

# Environmental AI

## Abstract

*Artificial intelligence presents both opportunities and environmental challenges. Whilst AI requires substantial energy, water and infrastructure, it is also becoming an increasingly influential technology that will shape education, business, government and society. This article argues that those who care about sustainability should not disengage from AI because of its environmental footprint. Instead, they should upskill their knowledge to understand the problems and actively participate in the conversation. They should use AI responsibly, and influence the policies, technologies and business practices for sustainable AI development. Rather than asking whether AI should exist, the more important question is how society can ensure it evolves in ways that support both human progress and environmental responsibility.*

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## Introduction

I tend to make everyday decisions with environmental impact in mind. I choose seasonal produce, when possible, reduce energy consumption at home, and I will cycle whenever I can. These choices are driven by a recognition that individual actions can collectively influence resource consumption and greenhouse gas emissions.

I am also a science teacher. My professional life is centred on helping young people understand evidence, collect valid data, evaluate emerging technologies and make informed decisions about the future. That is why I use artificial intelligence wisely and teach Generation Alpha how to use it effectively and responsibly.

At first glance, this may seem contradictory. AI systems require large amounts of computational power, consume electricity and water, and depend upon growing networks of data centres. These environmental costs are real and deserve scrutiny. However, rejecting AI altogether will mean that you lose the ability to influence the environmental narrative. It is important to ensure that the people who care about sustainability are actively involved in shaping how the infrastructure for this technology develops.

The AI genie has already left the bottle. Policymakers, businesses, educators and individuals are increasingly integrating AI into daily life. Whether we like it or not, AI is shaping the future. The question is not whether environmentalists should engage with AI, but whether they can afford not to. Ignoring AI will not prevent its growth or reduce its environmental impact. Instead, it risks excluding environmentally conscious voices from one of the most important technological debates of the twenty-first century. Those who understand both sustainability and AI will be best placed to influence how the technology develops and how its environmental costs are managed.

## Influencing the narrative

Public pressure has, in the past, made an environmental difference. Global campaigns to combine public pressure, evidence and economic impact may persuade data companies to mitigate their carbon footprint and start to think more sustainably. Standing on the shoulders of giants; remember the Nike Sweatshop campaign, Greenpeace versus Shell with Brent Spar, and the Rana Plaza disaster: they were all successful public campaigns against large polluting companies.

You can decide to limit your use of AI (just like the population is now advised to be energy efficient with fuel) but still engage (acting as a role model) because AI can generate ideas, give you a head start and can free up your time to do more of your environmental work and campaigning.

You could also campaign to stop people using it frivolously. The example that comes to mind is using AI to get a plastic look-alike doll printed for yourself. In these times of polycrises we should not be engaging in such energy sapping, climate damaging, plastic polluting, superficial senselessness.

We are at the beginning of the AI revolution, and we need environmental organisations in at the very start, as curating good habits and a way of working when the narrative is emerging is far, far easier than trying to retro fit the green thinking further along the line.

In the present day, I like to compare AI to electricity. When electricity was all generated from fossil fuel power stations, environmentalists didn't refuse to use it. They campaigned to find more sustainable ways of generating energy. Green sustainability sells and 'people power' has played a part in greening energy generation. People are now aware of the problems and will opt to buy sustainably, thus increasing the profits of the 'green' companies and decreasing the money supply to polluting ones. This thinking is now mainstream because of the success of environmental organisations to influence the narrative. Many organisations have also campaigned for successful green legislation that has focussed the direction of more polluting companies towards sustainability. I really think that this is a good analogy to reframe your thinking on AI if you care about the environment.

## Changing Behaviour

*eCO<sub>2</sub> stands for equivalent carbon dioxide emissions and allows comparison of other greenhouse gases to carbon dioxide.*

AI tools like ChatGPT rely on substantial computational power which is energy hungry. For example, each traditional internet search generates approximately 0.2–0.3 g eCO<sub>2</sub>. An equivalent AI-assisted search consumes roughly ten times more energy. It is estimated that 56% of the internet searches are now AI generated (April 2026) but this figure may be out of date by the time you read this.

Trying to encourage people to change their behaviour with AI searches by telling them the above facts is unlikely to be successful because this is a hidden cost. Legislation may work to a certain extent, but you can guarantee that the less caring public and big corporations will find a way round this if they don't like the idea or it inconveniences them. Educating people about the problems with AI is a better option but still probably quite ineffective. Shoppers knew all about the problems with non-biodegradable plastic bags for decades, but it was only when legislation was brought in to charge people to use these single use bags, did the usage plummet by 98%.

So, it comes down to money and, probably peer pressure and influencers. Think about the popularity of Dubai chocolate which went viral. Peer pressure could be short-lived but make the public pay, then you will change habits. Could we, in the near future, when energy consumption still matters, be assigned our very own AI search carbon budget which we would need to spend wisely so that it doesn't run out? I know some youngsters who self-restrict their social media use when their data gets low (and they are paying for it).

## Water Consumption

Given the billions of searches performed across the world on a daily basis, data gathered suggests that AI systems may have a carbon footprint equivalent to that of New York city in 2025, whilst their water footprint could be in the range of the global annual consumption of bottled water. A standard search will use a cup of water; an AI query will increase this to a jug whilst an image generating request will use the equivalent of a barrel of water.

Cooling is critical in data centres to prevent over-heating and equipment failure. Air cooling is a non-water option used in cooler climates or where water is scarce but it is a comparably expensive option and uses a lot of electricity which in itself has a hidden cost of water use. A closed loop water cooling system can reduce freshwater use by up to 70%, but it is more expensive and not as efficient as the most common option which is evaporative cooling. This uses the heat to evaporate water via cooling towers dissipating the heat into the air, but it has a high water consumption which is often taken from local supplies or rivers, drastically reducing the amount available for the local population. There have been problems across the world with the water thirsty needs of data centres decimating local supplies and environments.<sup>7</sup> Natural cooling in cold environments may be one solution but not surprisingly there are few data centres in the polar regions.

## Energy Consumption

Data centres' energy consumption is one of the most serious problems they pose. Energy can be weaponised in a geopolitical order dominated by a handful of exporting nations, and the gap between the energy available and the energy AI seems to demand is widening. Data centre growth is already constrained by supply: there is not enough electricity to go round, and existing infrastructure cannot cope with the exponential rise in demand. This creates pressure on governments, including the UK's, to open up more fossil fuel reserves to feed that demand. That would be catastrophic for a planet already breaking temperature records almost daily.

Several alternatives are being pursued. One is to look at the possibility of building data centres in space. In America, xAI was recently floated on the stock market as an AI company that also made rockets. The idea is that SpaceX's reusable, and therefore cheaper, rockets could carry up modular components, to create orbital data centres reliant on a combination of solar panels and batteries. However, a big challenge is that they would need large, heavy radiative cooling panels as heat must be dissipated entirely through thermal radiation, and launching as many of these as needed, even with reusable rockets, may prove prohibitively expensive. A fleet of micro-satellites, similar to Starlink, is another possibility, though it faces the same question of cost and feasibility.

Back on the ground, regions with abundant, low-cost land, high daily sunshine, and cool climates or water access for cooling are obvious targets for solar-powered data centres, for example the American southwest, the Middle East, or southwest Australia. Taking advantage of the local environment, Iceland has already built data centres powered by low-carbon geothermal energy. A more realistic option for the UK if it is to achieve its ambition of becoming an AI powerhouse, is to power data centres with small modular nuclear reactors (known as SMRs). These offer a steady, low-carbon source of electricity, and can largely be prefabricated in factories to reduce the cost of production and installation.

In the meantime, without more low-carbon sources of energy growing in tandem to match the increased demand caused by the rapid scale-up of data centres, the UK's AI ambitions conflict with the goal of lowering its carbon emissions. The hope is that as low-carbon energy supplies are scaled up, we may not need to ration our data use, because the energy behind it would no longer drive climate change. There is a caveat, though. Building the necessary infrastructure will cause its own environmental damage, and much of it will probably increase emissions in the short term, even if the end result is a low-carbon energy source.

## Conclusion

The ordinary people on this planet who care for the environment, like you and I, need to upskill themselves on the advantages and disadvantages of AI, and we need to engage with narrative and make sure we have our say. The Big Tech companies may appear to have the upper hand now, but the common people are in the majority, and those companies need to hear our voices so that we can influence the direction of travel, for the global good.

***Disclaimer:***

This article was not written using an AI chatbot or the AI Overview at the start of the Google search but was written using traditional search engines. AI still hallucinates because when it doesn't know an answer it may simply make one up. The time taken to check every fact from an AI written blog would result in going down several rabbit holes and take much longer to do than actually writing this myself.

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## Bibliography

*URLs all accessed between June-September 2026*

<https://www.lincolninst.edu/publications/land-lines-magazine/articles/land-water-impacts-data-centers/>

<https://www.wri.org/insights/us-data-center-growth-impacts>

<https://www.telegraph.co.uk/money/consumer-affairs/north-ockendon-fall-under-shadow-europe-biggest-data-centre/>

<https://fusionchat.ai/news/chatgpt-vs-google-search-energy-consumption-comparison>

<https://www.bbc.co.uk/sounds/play/w3csv28h>

<https://www.greenpeace.org/international/story/47744/brent-spar-the-sea-is-not-a-dustbin/>

<https://university.open.ac.uk/research-centres/herc/blog/rana-plaza-10-years-fast-fashion-lesson-forgotten>

<https://www.bbc.co.uk/news/articles/c5yg690e9eno>

<https://www.sciencedirect.com/science/article/pii/S2666389925002788>

<https://www.akcp.com/2026/08/17/truth-about-data-water-footprint-of-data-centers/>

Luccioni, S., Jernite, Y. and Strubell, E., 2024, June. Power hungry processing: Watts driving the cost of AI deployment?. In The 2024 ACM Conference on Fairness, Accountability, and Transparency (pp. 85-99).

<https://graphite.io/five-percent/ai-is-much-bigger-than-you-think>

<https://www.gov.uk/government/news/plastic-bag-use-falls-by-more-than-98-after-charge-introduction>

<https://www.bbc.co.uk/news/articles/c70jklx6ry8o>

<https://www.bbc.co.uk/news/articles/c4gyp523ly8o>

<https://www.jll.com/en-us/insights/data-centers-in-space>

<https://www.weforum.org/stories/2026/06/space-data-centres-cooling/>

<https://www.bbc.co.uk/news/articles/c62614wejk5o>

<https://bdc.is/>