

Austria's National Inventory Report 2023

Submission under the United Nations Framework Convention on Climate Change

SUMMARY – ACCESSIBLE FORMAT
REP-0852

VIENNA 2023

Since 23 December 2005 the Umweltbundesamt has been accredited as Inspection Body for emission inventories, Type A (ID No. 241), in accordance with EN ISO/IEC 17020 and the Austrian Accreditation Law (AkkG), by decree of Accreditation Austria (first decree, No. BMWA-92.715/0036-I/12/2005, issued by Accreditation Austria / Federal Ministry of Economics and Labour on 19 January 2006).

The information covered refers to the following accreditation scope of the IBE: 2006 IPCC GL for National Greenhouse Gas Inventories, 2006 GL Revised Supplementary KP and 2006 GL Supplement Wetlands (akkreditierung-austria.gv.at/overview)



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.

The decision to negotiate a new global agreement for the period after 2020 was made at the Conference of the Parties in Durban in 2011. In December 2015, this was adopted at the 21st Conference of the Parties in Paris. It entered into force on November 4, 2016, as more than 55 Parties covering at least 55% of global GHG emissions ratified it.

The Paris Agreement established the long-term 2°C target for the first time in an international treaty. It also calls for additional efforts to limit temperature increases to 1.5°C. In contrast to the Kyoto Protocol, this new agreement includes not only industrialized but also newly industrializing and developing countries in order to take account of the change in the global distribution of GHG emissions. Plans for emission reductions (Nationally Determined Contributions, NDCs) of the participating countries have been submitted to the UNFCCC.

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.

ES.2 SUMMARY OF NATIONAL EMISSION AND REMOVAL-RELATED TRENDS

In 2021 Austria's total greenhouse gas (GHG) emissions (without Land Use, Land Use Change and Forestry – LULUCF) amounted to 77.5 Mt CO₂ equivalents (CO₂e). Compared to the 1990 base year¹, 2021 GHG emissions without LULUCF decreased by 1.9%. Compared to 2020 GHG emissions increased by 4.9%.

The most important gas in the Austrian GHG balance remains carbon dioxide (CO₂) with a share of 85 % in total 2021 emissions (without LULUCF). Emissions of CO₂ primarily result from combustion activities. Methane (CH₄), which mainly arises from livestock farming and waste disposal, contributes 8.4 % (2021) to total national GHG emissions. Nitrous oxide (N₂O), with agricultural soils as the main source, contributes another 4.0% (2021). The remaining 2.4% 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 emissions	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt)							
1990	62 167	11 319	4 011	2.0	1 063	485	NO,NA	79 047
1995	64 044	10 514	3 856	324	75	1 134	6.0	79 953
2000	66 172	9 218	3 871	677	80	592	9.8	80 619
2005	79 097	8 514	3 188	1 104	150	509	26	92 589
2010	72 017	7 836	2 994	1 426	71	346	3.9	84 693
2011	69 909	7 604	3 087	1 518	66	317	3.8	82 506
2012	67 283	7 470	3 061	1 599	46	321	8.0	79 788
2013	67 776	7 349	3 046	1 689	45	315	9.1	80 229
2014	64 176	7 191	3 127	1 787	48	324	9.9	76 663
2015	66 366	7 103	3 142	1 897	45	319	13	78 884
2016	67 227	7 023	3 231	1 884	46	405	5.7	79 821
2017	69 609	6 993	3 175	1 892	40	412	11	82 132
2018	66 572	6 758	3 136	1 946	29	398	15	78 854
2019	67 956	6 609	3 131	1 802	35	450	13	79 994
2020	62 121	6 503	3 089	1 705	27	455	11	73 911
2021	66 019	6 499	3 123	1 486	23	371	12	77 532

Note: Global warming potentials (GWPs) according to the 5th Assessment Report (IPCC 2013) (100 years time horizon): carbon dioxide (CO₂) = 1; methane (CH₄) = 28; nitrous oxide (N₂O) = 265; sulphur hexafluoride (SF₆) = 23 500; nitrogen trifluoride (NF₃) = 16 100; hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) consist of different substances, therefore GWPs have to be calculated individually depending on the substances

¹ Austria's base year under the UNFCCC is 1990. Under the EU Effort Sharing, 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.

Over the period 1990–2021 CO₂ emissions increased by 6.2%, mainly due to higher CO₂ emissions from iron and steel production. During the same period CH₄ emissions decreased by 43%, mainly due to lower emissions from solid waste disposal sites and N₂O emissions decreased by 22% due to lower emissions from agricultural soils and the chemical industry. HFC emissions increased remarkably between 1990 and 2021 (from 2.0 to 1 486 kt CO₂e), whereas PFC and SF₆ emissions decreased by 98% and 24% respectively. NF₃ emissions amounted to 12 kt CO₂e in 2021 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 67% of total national GHG emissions in 2021 (67% in 1990), followed by the sectors *Industrial Processes and Other Product Use* (22% in 2021) and *Agriculture* (9.3% in 2021).

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 equivalents (kt)						
1990	52 665	13 615	8 400	-12 207	4 367	NO*
1995	54 162	13 606	8 130	-19 771	4 055	NO
2000	55 291	14 408	7 644	-14 284	3 277	NO
2005	66 715	15 652	7 181	-18 418	3 041	NO
2010	59 281	15 935	7 188	-19 759	2 289	NO
2011	56 971	16 126	7 265	-15 360	2 143	NO
2012	54 830	15 730	7 212	-5 767	2 017	NO
2013	55 005	16 139	7 211	-6 242	1 874	NO
2014	51 280	16 289	7 346	-7 612	1 747	NO
2015	53 064	16 800	7 376	-6 563	1 645	NO
2016	54 289	16 498	7 489	-6 993	1 546	NO
2017	56 001	17 231	7 444	-3 249	1 457	NO
2018	54 555	15 596	7 330	4 921	1 373	NO
2019	54 937	16 520	7 221	2 132	1 315	NO
2020	49 930	15 524	7 197	-5 222	1 259	NO
2021	52 142	16 959	7 221	-10 402	1 211	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 2021: NO_x by 44%, CO by 58%, NMVOC by 67%, and SO₂ by 85%. 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 1990–2021.

	NO _x	CO	NMVOC	SO ₂
	[kt]			
1990	218	1 248	334	74
1995	198	973	248	47
2000	211	728	181	31
2005	246	625	156	26
2010	204	580	137	16
2011	196	563	132	15
2012	191	563	130	15
2013	192	566	124	14
2014	185	531	118	14
2015	182	542	113	14
2016	174	537	112	13
2017	165	527	112	13
2018	153	485	108	11
2019	144	498	108	11
2020	123	473	110	10
2021	121	522	111	11
Trend 1990–2021	-44%	-58%	-67%	-85%

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