

Atmospheric levels of all three greenhouse gases hit record high

Scientists warn world 'is heading in wrong direction' amid rise in nitrous oxide, carbon dioxide and methane



Waste piles up at a temporary dumpsite near high rise buildings in downtown Hanoi. Methane gas is released from decomposing organic waste. Photograph: Nhac Nguyen/AFP/Getty Images

Helena Horton *Environment reporter*

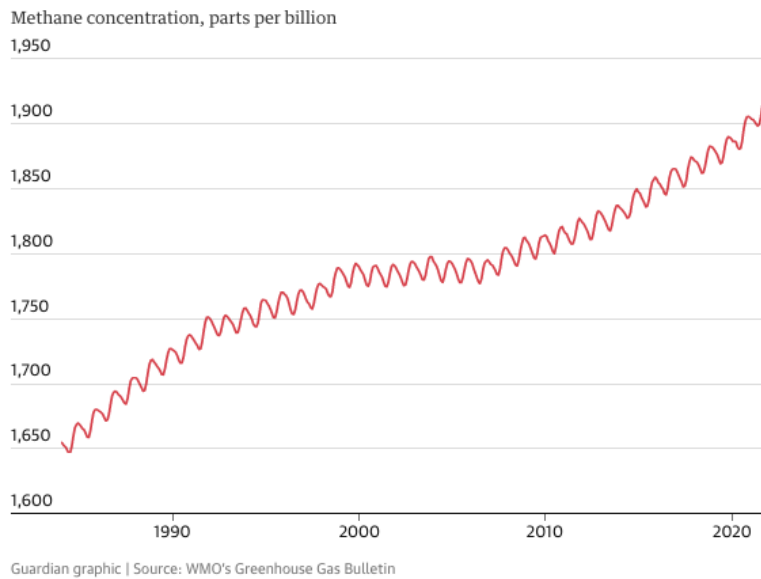
Wed 26 Oct 2022 16.00 BST

Atmospheric levels of all three greenhouse gases have reached record highs, according to a study by the World Meteorological Organization, which scientists say means the world is “heading in the wrong direction”.

The WMO found there was the biggest year-on-year jump in methane concentrations in 2020 and 2021 since systematic measurements began almost 40 years ago.

Methane levels have risen rapidly in recent years, puzzling scientists. Some blamed it on an increase in fracking in the US but this came into doubt as industrial emissions were not showing a similarly sharp rise.

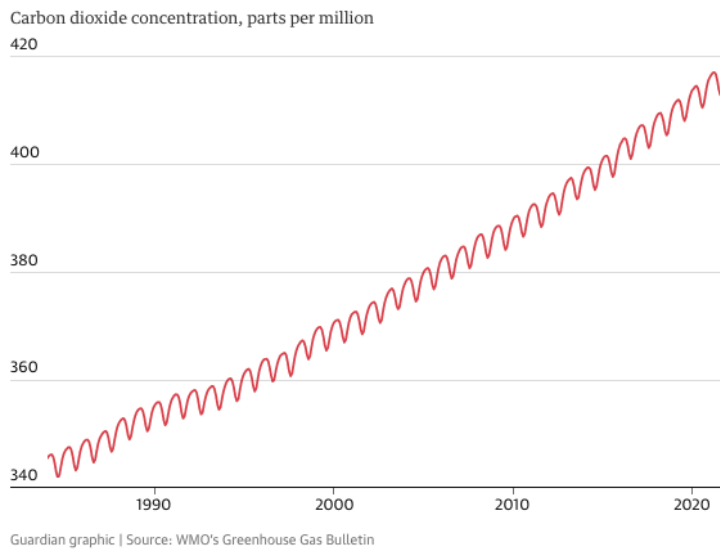
Atmospheric concentration of methane



Now the theory is that the methane rise could be caused by activities of microbes in wetlands, rice paddies and the guts of ruminants. Rising temperatures have caused the ideal conditions for microbial methane production, as they enjoy warm, damp areas.

Carbon dioxide levels are also soaring, with the jump from 2020 to 2021 larger than the annual growth rate over the past decade. Measurements from WMO's global atmosphere watch network stations show these levels continue to rise.

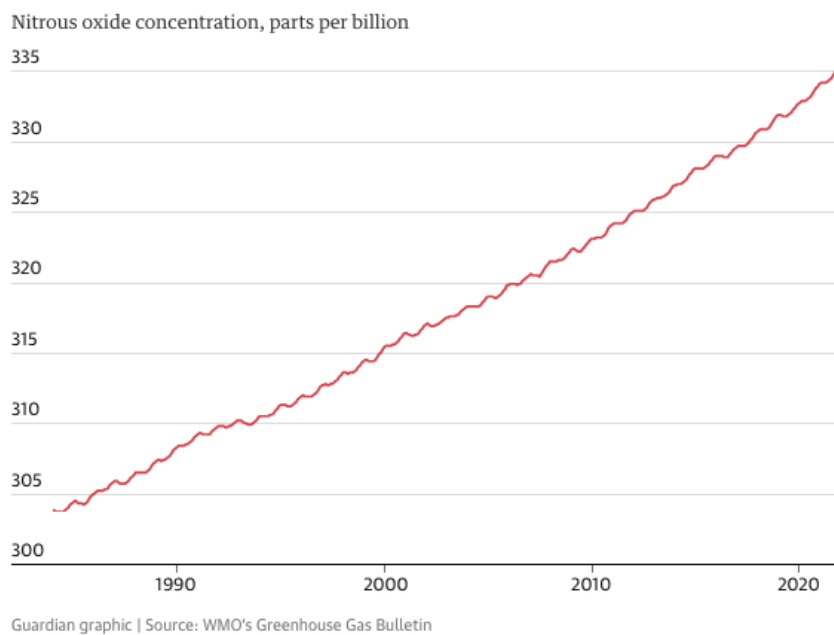
Atmospheric concentration of carbon dioxide



These greenhouse gases cause global heating, with the warming effect rising by 50% between 1990 and 2021. Carbon dioxide comprised about 80% of this increase.

According to the WMO, carbon dioxide concentrations in 2021 were 415.7 parts per million, methane was 1908 parts per billion (ppb) and nitrous oxide was 334.5 ppb. These are respectively 149%, 262% and 124% of pre-industrial levels.

Atmospheric concentration of nitrous oxide



The WMO secretary general, Prof Petteri Taalas, said: “The continuing rise in concentrations of the main heat-trapping gases, including the record acceleration in methane levels, shows we are heading in the wrong direction.”



Cut meat consumption to two burgers a week to save planet, study suggests

Though worrying, the methane increase was reversible, and carbon dioxide remained the biggest threat, he added. “There are cost-effective strategies available to tackle methane emissions, especially from the fossil fuel sector, and we should implement these without delay,” Taalas said. “However, methane has a relatively short lifetime of less than 10 years, and so its impact on climate is reversible.

“As the most urgent priority, we have to slash carbon dioxide emissions, which are the main driver of climate change and associated extreme weather, and which will affect climate for thousands of years through polar ice loss, ocean warming and sea level rise.”

However, Taalas said time was running out to tackle the climate emergency as concentrations of greenhouse gases in the atmosphere continued to reach new peaks.

“We need to transform our industrial, energy and transport systems and whole way of life. The needed changes are economically affordable and technically possible. Time is running out,” he said.

These figures will be presented at the Cop27 UN climate conference in November, where world leaders will convene in Egypt to make deals on the reduction of greenhouse gas emissions.

However, even if they act rapidly to stop the damage, **much of it is already baked in**. As long as emissions continue, global temperature will continue to rise. Given the long life of CO₂, the temperature level observed will persist for decades, even if emissions are reduced swiftly to net zero.

EU on track to break pledge to cut methane emissions by 30%, warns report

Exclusive: ‘Policy vacuum’ on livestock emissions amid pressure from industry lobbyists blamed for failings

- **Atmospheric levels of all three greenhouse gases hit record high**



Methane is the second biggest contributor to global heating after CO₂ with most of Europe's methane emissions coming from livestock. Photograph: Bernard O'Kane/Alamy

Arthur Neslen

Wed 26 Oct 2022 17.49 BST

-
-
-

The EU is on track to break a promise to **cut methane emissions by 30%** by 2030 made due to a “policy vacuum” on livestock emissions, a report has warned.

Methane is the second biggest contributor to global heating after carbon dioxide, with a greenhouse gas impact at least 27 times **worse than CO₂** over a 100-year time span.

Most of Europe’s methane emissions come from agriculture – particularly livestock – but the EU has avoided using policy levers such as its €387bn common agricultural policy to directly tackle the problem, according to the report by the Changing Markets Foundation.

Nusa Urbancic, the campaigns director for the Changing Markets Foundation, said: “We’re in a climate emergency and cutting methane is the best short-term measure to slow the temperature increase. That is why we need urgent policy action to transform our food production systems. Our leaders must start listening to scientists instead of lobbyists, otherwise the EU won’t be able to meet the **global methane pledge.**”



Methane reduction is vital to achieving a 1.5C future

Methane emissions rose by their highest ever amount to a **new record** last year, according to scientists at the National Oceanic and Atmospheric Observatory.

The gas is already responsible for about **one-fifth** of all global heating and the new study says that methane releases from animal farming in Europe now have the global heating power of 160 coal-fired power plants, measured over a 20-year period.

“It’s a big deal,” said Tim Searchinger, a senior research scholar at Princeton University and senior fellow at the World Resources Institute. “Enteric methane emissions [from cow burps and farts] alone would add at least 25% more to agricultural emissions by 2050, compared to 2010.”

Searchinger said the best ways to mitigate methane emissions would be to feed livestock more efficiently, use new feed additives which may reduce emissions, and cut down on beef consumption.

The EU set out legislative plans for reducing methane in a strategy outlined in 2020. But the new paper, which was co-authored with the Institute for European Environmental Studies, finds that the bloc is still failing to set dedicated methane targets for the livestock sector, or channel subsidies for

methane cuts, forcing a reliance on loophole-ridden regulations which may hide agricultural emissions.

Cutting short-lived pollutants such as methane could reduce global heating by one half between 2030 and 2050, a recent [study](#) found. But without new measures, the EU's methane output may only fall 17% by the end of the decade, the new report estimates.

The European Commission has itself admitted it will fail to meet the 2030 target – although it projects a 23% cut by then – in [an internal document sent to EU states](#). That paper said cutting livestock emissions would be key to meeting the goal.

However, the new report says that “undue influence” from agri-industry lobbyists, who EU officials met three times more often than non-industry groups, watered down legislative initiatives that could have cut livestock emissions.

A spokesperson for the [European Commission](#) said: “EU methane emissions are already 36% below 1990 levels. Individual signatories will make different contributions to the global methane pledge depending on the makeup of their economies. The EU has an agriculture policy that focuses on the greening of the sector, including through the use of ambitious CAP strategic national plans. Agricultural methane emissions are harder to abate than methane from energy and waste, but the methane intensity of EU27 animal output steadily decreased from 2005 to 2020 and remains one of the lowest worldwide.”