

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 harmful 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 2017 Austria's total greenhouse gas (GHG) emissions (without LULUCF) amounted to 82.3 Mt CO₂ equivalents (CO₂e). Compared to the base year¹ 1990 GHG emissions increased by 4.6%, compared to 2016 GHG emissions increased by 3.3%.

The most important GHG in Austria remains carbon dioxide (CO₂) with a share of 85% in 2017. The CO₂ emissions primarily result from combustion activities. Methane (CH₄), which mainly arises from stock farming and waste disposal, contributes 8.0% to the national total GHG emissions, and nitrous oxide (N₂O) with agricultural soils as the main source contributes another 4.3% in 2017. 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.

¹ Austria's base year under the UNFCCC is 1990. Under the Kyoto Protocol the base year for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ is 1990, for NF₃ it is 2000. Under the EU Effort Sharing Decision, the base year is 2005 (relates only to emissions not included in the EU Emissions Trading Scheme). Unless otherwise specified, references to the base year in this report refer always to 1990.

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	78 670	62 323	10 363	4 329	2.4	1 183	471	0.0
1991	82 349	65 931	10 243	4 364	3.9	1 193	614	0.0
1992	75 750	60 442	9 960	4 176	5.6	510	656	0.0
1993	75 932	60 806	9 877	4 206	235	64	744	0.0
1994	76 207	61 199	9 590	4 158	261	71	926	0.8
1995	79 584	64 268	9 518	4 254	353	83	1 100	6.4
1996	82 875	67 694	9 216	4 283	417	80	1 177	7.9
1997	82 405	67 464	8 917	4 307	498	117	1 086	16
1998	81 702	67 067	8 740	4 353	609	56	870	9.4
1999	80 105	65 737	8 562	4 342	701	79	676	8.2
2000	80 415	66 313	8 396	4 320	714	88	575	11
2001	84 324	70 275	8 236	4 194	863	116	629	11
2002	86 111	72 124	8 095	4 196	969	102	613	11
2003	91 788	77 799	8 033	4 185	1 073	126	549	22
2004	91 383	77 921	8 035	3 599	1 160	158	484	27
2005	92 567	79 395	7 748	3 590	1 148	163	494	28
2006	90 117	77 061	7 648	3 595	1 155	172	453	33
2007	87 473	74 469	7 542	3 606	1 198	230	367	59
2008	86 816	73 727	7 418	3 787	1 250	208	373	53
2009	80 329	67 724	7 346	3 566	1 310	36	342	4.5
2010	84 753	72 228	7 256	3 366	1 486	78	336	4.1
2011	82 460	70 143	7 060	3 459	1 414	74	307	4.1
2012	79 811	67 577	6 948	3 422	1 492	51	312	8.6
2013	80 353	68 161	6 891	3 417	1 520	49	305	9.8
2014	76 680	64 467	6 750	3 499	1 587	53	313	11
2015	78 897	66 733	6 678	3 498	1 616	50	310	13
2016	79 596	67 315	6 617	3 582	1 632	50	393	6.1
2017	82 261	69 979	6 597	3 505	1 725	44	399	12

NOTE: Emissions without LULUCF

Over the period 1990–2017 CO₂ emissions increased by 12%, mainly due to increased emissions from transport. Methane emissions decreased during the same period by 36% mainly due to lower emissions from solid waste disposal; N₂O emissions decreased by 19% over the same period due to lower emissions from the chemical industry. HFC emissions increased remarkably between 1990 and 2017 (from 2.4 to 1 725 kt CO₂e), whereas PFC and SF₆ emissions decreased by 96% and 15% respectively. NF₃ emissions amounted to 12 kt CO₂ equivalents in 2017 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 2017 (67% in 1990), followed by the sectors *Industrial Processes and Other Product Use* (21% in 2017) and *Agriculture* (8.9% in 2017).

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

GHG source and sink categories	1.	2.	3.	4.	5.	6.
	Energy	IPPU	Agriculture	LULUCF	Waste	Other
CO ₂ equivalent [kt]						
1990	52 946	13 662	8 137	-11 988	3 925	NO*
1991	56 615	13 696	8 044	-16 690	3 994	NO
1992	52 021	12 053	7 729	-11 663	3 946	NO
1993	52 292	12 004	7 715	-11 957	3 921	NO
1994	51 943	12 739	7 702	-11 830	3 823	NO
1995	54 500	13 605	7 828	-13 143	3 651	NO
1996	58 636	13 057	7 718	-10 559	3 463	NO
1997	57 199	14 219	7 672	-19 075	3 315	NO
1998	57 003	13 865	7 640	-17 207	3 195	NO
1999	55 848	13 647	7 534	-19 516	3 075	NO
2000	55 403	14 610	7 438	-16 419	2 963	NO
2001	59 591	14 488	7 380	-19 265	2 865	NO
2002	60 849	15 129	7 269	-14 262	2 863	NO
2003	66 529	15 271	7 122	-4 869	2 867	NO
2004	66 537	14 811	7 106	-9 188	2 930	NO
2005	67 138	15 600	7 038	-10 659	2 791	NO
2006	64 162	16 257	7 027	-5 169	2 671	NO
2007	60 935	16 912	7 082	-5 497	2 543	NO
2008	59 930	17 249	7 206	-4 262	2 431	NO
2009	56 882	13 922	7 240	-4 532	2 285	NO
2010	59 563	15 930	7 103	-5 864	2 158	NO
2011	57 283	15 970	7 165	-6 091	2 043	NO
2012	55 188	15 571	7 110	-5 467	1 942	NO
2013	55 520	15 902	7 106	-4 517	1 824	NO
2014	51 696	16 017	7 246	-4 724	1 721	NO
2015	53 409	16 602	7 249	-4 551	1 638	NO
2016	54 279	16 395	7 365	-4 379	1 557	NO
2017	56 272	17 197	7 308	-4 906	1 484	NO

* not occurring

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 2017: NO_x by 35%, CO by 55%, NMVOC by 63%, and SO₂ by 83%. 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 1990–2017.

Year	NO _x	[kt]		
		CO	NM VOC	SO ₂
1990	218	1 179	324	74
1991	226	1 175	316	71
1992	214	1 120	291	54
1993	206	1 064	272	53
1994	198	1 008	251	47
1995	198	914	237	47
1996	217	923	230	44
1997	203	863	218	40
1998	216	828	211	36
1999	207	724	202	34
2000	213	728	179	32
2001	223	708	174	32
2002	229	683	170	31
2003	237	691	168	31
2004	234	681	155	27
2005	236	617	156	25
2006	223	608	158	26
2007	213	577	154	23
2008	197	556	149	20
2009	182	536	136	15
2010	181	551	137	16
2011	172	523	131	15
2012	166	524	128	14
2013	167	564	133	14
2014	158	520	120	15
2015	155	538	124	14
2016	149	533	122	13
2017	143	527	120	13