

EXECUTIVE SUMMARY

ES.1 Background information on greenhouse gas (GHG) inventories and climate change

ES.1.1 Background information on climate change

Climate in a narrow sense is usually defined as the average weather, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. It undergoes natural variability. Since industrialisation started some 150 years ago, mankind has been influencing the climate via the emission of greenhouse gases. In 1992, by adopting the United Nations Convention on Climate Change, the countries of the world came together to prevent dangerous effects of climate change. However, the Convention did not include binding commitments to limit GHG emissions. To go this step further the Kyoto Protocol was adopted in 1997: It sets binding emission limits for 37 industrialized countries for the period 2008–2012.

An agreement on a second Kyoto commitment period from 2013 to 2020 was achieved 2012 at the 18th Conference of the Parties in Doha (Qatar) (UNFCCC CMP.8). The agreed reduction for the EU is 20% compared to 1990 emissions, which is in line with the climate and energy package 2020 of the EU.

ES.1.2 Background information on greenhouse gas inventories

To be able to evaluate the trend of greenhouse gas emissions, especially the progress in achieving the emission reduction goal, it is necessary to regularly compile an inventory of GHG emissions. The compilation of these inventories follows rules as agreed under the respective bodies of the UNFCCC and the Kyoto Protocol.

ES.2 Summary of national emission and removal-related trends

In 2015 Austria's total greenhouse gas (GHG) emissions (without LULUCF) amounted to 78.9 Mt CO₂ equivalents (CO₂e). Compared to 1990 GHG emissions increased by 0.1%, compared to 2014 GHG emissions increased by 3.2%.

The most important GHG in Austria is carbon dioxide (CO₂) with a share of 85% in 2015. The CO₂ emissions primarily result from combustion activities. Methane (CH₄), which mainly arises from stock farming and waste disposal, contributes 8.3% to national total GHG emissions, and nitrous oxide (N₂O) with agricultural soils as the main source contributes another 4.5% in 2015. The remaining 2.6% are emissions of fluorinated compounds, which are mostly emitted from the use of these gases as substitutes for ozone depleting substances (ODS) in refrigeration equipment.

Table 1: Austria's greenhouse gas emissions by gas.

GHG	Total	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃
1990	78 805	62 293	10 514	4 342	2	1 183	471	0
1991	82 631	65 900	10 415	4 504	4	1 193	614	0
1992	75 925	60 432	10 122	4 198	6	510	656	0
1993	75 968	60 788	10 024	4 113	235	64	744	0
1994	76 501	61 191	9 729	4 322	261	71	926	1
1995	79 815	64 207	9 640	4 425	353	83	1 100	6
1996	83 031	67 674	9 358	4 317	417	80	1 177	8
1997	82 494	67 454	8 981	4 341	498	117	1 086	16
1998	81 790	67 055	8 803	4 388	609	56	870	9
1999	80 171	65 702	8 628	4 377	701	79	676	8
2000	80 534	66 346	8 447	4 354	714	88	575	11
2001	84 584	70 457	8 278	4 230	863	116	629	11
2002	86 251	72 199	8 125	4 232	969	102	613	11
2003	91 908	77 861	8 056	4 221	1 072	126	549	22
2004	91 674	78 165	8 050	3 633	1 158	158	484	27
2005	92 642	79 369	7 808	3 633	1 146	163	494	28
2006	89 798	76 684	7 674	3 630	1 152	172	453	33
2007	87 072	74 028	7 547	3 644	1 196	230	367	59
2008	86 923	73 805	7 410	3 824	1 249	208	373	53
2009	80 249	67 646	7 313	3 599	1 309	36	342	5
2010	85 059	72 547	7 211	3 399	1 483	78	336	4
2011	82 697	70 287	7 000	3 489	1 536	74	307	4
2012	80 038	67 721	6 883	3 449	1 613	51	312	9
2013	80 150	67 956	6 788	3 440	1 603	49	305	10
2014	76 381	64 204	6 650	3 507	1 643	53	313	11
2015	78 851	66 724	6 575	3 517	1 662	50	309	13

NOTE: Emissions without LULUCF

Over the period 1990–2015 CO₂ emissions increased by 7.1%, mainly due to increased emissions from transport. Methane emissions decreased during the same period by 37% mainly due to lower emissions from solid waste disposal; N₂O emissions decreased by 19% over the same period due to lower emissions from agricultural soils and from chemical industry. HFC emissions increased remarkably between 1990 and 2015 (from 2.4 to 1 662 kt CO₂e), whereas PFC and SF₆ emissions decreased by 96% and 34% respectively. NF₃ emissions amounted to 13 kt in 2015 compared to zero emissions in 1990.

ES.3 Overview of source and sink category emission estimates and trends

The dominant sector regarding GHG emissions in Austria is *Energy*, causing 68% of total national GHG emissions in 2015 (67% in 1990), followed by the sectors *Industrial Processes and Other Product Use* (21% in 2015) and *Agriculture* (9.1% in 2015).

Table 2: Austria's greenhouse gas emissions by sector.

GHG source and sink categories	1. Energy	2. IPPU	3. Agriculture	4. LULUCF	5. Waste	6. Other
	CO ₂ equivalents (kt)					
1990	53 028	13 663	8 189	-12 139	3 925	NO
1991	56 725	13 696	8 215	-16 779	3 994	NO
1992	52 138	12 054	7 786	-11 826	3 946	NO
1993	52 395	12 005	7 647	-12 184	3 921	NO
1994	52 039	12 739	7 900	-12 109	3 823	NO
1995	54 520	13 606	8 038	-13 405	3 651	NO
1996	58 722	13 057	7 790	-10 852	3 463	NO
1997	57 219	14 220	7 741	-19 228	3 315	NO
1998	57 021	13 865	7 708	-17 362	3 195	NO
1999	55 847	13 647	7 602	-19 492	3 075	NO
2000	55 422	14 642	7 506	-16 227	2 963	NO
2001	59 746	14 523	7 449	-19 156	2 865	NO
2002	60 885	15 166	7 336	-14 300	2 863	NO
2003	66 544	15 308	7 189	-4 902	2 867	NO
2004	66 711	14 863	7 170	-9 264	2 930	NO
2005	67 134	15 612	7 104	-10 733	2 791	NO
2006	63 798	16 252	7 077	-5 381	2 671	NO
2007	60 470	16 941	7 118	-5 723	2 543	NO
2008	59 992	17 274	7 226	-4 521	2 431	NO
2009	56 771	13 948	7 245	-4 396	2 285	NO
2010	59 881	15 926	7 094	-5 887	2 158	NO
2011	57 424	16 085	7 146	-6 187	2 043	NO
2012	55 321	15 697	7 077	-5 633	1 942	NO
2013	55 285	15 978	7 059	-4 513	1 829	NO
2014	51 326	16 133	7 184	-4 885	1 739	NO
2015	53 351	16 676	7 168	-4 824	1 656	NO

ES.4 Other information

Overview of Emission Estimates and Trends of Indirect GHGs and SO₂

Emissions of indirect greenhouse gases decreased in the period from 1990 to 2015: NO_x by 33%, CO by 56%, NMVOC by 60%, and SO₂ by 80%. The most important emission source for NO_x, SO₂ and CO is *Energy* (fuel combustion). The most important emission source for NMVOC is *Solvent and other Product Use*.

Table 3: Emissions of indirect GHGs and SO₂ 1990–2015.

Year	NO _x	CO	NMVOC	SO ₂
	[kt]			
1990	220	1 286	280	75
1991	229	1 286	276	72
1992	215	1 216	255	55

Year	NO _x	CO	NM VOC	SO ₂
	[kt]			
1993	205	1 150	241	54
1994	199	1 085	218	48
1995	199	987	204	47
1996	216	992	198	45
1997	205	923	177	40
1998	217	885	169	35
1999	208	783	161	34
2000	214	784	153	31
2001	223	762	150	32
2002	229	729	146	32
2003	237	734	144	32
2004	234	715	139	27
2005	236	686	136	26
2006	222	665	131	27
2007	211	626	126	23
2008	195	602	123	20
2009	179	568	118	15
2010	179	581	118	17
2011	170	563	114	15
2012	163	563	113	15
2013	163	584	115	15
2014	151	536	110	15
2015	147	565	112	15