CLIMATE CHANGE

GREENHOUSE GAS EMISSIONS AND REMOVALS

Definition

The indicator shows the quantities of greenhouse gas emissions into atmosphere on national level. The emissions are presented by greenhouse gas type. The indicator provides information on emissions in the following sectors: energy, industrial processes, agriculture, forestryand land use change (LUCF) and and waste.

Units

- Kilotons CO2-equivalent

Policy relevance

The Grenhouse Gases Inventory establishes the basis for the analysis of the GHG reduction.

Legal grounds

Republic of Macedonia is a Party to the United Nations Framework Convention on Climate Change and to the Kyoto Protocol. Climate change issues have been incorporated in the Law on Environment, including the requirements for preparation of GHG emission inventories and GHG removal via sinks, as well as development of action plan with measures and activities aimed at GHG emissions abatement and climate change impacts mitigation. In addition to this, by means of amendment of the Law on Environment, provision has been made for Designated National Authority to approve the projects under the Kyoto Protocol Clean Development Mechanism.

Key message

Total GHG emissions in 2009 dropped by 12.2% compared to emissions in 2008, and by 28.4% compared to baseline 2000, due to global economic crisis, low industrial production and demand for energy and change in agricultural practices.

In 2000, total GHG emission was the highest and amounted 14.310,05 kilotons CO2-equivalent.

At sectoral level, there was reduction of emission in 2009 compared to 2008 and baseline 2000 in the sectors of energy, industry and agriculture. There was minor emission increase in waste sector.

In LUCF sector, emissions of CO2-eq. are expressed as (-), because they are actually removals or sinks of the carbon through the process of carbon binding into carbon dioxide, which contributes to the reduction of CO2-eq. emissions.

As far as direct GHG emissions is concerned, at an average around 76% of emissions are due to CO2 emission (mostly from fuels combustion in energy sector), 13.2% are emissions of CH4 (mostly from agriculture and waste), 8.3% are N2O emissions (from fuels combustion and emission from soils) and 0.6% are HFCs emissions from industrial sector.

Figure 1. Total GHG emission in kilotons CO2-equivalent (baseline 2000)

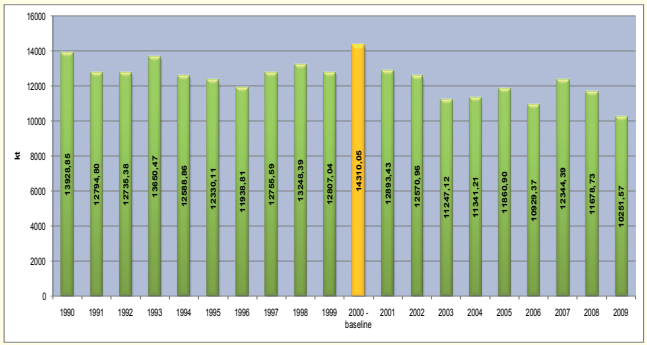
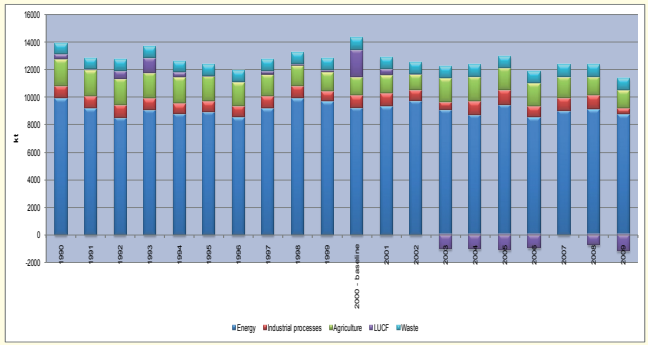


Figure 2. Share by sector of GHG emissions in kilotons per year



Assessment

Total GHG emissions in the period from 1990 to 2009 are shown on Figure 1, where it is notable that the highest GHG emission was recorded in 2000, selected as baseline year (a year which is constant point for emissions comparison over time).

In 2009, the total emission of GHG, if we exempt emissions and removals from LUCF sector, amounted 11.397,83 kt CO2-eq. The greatest share in GHG emission belonged to energy sector with 8761,31 kt CO2-eq, followed by agriculture with 1321,19 kt CO2-eq, waste with 880,88 kt CO2-eq and the lowest share

Figure 3. Share by sector of GHG emissions in % per year

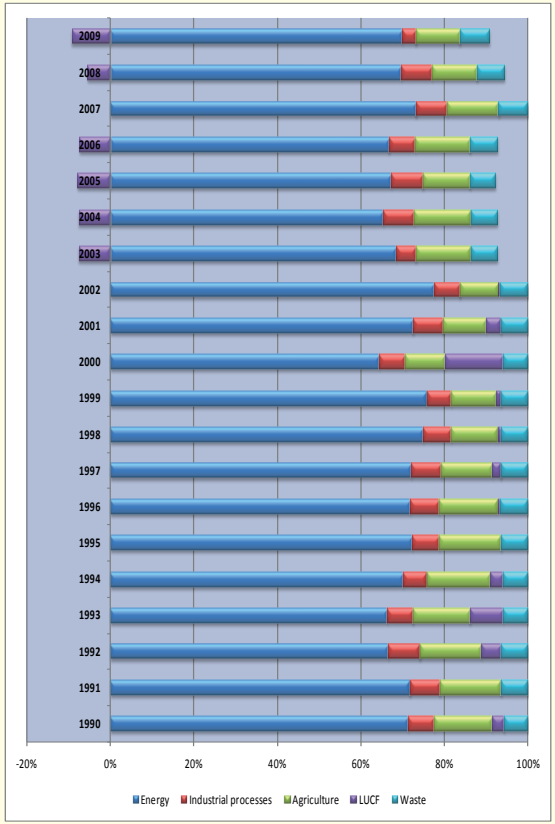
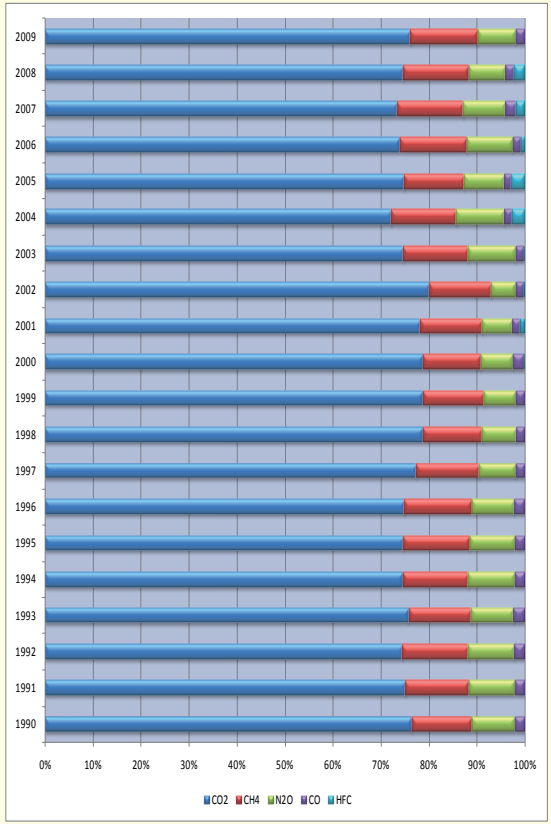


Figure 4. Share of individual pollutants in the total GHG emissions in % per year



belonged to industrial sector with 434,44 kt CO2-eq.

Compared to 2008, provided that emissions and removals from LUCF sector are exempted, we may note drop in GHG emissions by around 8%. At sectoral level, emission reduction is notable in 2009 compared to 2008 in the sectors energy (4.2%), industry (55.4%) and agriculture (5.8%). There has been a minor increase of emissions in waste sector (1%). This was due to global economic crisis, low industrial production and demand for energy and change in agricultural practices.

Compared to baseline year of 2000, provided that emissions and removals from LUCF sector are exempted, we may note drop in GHG emissions by around 7.6%. At sectoral level, emission reduction is notable in 2009 compared to 2000 in the sectors energy (5%), industry (50.9%) and agriculture (4.2%). There has been a minor increase of emissions in waste sector (4.34%). This was due to global economic crisis, low industrial production and demand for energy and change in agricultural practices.

As far as direct GHG emissions is concerned, at an average around 76% of emissions are due to CO2 emission (mostly from fuels combustion in energy sector), 13.2% are emissions of CH4 (mostly from agriculture and waste), 8.3% are N2O emissions (from fuels combustion and emission from soils) and 0.6% are HFCs emissions from industrial sector

In 2009 compared to 2008, there was reduction in all and each of the GHGs, as follows: CO2 by 6.7%, CH4 by 4%, N2O by 6.6%, CO by 3.5% and HFCs by 100%.

Also, compared to baseline year of 2000 , there was reduction in all and each of the GHGs, as follows: CO2 by 21.6%, CH4 by 5.3%, N2O by 5.5%, CO by 32.2% and HFCs by 100%.

Methodology

- Methodology for the indicator calculation

To calculate GHG emissions as well as GHG inventories, the methodology provided by UNFCC/IPCC- Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories 1996, revised version, is used. The Report on Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, does not substitute the IPCC Guidelines, but it provides a reference compliant with the Guidelines. This has been made because IPPC Guidelines apply in reporting by non-Annex I Parties

to the United Nations Framework Convention on Climate Change (UNFCCC).

Methodology is based on the calculation of GHGs as a product from the rate of activity for individual sectors and emission factors.

In the frames of the Third Communication on Climate Change, GHGs inventory has been prepared. Identification of the key categories of sources relied on methods Tier 1 and Tier 2. Tier 1 method is used to identify categorization of key sector and establishment of the trend in emissions from the national emission inventories. Given the fact that the inventory has data for several years, estimates of shares of each category in emission level and trends were made.

Tier 2 level is also applied for certain categories of sources, by using analysis of uncertainty. Application of Tier 2 method is useful, as it enables additional identification of the reasons for which certain categories of emission are key and enables prioritization of activities in order to improve the quality of inventory and reduce overall uncertainty.

Data specification

Title of the indicator	Source	Reporting obligation
Greenhouse gases emissions and removals	– Greenhouse Gas Emissions Inventory in: the First National Communication of Macedonia under the United Nations Framework Convention on Climate Change (UNFCCC), Ministry of Environment and Physical Planning, p. 29-46, 2003 – Second National Communication of Macedonia under the United Nations Framework Convention on Climate Change (UNFCCC), Ministry of Environment and Physical Planning; www.unfccc.org.mk – Third National Communication of Macedonia under the United Nations Framework Convention on Climate Change (UNFCCC), Ministry of Environment and Physical Planning; www.unfccc.org.mk	– UNFCCC

Опфат на податоци:

Table 1: GHG Inventory from the Third National Communication

CO_2-eq emissions by sector

CO_2-eq. [kt]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Energy	9939,83	9190,47	8484,18	9068,37	8839,56	8925,02	8578,29	9198,29	9939,13	9716,39
Industrial processes	889,29	908,89	957,78	831,36	716,56	793,28	819,71	910,30	891,78	742,43
Agriculture	1908,27	1866,08	1881,62	1858,08	1888,54	1825,04	1682,11	1571,02	1462,96	1377,56
LUCF	405,17	34,39	605,72	1084,29	390,53	8,11	73,57	253,76	127,40	142,28
Waste	786,29	794,97	806,08	808,37	753,66	778,67	785,13	822,21	827,12	828,38
Total	13928,85	12794,80	12735,38	13650,47	12588,86	12330,11	11938,81	12755,59	13248,39	12807,04
CO_2-eq. [%]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Energy	71,36	71,83	66,62	66,43	70,22	72,38	71,85	72,11	75,02	75,87
Industrial processes	6,38	7,10	7,52	6,09	5,69	6,43	6,87	7,14	6,73	5,80
Agriculture	13,70	14,58	14,77	13,61	15,00	14,80	14,09	12,32	11,04	10,76
LUCF	2,91	0,27	4,76	7,94	3,10	0,07	0,62	1,99	0,96	1,11
Waste	5,65	6,21	6,33	5,92	5,99	6,32	6,58	6,45	6,24	6,47
Total	100	100	100	100	100	100	100	100	100	100

CO_2-eq. [kt]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Energy	9226,90	9355,70	9755,52	9059,45	8732,00	9456,41	8543,18	9034,99	9146,05	8761,32
Industrial processes	885,70	929,02	784,05	598,35	971,43	1075,64	784,48	943,50	974,83	434,44
Agriculture	1379,52	1313,29	1141,02	1733,51	1787,86	1581,20	1677,13	1495,89	1403,47	1321,19
LUCF	1973,70	459,03	49,78	-976,71	-988,89	-1092,57	-927,27	7,76	-717,83	-1146,25
Waste	844,23	836,38	840,59	832,52	838,79	840,21	851,84	862,25	872,22	880,88
Total	14310,05	12893,43	12570,96	11247,12	11341,21	11860,90	10929,37	12344,39	11678,73	10251,57
CO_2-eq. [%]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Energy	64,48	72,56	77,60	80,55	76,99	79,73	78,17	73,19	78,31	85,46
Industrial processes	6,19	7,21	6,24	5,32	8,57	9,07	7,18	7,64	8,35	4,24
Agriculture	9,64	10,19	9,08	15,41	15,76	13,33	15,35	12,12	12,02	12,89
LUCF	13,79	3,56	0,40	-8,68	-8,72	-9,21	-8,48	0,06	-6,15	-11,18
Waste	5,90	6,49	6,69	7,40	7,40	7,08	7,79	6,98	7,47	8,59
Total	100	100	100	100	100	100	100	100	100	100

Contribution of CO_2, CH_4, N_2O and HFC in the total CO_2-eq emissions from all sectors

CO_2-eq. [kt]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
CO_2	10655,73	9607,46	9486,27	10344,28	9396,73	9215,29	8948,47	9862,97	10443,72	10093,89
CH_4	1739,10	1703,96	1756,75	1791,97	1703,31	1696,09	1667,35	1679,37	1632,69	1630,58
N_2O	1253,86	1218,69	1222,36	1200,82	1225,42	1173,39	1057,39	971,34	936,99	845,58
CO	280,15	264,68	269,99	313,40	263,39	245,33	265,60	241,91	234,98	237,00
HFC	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Total	13928,85	12794,80	12735,38	13650,47	12588,86	12330,11	11938,81	12755,59	13248,39	12807,04
CO_2-eq. [%]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
CO_2	76,50	75,09	74,49	75,78	74,64	74,74	74,95	77,32	78,83	78,82
CH_4	12,49	13,32	13,79	13,13	13,53	13,76	13,97	13,17	12,32	12,73
N_2O	9,00	9,52	9,60	8,80	9,73	9,52	8,86	7,61	7,07	6,60
CO	2,01	2,07	2,12	2,30	2,09	1,99	2,22	1,90	1,77	1,85
HFC	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Total	100	100	100	100	100	100	100	100	100	100

CO_2-eq. [kt]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CO_2	11283,60	10084,59	10072,66	9302,42	9049,24	9851,94	8911,58	9445,80	9493,09	8850,65
CH_4	1741,23	1663,84	1622,01	1681,32	1692,03	1647,75	1688,35	1764,01	1718,96	1649,39
N_2O	959,99	799,39	636,46	1222,70	1262,61	1088,57	1162,45	1134,89	971,11	906,90
CO	327,56	225,14	209,13	219,59	201,89	188,69	192,05	297,49	230,27	222,16
HFC	25,20	120,47	30,71	22,49	330,53	372,19	101,09	226,85	274,30	0,00
Total	14337,58	12893,43	12570,96	12448,52	12536,31	13149,14	12055,52	12869,04	12687,73	11629,10
CO_2-eq. [%]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CO_2	78,70	78,21	80,13	74,73	72,18	74,92	73,92	73,40	74,82	76,11
CH_4	12,14	12,90	12,90	13,51	13,50	12,53	14,00	13,71	13,55	14,18
N_2O	6,70	6,20	5,06	9,82	10,07	8,28	9,64	8,82	7,65	7,80
CO	2,28	1,75	1,66	1,76	1,61	1,43	1,59	2,31	1,81	1,91
HFC	0,18	0,93	0,24	0,18	2,64	2,83	0,84	1,76	2,16	0,00
Total	100	100	100	100	100	100	100	100	100	100

General metadata

Code	Title of the indicator	Compliance with CSI/EEA or other indicators		Classification by DPSIR	Type	Linkage with area	Frequency of publication
MK NI 010	Greenhouse gases emissions and removals	CSI 010	Greenhouse gases emissions and removals	P	B	– air – air quality – climate change	Annually

MK - NI 011 PROJECTIONS OF GREENHOUSE GAS EMISSIONS AND REMOVALS

Definition

The indicator illustrates projected trends in anthropogenic greenhouse gas (GHG) emissions by means of application of the existing policies and measures and/or additional policies and measures. Projected trends are presented by sector types: energy, industrial processes, agriculture, land use change and forestry and waste

Units

- Tons CO_2-equivalent.

Policy relevance

This indicator is of vital importance for the national climate change mitigation policy. It is also related to future implementation of projects based on the Clean Development Mechanism (CDM) of the Kyoto Protocol.

Legal grounds

Republic of Macedonia is a Party to the United Nations Framework Convention on Climate Change and to the Kyoto Protocol. Climate change issues have been incorporated in the Law on Environment, including the requirements for preparation of GHG emission inventories and GHG removal via sinks, as well as development of action plan with measures and activities aimed at GHG emissions abatement and climate change impacts mitigation. In addition to this, by means of amendment of the Law on Environment, provision has been made for Designated National Authority (DNA) to approve the projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol.

Key message

According to specific emissions (κt CO2-eq per capita), Macedonia remains among countries with relatively high emissions per capita, mainly due to the use of fossil fuels in electricity production. Compared to the baseline scenario, this parameter notes gradual decline along with the introduction of gas in mitigation scenarios. Considering the close interaction between GHG emissions and the manner of energy production and consumption, the national policy for energy efficiency (EE) and renewable energy sources (RES) will by itself contribute to the climate change mitigation, as achievement of the objectives set in these policies will at the same time reduce the GHG emissions.

Figure 1: Projections of total GHG emissions [kt CO_2-eq] - Baseline scenario

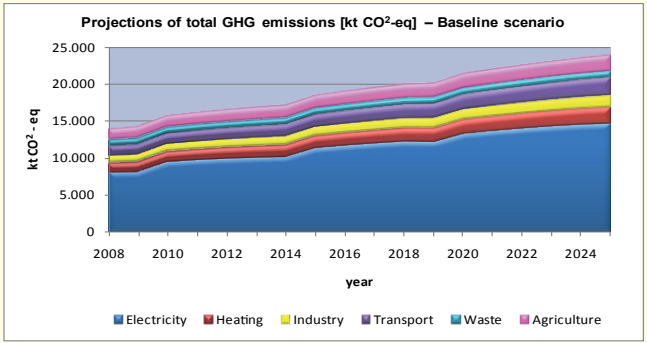


Figure 2: Projections of total GHG emissions [kt CO_2-eq] - First mitigation scenario

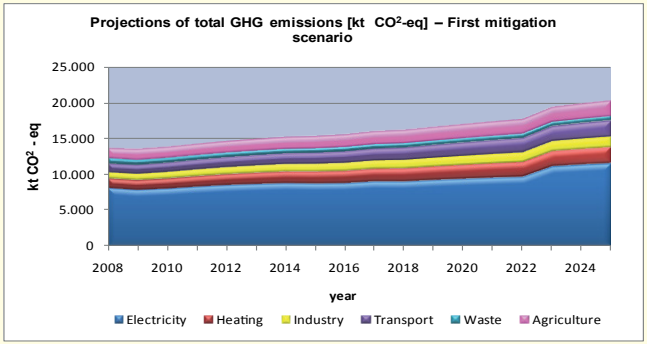


Figure 3: Projections of total GHG emissions [kt CO_2-eq] - Second mitigation scenario

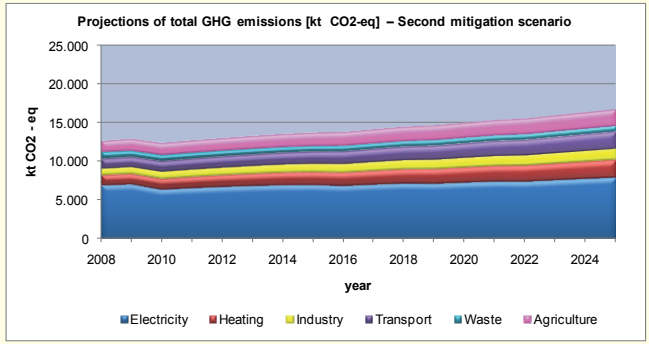


Figure 4: Effectiveness of the three scenarios expressed as absolute emissions growth in 2025 relative to emissions in 2008

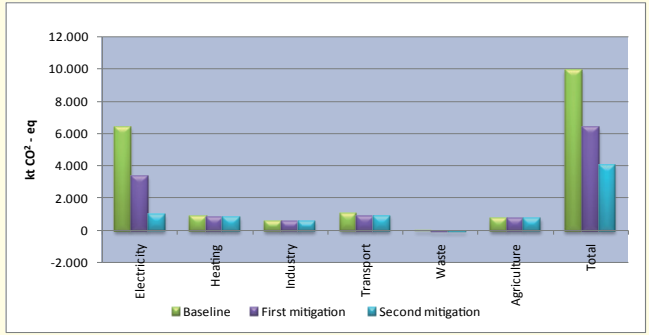


Figure 5: Effectiveness of the three scenarios expressed as absolute emissions growth in 2025 relative to emissions in 2008

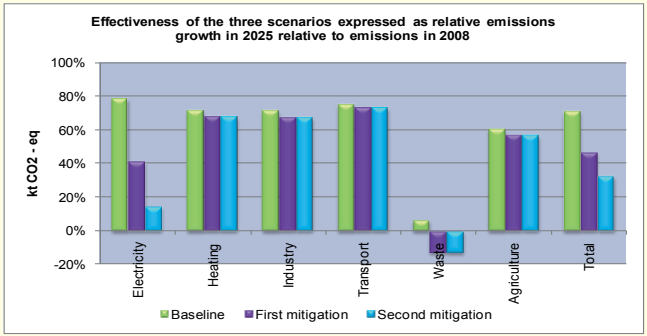
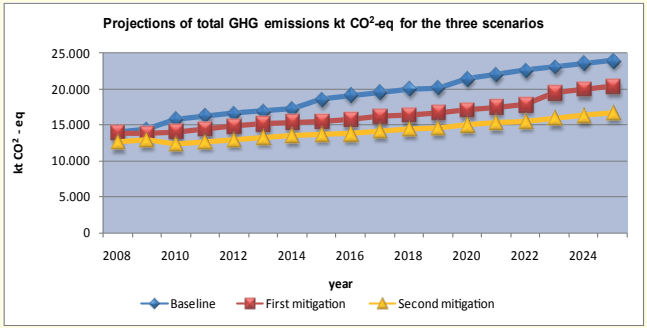


Figure 6: Projections of total GHG emissions kt CO_2-eq for the three scenarios



Assessment

This Chapter integrates sectoral emissions in order to project total GHG emissions for the period 2008 - 2025 based on adopted scenarios: baseline, first and second mitigation scenarios. It should be noted that the first and the second mitigations scenarios differ only in electric power sector, where the second mitigation scenario includes additional measures for emission abatement, which will, as shown below, contribute significantly to the overall emission abatement. Total emissions at the beginning and at the end of the period by all scenarios are summarized on Table 1. Further on, Table 2 (and Figure 1), Table 3 (and Figure 2) and Table 4 (and Figure 3) present sectoral and total GHG emissions by years, for each scenario, respectively Analysis of the baseline scenario: According to projections presented in Table 2 and on Figure 1, there will be significant increase of GHG emissions by 2025 compared to values estimated for 2008 (around 9.900 kt CO2-eq in absolute value, or around 71% in relative terms), provided that business-as-usual is preserved (Figure 4 and Figure 5, the last group of columns). This increase is mainly connected to the growth in electric power sector (absolute difference of 6.400 kt CO2-eq and 78% relative growth of the value in 2008), which

reflects the so called dark scenario, i.e. development scenario of the national energy sector based on lignite (Figure 4 and Figure 5, first group of columns). Other sectors also show significant growth in GHG emissions, so that values in 2025 compared to values in 2008 are higher by 75% - transport, 71% - heating and industry, 60% - agriculture and 6% - waste (Figure 4 and Figure 5).

Analysis of scenarios of emission abatement: The state could improve if development paths include activities/ measures leading to GHG emissions reduction. As a result, the first mitigation scenario (as defined in the analysis by sectors) will lead to increase in total emissions of 46% of the values in 2025 compared to the value in 2008 or absolute difference of around 6.400 kt CO2-eq. (Table 3 and Figure 2; also Figure 4 and Figure 5, last group of columns). This increase in total emissions decreases further by 32% (absolute difference of around 4.000 kt CO2-eq) if development paths observe the second mitigation scenario (Table 4 and Figure 3; also Figure 4 and Figure 5, last group of columns).

With regard to emission projections by sectors for the three scenarios, comparison of emissions in 2025 with those in 2008 shows highest rise of emissions in electric energy sector. Namely, the relative increase of 78% in the baseline scenario falls at 41% in the first mitigation scenario due to the introduction of two plants on natural gas for combined electricity and heat production (the first one in 2009 and the second in 2015). The relative increase drops at 14% under the second mitigation scenario, as a result of reduced consumption by major consumers, introduction of renewable energy sources and termination of the thermal power plant (TPP) in Negotino upon the establishment of the new gas power plant (Figure 4 and Figure 5, last group of columns). As far as the sectors are concerned, there is a notable result in the waste sector, where the relative increase of 6% in the baseline scenario reaches negative relative increase (-13%) under both mitigation scenarios. This means that, under the mitigation scenario, the values of emissions in 2025 will be by 13 % lower compared to their values in 2008 (Figure 4 and Figure 5, fifth group of columns), owing to the introduction of technology for landfill gas combustion at several landfills in the country. Other sectors note minor contribution to the reduction of overall emissions, considering the fact that the relative difference between baseline and mitigation scenarios ranges within 2 - 4%. (Figure 5).

Summary of the projections of total GHG emissions by years, in line with the adopted scenarios, is presented in Table 5 and on Figure 6.

According to its country specific emissions (kt CO2-eq/capita), Macedonia remains among countries with relatively high emissions per capita, owing mainly to the use of fossil fuels in electricity production. Compared to the baseline scenario, this parameter notes gradual decrease with the introduction of gas under mitigation scenarios. The calculated specific emissions for the three scenarios are presented in Table 6.

Methotodolgy

- Methodology for the indicator calculation

The electric energy production sector (which contributes more than 50% to the total GHG emissions) has been modeled by application of the WASP software (a tool used in the energy sector development planning), while emissions estimates for other sectors have been made by using the software tool GACMO and expert judgments. Projections of GHG emissions have been made by downscaling analysis made under the national reports.

Data specification

Title of the indicator	Source	Reporting obligation
Projections of GHG emissions and removals	Analysis for GHG emissions reduction in: the First National Communication on Climate Change to UNFCCC, MEPP, UNDP, p. 47-84, 2003 Second National Communication on Climate Change to UNFCCC, MEPP, www.unfccc.org.mk	UNFCCC

Data coverage:

Table 1 Determining values for the three scenarios

	Total GHG emissions in 2008 [kt CO2-eq]	Total GHG emissions in 2025 [kt CO2-eq]
Baseline scenario	14.040	23.947
First mitigation scenario	13.904	20.348
Second mitigation scenario	12.645	16.713

Table 2 Projections of total GHG emissions [κt CO2-eq]- Baseline scenario

Year	Electricity	Heating	Industry	Transport	Waste	Agriculture	Total
2008	8.196	1.328	906	1.390	844	1.376	14.040
2009	8.268	1.375	937	1.432	847	1.517	14.376
2010	9.584	1.423	970	1.475	850	1.553	15.855
2011	9.836	1.472	1.004	1.520	853	1.595	16.280
2012	10.025	1.524	1.039	1.566	856	1.637	16.647
2013	10.154	1.577	1.076	1.614	859	1.679	16.959
2014	10.246	1.632	1.113	1.664	862	1.722	17.239
2015	11.388	1.690	1.152	1.715	865	1.764	18.574
2016	11.719	1.740	1.187	1.775	868	1.807	19.096
2017	12.006	1.792	1.222	1.838	871	1.851	19.580
2018	12.261	1.846	1.259	1.902	875	1.894	20.037
2019	12.199	1.902	1.297	1.970	878	1.937	20.183
2020	13.260	1.959	1.336	2.039	881	1.981	21.456
2021	13.628	2.017	1.376	2.112	884	2.025	22.042
2022	13.954	2.078	1.417	2.186	887	2.070	22.592
2023	14.241	2.140	1.459	2.264	891	2.114	23.109
2024	14.463	2.205	1.503	2.344	894	2.159	23.568
2025	14.600	2.271	1.548	2.427	897	2.204	23.947

Table 3 Projections of total GHG emissions [κt CO2-eq]- First mitigation scenario

Year	Electricity	Heating	Industry	Transport	Waste	Agriculture	Total
2008	8.196	1.328	902	1.258	844	1.376	13.904
2009	7.922	1.353	931	1.296	769	1.517	13.788
2010	8.093	1.401	961	1.335	757	1.512	14.059
2011	8.354	1.451	993	1.375	741	1.546	14.460
2012	8.575	1.502	1.025	1.416	729	1.588	14.835
2013	8.719	1.556	1.059	1.458	720	1.630	15.142
2014	8.831	1.611	1.094	1.502	700	1.673	15.411
2015	8.784	1.647	1.130	1.547	703	1.715	15.526
2016	8.827	1.697	1.163	1.601	706	1.757	15.751
2017	9.071	1.749	1.196	1.656	709	1.800	16.181
2018	9.055	1.803	1.231	1.714	712	1.844	16.359
2019	9.262	1.859	1.267	1.773	715	1.887	16.763
2020	9.428	1.916	1.304	1.834	718	1.930	17.130
2021	9.580	1.975	1.342	1.897	722	1.974	17.490
2022	9.700	2.035	1.381	1.963	725	2.018	17.822
2023	11.131	2.097	1.422	2.031	728	2.063	19.472
2024	11.367	2.162	1.463	2.101	731	2.107	19.931
2025	11.553	2.228	1.506	2.174	735	2.152	20.348

Table 4 Projections of total GHG emissions [κt CO2-eq]- Second mitigation scenario

Year	Electricity	Heating	Industry	Transport	Waste	Agriculture.	Total
2008	6.937	1.328	902	1.258	844	1.376	12.645
2009	7.082	1.353	931	1.296	769	1.517	12.948
2010	6.430	1.401	961	1.335	757	1.512	12.396
2011	6.613	1.451	993	1.375	741	1.546	12.719
2012	6.765	1.502	1.025	1.416	729	1.588	13.025
2013	6.881	1.556	1.059	1.458	720	1.630	13.304
2014	6.973	1.611	1.094	1.502	700	1.673	13.553
2015	6.990	1.647	1.130	1.547	703	1.715	13.732
2016	6.878	1.697	1.163	1.601	706	1.757	13.802
2017	7.042	1.749	1.196	1.656	709	1.800	14.152
2018	7.180	1.803	1.231	1.714	712	1.844	14.484
2019	7.143	1.859	1.267	1.773	715	1.887	14.644
2020	7.290	1.916	1.304	1.834	718	1.930	14.992
2021	7.415	1.975	1.342	1.897	722	1.974	15.325
2022	7.398	2.035	1.381	1.963	725	2.018	15.520
2023	7.586	2.097	1.422	2.031	728	2.063	15.927
2024	7.756	2.162	1.463	2.101	731	2.107	16.320
2025	7.918	2.228	1.506	2.174	735	2.152	16.713

Table 5 Projections of total GHG emissions for the three scenarios [κt CO2-eq]

Year	Baseline scenario	First mitigation scenario	Second mitigation scenario
2008	14.040	13.904	12.645
2009	14.376	13.788	12.948
2010	15.855	14.059	12.396
2011	16.280	14.460	12.719
2012	16.647	14.835	13.025
2013	16.959	15.142	13.304
2014	17.239	15.411	13.553
2015	18.574	15.526	13.732
2016	19.096	15.751	13.802
2017	19.580	16.181	14.152
2018	20.037	16.359	14.484
2019	20.183	16.763	14.644
2020	21.456	17.130	14.992
2021	22.042	17.490	15.325
2022	22.592	17.822	15.520
2023	23.109	19.472	15.927
2024	23.568	19.931	16.320
2025	23.947	20.348	16.713

Table 6 Country Specific GHG emissions in Macedonia kt CO2-eq/capita

Year	Population projections (1000 inhabitants)	Baseline scenario	First mitigation scenario	Second mitigation scenario
2008	2.055	6,83	6,76	6,15
2009	2.062	6,97	6,69	6,28
2010	2.068	7,67	6,80	5,99
2011	2.074	7,85	6,97	6,13
2012	2.080	8,00	7,13	6,26
2013	2.086	8,13	7,26	6,38
2014	2.093	8,24	7,36	6,48
2015	2.099	8,85	7,40	6,54
2016	2.105	9,07	7,48	6,56
2017	2.112	9,27	7,66	6,70
2018	2.118	9,46	7,72	6,84
2019	2.124	9,50	7,89	6,89
2020	2.131	10,07	8,04	7,04
2021	2.137	10,31	8,18	7,17
2022	2.143	10,54	8,31	7,24
2023	2.150	10,75	9,06	7,41
2024	2.156	10,93	9,24	7,57
2025	2.163	11,07	9,41	7,73

General metadata

Code	Title of the indicator	Compliance with CSI/EEA or other indicators		Classification by DPSIR	Type	Linkage with area	Frequency of publication
MK NI 011	Projections of GHG emissions and removals	CSI 011	Projections of GHG emissions and removals	P	A	- air - air quality - climate change	Annually