

Environmental accounts. Air Emission Accounts

Preview 2023 and year 2022

Main results

- The Spanish economy emitted 287.7 million tonnes of Greenhouse Gases in 2023, 5.5% less than in 2022. Households accounted for 22.9%.
- There has been a 30.9% reduction in Greenhouse Gas Emissions since 2008.

More information

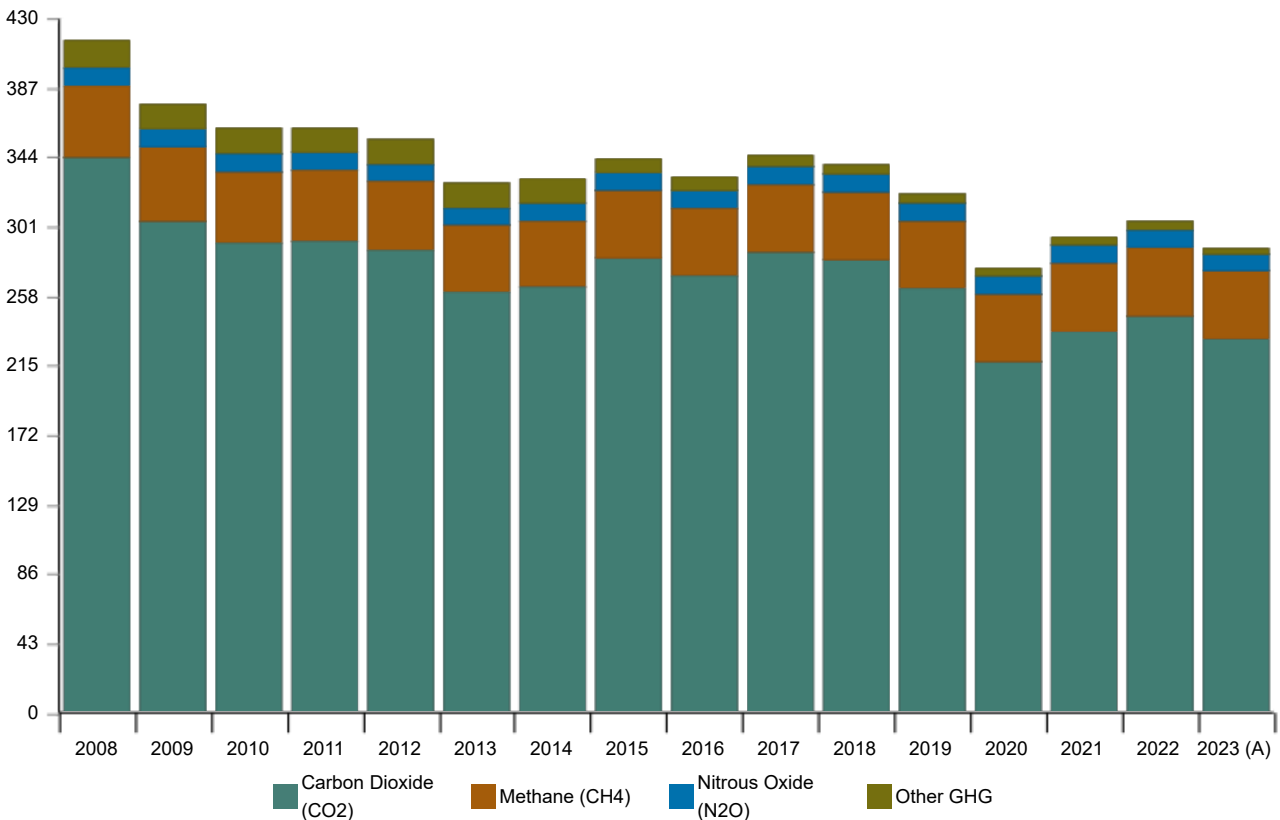
- [Detailed results](#)
- [Environmental Indicator Portal](#)

The Air Emission Accounts record the emissions of resident economic units both inside and outside the economic territory.

In 2023, Greenhouse Gas (GHG) Emissions decreased by 5.5% to 287.7 million tonnes of Carbon Dioxide equivalent (tCO_{2e}). To compare emissions of different greenhouse gases, they are converted to their Carbon Dioxide equivalent by multiplying the mass of the gas by its global warming potential.

Greenhouse Gas Emissions

Unit: million tonnes of Carbon Dioxide equivalent (tCO_{2e})



Current press release at: <https://www.ine.es/dyngs/Prensa/en/CEA2023.htm>

From 2008 (first year of the accounting series) to 2023, the decrease in GHG Emissions was 30.9%.

There are different types of GHG. The main ones, due to their level of emissions, are Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O).

Emissions of Carbon Dioxide into the atmosphere decreased by 5.7%, Methane by 1.0% and Nitrous Oxide by 6.3% in 2023.

Greenhouse Gas Emissions by type of gas. Year 2023

Unit: thousand tonnes of Carbon Dioxide equivalent (tCO_{2e})

	Total	% of the total	% of annual variation	Incidence
CO ₂ - Carbon Dioxide	231,501.4	80.5	-5.7	-4.598
CH ₄ - Methane	42,041.4	14.6	-1.0	-0.135
N ₂ O - Nitrous Oxide	10,248.3	3.6	-6.3	-0.226
Other GHG	3,938.0	1.3	-28.0	-0.503
TOTAL	287,729.1	100.0	-5.5	-5.463

Emissions by branches of activity and households

In 2023, *Households* emitted 22.9% of total GHG Emissions, *Manufacturing* 22.3% and *Agriculture, livestock, forestry and fishing* 16.6%.

The branches of activity that reduced their GHG Emissions the most were *Electricity, gas, steam, air conditioning and water supply* (by 18.1%) and *Manufacturing* (by 10.1%). On the other hand, *Transport and storage services* rose by 3.1%.

Greenhouse Gas Emissions by branches of activity and households

Unit: thousand tonnes of Carbon Dioxide equivalent (tCO_{2e})

	TOTAL GHG	% of the total	% of annual variation	% of variation compared to 2008
Manufacturing	64,073.9	22.3	-10.1	-40.8
Agriculture, livestock, forestry and fishing	47,640.8	16.6	-0.8	6.6
Electricity, gas, steam, air conditioning and water supply	47,184.9	16.4	-18.1	-57.2
Transport and storage services	38,514.6	13.4	3.1	-1.6
Other branches of activity	24,530.1	8.4	-0.9	-33.4
Households	65,784.8	22.9	0.6	-14.7
TOTAL	287,729.1	100.0	-5.5	-30.9

Emissions by type of gas

The highest amounts of Carbon Dioxide emitted in 2023 corresponded to *Households* (63.5 million tonnes), *Manufacturing* (59.9 million) and *Transport and storage services* (37.9 million).

Meanwhile, *Agriculture, livestock, forestry and fishing* emitted the highest amounts of Methane (63.1% of the total) and Nitrous Oxide (66.9%).

Greenhouse Gas Emissions by type of gas, branches of activity and households. Year 2023

Unit: thousand tonnes of Carbon Dioxide equivalent (tCO_{2e})

	TOTAL GHG	Carbon Dioxide (CO ₂)	Methane (CH ₄)	Nitrous Oxide (N ₂ O)	Other GHG
Manufacturing	64,073.9	59,928.0	2,165.3	390.5	1,590.1
Agriculture, livestock, forestry and fishing	47,640.8	14,228.5	26,535.4	6,859.8	17.1
Electricity, gas, steam, air conditioning and water supply	47,184.9	33,292.1	12,116.0	1,431.0	345.8
Transport and storage services	38,514.6	37,938.4	42.3	408.7	125.2
Other branches of activity	24,530.1	22,622.7	294.5	661.2	951.7
Households	65,784.8	63,491.7	887.9	497.1	908.1
TOTAL	287,729.1	231,501.4	42,041.4	10,248.3	3,938.0

Other atmospheric emissions. Year 2023

Other environmental problems that cause harmful effects on the environment and health are acidifying gases, tropospheric ozone precursor gases and particulates (fine dust).

Acidifying gases, which include Sulphur Oxides (SO_x), Nitrogen Oxides (NO_x) and Ammonia (NH₃) measured in equivalent tonnes of Sulphur Dioxide (tSO_{2e}) depending on their degree of acidification, fell by 2.4% in 2023.

Tropospheric ozone precursor gases, which include Non-Methane Volatile Organic Compounds (NMVOC), Nitrogen Oxides (NO_x), Methane (CH₄) and Carbon Monoxide (CO) measured in equivalent tonnes of NMVOCs, decreased by 1.3%. On the other hand, emissions of particles with an aerodynamic diameter of less than 2.5 microns decreased by 0.5%.

Emissions of atmospheric pollutants. Year 2022

Units: thousands of tonnes

	TOTAL	% of annual variation	% of variation compared to 2008
Acidifying gases	1,435.2	-2.4	-33.1
Tropospheric ozone precursor gases	1,588.6	-1.3	-34.7
PM _{2.5} particles	133.0	-0.5	-18.2

Agriculture, livestock, forestry and fishing was the main emitter of acidifying gases (954.2 thousand tonnes tSO_{2e}), ozone precursor gases (482.5 thousand tonnes NMVOC equivalent) and PM_{2.5} particles (61.9 thousand tonnes).

This is followed by *Manufacturing*, which emitted 158.0 thousand tonnes of acidifying gases, while *Households* emitted 482.5 thousand tonnes of NMVOC equivalent ozone precursor gases and 44.8 thousand tonnes of PM_{2.5} particles.

Current press release at: <https://www.ine.es/dyngs/Prensa/en/CEA2023.htm>

Data revisions and updates

The data published today is provisional and will be revised when next year's data is released. All results of this operation are available on [INEbase](#).

Methodological note

The objective of the Environmental Accounts (EA) is to integrate environmental information into the central system of National Accounts in a coherent way. They include a set of satellite accounts, which are transmitted annually, compiled using the accounting formats applicable to the different sectoral and territorial areas, with a major presence of physical data. They display the interactions among the economy, households and environmental factors.

The Air Emissions Accounts present data regarding the polluting emissions into the atmosphere, in a way that is compatible with the National Accounts System, registering the emitting agents, broken down by branch of economic activity and households as final consumers.


The estimates of the Air Emissions Accounts are made from the National Inventories of Emissions to the Atmosphere, prepared by the Ministry for Ecological Transition and the Demographic Challenge, which use the IPCC and EMEP/EEA methodology, with the NFR/CRF nomenclature (*Nomenclature for Reporting/Common Reporting Format*), which groups emissions into sectors, categories and subcategories.

The Emissions Account is constructed from a set of aggregated indicators on the origin and destination of pollutant emissions into the atmosphere, derived from a wide variety of statistical operations, each of which is subject to its own availability and revision schedule. This means that the estimates of the aggregates are subject to a revision process for the whole series of results to ensure that the estimation methods are kept up to date.

For more information, you can access the [Standardised Methodological Report](#).

INE statistics are produced in accordance with the Code of Good Practice for European Statistics. More information on [Quality at INE and Code of Best Practices](#).

For further information see [INEbase](#)

Official INE account on  [@es_ine](#)

All press releases at: www.ine.es/en/prensa/prensa_en.htm

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