

Bill Gates: ‘Carbon neutrality in a decade is a fairytale. Why peddle fantasies?’

After putting \$100m into Covid research, the billionaire is taking on the climate crisis. And first he has some bones to pick with his fellow campaigners...

- [Read an exclusive extract from Gates’ new book](#)

Bill Gates: ‘The Green New Deal is a fairytale. Why peddle fantasies?’ Photograph: John Keatley/The Guardian



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Bill Gates appears via video conference – Microsoft Teams, not Zoom, obviously – from his office in Seattle, a large space with floor-to-ceiling windows

overlooking Lake Washington. It's a gloomy day outside and Gates is, somewhat eccentrically, positioned a long way from the camera, behind a large, kidney-shaped desk; his communications manager sits off to one side. If one had to stage, for the purposes of symbolism, a tableau of a man for whom a distance of 3,000 miles between callers still constitutes too intimate a setting, it might be this. "As a way to start," says Gates' aide, "would it be helpful for Bill to make a couple of comments about why he wrote his new book?" It is helpful, and I'm not ungrateful, but this is not how interviews typically commence.

There is an urge towards deference, when speaking to Gates, which attends few other people of commensurate fame. Celebrity is one thing, but wealth – true, former-richest-man-in-the-world wealth – is something else entirely; one has a sense of being granted an audience with the Great Man, a fact made more surreal by his famously muted persona. The 65-year-old has the lofty, mildly longsuffering air of a man accustomed to being the smartest guy in the room, leavened by wry amusement and interrupted, on the evidence of past interviews, by the occasional peevish outburst – most memorably in 2014, when Jeremy Paxman questioned him about **Microsoft's alleged tax avoidance**. ("I think that's about as incorrect a characterisation of anything I've ever heard," he said, practically squirming in his seat with annoyance.)

Gates loves private jets; he calls them his 'guilty pleasure'. He loves hamburgers and eating grapes year-round

Unlike the Elon Musks or Larry Ellisons of this world, however, Gates is perceived to be sensible, uxorious, modest, vowing not to ruin his children with boundless inheritance or to waste energy trying to send things to Mars. In the late 1990s, the US government brought an antitrust suit against Microsoft, accusing it of maintaining a monopoly in the PC market; a final settlement in 2001 overturned an earlier order for the company to be broken up. Since then, Gates has enjoyed a reputation as the Good Billionaire, dispensing a fortune through **his foundation** and overshadowing what his detractors would say is his biggest shortcoming: his unquestioning belief in progress as a function of capitalist growth.

All of these aspects come together in Gates' new book, *How To Avoid A Climate Disaster*, which, as he tells me, grew out of two things: his interest in the sciences and what struck him as an irresistible challenge – the fiendishly difficult problem of how to further global development while reducing emissions. For the past few decades, much of Gates' focus has been on expanding access to electricity in the remotest parts of the world. “And yet,” he says, “the idea of adding new electricity capacity – you can't just go build coal plants. And understanding how expensive it needs to be, and how this is going to work, had me doing a lot of reading.”

There's another, greater obstacle to reaching zero emissions, which is the political challenge – part of which involves climate activists limiting their exposure to accusations of hypocrisy. Gates loves private jets; he calls them his “guilty pleasure”. He loves hamburgers and eating grapes year-round. A few weeks after we speak, it is reported that he is involved in **a bid to buy Signature Aviation**, which handles ground services for 1.6m private jet flights a year. Today he says, “I get sustainable aviation fuel that I use when I fly,” and mentions another, vaguely futuristic-sounding service: “I've paid to offset my carbon footprint – there's this group **Climeworks** that does direct air capture up in Iceland.” On the subject of imported food, he says: “Well, growing food locally is often worse, because you're putting things in greenhouses that have an insane climate imprint. I'm not the only one who eats out-of-season food, as far as I know. But if that's people's main objection and they'll adopt my plan, then” – Gates smiles, in a rather glittering way – “I'll cede my grape-eating.”

For Gates, this focus on grapes and private jet travel is, relatively speaking, like rearranging deckchairs on the Titanic. “What months of the year do I have to stop eating hamburgers?” he says sardonically. “I don't need the tomato. Or the lettuce. Just the bun and the meat will do.” There is no suggestion that using “direct air capture” to offset one's flights, were such a service even affordable for regular people, would make the slightest dent in the problem. But by using a private jet, Gates makes it easier for others to undermine him. It's not, one imagines, the strongest tool in his skill set, to play dumb in order to win lesser mortals over.

**I hope Greta Thunberg isn't messing up her education.
She seems very clever**

Instead, what he does is bombard us with data and expertise. His book encompasses wisdom from sources that range from less well-known climate scientists, such as Vaclav Smil and Ken Caldeira, to John D Cox, author of **Weather For Dummies**, which, says Gates, remains one of the greatest books about weather ever written. Yet Gates' book is compulsively readable. His ambition was to "cut through the noise" and give consumers better tools for understanding what works, an ambition he meets admirably. It's more than that, however. Gates can get an audience with anyone, can marshal almost limitless resources, and is dogged in the detail. The result – particularly in the wake of the Trump presidency – is thrilling.

It is also, occasionally, comic. "I can't deny being a rich guy with an opinion," he writes, with a nod to the flip-side of his visionary status, that of the despised billionaire flogging a hobby-horse. And there is a nerdy bathos to some of his passions. In one episode, Gates takes his 15-year-old son, Rory, round a power plant on a family holiday, something he bills as a jolly day out. "I'm in awe of physical infrastructure," he explains.

The depressing part of the book is its account of the challenge ahead, which Gates presents as extremely urgent – and, in order to avoid defeatism, also just about doable. He points to a **headline figure: 51bn**. This is the amount of greenhouse gas, in tons, emitted globally each year, which we have to get down to net zero by 2050. The first step towards this is understanding what we're dealing with. "Let's have more literate climate articles, so people can understand if it's a breakthrough that's a big deal or a small deal."

For example, the transport industry, on which so much attention is focused, accounts for **only 16% of global emissions** – which is why, as air travel has ground to a halt, greenhouse gases have gone down by only around 5%. As Gates points out, the future of car travel lies in electric vehicles; but if the electricity comes from coal-fired power plants, the switch is of limited value. Cars are a minor part of the problem compared with the juggernaut of emissions generated by the global **cement** and steel industries.

“Most people don’t understand what cement is,” says Gates, igniting with interest. “And I spent literally weeks understanding why it’s so miraculous, and could we use less of it?” The same goes for meat production. “To understand, OK, what is the ratio of the input of the calories of the cow to the output? What are cow genetics?” Cow burps and farts account for around **4% of global emissions**; without striking beef from our diets, how can those emissions be offset or eliminated?

Like a lot of people, I’ve indulged in somewhat magical thinking around this, dutifully recycling my plastic every week while assuming that, when push comes to shove, the US government will devote the entire annual defence budget to climate control and invent a shield or something. And Gates covers some cool, sci-fi type innovations, most of them to do with those direct air capture technologies, which suck (not the scientific term) greenhouse gases out of the atmosphere. There is a solar-powered dehumidifier to get drinking water out of air, and a technology for storing heat in “molten salt”. There is geoengineering, which may one day be capable of reducing the amount of sunlight hitting the world’s surface by “distributing extremely fine particles” into the upper atmosphere or using a salt spray to “brighten clouds”. But these innovations are cripplingly expensive and imprecise. If you meddle with clouds over the US, there is no guarantee the temperature in China won’t go down.

The biggest gesture most powerful authorities are willing to make involves **divesting from polluting industries**. Last year, New York state pledged to divest its \$226bn (£165bn) pension fund from fossil fuel companies. This strikes Gates as wholly inadequate; it diverts the focus from more urgent concerns, such as finding a carbon neutral energy source to power the electricity grid. “It’d be tragic to have this whole generation behind the cause, and then you just do the easy stuff like divesting securities. You can say, ‘OK, I don’t want any more of those evil oil company stocks. Yay!’ Well, how many tons [of carbon] did you avoid by doing that?”

The idea that the success of Microsoft is so much money for one individual slowly but surely dawned on me

The same goes for everybody vowing to eat less meat. “I mean, these are good things – in fact, buying Beyond Burgers [a plant-based “meat” company that Gates invests in] actually drives demand, which will get the quality up and the rate premium down, so consumer behaviour is important. But unless you replace steel, it’s a joke. Just forcing companies to report their CO₂ is a good thing; but when you open that steel company report, you’re going to go, ‘Oh, this is shocking, they have emissions!’ And what? Are we not going to build buildings in India to provide people with basic shelter?”

“If this was all about a 20% reduction, it should be pretty easy. Rich countries could reduce our cars and big houses, and the ridiculous amounts of meat we eat by 20%. The thing that makes climate so hard is that it’s not about a 20% reduction – it’s about getting it to zero. So things like [changing] mass transit so you have 20% less miles driven in the city, that doesn’t go anywhere.”

The only thing that would neutralise the climate impact of public transport is if every vehicle were powered by a zero-emission fuel. One solution Gates cites is clean hydrogen. It doesn’t yet exist in a widespread usable form, but were the technology to advance to create “super, super cheap and totally clean hydrogen, that helps a lot of industrial processes. You could use that to make fertiliser in a clean way, to help make steel in a clean way. That alone would help with about 30% of emissions, which is pretty amazing – to have one thing that can do 30%.”

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f there is a credibility gap in listening to Gates on this subject, it comes from the suspicion that he lives in a world so far removed from the rest of us as to raise large blind spots. It’s a small thing, but in a [2014 Rolling Stone interview](#), Gates mentioned a lunch with [Charles Koch](#), the libertarian billionaire who made huge sums from the oil business and for decades lobbied to reduce US environmental

regulations. “He’s a very nice person,” Gates said in that interview, “and he has this incredible business track record.” Koch, along with his late brother David, spent decades **funding climate deniers**. Gates’ regard for him seems vested entirely in his success as a businessman; no matter how philanthropic, at some level the billionaire class is loyal primarily to itself.

But there is no denying that Gates is alert to inequity. “It’s the rich countries that did all the emissions,” he says, “but it’s these poor countries [that will suffer]. The injustice of this on a global basis is pretty mind-blowing.” Still, he is often at odds with other climate campaigners, particularly those on the left. Of the Green New Deal, the proposal backed by **Alexandria Ocasio-Cortez** that raises the goal of carbon neutrality in a decade, he is flatly dismissive. “Well, it’s a fairytale. It’s like saying vaccines don’t work – that’s a form of science denialism. Why peddle fantasies to people?” This seems a little harsh, and one suspects that Gates’ vehemence is powered by a broader disapproval of Ocasio-Cortez’s politics. But his point is that there isn’t the time, money or political will to reconfigure the energy industry in a decade; by encouraging an impossible goal, you doom yourself to short-termist measures that prove insufficient.

There’s no simple thing like get a vaccine and the climate nightmare ends. It’s way broader than the pandemic

How helpful does he consider protest movements like **Extinction Rebellion**, with their habit of shutting down busy thoroughfares at rush hour? “Well, what we need is innovation. So if they’re really strategic about what street they cut off, and some poor guy is blocked in traffic and he sits there and says: ‘God, I’ve got to figure out a way to make steel [carbon neutral]. I was being lazy, but now that I’m sitting here in traffic, I’m going to go home tonight and figure how to do this.’ Then it’s a very direct connection between blocking the traffic and solving climate change.” He smiles sarcastically. “I don’t mean to make fun of it – in a way their passion is valuable. But it’s going to manifest in some ways that aren’t that constructive. So we need to channel that energy in a way that takes 51bn and moves it towards zero.”

And **Greta Thunberg**? “To some degree the resonance of the issue – if climate change wasn’t important, she wouldn’t be on the front page.” I quite like Gates

for this. One can imagine him having a pop at **Malala Yousafzai**, too; popular sentimentality is not something that interests him. “I’m not trying to take anything away from her. And every movement needs iconic leaders who speak, and that’s a pretty good thing. But there’s probably some teenager who believes that the **Rohingya** should be treated better, and another who thinks we’re not investing enough in good education. So the world has sought her out to speak in this clear, almost innocent way about a cause that we’re trying to orchestrate our energy around, and say hey, can we maintain this and convince people to make sacrifices? And how big do these sacrifices need to be? So I’m glad: you can’t have a movement without high-visibility figures. I hope she’s not messing up her education. She seems very clever.”

Well, hang on, I say: you’re a college drop-out yourself.

“That’s true. Teaching yourself stuff works very well for some people, and probably for her.”

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Bill Gates dropped out of Harvard in 1975, to form Microsoft. For the next 20 years, he focused solely on building the company; by 1996, it had a market cap of \$100bn. Gates, meanwhile, became the world’s richest man in 1995, a spot he held intermittently until he was bumped by **Jeff Bezos in 2018**.

It’s tempting to read the Gates aesthetic – plain, functional, allergic to anything not in service to his goals – as the key to his success, and at least as important as his coding genius. These days, according to Forbes, his personal fortune is **around \$120bn** (£88bn). But it wasn’t until he turned 40, he says, that he started to think about philanthropy, even though it was always there in his upbringing. His father, Bill Gates Sr, was a lawyer who became instrumental in the setting up of the Gates Foundation. His mother, Mary, who worked on

various charitable boards, gave a toast at Gates' wedding to Melinda, saying, "From those to whom much is given, much is expected." So yes, says, Gates, "The idea that the success of Microsoft is so much money for one individual – that giving that back to society in some constructive way might be something I might end up doing – slowly but surely dawned on me." He was mentored in this by his friend **Warren Buffett**. Gates is still annoyed by something CNN founder Ted Turner said of both men, years ago, "claiming that we wanted to be higher on some wealth list. And honestly we weren't hyper-focused on it."

The subject of pandemics is one that has obsessed him for two decades, going back to the foundation's initial **\$750m donation to the Gavi Vaccine Alliance in 1999** and culminating in 2014 when he gave a Ted talk on the international community's **failure to prepare for the next big outbreak**. Gates has **donated \$100m to Covid research**, and on CNN before Christmas, predicted that "the next four to six months **could be the worst of the epidemic**". Will he wait his turn for the vaccine, like everyone else? "That's right. I'm a healthy 65-year-old, and I'll delegate it to the states. So probably in March or April, they will film me taking the vaccine."

Bill and Melinda Gates receiving Presidential Medals of Freedom from Barack Obama. Photograph: Yuri Gripas/Reuters

That he is filmed is important. Gates has become the focus for online conspiracy theories about how he "created" the virus, and is now using the vaccine to implant microchips. For months, he has been batting away these theories; in an interview with Reuters in January, he repeated with weary finality how **"crazy" and "evil"** it all was.

Does he think the vaccine roll-out in the US, which has been fairly chaotic, could have been better handled? "It's incredibly complex, especially when trying to do so at the scale and speed required. For context, India's campaign to give 400 million children the measles rubella vaccine took over two years with a full year of planning. National leadership is crucial: I am hopeful the incoming administration can help give that."

Meanwhile, Gates points out that the experience of the pandemic bears "strong connections" to what will happen if we don't address the climate emergency. "We rely on government to look out for the future, so that even if something

unlikely shows up, people aren't dying and the economy isn't wrecked. And so for the pandemic, despite many people, including myself, saying that we ought to get prepared – literally the title of my Ted talk was 'We're not ready' – the government let us down. And so with climate change: we want government to look ahead and do the right things." It is a much more complicated landscape, in which the single most useful thing individuals can do, in Gates' view, is to educate themselves, the better to judge the impact of various solutions. "There's no simple thing like get a vaccine and the nightmare ends. You're talking about replacing every steel and cement factory, everything you do with electricity and transportation, even food. It's way broader, and the time to do these large-scale things is way longer."

One of the more mind-blowing facts Gates shares in his book is that during the ice age the global temperature was a mere **six degrees cooler than it is today**; and when the dinosaurs were around, **only four degrees hotter**. So, as climate deniers love to say, what's the big deal if things warm up a bit?

I wouldn't say to somebody, please don't have kids. We will make the world a reasonable place to live so kids will be fine

"That was confusing me a little bit," Gates says. "We have these huge ranges of temperature, there have been forests at the south pole, so hey, how bad can this be? But understand that it's the *rate* of change; that the speed with which the CO₂ is going up is so fast, that evolution can't help. If this was happening over tens of millions of years, instead of 100 years, then the Earth could adjust." He pauses to consider another terrifying detail. "The fact there is so much water in the Antarctic ice, and that it can raise the sea level by over 100ft – that is mind-blowing, too."

If he were 30 years younger, would he consider not having kids? "Rich countries are worried about shrinking. So no, I wouldn't say to somebody, please don't have kids. We will make the world a reasonable place to live in and so kids will be fine." He thinks for a moment. "It is weird that in 2050, I'll be 95 years old. Will I live to see this play out, in terms of what works and what doesn't work? This is why you have to engage the young."

Gates' method of engaging his children is in line with his own interests, which his son, Rory, now 21, passionately shares. (His daughters, Phoebe and Jennifer, are 18 and 24 respectively, and seem to have been spared the holiday day trips.) "The history of steel goes back some 4,000 years," says Gates dreamily, and mentions again how much he loves concrete. Did Rory never complain about being dragged off to look at a factory? "He has a deep amount of curiosity," says Gates. "There were a few – like going to the sewage plant – that were fairly smelly. Going to where they process garbage, and the factory where they make toilet paper and paper towels, that also had a bad smell. Although for both of us that was pretty interesting."

Gates considers himself "naive about the physical world", and is fascinated by how things work. "We're both a bit like that. So it was like: how are things really made? This guy Smil [energy academic [Vaclav Smil](#)] writes all these books about this, such fascinating books, but they never sell. People just take the fact that you flip the switch and the light goes on for granted, and behind that are such unbelievable innovations. Likewise the creation of steel and how cheap all that stuff is. Seeing it directly, I highly recommend that. I want to see tours of steel plants go up dramatically."

There is an assumption, I suggest, that anyone in Gates' wealth category has a personal contingency plan: a secret rocket ship, say, or a fortified island, or at the very least, an extremely well-stocked bunker. "No, I don't. In my lifetime, the weather will be worse, but it's mostly at the equator. I'm not a survivalist." Instead his version of survivalism is to fund innovation. "I'm putting money into carbon capture and nuclear fission. The [Gates] foundation does what we call adaptation work, which is improving seeds." (This is so crops can survive drought and floods in the zones most affected by the climate crisis.) He is also investing in the development of batteries that could, for example, power Tokyo for three days if a cyclone knocked out the power. (It would cost \$400bn.)

Is there any single area of innovation that, if we got it right, might save us? "The basic answer is no," says Gates. The scale of the threat is so all-encompassing, so demanding of radical changes to transport, buildings, industry, land use and political will, that "there is no single breakthrough that can solve all those things".

There are, he says, “a couple that are very high on the list”. If there is something talismanic about Gates, and the faith we have in our billionaires and geniuses to magic us out of this hole, he isn’t here to encourage it. “But if you only get the top ones on the list,” he says, with a kind of terrifying calmness, “you’re in deep, deep, deep trouble.”

- Bill Gates’ *How To Avoid A Climate Disaster: The Solutions We Have And The Breakthroughs We Need* is published by Allen Lane on 16 February at £20. To order a copy for £17.40, visit [guardianbookshop.com](https://www.guardianbookshop.com).