

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 2018 Austria's total greenhouse gas (GHG) emissions (without LULUCF) amounted to 79.0 Mt CO₂ equivalents (CO₂e). Compared to the base year¹ 1990 GHG emissions increased by 0.6%, compared to 2017 GHG emissions decreased by 3.7%.

The most important GHG in Austria remains carbon dioxide (CO₂) with a share of 85% in 2018. The CO₂ emissions primarily result from combustion activities. Methane (CH₄), which mainly arises from stock farming and waste disposal, contributes 8.2% to total national GHG emissions; nitrous oxide (N₂O) with agricultural soils as the main source contributes another 4.5% in 2018. The remaining 2.9% 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
CO ₂ equivalent [kt]								
1990	78 493	62 125	10 391	4 321	2.4	1 183	471	NO, NA
1991	82 157	65 726	10 267	4 354	3.9	1 193	614	NO, NA
1992	75 524	60 204	9 982	4 166	5.6	510	656	NO, NA
1993	75 771	60 635	9 897	4 195	235	64	744	NO, NA
1994	76 017	61 002	9 608	4 148	261	71	926	61 002
1995	79 383	64 065	9 530	4 244	353	83	1 100	64 065
1996	82 605	67 422	9 228	4 274	417	80	1 177	67 422
1997	82 176	67 233	8 925	4 300	498	117	1 086	67 233
1998	81 512	66 875	8 746	4 348	609	56	870	66 875
1999	79 931	65 563	8 565	4 339	701	79	676	65 563
2000	80 262	66 163	8 393	4 319	714	88	575	66 163
2001	84 152	70 103	8 235	4 195	863	116	629	70 103
2002	85 907	71 919	8 094	4 199	969	102	613	71 919
2003	91 545	77 554	8 030	4 190	1 073	126	549	77 554
2004	91 140	77 674	8 034	3 603	1 160	158	484	77 674
2005	92 427	79 192	7 800	3 601	1 148	163	494	79 192
2006	90 023	76 898	7 700	3 610	1 155	172	453	76 898
2007	87 338	74 263	7 595	3 625	1 198	230	367	74 263
2008	86 748	73 588	7 469	3 805	1 250	208	373	73 588
2009	80 163	67 494	7 393	3 583	1 310	36	342	67 494
2010	84 613	72 012	7 309	3 389	1 486	78	336	72 012
2011	82 287	69 898	7 108	3 481	1 414	74	307	69 898
2012	79 529	67 209	7 007	3 449	1 492	51	312	67 209
2013	79 972	67 746	6 907	3 435	1 520	49	305	67 746
2014	76 346	64 084	6 777	3 519	1 588	53	314	64 084
2015	78 510	66 283	6 702	3 529	1 623	50	310	66 283
2016	79 467	67 112	6 643	3 620	1 643	50	393	67 112
2017	82 023	69 629	6 626	3 562	1 751	44	400	69 629
2018	78 950	66 720	6 439	3 526	1 835	33	382	66 720

NOTE: Emissions without LULUCF

Over the period 1990–2018 CO₂ emissions increased by 7.4%, mainly due to increased emissions from transport. Methane emissions decreased during the same period by 38% mainly due to lower emissions from solid waste disposal; N₂O emissions decreased by 18% over the same period due to lower emissions from the chemical industry. HFC emissions increased remarkably between 1990 and 2018 (from 2.4 to 1 835 kt CO₂e), whereas PFC and SF₆ emissions decreased by 97% and 19% respectively. NF₃ emissions amounted to 17 kt CO₂ equivalents in 2018 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 69% of total national GHG emissions in 2018 (67% in 1990), followed by the sectors *Industrial Processes and Other Product Use* (20% in 2018) and *Agriculture* (9.2% in 2018).

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	52 815	13 662	8 089	-11 988	3 926	NO*
1991	56 472	13 696	7 993	-16 690	3 996	56 472
1992	51 843	12 053	7 680	-11 663	3 948	51 843
1993	52 182	12 004	7 663	-11 957	3 922	52 182
1994	51 810	12 739	7 643	-11 830	3 825	51 810
1995	54 358	13 605	7 768	-13 138	3 653	54 358
1996	58 430	13 057	7 654	-10 549	3 464	58 430
1997	57 025	14 219	7 616	-19 061	3 317	57 025
1998	56 865	13 865	7 585	-17 189	3 197	56 865
1999	55 731	13 647	7 476	-19 493	3 077	55 731
2000	55 300	14 610	7 387	-16 391	2 965	55 300
2001	59 461	14 488	7 334	-19 234	2 868	59 461
2002	60 685	15 130	7 226	-14 227	2 866	60 685
2003	66 326	15 271	7 078	-4 834	2 870	66 326
2004	66 336	14 810	7 061	-9 152	2 933	66 336
2005	67 007	15 631	6 996	-10 622	2 794	67 007
2006	64 070	16 287	6 991	-5 159	2 675	64 070
2007	60 777	16 964	7 050	-5 398	2 547	60 777
2008	59 837	17 291	7 185	-4 158	2 435	59 837
2009	56 737	13 918	7 219	-4 449	2 288	56 737
2010	59 448	15 924	7 080	-5 777	2 161	59 448
2011	57 125	15 966	7 150	-6 005	2 046	57 125
2012	54 918	15 565	7 100	-5 348	1 946	54 918
2013	55 169	15 885	7 091	-4 396	1 827	55 169
2014	51 380	16 009	7 233	-4 603	1 724	51 380
2015	53 038	16 585	7 246	-4 439	1 641	53 038
2016	54 163	16 383	7 361	-4 271	1 560	54 163
2017	56 013	17 209	7 314	-4 852	1 487	56 013
2018	54 693	15 613	7 224	-5 153	1 420	54 693

* 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 2018: NO_x by 31%, CO by 61%, NMVOC by 68%, and SO₂ by 84%. The most important emission source for NO_x, SO₂ and CO is *Energy* (fuel combustion). The most important emission source for NMVOC is *Agriculture*.

Table 3: Emissions of indirect GHGs and SO₂ 1990–2018.

Year	NO _x	[kt]		
		CO	NM VOC	SO ₂
1990	216	1 248	334	74
1991	226	1 256	328	71
1992	214	1 199	304	54
1993	206	1 137	284	53
1994	198	1 071	262	47
1995	197	967	246	47
1996	214	961	237	44
1997	201	887	223	40
1998	212	841	214	36
1999	204	725	203	34
2000	210	720	179	32
2001	220	693	174	32
2002	228	662	168	31
2003	239	665	165	31
2004	239	647	152	26
2005	244	623	157	26
2006	234	622	159	27
2007	227	599	154	23
2008	213	580	148	20
2009	200	560	135	15
2010	201	575	135	16
2011	192	558	129	15
2012	187	558	127	15
2013	186	562	121	14
2014	178	527	114	14
2015	175	539	111	14
2016	168	536	110	13
2017	160	528	111	13
2018	149	489	107	12