Greenhouse gas emissions by country and sector (infographic)

Check out our infographics to discover greenhouse gas emissions by country and by sector in the EU as well as the world's top emitters.

Greenhouse gas emissions contribute to accelerating climate change. Who are the biggest emitters? What sector produces the most emissions?
GREENHOUSE GAS EMISSIONS IN THE EU AND THE WORLD

World air emissions by pollutant*
(2017)

- 81% Carbon dioxide (CO2)
- 11% Methane (CH4)
- 5% Nitrous oxide (N2O)
- 2% Hydrofluorocarbons (HFCs)

<0.2% of perfluorocarbons (PFCs), unspecified mix of PFCs and HFCs, sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3)

The percentages do not add up to 100% due to rounded figures being used.

* Total greenhouse gas emissions excluding land use, land-use change and forestry (LULUCF)

Source: UNFCCC Data Interface

Greenhouse gas emissions produced in the EU in 2017 and the share of various gases

Amount of greenhouse gas emissions per year in the EU
As the infographic above shows, CO2 is the greenhouse gas that is emitted the most. It is commonly produced by human activities. Other greenhouse gases are emitted in smaller quantities, but they trap heat far more effectively than CO2, and in some cases are thousands of times stronger.

Find out more about EU targets and measures to reduce greenhouse gases emissions
According to the fifth assessment report by the Intergovernmental Panel on Climate Change (IPCC), it is extremely likely that human activities over the past 50 years have warmed our planet. These activities include for example the burning of coal, oil and gas, deforestation and farming.

Greenhouse gas emissions by sector in the EU

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The diagram above shows greenhouse gas emissions in the EU in 2017 broken down by main source sectors. Energy is responsible for 80.7% of greenhouse gas emissions in 2017, of which transport accounts for about a third. Greenhouse gas emissions from agriculture contribute with 8.72%, industrial processes and product use with 7.82% and the management of waste with 2.75%.
Total greenhouse gases emissions* per EU country in 2017
[kilotones CO₂ equivalent**]

European Union (total)
4,323,163

* All sectors excluding land use, land-use change and forestry (LULUCF)
** CO₂, N₂O in CO₂ equivalent, CH₄ in CO₂ equivalent, HFC in CO₂ equivalent, PFC in CO₂ equivalent, SF₆ in CO₂ equivalent, NF₃ in CO₂ equivalent

Sources:
European Environment Agency (EEA), Eurostat

Greenhouse gases emissions in the EU and in the world
The charts above list EU countries by total greenhouse gas (GHG) emissions in 2017 and the infographic below shows the world’s top greenhouse gas emitters in 2015. The EU is the third biggest emitter behind China and the United State and followed by India and Russia.

Greenhouse gases remain in the atmosphere for periods ranging from a few years to thousands of years. As such, they have a worldwide impact, no matter where they were first emitted.
Top greenhouse gases emitters in the world in 2015
[kilotonnes CO2 equivalent]

Source: JRC report on fossil CO2 and GHG emissions of all world countries (2019)

Countries emitting the most greenhouse gases in the world in 2015
What are greenhouse gases?

• Greenhouse gases are gases in the atmosphere that act similarly to the glass in a greenhouse: it absorbs the sun's energy and heat that is radiated from the Earth's surface, trap it in the atmosphere and prevent it from escaping into space.

• This process is the main reason for greenhouse effect that keeps the Earth's temperature warmer than it would otherwise be, allowing life on Earth to exist.

• Many greenhouse gases occur naturally in the atmosphere, but human activity adds enormous amounts, boosting the greenhouse effect that is contributing to global warming.

Find out more
Overview of articles on the fight against climate change

More facts and figures on climate change :
EU progress towards its climate change goals (infographic)
Infographic: how climate change is affecting Europe