_2	Efficiency improvement in the energy and transformation sector	Regulatory	Implemented	Distibution companies are oblidged to connect CHPs to the grid and to purchase the produced electricity. Moreover, there is a preferential feed-in tariff for electricity from CHPs.	2005	Energy Regulatory Authority	90.00
Operational Programme Industry and Enterprise (OPIE)*	Industry/industrial processes	CO_2	Increase in renewable energy, Reduction of losses.	Economic	Implemented	The programme which was offering subsidies enterprises and industries. It comprised promotion of energy efficiency and use of RES in enterprises. It is superseded by the Operational programme Enterprise and innovation.	2004	Ministry of Industry and Trade	17.00
Operational Programme Enterprise and Innovation*	Industry/industrial processes	CO_2	Reduction of losses, Increase in renewable energy, Efficiency improvement in the energy and transformation sector.	Economic|Research|Education	Implemented	The main programme offering subsidies enterprises and industries. It comprises promotion of energy efficiency and use of RES in enterprises. It replaces the Operational programme Industry and enterprise.	2007	Ministry of Industry and Trade	639.00
Operational Programme Environment 2007-2013*	Energy, Industry/industrial processes, Waste management/waste	CO_2	Promotion of energy savings and use of RES.	Economic	Implemented	The main programme offers subsidies for environment protection. It comprises promotion of energy efficiency and use of RES mainly in the Commercial/Institutional sector (1A4a).	2007	State Environmental Fund	181.00

Green savings programme 2010-2012*	Energy	CO_2	Efficiency improvements of buildings, Increase in renewable energy	Other (Regulatory)	Implemented	The programme is financed from sold emission allowances. It supports, through investment subsidies, construction of low-energy family houses in passive standard, full or partial insulation of existing houses and introduction of RES for water heating.	2010	State Environmental Fund	274.00
Improvement of the fuel quality *	Transport, Energy	CO_2	Reduction of the greenhouse gas intensity of energy supplied for road transport	Regulatory	Implemented	A requirement on fuel suppliers to reduce the greenhouse gas intensity of energy supplied for road transport (Low Carbon Fuel Standard). Ban on leaded petrol, reduction of sulphur content in petrol and diesel. This measure belongs under the common EU policy "Transport: Fuel Quality Directive 2009/30/EC amending 1998/70/EC"	2000	Ministry of Environment	266.00
Emission limits on new cars*	Transport	CO_2	Efficiency improvements of vehicles	Regulatory	Implemented	New vehicles must meet European emission starndards. New cars have to fulfil binding CO2 emission limits. The measure leads to decrease of energy consumption (more efficient engines with lower fuel consumption - mainly diesel cars) and consequently to reduction of pullutants emissions.	2000	Ministry of Environment	152.00
Rural Development Program (2007-2013)*	Agriculture, Forestry/LULUCF	CH_4, N_2O	Reduction of fertilizer/manure use on cropland, Improved management of organic soils, Afforestation and reforestation.	Other (Regulatory)	Implemented	Improving the competitiveness of the agricultural, food and forestry sectors falls within the first group of measures;Increasing biodiversity, water and soil protection and mitigating climate change is a joint objective of the second group of measures; Improving the quality of life in rural areas and to encourage the diversification of economic activities there; Helping the residents of rural micro-regions (applying the “from bottom to top” principle) to work out their local development strategy and to support the projects concerning development of the region they live in, the so called LEADER method.	2007	Ministry of Agriculture	NA
Horizontal Rural Development *	Agriculture, Forestry/LULUCF	CH_4, N_2O	Reduction of fertilizer/manure use on cropland, Other activities improving cropland management, Improved livestock management.	Regulatory	Implemented	The main goals: i) preservation and support of the agricultural system with low inputs, ii) protection and support of sustainable agriculture meeting environmental demands and iii) preservation and strengthening of a viable social structure in rural areas	2004	Ministry of Agriculture	NA

Action Plan for Development of Organic farming *		Agriculture	CH_4, N_2O	Reduction of fertilizer/manure use on cropland, Other activities improving cropland management, Improved livestock management.	Economic	Implemented	Organic farming is an integral part of the agricultural policy of the Czech Republic. Its importance lies not only in the production of good-quality bio-foodstuffs but also in the farming methods that, through their environmentally friendly influence on nature, contribute substantially to the preservation of the rural character of the countryside An important benefit lies in reduction of nitrate leaching, retention of N in biomass before the onset of winter, increased biodiversity, creating a suitable environment for beneficial organisms and effects on plant health. The state administers support for organic farmers through subsidies.	2011	Ministry of Agriculture	250.00
Measures on vehicles - devices for gas adjustment *		Transport	N_2O, CH_4	Improved behaviour, reduction of emissions	Other (Regulatory)	Implemented	This measure involves: 3-way controlled catalytic converters, oxidation catalysts, recirculation of the exhaust gases, snatcher of the elements; lower fuel consumption Besides air pollutants, the gas propulsion also reduce CO2 emissions (and significantly the methane emissions).	2000	Ministry of Environment	498.00
Economic and tax tools*		Cross-cutting	CO_2	Efficiency improvements of vehicles Modal shift to public transport or non-motorized transport	Other (Fiscal)	Implemented	Charging the use of the transport infrastructure, road tax reduction for the "purer" vehicles, excise tax on fuel encouraging alternative fuels (lower tax or tax free - e.g. compressed natural gas, biofuels) and supporting of the use of smaller vehicles with lower CO2 emissions. This measure has also indirect effect on efficiency.	2000	Ministry of Finance	332.00
Increase of the public transport attractiveness*		Transport	CO_2	Modal shift to public transport or non-motorized transport, Improved behaviour.	Economic	Implemented	Introduction of the integrated transport system (IDS; e.g. an integration and cooperation of bus, tram and railway transportation including unified pricing policy), increasing comfort for travellers (low ground clearance of vehicles, air conditioning, cleanness, short transfers from one platform to another), preference of the public transport vehicles (e.g. extra lanes for buses). These measures support a shift to public transport, lower use of cars and lower CO2 em. The main aim is to increase public transport share in the Czech Republic.	2000	Municipalities	636.00

Combined transportation support*	Transport	CO_2	Modal shift to public transport or non-motorized transport, Improved behaviour, Improved transport infrastructure.	Other (Other (Planning))	Planned	Introduction of "Park and Ride" systém, combined freight systems. Diversion from car transport and supporting of freight transports (e.g. railway t.) other than truck transport.	2000	Ministry of transport, State Fund of Transport Infrastructure	498.00
Mobility management*	Transport	CO_2	Demand management/reduction, Modal shift to public transport or non-motorized transport	Information	Planned	The tools of the management mobility are based on information, communication, organization and coordination. The constitution of the mobility management responded to the need of such approaches in the solution of the oppressive problem of considerably increasing mobility demand which simply do not rely on new road construction or introduction of the advanced technologies.	2000	Ministry of transport, State Fund of Transport Infrastructure	415.00
Environmental education, education and enlightenment at primary and secondary schools on "ecological transport"*	Transport	CO_2	Improved behaviour Modal shift to public transport or non-motorized transport	Other (Regulatory)	Implemented	Ecological education has been already established as a subject at primary schools. Unfortunately, it is still rather a marginal subject and its content is often still inadequate to the issue which should be solved by it. It is caused by the fact that there is no sufficient education of the ecological subjects at faculties of education where the so called environmental minimum has failed to be enforced.	2000	Municipalities	221.00
Eco-labelling*	Agriculture, Industry/industrial processes, Waste management/waste	CO_2, CH_4, N_2O	Improved behaviour	Information	Implemented	To provide with information about CO2 emissions of new cars in the sale point. All sales point in the Czech Republic are equipped with cards with detailed informations about CO2 emissions including coloured labelling.	2000	Ministry of Environment	166.00
Integration of public in the transport projects*	Transport	CO_2	Improved transport infrastructure, Modal shift to public transport or non-motorized transport	Information	Implemented	Improve function of transport systems by wider involvment of public in the decision making process.	2000	Ministry of transport/Municipalities	608.00

Eco-driving*	Transport	CO_2	Demand management/reduction, Improved behaviour	Education	Implemented	Organisation of an international campaign in order to learn drivers to drive more economically and safely.	2000	Ministry of transport	277.00
Territorial planned measures*	Transport	CO_2	Demand management/reduction Improved transport infrastructure	Other (Planning)	Implemented	With help of the quality of territorial plans it is possible to achieve the reduction of travelling needs and length of journeys by the automobile transport (by building residential locations with job opportunities), changes transported labour division in favour of ecologically more friendly types of transport (for example quick line construction of public transport) and last but not least, traffic diversion from places where the population is directly exposed to emissions and noise from automobiles (planning of new roads, city and community bypasses, etc.).	2000	Ministry of transport, State Fund of Transport Infrastructure	387.00
Waste management plan (2003) Government Regulation No. 197/2003*	Waste management/waste, Energy	CH_4, CO_2	Increase in renewable energy Demand management / reduction Enhanced CH4 collection and use, Enhanced recycling, Improved landfill management, Waste incineration with energy use, Reduced landfilling.	Regulatory|Economic|Fiscal	Implemented	Integrated framework document for waste management in the country. This is the main programme document of the Czech Republic regarding the waste sector. Since it is already outdated, a new version of the programme is under preparation now. The main targets are increasing the recovery of wastes with preference given to recycling, with a statutory target of 55% of all waste produced by year 2012, increasing the recovery of municipal waste to 50 % by 2010, decreasing of the maximum amount of biologically degradable municipal wastes (BDMW) deposited on landfills according to the Landfill Directive 99/31/EC, the preference for composting and anaerobic decomposition of biodegradable wastes with the use of the final product particularly in agriculture, in land reclamation and landscaping. Only wastes that cannot be used in this manner should be processed to produce substitute fuel or used anyway for energy production.	2003	Ministry of Environment	136.00

Waste management plan 2015-2024*		Waste management/waste, Energy	CH_4, CO_2	Increase in renewable energy, Demand management / reduction, Enhanced recycling, Improved treatment technologies, Reduced landfilling, Enhanced CH4 collection and use, Improved wastewater management systems,	Regulatory|Economic|Fiscal|Other (Planning)	Implemented	This is a document governs whole waste management in the country. Sets preferences for management practice. Offers prognosis for waste development. This plan focuses on waste prevention, aims at a higher share of recycling (50% for paper, plastic, glass and metal wastes), compulsory separation of biologically degradable communal waste to reach the limit of maximal 35% going to landfill from the total biologically degradable communal waste.	2015	Ministry of Environment	388.00
EU ETS*		Energy, Transport, Industry/industrial processes, Cross-cutting	CO_2	Increase in renewable energy, Efficiency improvement in the energy and transformation sector, Demand management/reduction, Multi-sectoral policy.	Other (Fiscal)	Implemented	The decisive instrument to decrease emissions of greenhouse gases from big sources.	2005	Ministry of Environment	3,230.00
Support of voluntary commitments to energy savings*		Energy, Transport, Industry/industrial processes	CO_2	Efficiency improvements of buildings, Efficiency improvement in services/ tertiary sector, Demand management/reduction, Efficiency improvements of vehicles, Efficiency improvement in industrial end-use sectors	Other (Voluntary Agreement)	Implemented	Tax allowances, where applicable, possibility to draw the grants for energy end-users, who commit themselves to meet a certain reduction in energy efficiency (or absolute reduction in energy consumption or CO2 emissions).	2015	Ministry of Industry and Trade	318.00

Energy labelling of household electrical appliances*	Energy	CO_2	Efficiency improvement of appliances	Other (Economic)	Implemented	A thorough inspection of energy labelling of appliances in shops, checking the information content of labels by testing the electrical appliances; Financial support for information campaigns promoting energy-saving electrical appliances	2001	Ministry of Industry and Trade	281.00
Support to housing fund modernization using the building saving*	Energy	CO_2	Efficiency improvements of buildings	Economic	Implemented	Offer of advantageous method of state-subsidised savings and the possibility of obtaining a soft loan (or bridging loan) for housing needs of natural persons	1995	Ministry of Finance	370.00
Energy Star*	Energy	CO_2	Efficiency improvement of appliances	Information	Implemented	Promoting the selection of office appliances in bulk purchases; information support for all categories of consumers	2006	Ministry of Industry and Trade	34.00
Eco-design*	Energy	CO_2	Efficiency improvement of appliances	Regulatory	Implemented	The directive imposes among others energy efficiency requirements to products from the early stage on the design phase in order to decrease energy consumption and impacts on the climate and environment. The whole product life cycle should be regarded in an integrated perspective. Among others, energy consumption of the whole product's life cycle should be taken into consideration.	2007	Ministry of Industry and Trade	102.00
Minimum share of biofuels*	Transport, Energy	CO_2	Low carbon fuels/electric cars	Regulatory	Implemented	Reduction of CO2 emissions using biofuels in transport. The measure stipulates minimal shares of biofuels on the market with automotive fuels. The act on protection of the air 201/2012 Coll. sets the minimal shares of biofuels in gasoline and diesel (10% of the final consumption in 2020) in accordance with the EU directive. Government Decree 351/2012 Coll. sets sustainability criteria of biofuels.	2006	Ministry of Industry and Trade	817.00
Recast of the Directive on energy performance of buildings*	Energy	CO_2	Efficiency improvements of buildings	Other (Information)	Implemented	The measure stipulates minimum requirements as regards the energy performance of new and existing buildings, requires the certification of their energy performance and the regular inspection of boilers and air conditioning systems in buildings.	2011	Ministry of Industry and Trade	312.00

Regulation on CO2 from light-commercial vehicles*	Transport	CO_2	Efficiency improvements of vehicles	Regulatory	Implemented	To decrease emissions from vans. The main objective of the vans Regulation is to cut CO2 emissions from vans to 175 grams of CO2 per kilometer by 2017, phasing in the reduction from 2014, and to reach 147g CO2/km by 2020. These cuts represent reductions of 14 % and 28 % respectively compared with the 2007 average of 203 g/km. The legislation affects vans, which account for around 12 % of the market for light-duty vehicles. This includes vehicles used to carry goods weighing up to 3.5 t (vans and car-derived vans, known as "N1") and which weigh less than 2610 kg when empty.	2011	Ministry of environment	486.00
Ecological Tax Reform*	Energy, Transport	CO_2	Switch to less carbon-intensive fuels, Efficiency improvement in the energy and transformation sector, Increase in renewable energy, Efficiency improvement in industrial end-use sectors, Modal shift to public transport or non-motorized transport, Demand management/reducti on.	Fiscal	Implemented	The measure stipulates consumers' tax on energy carriers more or less exactly equal to minimal levels required by the EU directive.	2007	Ministry of Finance	127.00

Clean air act		Cross-cutting	CO_2, CH_4, N_2O	Framework policy	Regulatory	Implemented	The law introduces National programme for abatement of climate change of Earth. The law sets among other things emission limits and reduction targets and deadlines for substances influencing the climate system. There is also an obligation of operators of large plants above 5 MW to keep emission limits and to submit data on substances influencing climate system. The act is accompanied by a row of further legal documents setting emission and imissions limits, periodical inspections of boilers, fees for pollutions and various other aspects of air protection in all sectors. Since this act leads among others to fuel switches and energy efficiency improvements, it significantly influences emissions of GHGs.	2002	Ministry of Environment	NA
Cross Compliance		Agriculture	CH_4, N_2O	Reduction of fertilizer/manure use on cropland, Other activities improving cropland management, Improved livestock management.	Other (Education)	Implemented	The subsidies can be granted only on the condition that a beneficiary meets the statutory management requirements addressing environment, public health, the health of animals and plants, and animal welfar, the standards of good agricultural and environmental conditions (GAEC); and minimum requirements for fertilizer and plant protection product use as part of agro-environmental measures.	2009	Ministry of Agriculture	NA
Energy act		Energy	CO_2	Increase in renewable energy, Switch to less carbon-intensive fuels.	Regulatory	Implemented	This act establishes the rules for operating energy enterprises and energy markets. It is accompanied by a row of decreases dealing with specific issues. The law establishes the obligation of electricity distributors to buy electricity from combined heat and power plants and from renewable energy sources. It also opens the market with electricity.	2000	Ministry of Industry and Trade	NA

Energy management act	Energy, Transport	CO_2	Increase in renewable energy, Efficiency improvement in the energy and transformation sector, Efficiency improvements of buildings, Efficiency improvement of appliances.	Regulatory	Implemented	This act sets the basic rules for efficient use of energy. It is accompanied by a row of decreases dealing with specific issues. Framework measure, effects and costs in other PAMs. This law covers more topics: 1. Sets the obligation for regional authorities to elaborate Regional energy concept which should define rules for efficient use of energY and for introduction of RES. 2. Establishes the National programme for effective use of energy and utilisation of renewable and secondary energy sources. 3. Defines minimal efficiencies for electricity and heat production, maximum losses for energy transmission and distribution and sets minimal technical requirements for buildings and appliances. 4. Defines measures for support of RES. 5. Introduces labeling of appliances. 6. Sets obligation to perform energy audits of defined categories of buildings.	2000	Ministry of Industry and Trade	NA
National Energy Efficiency Action Plan	Energy, Industry/industrial processes	CO_2	Efficiency improvement in services/ tertiary sector Efficiency improvement in industrial end-use sectors	Regulatory|Economic|Fiscal|Information|Research|Voluntary Agreement|Other (Planning)	Implemented	Plan of measures to be implemented in order to fulfill the required energy savings in the period 2008 - 2016. This policy includes measures from both versions of NAPEE elaborated so far. Since it is a complex measure, its impacts are reported under many other measures. Framework measure, effects and costs of NAPEE measures are presented individually.	2008	Ministry of Industry and Trade	IE

National programme for mitigation of consequences of climate change in the CR	Cross-cutting	CH_4, CO_2, HFCs, N_2O, PFCs, SF_6	Framework policy		Implemented	This is a strategic document of the Czech Government defining main targets and paths in the field of climate protection. The programme aims at reduction of greenhouse gas emissions and at ensuring of meeting the obligations resulting from Kyoto Protocol. The programme adopts new reduction targets in the period until 2020 (e.g. reduction of GHG emissions per inhabitant by 30%). The document also coordinates the sectorial and cross-cutting policies at a national level and also takes into consideration the requirements of the European Climate Change Program (ECCP), which became binding for the Czech Republic after the accession to the EU. The individual sectorial ministries were entrusted with implementation of these National Programme. The Programme was prepared according to the requirements of Council Decision 1999/296/EC. It introduces both specific reduction (mitigation) measures to reduce greenhouse gas emissions and also adaptation measures permitting society and ecosystems to adapt to climate change.	2004	Ministry of Environment	NA
National Renewable Energy Resources Plan	Energy	CO_2	Increase in renewable energy	Economic|Fiscal| Regulatory	Implemented	Ensure the share of RES in accordance with the RES directive 2009/28/EC. Framework measure, individual actions are included in other measures.	2010	Ministry of Industry and Trade	NA
Nitrate Directive (1991/676/EEC) - 3rd Action Plan	Agriculture	N_2O	Reduction of fertilizer/manure use on cropland	Regulatory	Implemented	Water protection against pollution caused by nitrates from agricultural sources. Remarcation of vulnerable areas and setting of rules for management	2015	Ministry of Agriculture	NA

OP Rural development and Multifunctional Agriculture	Agriculture	CH_4, N_2O, CO_2	Other activities improving cropland management, Improved livestock management, Afforestation and reforestation.	Economic	Implemented	To support agricultural primary production and the processing of agricultural products, to support forest and water management and to ensure the continually sustainable development of the countryside	2007	Ministry of Agriculture	NA
Strategy for Growth*	Agriculture	CO_2, CH_4, N_2O	Reduction of fertilizer/manure use on cropland, Other activities improving cropland management, Improved animal waste management systems,	Economic	Implemented	Conceptual material of Agriculture - plan of measures to be implemented in order to fulfill the required emission savings in the period 2013 - 2030	2015	Ministry of agriculture	NA
Biomass Action Plan in the Czech Republic for 2012-2020*	Agriculture	CO_2	Other agriculture, Increase in renewable energy, Afforestation and reforestation.	Other (Other (Planned))	Implemented	To define appropriate measures and principles to help the effective and efficient use of the energy potential of biomass	2015	Ministry of Agriculture	125.00
Rural Development Programme 2014-2020*	Agriculture	CO_2, CH_4, N_2O	Other activities improving cropland management, Afforestation and reforestation.	Other (Other (Planning))	Implemented	A basic strategic and program documents specifying in detail the measures for meeting the objectives of the development of rural areas of the Czech Republic To support agricultural primary production and the processing of agricultural products, to support forest and water management and to ensure the continually sustainable development of the countryside	2015	Ministry of Agriculture	200.00

The National Forestry Programme II		Forestry/LULUCF	CO_2	Afforestation and reforestation, Enhanced forest management, Conservation of carbon in existing forests, Prevention of deforestation.	Other (Economic)	Implemented	Basic national strategic material for the development of the forestry sector in the medium term, reflecting the current international agreements, conventions and EU Directives. The main objective is to form concrete practical steps in all areas of state forest policy in the near term. The National Forest Program II for the period 2008 to 2013 (NLP II) is the basic national strategic document for forestry and forestry-related sectors. Implemented within the environmental pillar, specifically Key Action 6 lists the measures being or to be implemented to alleviate the impact of expected global climate change and extreme meteorological conditions. These measures generally focus on creating more resilient forest ecosystems by promoting diversified forest stand utilizing to the greatest possible extent natural processes, varied species composition and variability of silvicultural approaches, reflecting the current international treaties, agreements, conventions and EU directives.	2008	Ministry of Agriculture		NA
Conclusions and recommendations of Coordinating Council to implement the National Forestry Programme II*		Forestry/LULUCF	CO_2	Conservation of carbon in existing forests, Strengthening protection against natural disturbances, Enhanced forest management.	Other (Regulatory)	Implemented	To cultivate diversified forest stands with the greatest possible use of natural processes, varied species composition, natural regeneration and variability of silvicultural practices. Summary of recommendations on the implementation of the proposed measures NLP II after discussing forestry experts. Emission inventory of LULUCF sector are particularly important recommendations in Key Action 6 of NLP II, which are aimed to reduce of global climate change and extreme weather events.	2015	Ministry of Agriculture		458.00

Operational Programme Environment 2014 - 2020*	Energy	CO_2	multisectoral policy	Economic	Implemented	Promotion of energy savings and use of RES. The main programme offers subsidies for environment protection. It comprises promotion of energy efficiency and use of RES mainly in the Commercial/Institutional sector (1A4a).The measure supports energy efficiency improvement and use of RES in public sector. In priority axis 2 Improvement of air quality in human settlements, the following activities are supported: • The replacement of boilers running on solid fuel with new boilers running on solid fuel • The replacement of boilers running on solid fuel with new stationary combustion sources running on gaseous or liquid fuel • The replacement of boilers running on solid fuel with heat pumps • The above replacements combined with supplementary non-combustion sources of thermal energy In priority axis 5 Energy savings, the following activities are supported: • Insulation of the envelope of a building; • Replacement and renovation of windows and doors; • Implementation of structural measures having a demonstrated influence on the energy performance of buildings or improvements in the quality of the indoor climate; • Implementation of mechanical ventilation systems with waste heat recuperation; • Implementation of systems reusing waste heat; • Replacement of heat sources for spatial heating or for the production of hot water using solid or liquid fossil fuels with efficient sources using	2014	State Environmental Fund	375.00

Operational Programme Enterprise and Innovation for Competitiveness*	Energy	CO_2	Efficiency improvement in the energy and transformation sector, Efficiency improvement in services/ tertiary sector, Efficiency improvement in industrial end-use sectors.	Economic	Implemented	The measure supports energy efficiency improvement and use of RES in industry and services. With the framework of the Operational Program Enterprise and Innovation for the period 2007–2013, the Ministry of Industry and Trade is introducing a total of 15 aid programs, one of them is oriented on Eco-energy. Eco-energy is oriented on energy savings by means of replacing old technologies and on generation of electricity or heat from renewable resources. Funding derives in part from EU structural funds (85%) and in part from the state budget (15%). Funding is paid out in the form of non-returnable subsidies, preferential loans and guarantees. The program covers the following measures: • the modernisation or replacement of existing energy production facilities for internal purposes, which will increase their efficiency; • the introduction and upgrading of measurement and control systems; • modernisation, reconstruction and loss reduction in electricity and heat distribution systems in buildings and production plants; • the implementation of measures to improve the energy performance of buildings in the business sector (building envelope insulation, the replacement and renovation of windows and doors, other structural measures having a demonstrable influence on the energy performance of buildings, the installation of ventilation technology with waste heat recuperation); • re-use of waste energy in	2014	Ministry of Industry and Trade	1,611.00

New Green savings programme 2013*	Energy	CO_2	Efficiency improvements of buildings Increase in renewable energy	Economic	Implemented	The programme supports, through investment subsidies, construction of low-energy family houses in passive standard, full or partial insulation of existing houses and introduction of RES for water heating.	2013	State Environmental Fund	31.00
New Green savings programme 2015 - 2020*	Energy	CO_2	Efficiency improvements of buildings Increase in renewable energy	Economic	Implemented	The programme is financed from sold emission allowances. It supports, through investment subsidies, construction of low-energy family houses in passive standard, full or partial insulation of existing houses and introduction of RES for water heating.	2015	State Environmental Fund	997.00
Program JESSICA*	Energy	CO_2	Efficiency improvements of buildings	Economic	Implemented	The program supports modernizations and refurbishments of living houses. Owners of living houses can obtain subsidies to insulation, improvement of space and water heating sources and use of RES. The program offers long-term low-interest loans for reconstruction or modernization of residential buildings. The program is designed for all owners of residential houses indiscriminately legal subjectivity.	2014	State Housing Fund	23.00
Integrated Regional Operating Programme*	Energy	CO_2	Efficiency improvements of buildings	Economic	Implemented	The program supports modernizations and refurbishments of living houses. Owners of living houses (any physical or legal body) can obtain advantageous long-term loan with fixed interest covering up to 80 % of the total investment. In terms of energy savings is significant priority axis 2 of the program and its investment priority 4c “Promoting energy efficiency, intelligent systems energy management and use of energy from renewable sources for public infrastructures, including in public buildings and in housing”. Supported measures affecting the energy performance include e.g.: insulation of residential building, replacement and refurbishment of windows and doors, passive heating and cooling, shielding, installation of systems controlled ventilation with heat recovery	2014	Ministry of Reginal Development	627.00

Common Programme for Boiler Replacements*	Energy	CO_2	Efficiency improvements of buildings	Economic	Implemented	Households can receive subsidy for replacement of manually filled coal boilers by modern low-emission boilers. The subject of the grant is replacement of existing manually fed solid fuel boilers by new efficient low-carbon boilers. The main aim of this measure is air quality improvement in highly polluted areas. It is not directly linked to any EU policy.	2013	State Environmental Fund	25.00
Credits of Cities and Municipalities for Modernization of Housing*	Energy	CO_2	Efficiency improvements of buildings	Economic	Implemented	The program supports modernizations and refurbishments of living houses. Cities and municipalities can obtain advantageous loans for modernization of living houses in their ownership. This measure is not directly related to any EU policy. Its primary aim is a complex refurbishment of buildings.	2001	Ministry of Reginal Development	0.70
Education on Energy Savings in Heat Consumption in Households*	Energy	CO_2	Efficiency improvements of buildings, Demand management/reduction.	Education	Implemented	This measure supports educational activities which should lead to better behaviour of hoseholds as regards energy consumption. This measure also supports information campaigns enlightment and education actions on energy saving behavior for general public.	2000	Ministry of Industry and Trade	37.00
Electricity Savings in Households Lighting*	Energy	CO_2	Efficiency improvement of appliances	Regulatory	Implemented	The measure aims at reduction of electic energy consumption for lighting in households. The measure gradually bans introduction of inefficient lightbulbs to the market.	2009	Ministry of Industry and Trade	163.00
Operation Programme Prague - Pole of Growth*	Energy, Transport	CO_2	Efficiency improvement in services/ tertiary sector, Increase in renewable energy	Economic	Implemented	The aim of this measure is to ease financing of energy savings in public and tertiary sectors. The programme supports energy efficiency and RES use in objects belonging to the City of Prague.	2015	Ministry of Industry and Trade	10.00
Provision and Support of Energy Services in Tertiary Sector using the EPC Method*	Energy	CO_2	Efficiency improvement in services/ tertiary sector	Economic	Implemented	The aim of this measure is to ease financing of energy savings in public and tertiary sectors. The purpose of the measure is to remove legal obstacles to the application of the method EPC (energy performance contracting - savings used to repay investments) and to prepare methodology for project preparation and implementation using EPC in government and public administration so that the EPC become the main financing method of energy savings in buildings.	1993	Ministry of Industry and Trade	39.00

Extension of Public Sector Role in Demonstration of New Technologies*	Energy	CO_2	Efficiency improvement in services/ tertiary sector	Regulatory	Implemented	The public sector is obliged to follow certains rules leading to purchases of energy efficient appliances.	2010	Ministry of Reginal Development	193.00
Electricity Savings in Lighting in Tertiary Sector and Public Lighting*	Energy	CO_2	Efficiency improvement in services/ tertiary sector	Regulatory	Implemented	The measure gradually bans introduction of inefficient lightbulbs to the market. It leads to necessity of modernization of lighting systems.	2009	Ministry of Industry and Trade	83.00
Complex of Measures Increasing Energy Efficiency of Agricultural Facilities*	Energy	CO_2	This measure supports energy efficiency improvement and increased use of RES in agriculture.	Other (Economic)	Implemented	The measure combines regulatory and economic tools in order to improve energy efficiency and to increase share of RES in agriculture.	2000	Ministry of Agriculture	100.00
Decrease of Emission and Energy Intensities of Passenger Cars Introduced to the Market*	Transport	CO_2	This measure limits CO2 emissions and energy consumption of personal cars newly introduced to the market.	Regulatory	Implemented	This measure imposes limits on average CO2 emissions and unit fuel consumption on the car fleet introduced to the market by individual car producers.	2011	Ministry of Transport	373.00
National Strategy of Cycling Transport Development*	Transport	CO_2	Modal shift to public transport or non-motorized transport	Economic	Implemented	Municipalities can obtain investment subsidies supporting development of cycling infrastructure.	2015	State Fund of Transport Infrastructure	34.00
Operational Programme Transport*	Transport	CO_2	Improved transport infrastructure	Economic	Implemented	The Operation Program Transport supports mainly investments into transport infrastructure. Side effect of better transport infrastructure is decreased energy consumption and thus lower GHG emissions.	2007	State Fund of Transport Infrastructure	177.00

Gains from Implementation of Recommendations of Obligatory Energy Audits*	Cross-cutting	CO_2	Multi-sectoral policy	Regulatory	Implemented	From the year 2001, there was an obligation to elaborate energy audits. The audits were mandatory for most entities from the public sector, owners or users of large buildings or building areas exceeding certain dimensions and for facilities with energy consumption exceeding certain limits. All public bodies and bodies, that used subsidies for audits elaboration are obliged to realize recommendations from the audits within the time period set by the law. The objective of this measure is to decrease energy consumption through realization of recommendations of mandatory energy audits. Public and private bodies, fulfilling certain criteria, had to perform mandatory energy audits during 2001 - 2005. All public bodies and private bodies that used subsidy to perform the audits, are obliged to realize recommendations from the audits.	2001	Ministry of Industry and Trade	271.00
Obligatory Energy Certification of Buildings*	Energy	CO_2	Efficiency improvements of buildings	Regulatory	Implemented	The main goal of this measure is to motivate buildings owners to improve energy performance of buildings giving then information on current building status. This measure ensures that potential or actual owner of a building receives accurate information on its energy performance.	2009	Ministry of Industry and Trade	1.00
Efficiency Improvement of District Heating Systems*	Energy	CO_2	Efficiency improvement in the energy and transformation sector	Economic	Implemented	Heat producing companies can receive subsidy to integration of CHP, heat distribution system reconstruction or building a new district heating system.	2015	Ministry of Industry and Trade	621.00
Targeted Ecological Improvement of Pollution Sources*	Cross-cutting	CO_2	Switch to less carbon-intensive fuels	Economic	Implemented	This measure supported areal gasification of areas heated form coal-fired boilers. Municipalities can obtain investment subsidies supporting areal switch from coal to gas boilers.	1995	State Environmental Fund	23.00
Regulation (EU) No 517/2014 of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006*	Industry/industrial processes	HFCs	Replacement of fluorinated gases by other substances	Regulatory	Implemented	Ban on introduction of fluorinated gases with high GWP for given purposes of use.	2014	Ministry of Environment	678.00

Note: The two final columns specify the year identified by the Party for estimating impacts (based on the status of the measure and whether an ex post or ex ante estimation is available).

Abbreviations: GHG = greenhouse gas; LULUCF = land use, land-use change and forestry.

[a] Parties should use an asterisk (*) to indicate that a mitigation action is included in the 'with measures' projection.

[b] To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors, cross-cutting, as appropriate.

[c] To the extent possible, the following types of instrument should be used: economic, fiscal, voluntary agreement, regulatory, information, education, research, other.

[d] To the extent possible, the following descriptive terms should be used to report on the status of implementation: implemented, adopted, planned.

[e] Additional information may be provided on the cost of the mitigation actions and the relevant timescale.

[f] Optional year or years deemed relevant by the Party.

Reporting on progress[a, b]

	Total emissions excluding LULUCF	*Contribution from LULUCF*[d]	*Quantity of units from market based mechanisms under the Convention*		*Quantity of units from other market based mechanisms*	
Year[c]	*(kt CO_2 eq)*	*(kt CO_2 eq)*	*(number of units)*	*(kt CO_2 eq)*	*(number of units)*	*(kt CO_2 eq)*
(1990)	193,356.07	NA	NO	NO	NO	
2010	135,633.72	NA	NA	NA	NO	
2011	134,622.33	NA	NA	NA	NO	
2012	130,597.99	NA	NA	NA	NO	
2013	127,143.93	NA	NA	NA	NO	

Abbreviation: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] For the base year, information reported on the emission reduction target shall include the following: (a) total GHG emissions, excluding emissions and removals from the LULUCF sector; (b) emissions and/or removals from the LULUCF sector based on the accounting approach applied taking into consideration any relevant decisions of the Conference of the Parties and the activities and/or land that will be accounted for; (c) total GHG emissions, including emissions and removals from the LULUCF sector. For each reported year, information reported on progress made towards the emission reduction targets shall include, in addition to the information noted in paragraphs 9(a–c) of the UNFCCC biennial reporting guidelines for developed country Parties, information on the use of units from market-based mechanisms.

[c] Parties may add additional rows for years other than those specified below.

[d] Information in this column should be consistent with the information reported in table 4(a)I or 4(a)II, as appropriate. The Parties for which all relevant information on the LULUCF contribution is reported in table 1 of this common tabular format can refer to table 1.

Table 4(a)I

Progress in achieving the quantified economy-wide emission reduction targets – further information on mitigation actions relevant to the contribution of the land use, land-use change and forestry sector in 2013 [a,b]

Numbers for LULUCF are not reported because this sector is not included under the Convention target.

Reporting on progress[a, b, c]

Units of market based mechanisms			*Year*	
			2013	*2014*
Kyoto Protocol units[d]	*Kyoto Protocol units*	*(number of units)*	NA, NO	NA, NO
		(kt CO_2 eq)	NA, NO	NA, NO
	AAUs	*(number of units)*	NA	NA
		(kt CO2 eq)	NA	NA
	ERUs	*(number of units)*	NA	NA
		(kt CO2 eq)	NA	NA
	CERs	*(number of units)*	NA	NA
		(kt CO2 eq)	NA	NA
	tCERs	*(number of units)*	NO	NO
		(kt CO2 eq)	NO	NO
	lCERs	*(number of units)*	NO	NO
		(kt CO2 eq)	NO	NO
Other units[d,e]	*Units from market-based mechanisms under the Convention*	*(number of units)*		
		(kt CO_2 eq)		
	Units from other market-based mechanisms	*(number of units)*		
		(kt CO_2 eq)		
Total		*(number of units)*	NA, NO	NA, NO
		(kt CO_2 eq)	NA, NO	NA, NO

Abbreviations : AAUs = assigned amount units, CERs = certified emission reductions, ERUs = emission reduction units, lCERs = long-term certified emission reductions, tCERs = temporary certified emission reductions.
Note: 2011 is the latest reporting year.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] For each reported year, information reported on progress made towards the emission reduction target shall include, in addition to the information noted in paragraphs 9(a-c) of the reporting guidelines, on the use of units from market-based mechanisms.

[c] Parties may include this information, as appropriate and if relevant to their target.

[d] Units surrendered by that Party for that year that have not been previously surrendered by that or any other Party.

[e] Additional rows for each market-based mechanism should be added, if applicable.

Table 5 CZE_BR2_v0.1

Summary of key variables and assumptions used in the projections analysis[a]

Key underlying assumptions		*Historical*[b]							Projected			
Assumption	*Unit*	*1990*	*1995*	2000	2005	2010	2011	2012	2015	2020	2025	2030
Population	*thousands*					10,517.00		10,509.29	10,522.50	10,528.77	10,370.34	10,232.75
Number of households	thousands					4,614.00		4,412.00	4,499.39	4,596.18	4,645.16	4,646.80
GDP growth rate	%					2.69		-0.97	2.74	3.32	2.80	2.40
International oil price	EUR / GJ							9.30	11.90	13.70	13.80	14.40
International coal price	EUR / GJ							2.50	2.30	3.50	3.70	3.90
International gas price	EUR / GJ							5.90	7.70	9.50	9.10	10.00
Population growth	%					100.00		99.92	100.05	100.11	98.61	97.30

[a] Parties should include key underlying assumptions as appropriate.

[b] Parties should include historical data used to develop the greenhouse gas projections reported.

Table 6(a) CZE_BR2_v0.1

Information on updated greenhouse gas projections under a 'with measures' scenario[a]

	GHG emissions and removals[b]							GHG emission projections	
	(kt CO_2 eq)							(kt CO_2 eq)	
	Base Year	1990	1995	2000	2005	2010	2011	2020	2030
Sector[d,e]									
Energy	149,968.87	149,968.87	117,050.07	108,029.39	101,674.29	93,404.68	92,077.73	77,990.45	64,660.47
Transport	7,284.93	7,284.93	9,354.76	12,140.42	17,458.15	17,322.99	17,124.11	14,942.99	13,832.25
Industry/industrial processes	17,062.33	17,062.33	14,137.56	14,079.47	13,769.33	13,305.09	13,650.36	12,344.07	11,411.12
Agriculture	15,820.23	15,820.23	9,403.36	8,248.24	7,573.95	7,137.90	7,218.74	8,911.12	9,372.56
Forestry/LULUCF	-6,319.88	-6,319.88	-6,706.97	-7,115.13	-6,432.21	-5,303.09	-6,996.69	-1,913.07	-2,931.06
Waste management/waste	3,219.71	3,219.71	3,461.51	3,586.50	3,943.95	4,463.06	4,551.38	5,369.75	5,385.08
Other (specify)									
Gas									
CO_2 emissions including net CO_2 from LULUCF	155,238.81	155,238.81	122,956.72	118,067.11	117,459.18	109,562.24	106,207.53	95,516.39	82,212.55
CO_2 emissions excluding net CO_2 from LULUCF	161,700.15	161,700.15	129,784.76	125,307.13	124,040.97	115,033.97	113,284.33	97,511.16	85,225.27
CH_4 emissions including CH_4 from LULUCF	21,181.49	21,181.49	16,304.41	13,634.70	12,989.43	12,761.89	13,055.92	12,728.44	11,029.15
CH_4 emissions excluding CH_4 from LULUCF	21,066.33	21,066.33	16,203.76	13,528.79	12,859.69	12,614.76	12,990.78	12,658.54	10,959.20
N_2O emissions including N_2O from LULUCF	10,600.22	10,600.22	7,422.64	7,020.54	6,773.64	5,986.84	6,090.35	7,392.40	7,354.83
N_2O emissions excluding N_2O from LULUCF	10,573.92	10,573.92	7,402.22	7,001.55	6,753.79	5,965.35	6,075.37	7,380.61	7,343.11
HFCs	NO	NO	0.23	204.66	706.22	1,962.06	2,240.49	1,916.46	1,025.32
PFCs	NO	NO	0.01	3.97	11.83	42.59	10.24	12.67	12.04
SF_6	15.68	15.68	16.28	37.93	47.16	15.00	21.11	78.95	96.55
Other (specify)									
Total with LULUCF[f]	187,036.20	187,036.20	146,700.29	138,968.91	137,987.46	130,330.62	127,625.64	117,645.31	101,730.44
Total without LULUCF	193,356.08	193,356.08	153,407.26	146,084.03	144,419.66	135,633.73	134,622.32	119,558.39	104,661.49

Abbreviations : GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

[a] In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", at a minimum Parties shall report a 'with measures' scenario, and may report 'without measures' and 'with additional measures' scenarios. If a Party chooses to report 'without measures' and/or 'with additional measures' scenarios they are to use tables 6(b) and/or 6(c), respectively. If a Party does not choose to report 'without measures' or 'with additional measures' scenarios then it should not include tables 6(b) or 6(c) in the biennial report.

[b] Emissions and removals reported in these columns should be as reported in the latest GHG inventory and consistent with the emissions and removals reported in the table on GHG emissions and trends provided in this biennial report. Where the sectoral breakdown differs from that reported in the GHG inventory Parties should explain in their biennial report how the inventory sectors relate to the sectors reported in this table.

[c] 20XX is the reporting due-date year (i.e. 2014 for the first biennial report).

[d] In accordance with paragraph 34 of the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", projections shall be presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the policies and measures section. This table should follow, to the extent possible, the same sectoral categories as those listed in paragraph 17 of those guidelines, namely, to the extent appropriate, the following sectors should be considered: energy, transport, industry, agriculture, forestry and waste management.

[e] To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors (i.e. cross-cutting), as appropriate.

[f] Parties may choose to report total emissions with or without LULUCF, as appropriate.

Table 6(c) CZE_BR2_v0.1

Information on updated greenhouse gas projections under a 'with additional measures' scenario[a]

	GHG emissions and removals[b]							GHG emission projections	
	(kt CO_2 eq)							(kt CO_2 eq)	
	Base Year	1990	1995	2000	2005	2010	2011	2020	2030
Sector[d,e]									
Energy	149,968.87	149,968.87	117,050.07	108,029.39	101,674.29	93,404.68	92,077.73	73,438.25	60,583.51
Transport	7,284.93	7,284.93	9,354.76	12,140.42	17,458.15	17,322.99	17,124.11	14,902.42	13,792.59
Industry/industrial processes	17,062.33	17,062.33	14,137.56	14,079.47	13,769.33	13,305.09	13,650.36	12,344.07	11,411.12
Agriculture	15,820.23	15,820.23	9,403.36	8,248.24	7,573.95	7,137.90	7,218.74	8,605.06	8,405.40
Forestry/LULUCF	-6,319.88	-6,319.88	-6,706.97	-7,115.13	-6,432.21	-5,303.09	-6,996.69	-2,371.27	-3,324.60
Waste management/waste	3,219.71	3,219.71	3,461.51	3,586.50	3,943.95	4,463.06	4,551.38	4,740.43	4,748.43
Other (specify)									
Gas									
CO_2 emissions including net CO_2 from LULUCF	155,238.81	155,238.81	122,956.72	118,067.11	117,459.18	109,562.24	106,207.53	90,554.41	77,794.66
CO_2 emissions excluding net CO_2 from LULUCF	161,700.15	161,700.15	129,784.76	125,307.13	124,040.97	115,033.97	113,284.33	93,007.38	81,200.93
CH_4 emissions including CH_4 from LULUCF	21,181.49	21,181.49	16,304.41	13,634.70	12,989.43	12,761.89	13,055.92	12,019.95	9,862.91
CH_4 emissions excluding CH_4 from LULUCF	21,066.33	21,066.33	16,203.76	13,528.79	12,859.69	12,614.76	12,990.78	11,950.05	9,792.96
N_2O emissions including N_2O from LULUCF	10,600.22	10,600.22	7,422.64	7,020.54	6,773.64	5,986.84	6,090.35	7,076.52	6,824.98
N_2O emissions excluding N_2O from LULUCF	10,573.92	10,573.92	7,402.22	7,001.55	6,753.79	5,965.35	6,075.37	7,064.73	6,813.26
HFCs	NO	NO	0.23	204.66	706.22	1,962.06	2,240.49	1,916.46	1,025.32
PFCs	NO	NO	0.01	3.97	11.83	42.59	10.24	12.67	12.04
SF_6	15.68	15.68	16.28	37.93	47.16	15.00	21.11	78.95	96.55
Other (specify)									
Total with LULUCF[f]	187,036.20	187,036.20	146,700.29	138,968.91	137,987.46	130,330.62	127,625.64	111,658.96	95,616.46
Total without LULUCF	193,356.08	193,356.08	153,407.26	146,084.03	144,419.66	135,633.73	134,622.32	114,030.24	98,941.06

Abbreviations : GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

[a] In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", at a minimum Parties shall report a 'with measures' scenario, and may report 'without measures' and 'with additional measures' scenarios. If a Party chooses to report 'without measures' and/or 'with additional measures' scenarios they are to use tables 6(b) and/or 6(c), respectively. If a Party does not choose to report 'without measures' or 'with additional measures' scenarios then it should not include tables 6(b) or 6(c) in the biennial report.

[b] Emissions and removals reported in these columns should be as reported in the latest GHG inventory andconsistent with the emissions and removals reported in the table on GHG emissions and trends provided in this biennial report. Where the sectoral breakdown differs from that reported in the GHG inventory Parties should explain in their biennial report how the inventory sectors relate to the sectors reported in this table.

[c] 20XX is the reporting due-date year (i.e. 2014 for the first biennial report).

[d] In accordance with paragraph 34 of the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", projections shall be presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the policies and measures section. This table should follow, to the extent possible, the same sectoral categories as those listed in paragraph 17 of those guidelines, namely, to the extent appropriate, the following sectors should be considered: energy, transport, industry, agriculture, forestry and waste management.

[e] To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors (i.e. cross-cutting), as appropriate.

[f] Parties may choose to report total emissions with or without LULUCF, as appropriate.

Provision of public financial support: summary information in 2013[a]

Allocation channels	*Year*									
	Czech koruna - CZK					*USD[b]*				
	Core/ general[c]	*Climate-specific[d]*				*Core/ general[c]*	*Climate-specific[d]*			
		Mitigation	*Adaptation*	*Cross-cutting[e]*	*Other[f]*		*Mitigation*	*Adaptation*	*Cross-cutting[e]*	*Other[f]*
Total contributions through multilateral channels:	386,640.00			25,000.00		21,857.00			1,413.00	
Multilateral climate change funds[g]				25,000.00					1,413.00	
Other multilateral climate change funds[h]										
Multilateral financial institutions, including regional development banks	375,740.00					21,241.00				
Specialized United Nations bodies	10,900.00					616.00				
Total contributions through bilateral, regional and other channels	1,259,070.00	38,809.00	62,001.00			71,174.00	2,194.00	3,505.00		
Total	1,645,710.00	38,809.00	62,001.00	25,000.00		93,031.00	2,194.00	3,505.00	1,413.00	

Abbreviation: USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should provide an explanation on methodology used for currency exchange for the information provided in table 7, 7(a) and 7(b) in the box below.

[c] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[d] Parties should explain in their biennial reports how they define funds as being climate-specific.

[e] This refers to funding for activities which are cross-cutting across mitigation and adaptation.

[f] Please specify.

[g] Multilateral climate change funds listed in paragraph 17(a) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

[h] Other multilateral climate change funds as referred in paragraph 17(b) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

Custom Footnotes

All finacial values in thousands units (CZK resp. USD)

Provision of public financial support: summary information in 2014[a]

Allocation channels	*Year*									
	Czech koruna - CZK					*USD[b]*				
	Core/ general[c]	*Climate-specific[d]*				*Core/ general[c]*	*Climate-specific[d]*			
		Mitigation	*Adaptation*	*Cross-cutting[e]*	*Other[f]*		*Mitigation*	*Adaptation*	*Cross-cutting[e]*	*Other[f]*
Total contributions through multilateral channels:	366,621.00			17,000.00		23,320.00			868.00	
Multilateral climate change funds[g]				17,000.00					868.00	
Other multilateral climate change funds[h]										
Multilateral financial institutions, including regional development banks	354,871.00					22,720.00				
Specialized United Nations bodies	11,750.00					600.00				
Total contributions through bilateral, regional and other channels	1,199,239.00	40,190.00	58,601.00			61,217.00	2,051.00	2,992.00		
Total	1,565,860.00	40,190.00	58,601.00	17,000.00		84,537.00	2,051.00	2,992.00	868.00	

Abbreviation: USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should provide an explanation on methodology used for currency exchange for the information provided in table 7, 7(a) and 7(b) in the box below.

[c] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[d] Parties should explain in their biennial reports how they define funds as being climate-specific.

[e] This refers to funding for activities which are cross-cutting across mitigation and adaptation.

[f] Please specify.

[g] Multilateral climate change funds listed in paragraph 17(a) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

[h] Other multilateral climate change funds as referred in paragraph 17(b) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

Custom Footnotes

All finacial values in thousands units (CZK resp. USD)

Provision of public financial support: contribution through multilateral channels in 2013[a]

Donor funding	*Total amount*				*Status[b]*	*Funding source[f]*	*Financial instrument[f]*	*Type of support[f, g]*	*Sector[c]*
	Core/general[d]		*Climate-specific[e]*						
	Czech koruna - CZK	*USD*	*Czech koruna - CZK*	*USD*					
Total contributions through multilateral channels	386,640.00	21,857.00	25,000.00	1,413.00					
Multilateral climate change funds [g]			25,000.00	1,413.00					
1. Global Environment Facility			25,000.00	1,413.00	Provided	ODA	Grant	Cross-cutting	Cross-cutting
2. Least Developed Countries Fund									
3. Special Climate Change Fund									
4. Adaptation Fund									
5. Green Climate Fund									
6. UNFCCC Trust Fund for Supplementary Activities									
7. Other multilateral climate change funds									
Multilateral financial institutions, including regional development banks	375,740.00	21,241.00							
1. World Bank	276,540.00	15,633.00			Provided	ODA	Other (Grant/Equity)	Cross-cutting	Cross-cutting
2. International Finance Corporation									
3. African Development Bank									
4. Asian Development Bank									
5. European Bank for Reconstruction and Development	99,200.00	5,608.00			Provided	ODA	Grant	Cross-cutting	Cross-cutting
6. Inter-American Development Bank									
7. Other									
Specialized United Nations bodies	10,900.00	616.00							
1. United Nations Development Programme	9,400.00	531.00							
UNDP	9,400.00	531.00			Provided	ODA	Grant	Cross-cutting	Cross-cutting
2. United Nations Environment Programme	1,500.00	85.00							
UNEP	1,500.00	85.00			Provided	ODA	Grant	Cross-cutting	Cross-cutting
3. Other									

Abbreviations: ODA = official development assistance, OOF = other official flows.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[c] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[d] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[e] Parties should explain in their biennial reports how they define funds as being climate-specific.

[f] Please specify.

[g] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

Custom Footnotes

All finacial values in thousands units (CZK resp. USD)

Provision of public financial support: contribution through multilateral channels in 2014[a]

Donor funding	*Total amount*				*Status[b]*	*Funding source[f]*	*Financial instrument[f]*	*Type of support[f, g]*	*Sector[c]*
	Core/general[d]		*Climate-specific[e]*						
	Czech koruna - CZK	*USD*	*Czech koruna - CZK*	*USD*					
Total contributions through multilateral channels	366,621.00	23,320.00	17,000.00	868.00					
Multilateral climate change funds [g]			17,000.00	868.00					
1. Global Environment Facility			17,000.00	868.00	Provided	ODA	Grant	Cross-cutting	Cross-cutting
2. Least Developed Countries Fund									
3. Special Climate Change Fund									
4. Adaptation Fund									
5. Green Climate Fund									
6. UNFCCC Trust Fund for Supplementary Activities									
7. Other multilateral climate change funds									
Multilateral financial institutions, including regional development banks	354,871.00	22,720.00							
1. World Bank	329,491.00	21,424.00			Provided	ODA	Other (Grant/Equity)	Cross-cutting	Cross-cutting
2. International Finance Corporation									
3. African Development Bank									
4. Asian Development Bank									
5. European Bank for Reconstruction and Development	25,380.00	1,296.00			Provided	ODA	Grant	Cross-cutting	Cross-cutting
6. Inter-American Development Bank									
7. Other									
Specialized United Nations bodies	11,750.00	600.00							
1. United Nations Development Programme	10,750.00	549.00							
UNDP	10,750.00	549.00			Provided	ODA	Grant	Cross-cutting	Cross-cutting
2. United Nations Environment Programme	1,000.00	51.00							
UNEP	1,000.00	51.00			Provided	ODA	Grant	Cross-cutting	Cross-cutting
3. Other									

Abbreviations: ODA = official development assistance, OOF = other official flows.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[c] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[d] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[e] Parties should explain in their biennial reports how they define funds as being climate-specific.

[f] Please specify.

[g] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

Custom Footnotes

All finacial values in thousands units (CZK resp. USD)

Provision of public financial support: contribution through bilateral, regional and other channels in 2013[a]

Recipient country/ region/project/programme [b]	*Total amount*		*Status* [c]	*Funding source* [g]	*Financial instrument* [g]	*Type of support* [g, h]	*Sector* [d]	*Additional information* [e]
	Climate-specific [f]							
	Czech koruna -	*USD*						
Total contributions through bilateral, regional and other channels	100,810.00	5,699.00						
Afghanistan /	4,000.00	226.00	Provided	ODA	Grant	Adaptation	Agriculture	
Angola /	12,139.00	686.00	Provided	ODA	Grant	Adaptation	Agriculture	
Bosnia and Herzegovina /	17,148.00	969.00	Provided	ODA	Grant	Mitigation	Energy	
Ethiopia /	5,322.00	301.00	Provided	ODA	Grant	Adaptation	Cross-cutting	Sectors affected: Water, Agriculture, Forestry
Ethiopia /	2,291.00	130.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Ethiopia /	4,000.00	226.00	Provided	ODA	Grant	Adaptation	Agriculture	
Georgia /	4,013.00	227.00	Provided	ODA	Grant	Adaptation	Cross-cutting	Prevention against extreme weather events
Georgia /	2,561.00	145.00	Provided	ODA	Grant	Mitigation	Energy	
Moldova /	4,894.00	277.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Mongolia /	5,908.00	334.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Mongolia, Zalugiin Gol
Mongolia /	4,934.00	279.00	Provided	ODA	Grant	Adaptation	Agriculture	
Palestine /	5,500.00	311.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Palestine /	7,000.00	396.00	Provided	ODA	Grant	Mitigation	Energy	
Palestine /	2,500.00	141.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Serbia /	3,100.00	175.00	Provided	ODA	Grant	Mitigation	Energy	
Viet Nam /	3,000.00	170.00	Provided	ODA	Grant	Mitigation	Energy	
Ethiopia /	4,500.00	254.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Ethiopia - Sidama
Ethiopia /	2,000.00	113.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Ethiopia - Alaba
Cambodia /	6,000.00	339.00	Provided	ODA	Grant	Mitigation	Energy	Specification of recipient country: Cambodia, Robi

Abbreviations: ODA = official development assistance, OOF = other official flows; USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should report, to the extent possible, on details contained in this table.

[c] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[d] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[e] Parties should report, as appropriate, on project details and the implementing agency.

[f] Parties should explain in their biennial reports how they define funds as being climate-specific.

[g] Please specify.

[h] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

Custom Footnotes

All finacial values in thousands units (CZK resp. USD)

Provision of public financial support: contribution through bilateral, regional and other channels in 2014[a]

Recipient country/ region/project/programme [b]	*Total amount*		*Status* [c]	*Funding source* [g]	*Financial instrument* [g]	*Type of support* [g, h]	*Sector* [d]	*Additional information* [e]
	Climate-specific [f]							
	Czech koruna -	*USD*						
Total contributions through bilateral, regional and other channels	98,791.00	5,043.00						
Afghanistan /	3,000.00	153.00	Provided	ODA	Grant	Adaptation	Agriculture	
Bosnia and Herzegovina /	14,366.00	733.00	Provided	ODA	Grant	Mitigation	Energy	
Ethiopia /	4,200.00	214.00	Provided	ODA	Grant	Adaptation	Cross-cutting	Sectors affected: Water, Agriculture, Forestry
Ethiopia /	2,230.00	114.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Ethiopia /	2,400.00	123.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Ethiopia /	3,500.00	179.00	Provided	ODA	Grant	Adaptation	Agriculture	
Georgia /	4,047.00	207.00	Provided	ODA	Grant	Adaptation	Cross-cutting	Prevention against extreme weather events
Georgia /	4,954.00	253.00	Provided	ODA	Grant	Mitigation	Energy	
Moldova /	4,894.00	250.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Mongolia /	5,189.00	265.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Mongolia, Zalugiin Gol
Mongolia /	1,523.00	78.00	Provided	ODA	Grant	Adaptation	Agriculture	Specification of recipient country: Mongolia, Gobi
Mongolia /	2,340.00	119.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Mongolia - Chovsgul
Palestine /	5,000.00	255.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Palestine /	5,000.00	255.00	Provided	ODA	Grant	Mitigation	Energy	
Palestine /	2,500.00	128.00	Provided	ODA	Grant	Adaptation	Other (Water)	
Serbia /	9,170.00	468.00	Provided	ODA	Grant	Mitigation	Energy	
Viet Nam /	2,700.00	138.00	Provided	ODA	Grant	Mitigation	Energy	
Yemen /	3,200.00	163.00	Provided	ODA	Grant	Adaptation	Agriculture	
Ethiopia /	12,578.00	642.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Ethiopia - Sidama
Ethiopia /	2,000.00	102.00	Provided	ODA	Grant	Adaptation	Other (Water)	Specification of recipient country: Ethiopia - Alaba
Cambodia /	4,000.00	204.00	Provided	ODA	Grant	Mitigation	Energy	Specification of recipient country: Cambodia, Robi

Abbreviations: ODA = official development assistance, OOF = other official flows; USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should report, to the extent possible, on details contained in this table.

[c] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[d] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[e] Parties should report, as appropriate, on project details and the implementing agency.

[f] Parties should explain in their biennial reports how they define funds as being climate-specific.

[g] Please specify.

[h] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

Custom Footnotes

All finacial values in thousands units (CZK resp. USD)