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Climate chaos predicted by CO2 study

By Steve Connor, Science Editor

World will have exceeded 2050 safe carbon emissions limit by 2020, scientists say

The world will overshoot its long-term target on greenhouse gas emissions within two decades. A study has found that the average global temperature will rise above the threshold that could cause dangerous climate change during that time.

Scientists have calculated that the world has already produced about a third of the total amount of carbon dioxide (CO₂) that could be emitted between 2000 and 2050 and still keep within a C rise in global average temperatures.

At the current rate at which CO₂ is emitted globally – which is increasing by 3 per cent a year – countries will have exceeded their total limit of 1,000 billion tons within 20 years, which would be about 20 years earlier than planned under international obligations. "If we continue burning fossil fuels as we do, we will have exhausted the carbon budget in merely 20 years, and global warming will go well beyond C," said Malte Meinshausen of the Potsdam Institute for Climate Impact Research in Germany, who led the study, published in Nature.

"Substantial reductions in global emissions have to begin soon – before 2020. If we wait longer, the required phase-out of carbon emissions will involve tremendous economic costs and technological challenges. We should not forget that a C global mean warming would take us far beyond the variations that Earth has experienced since we humans have been around."

It is the first time scientists have calculated accurately the amount of greenhouse gas emissions that can be released into the atmosphere between 2000 and 2050 and still have a reasonable chance of avoiding temperature rises higher than C above pre-industrial levels – widely viewed as a "safe" threshold.

The scientists found the total amount of greenhouse gases that could be released over this time would be equivalent to 1,000 billion tons of CO₂. This is equivalent to using up about 25 per cent of known reserves of oil, gas and coal, said Bill Hare, a co-author of the study.

The study concluded that the world must agree on a cut in carbon dioxide emissions of more than 50 per cent by 2050 if the probability of exceeding a C rise in average temperatures is to be limited to a risk of 1 in 4.

"With every year of delay [in agreeing on further cuts], we consume a larger part of our emissions budget, losing room to manoeuvre and increasing the probabilities of dangerous consequences," said Reto Knutti of the Swiss Federal Institute of Technology in Zurich, a member of the research team.

Myles Allen of Oxford University said the total emissions of CO₂ that have accumulated in the atmosphere since the start of the Industrial Revolution in the mid-18th century are the really important figure for future climate change.

"Mother Nature doesn't care about dates. To avoid dangerous climate change we will have to limit the total amount of carbon we inject into the atmosphere, not just the emission rate in any given year," Dr Allen said.



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