

First Release

Year: LXII.

Zagreb, 26 September 2025

OEN-2025-1-5

ISSN 1334-0557



AIR EMISSION ACCOUNTS, 2023 – Provisional Data

The emissions of greenhouse gases and air pollutants are presented for the Republic of Croatia for the period from 2019 to 2023.

The total greenhouse gas emissions into the air increased in 2023 compared to 2022. Emissions of all air pollutants increased in 2023 compared to 2022.

In 2023, the largest quantities of greenhouse gas emissions were generated by CO₂ emissions (excluding biomass emissions as fuel), **18 831.95 thousand t (Gg)**, CO₂ from biomass, **6 438.50 thousand t (Gg)**, HFC, 1 928 968.73 t (Mg) in CO₂ equivalent, and CH₄ 131 651.80 t (Mg). Of all pollutants in 2023, CO accounted for the highest share of emissions, **207 591.18 t (Mg)**.

Final data will be available in the [Database](#) on 5 December 2025.

1 AIR EMISSIONS¹⁾

	2019	2020	2021	2022	2023
CO ₂ (without emissions from biomass used as fuel), 1 000 t (Gg)	18 081,24	17 040,64	17 622,18	17 878,47	18 831,95
Biomass CO ₂ , 1 000 t (Gg)	6 228,14	6 383,96	7 049,25	6 532,67	6 438,50
N ₂ O, t (Mg)	5 792,77	5 794,24	5 838,69	5 440,77	5 542,63
CH ₄ , t (Mg)	146 546,28	142 628,74	138 365,16	135 661,01	131 651,80
HFC, t (Mg) CO ₂ -equivalent	1 466 754,70	1 572 233,36	1 697 005,47	1 812 054,50	1 928 968,73
PFC, t (Mg) CO ₂ -equivalent	0	0	0	0	0
SF ₆ NF ₃ , t (Mg) CO ₂ -equivalent	8 093,26	9 352,65	9 628,56	9 998,38	10 472,58
NO _x , t (Mg) NO ₂ -equivalent	50 616,31	46 305,71	48 105,59	46 593,58	47 941,07
SO _x , t (Mg)	7 634,38	6 177,16	5 695,31	5 548,81	5 546,48
NH ₃ , t (Mg)	28 593,44	28 843,13	27 807,52	24 097,96	23 136,88
NMVOC, t (Mg)	68 307,22	63 188,47	63 314,55	54 078,02	54 528,23
CO, t (Mg)	219 266,74	214 605,73	228 160,16	196 667,55	207 591,18
PM ₁₀ , t (Mg)	38 858,20	44 381,43	43 870,41	35 486,64	37 694,28
PM _{2,5} , t (Mg)	27 487,41	27 769,47	29 136,64	25 292,08	25 913,01

1) New, updated national and international emission factors, according to the recommended methodology for the calculation of emissions, are used each year for calculation, which makes the data incomparable with the data from the First Release OEN-2024-1-5.

NOTES ON METHODOLOGY

Sources and methods of data collection

The data source for air emission accounts is the data compilation of the Croatian Bureau of Statistics and the Ministry of Environmental Protection and Green Transition.

The air emission accounts are one of the several physical modules of Eurostat's programme of environmental economic accounts. They are covered by Regulation (EU) No 691/2011 of the European Parliament and of the Council of 6 July 2011 on European environmental economic accounts.

Air emission accounts record physical flows of gaseous or particulate materials ("air emissions"), which occur as a result of economic activity (production activities of business entities and activities of private households), as explained in the European System of National Accounts (ESA). They are based on the residence principle.

A basis for air emissions accounting according to economic activities (National Classification of Activities, 2007 version), i.e. according to the residence principle, are data obtained from:

1. Reports on greenhouse gas emissions inventory on the territory of the Republic of Croatia according to the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol,
2. Informational report on air pollutants inventory on the territory of the Republic of Croatia according to the Convention on Long-Range Transboundary Air Pollution (CLRTAP) and the Directive on the reduction of national emissions of certain atmospheric pollutants,
3. Physical energy flow accounts (PEFA questionnaire).

Differences between air emission accounts and data from official national air emission inventories are reported through bridging items. The difference is caused by implementation of two methodological concepts: residence principle and territorial principle. In accordance with the definition of system boundaries within economy based on the residence principle, air emission accounts at the national level exclude emissions produced by non-residents (e.g., tourists and international carriers), but include emissions produced by resident units abroad. The main source for the calculation of bridging items is the physical energy flow account.

Emissions by economic activities are calculated by using certain national data (data on activities and emissions of direct and indirect greenhouse gases, data from the Environmental Pollution Register, data from the energy balance, data on fluorinated greenhouse gases (F-gases) and data taken over from reports on air emissions of pollutants), which help in linking the source data categories and standard economic classifications.

Definitions

Air emissions are physical flows of gaseous or particulate materials from economy (production or consumption processes) that pollute the atmosphere. Air emissions include emissions of greenhouse gases CO₂, N₂O, CH₄, HFC, PFC and SF₆ NF₃, as well as emissions of air pollutants NO_x, SO_x, NH₃, NMHOS, CO, PM_{2.5} and PM₁₀.

Abbreviations

CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
EU	European Union
Eurostat	Statistical Office of the European Union
Gg	gigagram (1 gigagram = 1 kilotonne)
HFC	hydrofluorocarbon
Mg	megagram (1 megagram = 1 tonne)
NH ₃	ammonia
N ₂ O	nitrous oxide
NMVOC	non-methane volatile organic compounds
NO _x	nitrogen oxides
PFC	perfluorocarbons
PM _{2.5}	particulate matter (less than or equal to a nominal 2.5 microns)
PM ₁₀	particulate matter (less than or equal to a nominal 10 microns)
SF ₆ NF ₃	sulphur hexafluoride and nitrogen trifluoride
SO _x	sulphur oxides
t	tonne

Symbols

0 value not zero but less than 0.5 of the unit of measure used

Published by the Croatian Bureau of Statistics, Zagreb, Ilica 3, P. O. B. 80

Phone: (+385 1) 48 06 111

Press corner: press@dzs.hr

Persons responsible:

Edita Omerzo, Director of Spatial Statistics Directorate

Lidija Brković, Director General

Prepared by:

Darko Jukić, Gordana Lepčević, Željka Kovaček Čuklić and Bernarda Šimunić

USERS ARE KINDLY REQUESTED TO STATE THE SOURCE.

Customer Relations and Data Protection Department

Information and user requests

Phone: (+385 1) 48 06 138, 48 06 154, 48 06 115

E-mail: stat.info@dzs.hr

Subscription

Phone: (+385 1) 21 00 455

E-mail: prodaja@dzs.hr