

AUSTRIA'S NATIONAL INVENTORY DOCUMENT 2024

*Submission under the UNFCCC and under the Paris
Agreement*

SUMMARY – ACCESSIBLE FORMAT
REP-0943

VIENNA 2025

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 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 TRENDS RELATED TO NATIONAL EMISSIONS AND REMOVALS

In 2022 Austria's total greenhouse gas (GHG) emissions (without Land Use, Land Use Change and Forestry – LULUCF) amounted to 72.8 Mt CO₂ equivalents (CO₂e). Compared to the 1990 base year¹, 2022 GHG emissions without LULUCF decreased by 7.9%. Compared to 2021 GHG emissions decreased by 5.8%.

The most important gas in the Austrian GHG balance remains carbon dioxide (CO₂) with a share of 84% in total 2022 emissions (without LULUCF). Emissions of CO₂ primarily result from combustion activities. Methane (CH₄), which mainly arises from livestock farming and waste disposal, contributes 8.9% (2022) to total national GHG emissions. Nitrous oxide (N₂O), with agricultural soils as the main source, contributes another 4.2% (2022). The remaining 2.5% 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 | 62 184 | 11 321 | 4 028 | 2.0 | 1 063 | 485 | NO,NA | 79 083 |
| 1995 | 64 061 | 10 515 | 3 871 | 324 | 75 | 1 134 | 6.0 | 79 986 |
| 2000 | 66 177 | 9 218 | 3 885 | 678 | 80 | 592 | 9.8 | 80 640 |
| 2005 | 79 092 | 8 519 | 3 200 | 1 109 | 150 | 509 | 26 | 92 605 |
| 2010 | 72 008 | 7 917 | 3 014 | 1 434 | 71 | 346 | 3.9 | 84 793 |
| 2011 | 69 901 | 7 684 | 3 108 | 1 527 | 66 | 317 | 3.8 | 82 607 |
| 2012 | 67 274 | 7 551 | 3 082 | 1 607 | 46 | 321 | 8.0 | 79 889 |
| 2013 | 67 767 | 7 431 | 3 066 | 1 678 | 45 | 315 | 9.1 | 80 310 |
| 2014 | 64 166 | 7 274 | 3 148 | 1 752 | 48 | 324 | 9.9 | 76 721 |
| 2015 | 66 357 | 7 188 | 3 163 | 1 850 | 45 | 319 | 13 | 78 935 |
| 2016 | 67 217 | 7 110 | 3 251 | 1 828 | 46 | 405 | 5.7 | 79 863 |
| 2017 | 69 598 | 7 081 | 3 196 | 1 857 | 40 | 412 | 11 | 82 195 |
| 2018 | 66 562 | 6 853 | 3 156 | 1 890 | 29 | 398 | 15 | 78 903 |
| 2019 | 67 946 | 6 711 | 3 149 | 1 755 | 35 | 450 | 13 | 80 058 |
| 2020 | 62 176 | 6 607 | 3 105 | 1 650 | 27 | 455 | 11 | 74 030 |
| 2021 | 65 757 | 6 622 | 3 143 | 1 431 | 23 | 371 | 12 | 77 360 |
| 2022 | 61 489 | 6 498 | 3 040 | 1 411 | 26 | 365 | 14 | 72 844 |

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 1990–2022 CO₂ emissions decreased by 1.1%, mainly due to decreasing emissions from energy industries and the residential sector. During the same period CH₄ emissions decreased by 43%, mainly due to lower emissions from solid waste disposal sites, to a smaller extent also from enteric fermentation. N₂O 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 2022 (from 2.0 to 1 411 kt CO₂e), whereas PFC and SF₆ emissions decreased by 98% and 25% respectively. NF₃ emissions amounted to 14 kt CO₂e in 2022 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 2022 (67% in 1990), followed by the sectors *Industrial Processes and Other Product Use* (22% in 2022) and *Agriculture* (10% in 2022).

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 | 52 666 | 13 633 | 8 416 | -11 682 | 4 367 | NO* |
| 1995 | 54 161 | 13 625 | 8 145 | -19 334 | 4 055 | NO |
| 2000 | 55 290 | 14 417 | 7 657 | -13 958 | 3 277 | NO |
| 2005 | 66 714 | 15 653 | 7 196 | -18 099 | 3 041 | NO |
| 2010 | 59 279 | 15 938 | 7 287 | -19 439 | 2 289 | NO |
| 2011 | 56 970 | 16 130 | 7 363 | -15 035 | 2 143 | NO |
| 2012 | 54 829 | 15 732 | 7 312 | -5 443 | 2 016 | NO |
| 2013 | 55 004 | 16 122 | 7 311 | -5 911 | 1 873 | NO |
| 2014 | 51 279 | 16 248 | 7 447 | -7 286 | 1 747 | NO |
| 2015 | 53 062 | 16 750 | 7 479 | -6 234 | 1 644 | NO |
| 2016 | 54 285 | 16 437 | 7 595 | -6 667 | 1 546 | NO |
| 2017 | 55 999 | 17 191 | 7 549 | -2 930 | 1 457 | NO |
| 2018 | 54 553 | 15 535 | 7 435 | 5 222 | 1 381 | NO |
| 2019 | 54 935 | 16 470 | 7 324 | 2 437 | 1 329 | NO |
| 2020 | 49 994 | 15 461 | 7 297 | -5 843 | 1 278 | NO |
| 2021 | 51 916 | 16 892 | 7 322 | -11 076 | 1 230 | NO |
| 2022 | 48 464 | 15 929 | 7 277 | -4 474 | 1 174 | 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 2022: NO_x by 48%, CO by 62%, NMVOC by 70%, and SO₂ by 85%. The most important emission source for NO_x, SO₂ and CO is *Energy* (fuel combustion). The most important emission sources for NMVOC are *Industrial Processes and Other Product Use and Agriculture*.

Table 3: Emissions of indirect GHGs and SO₂ 1990–2022.

| | NO _x | CO | NMVOC | SO ₂ |
|------------------|-----------------|-------------|-------------|-----------------|
| | [kt] | | | |
| 1990 | 218 | 1 247 | 328 | 74 |
| 1995 | 198 | 972 | 244 | 47 |
| 2000 | 211 | 726 | 177 | 31 |
| 2005 | 246 | 623 | 153 | 26 |
| 2010 | 204 | 578 | 134 | 16 |
| 2011 | 196 | 560 | 129 | 15 |
| 2012 | 191 | 560 | 127 | 15 |
| 2013 | 192 | 564 | 121 | 14 |
| 2014 | 185 | 529 | 115 | 14 |
| 2015 | 182 | 539 | 111 | 14 |
| 2016 | 174 | 534 | 110 | 13 |
| 2017 | 165 | 525 | 110 | 13 |
| 2018 | 153 | 483 | 107 | 11 |
| 2019 | 144 | 496 | 106 | 11 |
| 2020 | 123 | 472 | 108 | 10 |
| 2021 | 122 | 537 | 108 | 11 |
| 2022 | 113 | 480 | 100 | 11 |
| 1990–2022 | -48% | -62% | -70% | -85% |

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