

A Positive: ‘Air is cleaner than before the Industrial Revolution’: a best case scenario for the climate in 2050

The Observer
Climate change

The Future We Choose, a new book by the architects of the Paris climate accords, offers contrasting visions for how the world might look in thirty years (read the worst case scenario [here](#))

· Christiana Figueres, author: ‘This is the decade and we are the generation’

Christiana Figueres and Tom Rivett-Carnac

Sat 15 Feb 2020 17:00 GMT



‘The ambient feeling of living on what has again become a green planet has been transformative.’ Photograph: Ichiro/Getty Images

It is 2050. We have been successful at halving emissions every decade since 2020. We are heading for a world that will be no more than 1.5C warmer by 2100

In most places in the world, the air is moist and fresh, even in cities. It feels a lot like walking through a forest and very likely this is exactly what you are doing. The air is cleaner than it has been since before the Industrial Revolution. We have trees to thank for that. They are everywhere.

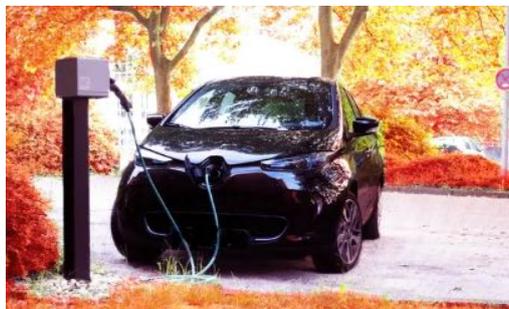
It wasn’t the single solution we required, but the proliferation of trees bought us the time we needed to vanquish carbon emissions. When we started, it was purely practical, a tactic to combat climate crisis by relocating the carbon: the trees took carbon dioxide out of the air, released oxygen and put the carbon back where it belongs, in the soil. This, of course, helped to diminish climate crisis, but the benefits were even greater. On every sensory level, the ambient feeling of living on what has again become a green planet has been transformative, especially in cities.

Reimagining and restructuring cities was crucial to solving the climate challenge puzzle. But further steps had to be taken, which meant that global rewilding efforts had to reach well beyond the cities. The forest cover worldwide is now 50% and agriculture has evolved to become more tree-based. The result is that many countries are unrecognisable, in a good way. No one seems to miss wide-open plains or monocultures. Now we have shady groves of nut and orchards, timber land interspersed with grazing, parkland areas that spread for miles, new havens for our regenerated population of pollinators.

Drones organised along aerial corridors are now delivering packages, further reducing the need for vehicles

A major part of the shift to net-zero emissions was a focus on electricity; achieving the goal required not only an overhaul of existing infrastructure but also a structural shift. In some ways, breaking up grids and decentralising power proved easy. We no longer burn fossil fuels. Most of our energy now comes from renewable sources such as wind, solar, geothermal and hydro. All homes and buildings produce their own electricity – every available surface is covered with solar paint that contains millions of nanoparticles, which harvest energy from the sunlight, and every windy spot has a wind turbine. If you live on a particularly sunny or windy hill, your house might harvest more energy than it can use, in which case the energy will simply flow back to the smart grid. Because there is no combustion cost, energy is basically free. It is also more abundant and more efficiently used than ever.

Homes and buildings all over the world are becoming self-sustaining far beyond their electrical needs. For example, all buildings now collect rainwater and manage their own water use. Renewable sources of electricity make possible localised desalination, which means clean drinking water can now be produced on demand anywhere in the world. We also use it to irrigate hydroponic gardens, flush toilets and shower.



‘The electric motor is simply a better way of powering vehicles.’ Photograph: Lucinda Merano/Getty Images/EyeEm

Petrol and diesel cars are anachronisms. Most countries banned their manufacture in 2030, but it took another 15 years to get internal combustion engines off the road completely.

What’s strange is that it took us so long to realise that the electric motor is simply a better way of powering vehicles. It gives you more torque, more speed when you need it,

and the ability to recapture energy when you brake and it requires dramatically less maintenance.

We also share cars without thinking twice. In fact, regulating and ensuring the safety of driverless ride sharing were the biggest transportation hurdles for cities to overcome. The goal has been to eliminate private ownership of vehicles by 2050 in major metropolitan areas. We're not quite there yet, but we're making progress.

We have also reduced land transport needs. Drones organised along aerial corridors are now delivering packages, further reducing the need for vehicles. Thus we are currently narrowing roads, eliminating parking spaces and investing in urban planning projects that make it easier to walk and bike in the city.

While we may have successfully reduced carbon emissions, we're still dealing with the aftereffects of record levels of carbon dioxide in the atmosphere. The long-living greenhouse gases have nowhere to go other than the already-loaded atmosphere, so they are still causing increasingly extreme weather, though it's less extreme than it would have been had we continued to burn fossil fuels.

Glaciers and Arctic ice are still melting and the sea is still rising. Severe droughts and desertification are occurring in the western United States, the Mediterranean and parts of China. Ongoing extreme weather and resource degradation continue to multiply existing disparities in income, public health, food security and water availability. But now governments have recognised climate crisis factors for the threat multipliers that they are. That awareness allows us to predict downstream problems and head them off before they become humanitarian crises.

Everyone understands that we are all in this together. A disaster that occurs in one country is likely to occur in another in only a matter of years. It took us a while to realise that if we worked out how to save the Pacific islands from rising sea levels this year, then we might find a way to save Rotterdam in another five years.

The zeitgeist has shifted profoundly. How we feel about the world has changed, deeply. And, unexpectedly, so has how we feel about one another.



'All homes and buildings produce their own electricity.' Photograph: Lari Bat/Getty Images/Stockphoto

When the alarm bells rang in 2020, thanks in large part to the youth movement, we realised that we suffered from too much consumption, competition, and greedy self-interest. Our commitment to these values and our drive for profit and status had led us to steamroll our environment. As a species, we were out of control and the result was the near-collapse of our world.

We emerged from the climate crisis as more mature members of the community of life, capable of not only restoring ecosystems but also of unfolding our dormant potentials of human strength and discernment. Humanity was only ever as doomed as it believed itself to be. Vanquishing that belief was our true legacy.

• This is an edited extract from *The Future We Choose: Surviving the Climate Crisis* by Christiana Figueres and Tom Rivett-Carnac, published by Manilla Press (£12.99). To order a copy go to guardianbookshop.com. Free UK p&p over £15

• Christiana Figueres and Tom Rivett-Carnac will be in conversation at a [Guardian Live event at the Royal Geographical Society, London SW7, on Tuesday 3 March, 7pm](#)

B Negative: 'The only uncertainty is how long we'll last': a worst case scenario for the climate in 2050

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'The air can taste slightly acidic, sometimes making you feel nauseated.' Photograph: Arctic-Images/Corbis

It is 2050. Beyond the emissions reductions registered in 2015, no further efforts were made to control emissions. We are heading for a world that will be more than 3C warmer by 2100

The first thing that hits you is the air. In many places around the world, the air is hot, heavy and, depending on the day, clogged with particulate pollution. Your eyes often water. Your cough never seems to disappear. You think about some countries in Asia, where, out of consideration, sick people used to wear white masks to protect others from airborne infection. Now you often wear a mask to protect yourself from air pollution. You can no longer simply walk out your front door and breathe fresh air: there might not be any. Instead, before opening doors or windows in the morning, you check your phone to see what the air quality will be.

Melting permafrost releases ancient microbes today's humans have never been exposed to and have no resistance to

Fewer people work outdoors and even indoors the air can taste slightly acidic, sometimes making you feel nauseated. The last coal furnaces closed 10 years ago, but that hasn't made much difference in air quality around the world because you are still breathing dangerous exhaust fumes from millions of cars and buses everywhere. Our world is getting hotter. Over the next two decades, projections tell us that temperatures in some areas of the globe will rise even higher, an irreversible development now utterly beyond our control. Oceans, forests, plants, trees and soil had for many years absorbed half the carbon dioxide we spewed out. Now there are few forests left, most of them either logged or consumed by wildfire, and the permafrost is belching greenhouse gases into an already overburdened atmosphere. The increasing heat of the Earth is suffocating us and in five to 10 years, vast swaths of the planet will be increasingly inhospitable to humans. We don't know how hospitable the arid regions of Australia, South Africa and the western United States will be by 2100. No one knows what the future holds for their children and grandchildren: tipping point after tipping point is being reached, casting doubt on the form of future civilisation. Some say that humans will be cast to the winds again, gathering in small tribes, hunkered down and living on whatever patch of land might sustain them.

More moisture in the air and higher sea surface temperatures have caused a surge in extreme hurricanes and tropical storms. Recently, coastal cities in Bangladesh, Mexico, the United States and elsewhere have suffered brutal infrastructure destruction and extreme flooding, killing many thousands and displacing millions. This happens with increasing frequency now. Every day, because of rising water levels, some part of the world must evacuate to higher ground. Every day, the news shows images of mothers with babies strapped to their backs, wading through floodwaters and homes ripped apart by vicious currents that resemble mountain rivers. News stories tell of people living in houses with water up to their ankles because they have nowhere else to go, their children coughing and wheezing because of the mould growing in their beds, insurance companies declaring bankruptcy, leaving survivors without resources to rebuild their lives. Contaminated water supplies, sea salt intrusions and agricultural runoff are the order of the day. Because multiple disasters are often happening simultaneously, it can take weeks or even months for basic food and water relief to reach areas pumelled by extreme floods. Diseases such as malaria, dengue, cholera, respiratory illnesses and malnutrition are rampant.



The aftermath of a wildfire in northern California, November 2018. Photograph: Noah Berger/AP

You try not to think about the 2 billion people who live in the hottest parts of the world, where, for upwards of 45 days per year, temperatures skyrocket to 60C (140F), a point at which the human body cannot be outside for longer than about six hours because it loses the ability to cool itself down. Places such as central India are becoming increasingly challenging to inhabit. Mass migrations to less hot rural areas are beset by a host of refugee problems, civil unrest and bloodshed over diminished water availability.

Food production swings wildly from month to month, season to season, depending on where you live. More people are starving than ever before. Climate zones have shifted, so some new areas have become available for agriculture (Alaska, the Arctic), while others have dried up (Mexico, California). Still others are unstable because of the extreme heat, never mind flooding, wildfire and tornadoes. This makes the food supply in general highly unpredictable. Global trade has slowed as countries seek to hold on to their own resources.

Countries with enough food are resolute about holding on to it. As a result, food riots, coups and civil wars are throwing the world's most vulnerable from the frying pan into the fire. As developed countries seek to seal their borders from mass migration, they too feel the consequences. Most countries' armies are now just highly militarised border patrols. Some countries are letting people in, but only under conditions approaching indentured servitude.



A young boy picks material from a rubbish dump in Ta'izz, Yemen. Photograph: Ahmad Al-Basha/AFP via Getty Images

Those living within stable countries may be physically safe, yes, but the psychological toll is mounting. With each new tipping point passed, they feel hope slipping away. There is no chance of stopping the runaway warming of our planet and no doubt we are slowly but surely heading towards some kind of collapse. And not just because it's too hot. Melting permafrost is also releasing ancient microbes that today's humans have never been exposed to and, as a result, have no resistance to. Diseases spread by mosquitoes and ticks are rampant as these species flourish in the changed climate, spreading to previously safe parts of the planet, increasingly overwhelming us. Worse still, the public health crisis of antibiotic resistance has only intensified as the population has grown denser in inhabitable areas and temperatures continue to rise.

The demise of the human species is being discussed more and more. For many, the only uncertainty is how long we'll last, how many more generations will see the light of day. Suicides are the most obvious manifestation of the prevailing despair, but there are other indications: a sense of bottomless loss, unbearable guilt and fierce resentment at previous generations who didn't do what was necessary to ward off this unstoppable calamity.

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