# AUSTRIA'S NATIONAL INVENTORY DOCUMENT 2025

Submission under the UNFCCC and under the Paris Agreement

> SUMMARY – ACCESSIBLE FORMAT REP-0964

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### **EXECUTIVE SUMMARY**

# ES.1 BACKGROUND INFORMATION ON 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 18<sup>th</sup> 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 21<sup>st</sup> 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 TRENDS RELATED TO NATIONAL EMISSIONS AND REMOVALS

In 2023 Austria's total greenhouse gas (GHG) emissions (without Land Use, Land Use Change and Forestry – LULUCF) amounted to 68.7 Mt CO<sub>2</sub> equivalents (CO<sub>2</sub>e). Compared to the 1990 base year<sup>1</sup>, 2023 GHG emissions without LULUCF decreased by 13.7%. Compared to 2022 GHG emissions decreased by 6.6%.

The most important gas in the Austrian GHG balance remains carbon dioxide (CO<sub>2</sub>) with a share of 83% in total 2023 emissions (without LULUCF). Emissions of CO<sub>2</sub> primarily result from combustion activities. Methane (CH<sub>4</sub>), which mainly arises from livestock farming and waste disposal, contributes 10% (2023) to total national GHG emissions. Nitrous oxide (N<sub>2</sub>O), with agricultural soils as the main source, contributes another 4.5% (2023). 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.

GHG	CO <sub>2</sub>	CH4	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	NF₃	Total
emissions	CO <sub>2</sub> equivalents (kt)							
1990	62 191	11 763	4 117	2.0	1 063	485	NO,NA	79 621
1995	64 063	10 967	3 997	328	75	1 134	6.0	80 570
2000	66 204	9 655	4 160	688	80	592	9.8	81 389
2005	79 095	8 961	3 502	1 097	150	509	26	93 341
2010	72 000	8 349	3 217	1 455	71	346	3.9	85 442
2011	69 892	8 114	3 304	1 554	66	317	3.8	83 251
2012	67 260	7 977	3 270	1 604	46	321	8.0	80 487
2013	67 759	7 855	3 238	1 647	45	315	9.1	80 868
2014	64 159	7 694	3 312	1 669	48	324	9.9	77 215
2015	66 358	7 605	3 322	1 698	45	319	13	79 359
2016	67 219	7 539	3 405	1 700	46	405	5.7	80 319
2017	69 601	7 500	3 335	1 736	40	412	11	82 635
2018	66 567	7 292	3 293	1 847	30	398	15	79 441
2019	67 951	7 168	3 275	1 749	35	450	13	80 641
2020	62 180	7 082	3 223	1 699	27	454	14	74 679
2021	65 751	7 109	3 251	1 555	24	368	15	78 073
2022	61 454	7 005	3 148	1 506	24	362	16	73 515
2023	56 909	6 892	3 077	1 402	26	372	18	68 696

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

<sup>&</sup>lt;sup>1</sup> 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.

Note: Global warming potentials (GWPs) according to the 5<sup>th</sup> Assessment Report (IPCC 2013) (100 years time horizon): carbon dioxide ( $CO_2$ ) = 1; methane ( $CH_4$ ) = 28; nitrous oxide ( $N_2O$ ) = 265; sulphur hexafluoride ( $SF_6$ ) = 23 500; nitrogen trifluoride ( $NF_3$ ) = 16 100; hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) consist of different substances, therefore GWPs have to be calculated individually depending on the substances

Over the period 1990–2023 CO<sub>2</sub> emissions decreased by 8.5%, mainly due to decreasing emissions from energy industries and the residential sector. During the same period CH<sub>4</sub> emissions decreased by 41%, mainly due to lower emissions from solid waste disposal sites, to a smaller extent also from enteric fermentation. N<sub>2</sub>O emissions decreased by 25% due to lower emissions from the chemical industry (nitric acid production) and from agricultural soils. HFC emissions increased remarkably between 1990 and 2023 (from 2.0 to 1 402 kt CO<sub>2</sub>e), whereas PFC and SF<sub>6</sub> emissions decreased by 98% and 23% respectively. NF<sub>3</sub> emissions amounted to 18 kt CO<sub>2</sub>e in 2023 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 65% of total national GHG emissions in 2023 (66% in 1990), followed by the sectors *Industrial Processes and Other Product Use* (23% in 2023) and *Agriculture* (11% in 2023).

GHG source and sink	1. Energy	2. IPPU	3. Agriculture	4. LULUCF	5. Waste	6. Other		
categories	CO <sub>2</sub> equivalents (kt)							
1990	52 835	13 641	8 581	-13 756	4 565	NO*		
1995	54 329	13 631	8 353	-18 397	4 257	NO		
2000	55 459	14 454	8 013	-18 060	3 463	NO		
2005	66 889	15 651	7 578	-15 228	3 223	NO		
2010	59 453	15 965	7 574	-11 734	2 450	NO		
2011	57 141	16 161	7 645	-11 027	2 303	NO		
2012	54 997	15 731	7 584	-9 156	2 176	NO		
2013	55 169	16 097	7 570	-5 020	2 032	NO		
2014	51 439	16 171	7 699	-9 828	1 906	NO		
2015	53 218	16 611	7 727	-4 085	1 803	NO		
2016	54 441	16 322	7 843	-8 125	1 715	NO		
2017	56 154	17 078	7 781	-4 430	1 623	NO		
2018	54 708	15 502	7 683	1 831	1 548	NO		
2019	55 093	16 474	7 579	6 002	1 495	NO		
2020	50 142	15 524	7 568	-950	1 445	NO		

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

GHG source and sink	1. Energy	2. IPPU	3. Agriculture	4. LULUCF	5. Waste	6. Other	
categories	CO <sub>2</sub> equivalents (kt)						
2021	52 042	17 030	7 607	-3 362	1 394	NO	
2022	48 434	16 170	7 573	-206	1 337	NO	
2023	44 451	15 472	7 477	7 530	1 295	NO	

\*not occurring

### **ES.4 OTHER INFORMATION**

#### Overview of Emission Estimates and Trends of Indirect GHGs and SO<sub>2</sub>

Emissions of indirect greenhouse gases decreased in the period from 1990 to 2023:  $NO_x$  by 50%, CO by 63%, NMVOC by 69%, and  $SO_2$  by 86%. The most important emission source for  $NO_x$ ,  $SO_2$  and CO is *Energy* (fuel combustion). The most important emission sources for NMVOC are *Industrial Processes and Other Product Use and Agriculture*.

	NO <sub>x</sub>	со	NMVOC	SO <sub>2</sub>		
	[kt]					
1990	215	1 248	338	74		
1995	198	972	252	47		
2000	211	727	192	31		
2005	246	624	163	26		
2010	204	577	140	16		
2011	196	560	134	15		
2012	191	560	131	15		
2013	192	563	128	14		
2014	185	528	122	14		
2015	182	539	120	14		
2016	175	534	119	13		
2017	165	525	118	13		
2018	153	483	113	11		
2019	144	496	112	11		
2020	123	473	113	10		
2021	122	536	114	11		
2022	113	482	105	11		
2023	107	465	103	10		
1990-2023	-50%	-63%	-69%	-86%		

Table 3:Emissions of indirect GHGs and SO2 1990–2023.



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