READ THIS, THEN TALK TO YOUR FRIENDS, TALK TO YOUR FAMILY, TALK TO YOUR COLLEAGUES. IT'S TOUGH, BUT IT CAN'T WAIT.

THIS IS A CLIMATE EMERGENCY

CO_2 AND METHANE CAUSE HEATING

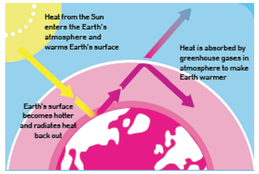
Human activity had already warmed the earth by an average of 1.45°C above the 1850-1900 average in 2023[1], and 2024 became the first year to hit 1.5°C above preindustrial levels.
This is caused by The Greenhouse Effect as shown in the diagram below. The Earth is heating up faster and faster, blanketed in the skyrocketing carbon dioxide (CO_2) and methane (CH_4) emissions from industry, transport, agriculture, clothing production, and deforestation.

CO_2 AND METHANE TRAP HEAT FROM THE SUN THAT WOULD OTHERWISE ESCAPE INTO SPACE.

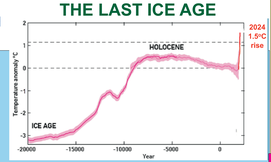
Methane has 84 times the warming power of CO_2 in the first 20 years after emission[2]. Our production of CO_2 and methane has been increasing enormously every decade since the 1800s.

Our 2023 emissions of 57.1 gigatons of CO_2 equivalent and current climate policies put us on course for over 2°C heating by 2050, and a best case scenario of at least 2.6°C by the end of this century[3].

THE GREENHOUSE EFFECT



GLOBAL TEMPERATURE SINCE THE LAST ICE AGE



THIS IS HOTTER THAN THE EARTH HAS BEEN FOR 130,000 YEARS[4]

IN 2016 IN PARIS, WORLD LEADERS AGREED TO LIMIT GLOBAL WARMING TO 1.5°C, BUT THIS FIGURE HAS ALREADY BEEN PASSED (AT LEAST TEMPORARILY) IN 2024, AND IS CLOSER TO 3°C IN POLAR REGIONS.

TIPPING POINTS: VICIOUS CYCLES heating causes changes, changes cause heating[5]...

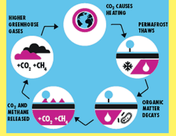
The state of our warmed world is already indescribably dire. But further emissions risk triggering the permanent disruption of natural systems that then themselves cause unstoppable heating[6]. These are called 'Tipping Points'. Some are already happening[7]. Here are 9 that we know about.

1. THE AMAZON RAINFOREST IS CHANGING TO BECOME A NET CO_2 EMITTER

The Amazon contains over half the world's remaining rainforest, one of our most potent carbon sinks. The climate processes that preserve it are extremely delicate - heating, deforestation and shifting rain patterns are causing it to die back[8], and decaying trees and fires will cause MORE CO_2 to be emitted than absorbed. Recent research shows 20% of the Amazon may already be in this state[9].

2. PERMAFROST IS MELTING, RELEASING CO_2 AND METHANE

Enormous quantities of methane and CO_2 are currently safely stored in frozen plant matter and soils - about twice the amount of CO_2 as is present in our entire atmosphere[10]. As our climate warms, permafrost thaws and releases its stored greenhouse gases, and thawing plant material is broken down to produce more methane, causing further heating[11].



3. OCEAN CURRENTS ARE SLOWING AND COULD STOP

Currents transfer heat from the Southern Atlantic keeping N.W. Europe's climate relatively mild. Warm water is carried north to the Norwegian Sea where it cools, losing heat to the atmosphere and becoming denser and saltier. This heavier water sinks, pulling more water from the Gulf Stream behind it while the cold deep water then flows back south along the sea floor.

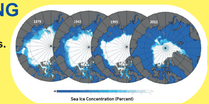
The melting Greenland icesheet is adding fresh water to this, making the water less salty and slowing the cycle. Recent research indicates it potentially stopping in the next 50 years. This will cause major impacts on global weather patterns, perhaps triggering other tipping points.

4. BOREAL (SUB-ARCTIC) FORESTS ARE DYING OFF

30% of the world's forests are found near the Arctic Circle[17], called Boreal forests. They are estimated to hold a third of all terrestrial carbon[18]. But this boreal zone is heating around twice as fast as the global average, exposing trees to deadly conditions[19]. Fires, diseases and pests will lead to the abrupt release of much of this stored carbon, which can cause further tree loss[20]. This is already happening[21]

5. & 6. ANTARCTIC AND GREENLAND ICE SHEETS ARE DISINTEGRATING

Ice sheets reflect heat, but water and exposed dark rock absorb it, so as polar ice melts global warming accelerates. Unstable ice sheets cause further instability and melting of other ice sheets[22], which leads to the rapid and irreversible loss of the world's coastal regions due to massive sea level rise[23].



7. CORAL REEFS COULD RAPIDLY AND IRREVERSIBLY COLLAPSE, AND EVEN DIE OUT COMPLETELY

Coral reefs are a critical element of the ocean ecosystem. Heatwaves and acidification of oceans under our CO_2-laden air kills corals, but recent research shows feedback loops can cause this to accelerate, meaning once started coral could be completely wiped out in as little as 15 years[24] Coral reefs are projected to decline by 70 to 90% at 1.5°C and by 99% at 2°C warming .

8. & 9. MONSOONS ARE SHIFTING IN AFRICA AND INDIA, CAUSING LIFE-THREATENING DROUGHTS AND FLOODS

Areas of Western Africa and India rely on the monsoon season for as much as 90% of rainfall[25], crucial for both food and water. Climate change already disrupted the African monsoon in the 1960s-80s, causing famine that killed 10,000s[26]. Further heating will drastically disrupt this critical system[27]. Both the Western Africa and Indian Monsoon will be seriously affected if the Atlantic Meridional Overturning Circulation (AMOC, see item 3 left) stops.

EVERY EXTRA 0.1°C OVER 1.5°C WARMING WORSENS THE EFFECTS OF THESE TIPPING POINTS.

DROUGHTS AND FLOODS WRECK LIVES

> "Climate change will lead to battles for food."
> Jim Yong Kim, Former President of The World Bank

The tiniest heating of our climate upsets every natural balance living things have depended upon for tens of thousands of years.

At 1.18°C of heating since the 1800s, wildfires were already burning our world. Billions of living things die[28], and every year may be more severe[29]. In 2019 wildfire levels were unprecedented even in the UK[30], and have continued to rage since from Arctic Canada to California and Australia and the Amazon to Europe and Siberia.

During the period August 2023 – July 2024, a total of 52 individual prolonged drought events were detected, the major and longest-lasting ones being over South America, central and eastern Asia, central Africa, and North America.[31] By the end of May 2024, 28% of Africa was in drought, affecting 14 countries.[32]

By 2050, at 2+°C of heating, 3.7 billion people will face extreme drought, low rainfall and poor water availability[33]. Around 1 billion people may be forced to migrate from the worst hit areas[34], increasing the risk of violent conflict[35].

Warmer air can also hold more water vapour, so storms, floods and hurricanes are already more likely and more intense due to past heating[36]. Unprecedented flooding has devastated parts of Germany, France, Italy, Spain and even Saudi Arabia.

All of these factors affect our ability to live, build, and grow food. All are certain to worsen as CO_2 warms the world. And we haven't even mentioned rising sea levels[37].

CLIMATE CHAOS IS RUINING MILLIONS OF LIVES RIGHT NOW

OUR MOST URGENT THREAT IN HISTORY

> " The climate emergency is our third world war. Our lives and civilization as we know it are at stake, just as they were in the Second World War. "
> - Professor Joseph Stiglitz, Economist, awarded Nobel Prize in Economics

The consensus amongst the world's scientists that human action is the cause of climate change has REACHED 100%[38]. Speaking about the scientific community, Professor Lonnie Thompson, director of the Byrd Polar Research Centre said "Virtually all of us are now convinced that global warming poses a clear and present danger to civilization."

The situation is accelerating. On top of the tipping points discussed to the left, recent discoveries show that trees are absorbing less CO_2 and dying younger as atmospheric CO_2 increases[39]. Similarly, as the oceans get warmer, they are also less able to absorb CO_2. THE UNKNOWN DANGERS MAY BE WORSE THAN THE KNOWN ONES[40].

Attempting to avert the climate crisis through currently non-existent CO_2-capture technologies is impossibly expensive, would require economy-crippling investment on a scale never undertaken in human history[41], and would be likely to fail anyway[42]. This route is passing both the existential crisis, and the responsibility to solve it, on to the next generation, with no real hope for survival.

Our only route to continued life for ourselves, our children, and the unique and irreplaceable animals and plants that share our world, is to reduce our CO_2 emissions before runaway heating becomes uncontrollable[43].

At the time, 2023 was the hottest year worldwide since climate records began[44] with a global average temperature 1.45°C above the pre-industrial average, and the decade 2014 to 2023 the 10 hottest years ever recorded.

2024 beat all of the records set in 2023, with averages of +1.5°C for the first time ever. 2025 has produced the UK's hottest ever summer, and is forecast to be even hotter globally.[45]

THE FACTS ARE CLEAR - IT'S TIME TO ACT

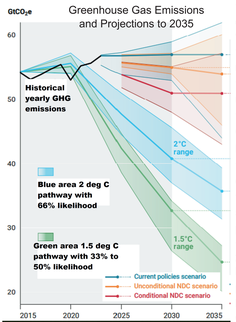
ACTING ON CLIMATE CAN ENSURE A BETTER SAFER FUTURE FOR EVERYONE BUT WE MUST TREAT IT AS THE CRUCIAL GLOBAL EMERGENCY WHICH IT IS

WHY ACT NOW? WE HAVE FAILED TO KEEP WITHIN OUR CARBON BUDGET

In the Paris Agreement, the world agreed that 1.5°C heating was catastrophic enough to come together to avoid, and that 2°C THIS CENTURY MUST NOT HAPPEN AT ALL COSTS[46]. Instead, we're on course to at least 3 TO 4°C[47], with consequences so deadly, catastrophic and permanent that we can barely comprehend them now.

Keeping below 2°C is currently entirely possible, and below 1.5°C may still be achieved – but when we act is as critical as how we act. Greenhouse gases like CO_2 cause heating – TO LIMIT HEATING TO 1.5°C, WE ONLY HAVE A LIMITED TOTAL AMOUNT OF CO_2 WE CAN EMIT – KNOWN AS THE 'CARBON BUDGET'[48].

The more we 'spend' by emitting CO_2 this year, the less we can emit in the future, and the sooner we will have to get to 'net zero' to keep within the overall carbon budget.



The graph to the left shows the growth in yearly Greenhouse Gas emissions since 2015, projections to 2030 and 2035, and what would be needed to keep below 2° or 1.5°C of heating.

The blue line shows the result of current policies continuing - zero reduction in emissions and runaway climate chaos.

The orange line shows the "Nationally Determined Contributions" of reductions world leaders have promised, but have not yet delivered.

The red line shows the result of their best promises, but these are only conditional targets, not firm commitments.

None of these is enough to avoid a catastrophic climate disaster.

The light blue area shows the reductions needed to have a 66% chance of keeping warming to 2°C.

The green area shows the pathway we need to follow to retain a 50% chance of keeping to a 1.5°C rise by 2100.

In 2015 the world needed to cut CO_2 by 5% every year to keep below 1.5°C. By 2020 this had risen to 7% per year[49]. The Covid epidemic in 2020 caused a 7-8% drop in global emissions[50] – but after the first lockdowns, emissions went back up and kept on rising.

HAVING STILL FAILED TO CUT GREENHOUSE GASES, WE NOW NEED TO CUT THEM BY 42% BY 2030 AND 57% BY 2035 to get back on course to remain below 1.5°C[51], if we are not already too late.

OUR "CARBON BUDGET" IS RUNNING OUT FAST - THERE IS NO MORE TIME TO WASTE

THERE ARE SOLUTIONS WHICH WOULD BENEFIT US ALL

The most important and urgent thing we must do to avoid worsening climate chaos is to stop using fossil fuels - coal, oil and gas - to provide us with energy. Fortunately, there are lots of other ways to obtain the energy we need.[52]

INSULATION

About a third of all UK energy is used to heat our homes and other buildings, which are among the worst insulated in Europe.

Improving home insulation would cut everyone's fuel bills, cut CO_2 emissions, and reduce energy demand overall.

SOLAR POWER

The total fossil fuel and nuclear energy consumed by humanity is a drop in the ocean compared to the amount of the sun's energy which falls on the earth every day.

The land required for solar panels to provide all human energy needs would be 450,000 sq. km. That's less than the current land footprint of all fossil fuel infrastructure and less than 5% of the area of the Sahara Desert.

Photo-voltaic (PV) solar panels work on light, not heat, anywhere the sun shines, including the UK.

WIND ENERGY

The UK is a leader in off-shore wind power, but lags behind other developed countries in making use of on-shore wind.

On-shore wind and solar PV are now the cheapest forms of electricity generation, and the quickest and easiest to install.

TIDAL POWER

The tides are a largely untapped resource, as regular as clockwork, powered by the earth's rotation and the moon's gravity.

Together, the sun, wind and tides could provide us with all the energy we need, sustainably, with no pollution and zero fuel cost.

"GREEN" HYDROGEN

Water can be split into its component gases, oxygen and hydrogen, by passing an electric current through it. If this is done using renewable electricity, the hydrogen is referred to as "green hydrogen".

Because wind and solar are intermittant sources of energy, sometimes we will have too much, and at others too little. Using any surpluses to make Green hydrogen is a useful way of storing energy.

When hydrogen is burnt as a fuel, it recombines with oxygen to make water vapour - no pollution and no CO_2.

LIFESTYLE CHANGE CAN ALSO HELP

Although renewable energy can provide us with enough energy for our needs, there is more we need to do, and habits we need to change.

TRANSPORT CHOICES

The world does not have the resources to make electric cars for everyone, or the time to do it.

We need a shift to walking and cycling, to using public transport or sharing vehicles wherever possible, and to commuting less or working from home if we can.

Making these changes would give us healthier lifestyles in a less stressful, less polluted environment.

We also need to reduce unnecessary air travel, which is a major and growing contributor to climate change. Taxing aviation fuel and frequent flyers would be a good start.

CONSUMER CHOICES

Industry and commerce have the ability to make an unending stream of goods whether we need them or not, which mostly end up as trash or (at best) recycling. Advertisers have a similar ability to sell this stuff, although swapping new trash for old never actually makes anyone happy.

We need goods that are made to last and to be repaired, not thrown away. We need to reduce our consumption, and buy second hand or recycled goods where we can. We need to keep asking "Do I really need this thing?"

FOOD CHOICES

Currently, food production produces a quarter of the world's greenhouse gases (mostly methane) and takes up half the habitable land on the planet. Meat and animal products account for most of this.

To produce 1kg of protein from beef, for example, takes over 20 times as much land and produces 55 times the greenhouse gases as 1kg of protein from pulses.

Choosing a fully plant-based diet is probably the most effective action an individual can take to limit climate change and to preserve nature and wildlife, but any reduction in meat consumption can help play a part.[52]

We know the solutions and we have the technology, SO WHAT IS HOLDING US BACK?

Fear, inertia, and powerful vested interests

The consequences of climate change are enormous and can be very frightening. Many people would rather not think about it, and politicians are scared to let the public know the facts. People don't like uncertainty or the unknown, and are fearful of change, so our 'leaders' say nothing and nothing gets done.

IT'S NOT AN ECONOMIC PROBLEM. Making the transition to a sustainable green economy will require investment, but top economists have warned for years that not making that investment and having to cope with the effects of climate chaos would be far more costly in the long run.[53]

In fact, making this investment would boost our economy hugely, creating hundreds of thousands of worthwhile sustainable jobs in renewable energy and insulation, in public transport and infrastructure, and in the new technologies which the whole world needs to adopt for a sustainable future.

> "This is an emergency and for emergency situations we need emergency action"
> – Ban Ki-Moon, Former UN Secretary-General

WE MUST NOT BE DIVERTED by the oil industry and other vested interests who create delays, and will fight to keep profiting from "business as usual" for as long as they possibly can.

CHANGE HAS TO COME, AND IT NEEDS TO HAPPEN AS SOON AS POSSIBLE, FOR OURSELVES AND FOR FUTURE GENERATIONS.

> "The era of global warming has ended and the era of global boiling has arrived"
> - António Guterres, UN secretary general

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