# Only Miracles Will Get Us to Zero

**by** Adam Selene (April 2021)

*The Bewildered Planet*, Max Ernst, 1942

Bill Gates, in his new book *How to Avoid a Climate Disaster,* brings a refreshingly honest engineer's perspective to the challenge of getting to net zero emissions, a questionable goal he takes as read. He is persuasive that it will be hard

and expensive. But the critical breakthroughs he says we need to make it possible look more like miracles. And his book illustrates how the Davos elite, of which Gates is a long-standing member, position themselves on the high moral ground of avoiding a climate disaster to claim a mandate to completely remake the world.

Microsoft co-founder Bill Gates was the world's richest man from the 1990s until overtaken by Amazon's Jeff Bezos around 2014. He established with his wife Melinda the world's wealthiest charitable foundation – the Bill and Melinda Gates Foundation. And he's been the subject of documentaries and feature films, including the 3-part 2019 Netflix series *Inside Bill's Brain.*[1] It explores his philanthropic approach to improving sanitation and vaccination in developing countries, and his search for climate change solutions. Gates's new book is a full-length exposition of his views on that third topic—climate change solutions—what it will take to get to net zero emissions, the solutions we have, the breakthroughs we need, and why he's optimistic we can do it.

As one of the world's very richest men, who has big houses and private planes, Gates acknowledges he's an imperfect messenger.

> *The world is not exactly lacking in rich men with big ideas about what other people should do, or who think technology can fix any problem.*

One reason to consider what Gates has to say is his self-confessed nerdy engineer's perspective. Here is an enormously wealthy man who for fun visited power stations with his young son. Another is that he's got access to any expertise he wants, almost any leader of a country, business, or aid organisation takes meetings with him, he has to make decisions about the many investment and charitable opportunities that are pitched to him, and he has his own

experience of success and failure through his Breakthrough Energy investment coalition. And, according to former British Prime Minister Gordon Brown,

> *Gates provides a set of measures that could … be transposed point by point into the formal agenda for this year's 26th United Nations Climate Change Conference, Cop26, in Glasgow.*[2]

Seeing the darkness of developing world cities as he flew into them at night on his charity work helped Gates realise many millions don't yet have electricity. This got him thinking about how he could help make energy affordable for the poor. Microsoft colleagues introduced him in 2006 to some climate scientists and he then saw energy would not only need to be affordable and reliable, but it would also need to be free of greenhouse gas emissions, beginning his journey into the problem.

Gates comes across like a father eager to explain what he's learned to his ten-year-old child—he has three and his youngest is now 18. He offers short, plain language explanations of what we know and don't know about climate change, its consequences and its costs, and tells us that the case for net zero emissions is "rock solid." To explain that, he says:

> *The climate is like a bathtub that's slowly filling up with water. Even if we slow the flow of water to a trickle, the tub will eventually fill up and water will come spilling out onto the floor. That's the disaster we have to prevent. Setting a goal to only reduce our emissions—but not eliminate them—won't do it. The only sensible goal is zero.*

But the bathtub analogy is an oversimplification that creates and reinforces misleading impressions. Firstly, the bathtub analogy presumes that, but for the emissions of carbon

dioxide to the atmosphere due to human activities, Earth's climate and atmospheric carbon dioxide concentrations are stable, unchanging. This is contradicted by the historical and geological records. Secondly, the bathtub analogy sets up in our mind the idea of a hard limit, the edge of the bath, beyond which extra water spills onto the floor – a disaster. But, as Michael Shellenberger points out in his book *Apocalypse Never*, "none of the Intergovernmental Panel on Climate Change reports contain a single apocalyptic scenario."[3] Despite all the talk of 2 °C limits, carbon budgets, and climate tipping points, there are no demonstrably hard limits to temperature or atmospheric concentrations of carbon dioxide analogous to the edge of a bath. The Earth has in the past had both higher and lower concentrations of carbon dioxide in the atmosphere, and has also had higher and lower temperatures, including in the times since modern plants and animals evolved millions of years ago, our great ape primate ancestors among them. Humans are perhaps the most adaptable and innovative of animals and live across a vast geographic and climatic range. So there are no hard limits for atmospheric carbon dioxide or temperature analogous to the edge of a bath. Finally, the analogy creates an image of a vessel designed to contain water, a bath, in a room with a floor for which water would be a disaster. However, the atmosphere floats on the Earth and its oceans, which cover 70 per cent of its surface. The oceans alone contain about 50 times more carbon than does the atmosphere and have about 1000 times its heat capacity. This is why ocean phenomena like La Niña and El Niño have large climatic effects. Gates's bath is floating in the sea, not standing on the floor. It is far from clear that net zero is a sensible goal, let alone the only one. As for achieving it by 2050, engineering polymath Vaclav Smil calls it "an exercise in wishful thinking that ignores fundamental physical realities."[4]

But climate science and emissions targets are not Gates's main focus, because he takes them as read. Thinking

like an engineer businessman, most of the book looks at the technical and economic challenges and opportunities of getting the world's annual emissions down to zero. A self-confessed technophile, Gates gives the impression that the global warming challenge is to him one great big opportunity to get absorbed in and solve a whole range of really interesting and challenging technical problems.

> *The key to addressing climate change is to make clean energy just as cheap and reliable as what we get from fossil fuels. The bad news: Getting to zero will be really hard. The good news: We can do it.*

This refreshing honesty and optimism is part of what makes Gates's book worthwhile. He provides clear explanations of why many of the claimed solutions like renewables, batteries, hydrogen, biofuels, and reforestation, though important, are difficult, expensive, or just won't work at the global scale required.

> *If someone tells you that some source … can supply all the energy the world needs, find out how much space will be required to produce that much energy.*

So, although Gates thinks we should build as much renewables as we can, he concludes from their requirements for land, materials, and storage that we're going to need other options. His one sentence case for nuclear is compelling:

> *Nuclear power is the only carbon-free energy source that can reliably deliver power day and night, through every season, almost anywhere on earth, that has proven to work on a large scale.*

This puts Gates in the company of pro-technology eco-humanists like Michael Shellenberger, who argues for nuclear energy and accuses renewables-only advocates of seeking to destroy the environment to save it.[5] As well as supporting the development of modular fission reactors, Gates backs a

bigger effort to solve the problem of generating electricity from nuclear fusion, elusive so far, because of its transformative potential to deliver emissions-free power on a large scale without radioactive waste or fuel limitations—a forever solution.

'Green premiums,' a measure of the generally higher cost of alternatives to fossil fuels, play an important part in Gates's analysis. Emissions tell us how far we are from zero; the green premiums, says Gates, tell us how hard it will be to get there.

> *What's more important than the specific prices is knowing whether a given green technology is close to being as cheap as its fossil-fuel counterpart and, for the ones that aren't close, thinking about how innovation might bring their prices down.*

Importantly, the relevant prices are not just what Americans or others in the developed world might find affordable. As Gates regularly points out, it's global emissions that matter for the climate, and

> *We can't expect poor people to stay poor because rich countries emitted too many greenhouse gases … Instead, we need to make it possible for low-income people to climb the ladder without making climate change worse.*

That means the world will use a lot more energy than it does now. Electricity accounts for less than a third of global emissions of greenhouse gases, so we need to consider a lot more than generating emissions-free electricity. But it's so important that Gates confesses

> *If a genie offered me one wish, a single breakthrough in just one activity that drives climate change, I'd pick making electricity: It's going to play a big role in decarbonizing other parts of the economy.*

Those other parts, which account for more than two thirds of global emissions, are making materials like cement, steel, plastics and fertilizer; growing food; moving people and goods around; and heating buildings. Gates's clear and concise assessments of the barriers and opportunities is a worthwhile contribution to the debate. In contrast to the unscrupulous optimists who think we already have all the solutions we need and can move rapidly away from using fossil fuels if only we had the will, Gates finds that in many of these areas, the green premiums are too high, and we need some breakthrough inventions. He lists nineteen of them, from cheap hydrogen to affordable synthetic meats and carbon capture. To bring this on, we need to improve the supply of innovations through a massive increase in research and development funding, both public and private. And, he says, we need to put in place market structures to drive demand and adoption, through regulation, incentives, procurement, carbon pricing, and potentially carbon trade barriers or tariffs.

> *What we can do—and need to do—in the next 10 years is adopt the policies that will put us on a path to deep decarbonization by 2050.*
>
> *We can't know with any precision how much getting to zero will cost over time—it will depend on the success and speed of innovation and the effectiveness of deployment—but we know that it will require massive investment.*
>
> *There's no way to sugarcoat the fact that getting to zero won't come for free.*

Gates acknowledges there will be winners, losers, and significant economic and social dislocations. He wishes he had the answers to those problems but is honest enough to confess he doesn't.

In the end, Gates's analysis of the difficulties and

challenges of the technology options is more convincing that his solutions. Large-scale, zero-emissions electricity that is reliable and almost free. Then electrify everything possible, and for the rest use a zero-emission, liquid fuel alternative that's equivalent to oil-based fuels in performance, cost, and scale. That's two big miracles to get anywhere near to net zero emissions. Lesser miracles include drought and flood resistant crops, affordable synthetic meats, and a cost-effective way of taking carbon dioxide out of the air at scale and storing it securely for years. Not to mention completely transforming the world economy, with losers everywhere, while continuing to improve the lives of the world's poorest, because,

> *The world has never done anything quite this big. Every country will need to change its ways.*

Which brings us to the Davos World Economic Forum (WEF) in January 2021. Its agenda this year was a totalizing vision known as the Great Reset. Antonio Guterres, the socialist former Prime Minister of Portugal who is now the United Nations Secretary General, says "we cannot go back to what was, but rather must turn the recovery [from the pandemic] into a real opportunity to do things right for the future."[6] The WEF describes the Great Reset as "a new form of capitalism, one that puts people and planet first, as we come together to rebuild the world."[7] Build Back Better is the three-word slogan British Prime Minister Boris Johnson may have coined, but it has also been adopted by leaders around the world including U.S. President Joe Biden and N.Z. Prime Minister Jacinta Ardern.

Gates's book has capitalist sounding concepts like markets and private sector businesses, and also supports a just transition for those dislocated by change and for the world's poor, as befits a global philanthropist and long-standing Davos contributor. But his approach involves hand-in-glove partnerships between governments, big businesses, and

global agencies like the United Nations. It looks more like corporatism than capitalism. The WEF calls it "stakeholder capitalism." Joel Kotkin, author of *The Coming of The New Feudalism*, describes it as "oligarchical socialism" and says, "we are in a battle to save democracy."[8]

Liberty in once freedom-loving countries has been restricted like never before in responding to a new respiratory virus. States of emergency have been declared and leaders rule by decree. Many are telling us they'll keep us safe, while few champion the cause of liberty, and are condemned as 'killing people'. The virus has shown us, according to Spiked's Fraser Myers, that "the precautionary principle is a menace to liberty."[9] According to this principle, a lack of scientific certainty should not stop governments taking action to reduce a risk that is serious or irreversible. It was formalised at the 1992 Rio Earth Summit to justify taking action on climate change despite the preliminary state of the science. It is now embedded in many environmental, health and safety laws. Sanjeev Sabhlok, a public servant who resigned in protest at the state-wide lockdown in 2020 in Victoria, Australia, goes further:

> *The beauty of the precautionary principle for the socialists is that [it] lets them occupy the high moral ground while they demand complete control over society.*[10]

Through the Great Reset, the Davos global elite position themselves on the high moral ground in the name of recovering from Covid-19 and avoiding a climate disaster to claim a mandate to completely remake the world. Unless we in the once free world reclaim our liberties soon, the danger is that the 'climate emergency' becomes a rationale for deferring indefinitely the return of liberties we once had, reducing us under the precautionary principle and the Great Reset to adult children kept safe and with our needs meet by a global enviro-corporate-socialist oligarchy. At least until they decide not

to.

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[1] Netflix, *Inside Bill's Brain: Decoding Bill Gates*, 2019.

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[3] Michael Shellenberger, *Apocalypse Never: Why Climate Alarmism Hurts Us All*, Harper, 2020.

[4] V. Smil, "What we need to know about the pace of decarbonization", Substantia 3(2), Suppl.1: 13-28, 2019.

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[6] Antonio Guterres, quoted in "Use COVID lessons to 'do things right' for the future, urges UN chief", *UN News*, 20 August 2020.

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[8] The Brendan O'Neill Show, "The new feudalism", *Spiked online*, 2 March 2021.

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[9] Fraser Myers, "You can be too careful", *Spiked online*, 22 February 2021.

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[10] Sanjeev Sabhlok, *The Great Hysteria and the Broken State,* Connor Court, 2020.

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