The Climate Clock is ticking...

but what is a climate clock & why is it ticking faster in certain countries?

giki zero.

The Climate Clock is ticking

Introduction

The global climate clock shows that we have just over 10 years left before the world's carbon budget runs out, in order to keep temperature rise below 1.5 degrees Celsius.

New research from Giki looks at the climate clocks for countries, and groups of individuals, to understand the variation that different carbon footprints and associated lifestyles make to the amount of time we have left. We find that country climate clocks vary from just a few years to over 70 years. For individuals, the poorest 50% have a climate clock that's over 100 times longer than the richest 1%.

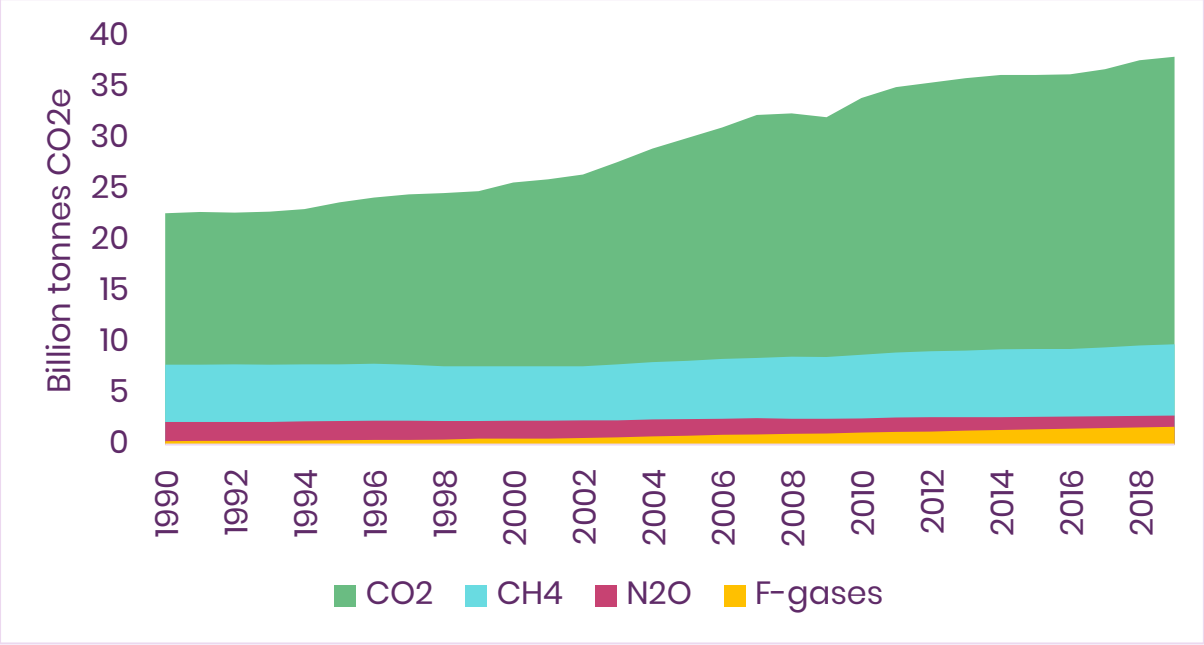
What is a climate clock?

Climate clocks compare current emissions to the remaining carbon budget, as defined by the UN IPCC, and work out how much time is left until the current budget runs out. Our analysis looks at the budget we have left, if we are to have a high probability of limiting global heating to 1.5C and how this is impacted by different lifestyles around the globe.

Country and group climate clocks follow the same approach but assume that everyone in the world lives like the person in that country or group.

Climate clocks assume that global greenhouse gas emissions continue on their current trajectory. If however they rise, we will have less time, and if they slow, we will have a little more. Figure 1 shows that currently emissions continue to rise.

Figure 1: Greenhouse Gas Emissions over time by GHG type



Country and group climate clocks

When the global climate clock is adjusted, specific to countries, or groups of people, it shows a significant range in terms of how quickly the clock is ticking. Based on personal footprints, the more carbon intensive lifestyles have far less time before the carbon budget runs out.

While policy change and business transformation are crucial in slowing the climate clock in all areas, including energy, land, urban infrastructure and industrial systems, the role of individuals will also play a critical role in this transformation.[1] On a global basis, household consumption accounts for almost three-quarters of greenhouse gas emissions[2] and the transition to net zero carbon emissions will require adoption of new technologies, and new lifestyle choices by billions of people across the globe.

Findings

When the global climate clock is broken down to a country or individual level, the enormous breadth of urgency to act becomes clear.

[1] https://www.ipcc.ch/sr15/chapter/spm/

[2] Behaviour Change, public engagement and Net Zero, a report for the Committee on Climate Change, 2019, Dr Richard Carmichael

Based on the most conservative pathway, detailed in the IPCC Assessment report[3] of 2018 to keep temperature rise below 1.5 degrees, Giki has calculated how many years remain for a range of country and personal carbon footprint climate clocks.

Giki's analysis shows just how little time remains for some parts of the world to reverse the growth in carbon emissions, in order to align with the UN recommendations detailed in the UN's special report on the impacts of global warming of 1.5C.[4]

We are required to halve global emissions in the next decade. That means reducing from an average global carbon footprint of 5 tonnes per person per year, to 2.5 tonnes per person per year. For those countries with higher than average per capita footprints, the scale of the required cuts are significantly higher.

Key drivers in these differences in country and people specific climate clocks are typically wealth, infrastructure, societal norms, lifestyle choices and scale of use of fossil fuels.

But everyone is able to cut their personal footprints. Reduce, Replace, Repair, A Practical Pathway for Individuals to reach Net Zero[5], shows how this can be achieved through a combination of steps, such as ***reducing*** miles travelled, ***replacing*** high carbon, with low carbon products, and as a short term measure, ***repairing*** nature, through nature based solutions, including tree planting and forest preservation. Giki Zero, provides over 130 such steps that people can select to fit their budget, needs and lifestyle in order to reduce their personal carbon footprint.

Typically those countries with a more urgent climate clock will need to take bigger steps and act faster to achieve the required reductions.

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[3] https://www.ipcc.ch/sr15/chapter/spm/

[4] i IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp.

[5] Reduce, Replace, Repair – A Practical Pathway for Individuals to reach Net Zero, James Hand and Dr Richard Carmichael https://giki.earth/reduce-replace-repair/

Giki has analysed data from a selection of countries invited to President Biden's Leaders Summit on Climate[6] on Earth Day, to identify some of the differences in length of climate clocks and the urgency to act.

Specific Climate clocks are shown below.

Figure 2: Country specific climate clocks

Country	Average carbon footprint (tonnes)	Climate Clock
US	17.5	2 years 5 months
Canada	16.1	2 years 8 months
Australia	15.4	2 years 9 months
Russia	9.4	4 years 7 months
UK	9.1	4 years 8 months
EU	8.0	5 years 4 months
China	6.0	7 years 2 months
Vietnam	2.1	20 years 6 months
India	1.7	25 years 4 months
Bangladesh	0.6	71 years 10 months
Bhutan	0.0	Forever

Source: Ourworldindata.org, Giki

Figure 3: Group specific climate clocks[7]

Group	Average carbon footprint (tonnes)	Climate Clock
Poorest 50%	< 1	57 years 6 months
Richest 1%	75	0 years 6 months

Source: Oxfam, Giki

Key conclusions

For countries with the largest per capita footprint, including the USA, Canada and Australia, the requirement to decarbonise the energy sector, and encourage

[6] https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/26/president-biden-invites-40-world-leaders-to-leaders-summit-on-climate/

[7] Carbon footprints based on https://www.oxfam.org/en/research/confronting-carbon-inequality

households and businesses to use renewable resources, and zero carbon technologies is the most urgent.

Wealthy nations tend to have a higher per capita personal footprint than countries with a lower GDP. The average global personal carbon footprint, based on consumption is 5 tonnes,[8] over 4 tonnes greater than the footprint of the poorest 50% of the world population.

If everybody in the world had the same carbon footprint as people in Bangladesh, a country highly vulnerable to climate change, due to its low elevation, low-lying coastal areas, and high population density, the urgency to act would be significantly reduced.

The 770,000 people living in Bhutan, show that it is possible to live without producing carbon emissions. Bhutan is officially carbon negative.[9] With a hydro powered electricity system, and strong commitment to end deforestation, and ensure a coherent policy of tree planting, which has led to 70% of forest cover across the country. This nation state proves that it is possible to live with no carbon clock ticking at all.

[8] Giki Zero

[9]https://www.ted.com/talks/tshering_tobgay_this_country_isn_t_just_carbon_neutral_it_s_carbon_negative?language=en