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# The AI Climate Hoax: Behind the Curtain of How Big Tech Greenwashes Impacts



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# Executive Summary

The expansion of data centres - which is driven in large part by AI growth - is creating a shocking new demand for fossil fuels. The tech companies driving AI expansion try to downplay AI's proven climate impacts by claiming that AI will eventually help solve climate change. Our analysis of these claims suggests that rather than relying on credible and substantiated data, these companies are writing themselves a blank cheque to pollute on the empty promise of future salvation. While the current negative effects of AI on the climate are clear, proven and growing, the promise of large-scale solutions is often based on wishful thinking, and almost always presented with scant evidence.

## Key findings: Bait-and-switch and weak evidence

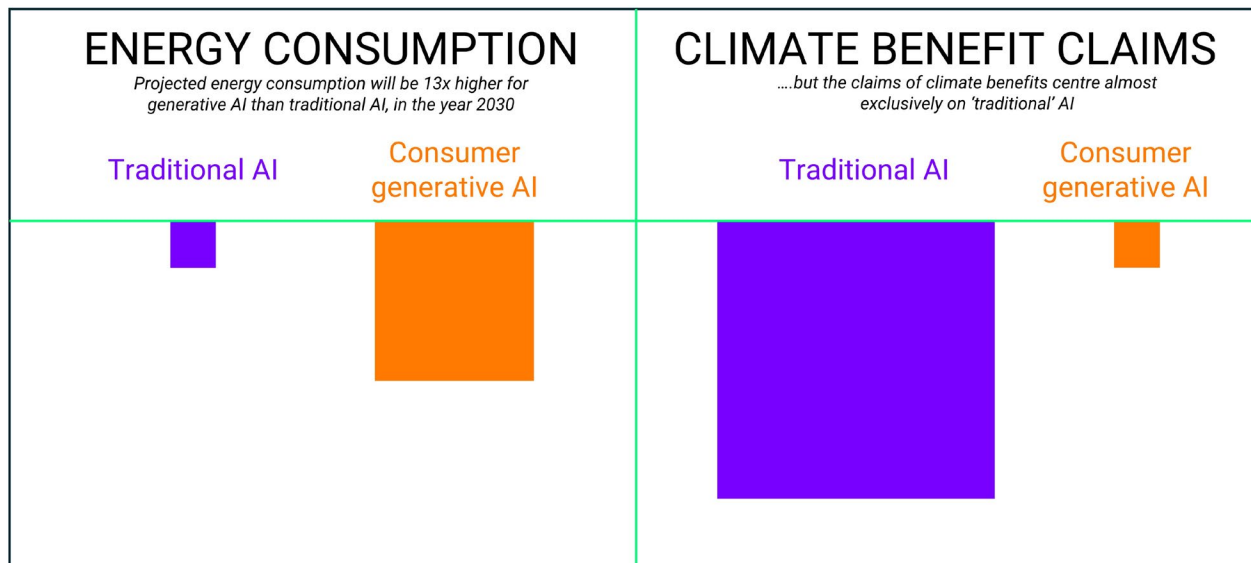
This analysis collected the most prominent AI climate claims and determined a) what types of AI were referred to and b) what evidence was presented to back up those claims. It finds that:

1. Most claims of climate benefit relate to 'traditional' AI, which has a much lower environmental impact than consumer generative AI tools. Even if these

benefits are real, they are unrelated to - and dwarfed by - the massive expansion of energy use from the generative AI industry.

2. Where claims of traditional AI climate benefits are made, they tend to rely on weaker forms of evidence, such as corporate websites, rather than published academic research. Only 26% cited published academic research while 36% did not cite any evidence at all.

Older machine learning tools that perform narrow tasks, such as classifying images, are not linked to rapid growth in AI infrastructure today, nor to the corresponding climate and environmental impacts. Rather, studies find most of the climate impacts will come from consumer generative tools, such as Copilot, Gemini or ChatGPT. At no point did this search or analysis uncover examples in which consumer generative systems were leading to a material, verifiable and substantial level of emissions reductions. By muddling these two types of AI into one umbrella term, purported climate solutions are coupled to extreme pollution and presented as a **package deal**.



**FIGURE 1 - CLIMATE BENEFIT versus DAMAGE**

This graphic illustrates how most climate benefit claims relate to traditional AI, whereas most harm will relate to consumer generative AI. The first compares the projected electricity consumption in a central 2030 scenario, also represented by the area of each square. The second comparison shows the number of claims by AI type, represented by the area of each square.

This deceptive **bait-and-switch** is a new form of greenwashing used to justify a stampede of unprecedented digital bloat running roughshod over climate and local communities through the form of data centres, **most of which will not be processing climate-beneficial computation on their servers.**

Claims that deployment of AI, regardless of type, can bring about gigatonne-scale reductions in global emissions are, at best, deserving of more scrutiny and at worst catastrophically overstated. **Put simply, the evidence for massive climate benefits of AI is weak, whilst the evidence of substantial harm is strong.**

The overstatement of the potential for AI to tackle climate change misdirects from the immediate costs of giant energy and water intensive data centres being imposed on communities worldwide.

The novelty of generative AI and the intensity of data centre expansion have lent themselves to new greenwashing tactics. This analysis shows that to bring the deployment of digital services in bounds with the physical limits of the planet, tech companies investing in AI should implement actual sustainability measures rather than masking ever-worsening damage to the climate and environment with vague terms and weak evidence.



# Introduction

An environmentally destructive heavy industry has emerged in the blink of an eye. The rapid expansion of data centres to drive the deployment of technologies marketed as “artificial intelligence” (AI) rescues prospects for fossil fuels by boosting demand and triggering panicked deployment of new fossil infrastructure. This corrosive trend is often justified on the grounds that “AI” will ultimately undo these sins by serving as a net benefit to climate action.

This report interrogates for the first time whether this claim has merit by examining the types of AI referenced in these claims, and the strength of the evidence put forth alongside them. It finds that the climate impact of energy-hogging generative AI is obfuscated and downplayed through the use of generalised ‘AI sustainability’ claims, creating vagueness around completely different types of technologies and coupling harmful generative AI to older ‘traditional’ AI.

It also finds the majority of claimed climate benefits come with remarkably weak evidence, or no evidence at all. This is a new form of greenwashing used by the tech industry; one that must be challenged urgently.

## Data centre expansion is worsening climate change

The International Energy Agency (IEA)<sup>1</sup>, provides a comprehensive overview of the uniqueness of growth in information technology. Data centre demand accounted for 1.5% of the world’s electricity consumption in 2024 and has grown at four times the rate of broader electricity consumption since 2017. The IEA projects a doubling of total data centre consumption by 2030, much of it driven by the growth of AI. Bloomberg New Energy Finance estimates<sup>2</sup> that this will increase total global power sector emissions by 10% over the coming decade.

The construction and operation of the data centres themselves see a broad suite of direct impacts on greenhouse gas emissions:

- **Construction:** The emissions associated with the building of data centres. This includes the manufacturing of computer chips<sup>3</sup>, a sector where emissions have been increasingly steadily thanks to AI<sup>4</sup>. It also includes concrete, steel and

machinery, alongside the increased extraction of raw materials<sup>5</sup>.

- **Grid fossil unit dispatch:** The increased dispatch of fossil-fuelled power generation in response to new data centre demand, such as in Texas<sup>6</sup> or Ireland<sup>7,8</sup>
- **Grid fossil plant persistence:** The construction of new long-lasting coal and gas<sup>9,10</sup> power stations on power grids, along with the re-energisation of recently retired fossil assets and the lifespan extension<sup>11,12</sup> of fossil assets previously due to retire.
- **Off-grid fossil plant construction:** A rise in directly-connected or locally-created fossil-fuelled power generation, primarily fossil gas, such as those at Meta<sup>13</sup>, OpenAI<sup>14</sup> and xAI<sup>15</sup> sites.
- **Resource diversion:** The diversion of resources previously earmarked for the energy transition towards the data centre boom, such as finance<sup>16</sup>, battery production<sup>17</sup>, wind turbines and solar panels. The capacity for power grids to absorb new load from data centres competes in particular with the large-scale electrification of homes, buildings, transport and heavy industry.

Various end-uses of data centre software services facilitate the fossil fuel industry, for example, AI is used by fossil fuel companies to streamline exploration and increase extraction<sup>18</sup>. Similarly, applications such as the generation of text are being used by climate denial groups to facilitate mass disinformation campaigns<sup>19</sup>. These facilities also cause acute non-climate impacts, such as harming biodiversity or sequestering vast volumes of water in water-stressed regions<sup>20</sup>.

A growing trend of weakened, missed or ignored climate targets and ambitions for companies and regions demonstrates the impacts of data centre growth. Utilities in the US, for instance, now explicitly cite new data centre demand as a key cause of missed targets and coal plant extensions<sup>21,22</sup>. Australia's independent Climate Change Authority weakened recommended 2035 targets partly on the grounds of data centre growth and the government's environment agency cited it as a key reason for

more pessimistic projections of power sector emissions<sup>23,24</sup>. Recent work<sup>25</sup> by researcher Hannah Daly lays out that Ireland's data centre expansion 'poses a material risk to Ireland's ability to meet its carbon budgets'.

Most major technology companies are veering away from the climate target they set for themselves. For most this is true even when you account for claims they're offsetting their emissions using certificates or purchasing deals made directly with renewable energy companies. This is depicted in the figure below.

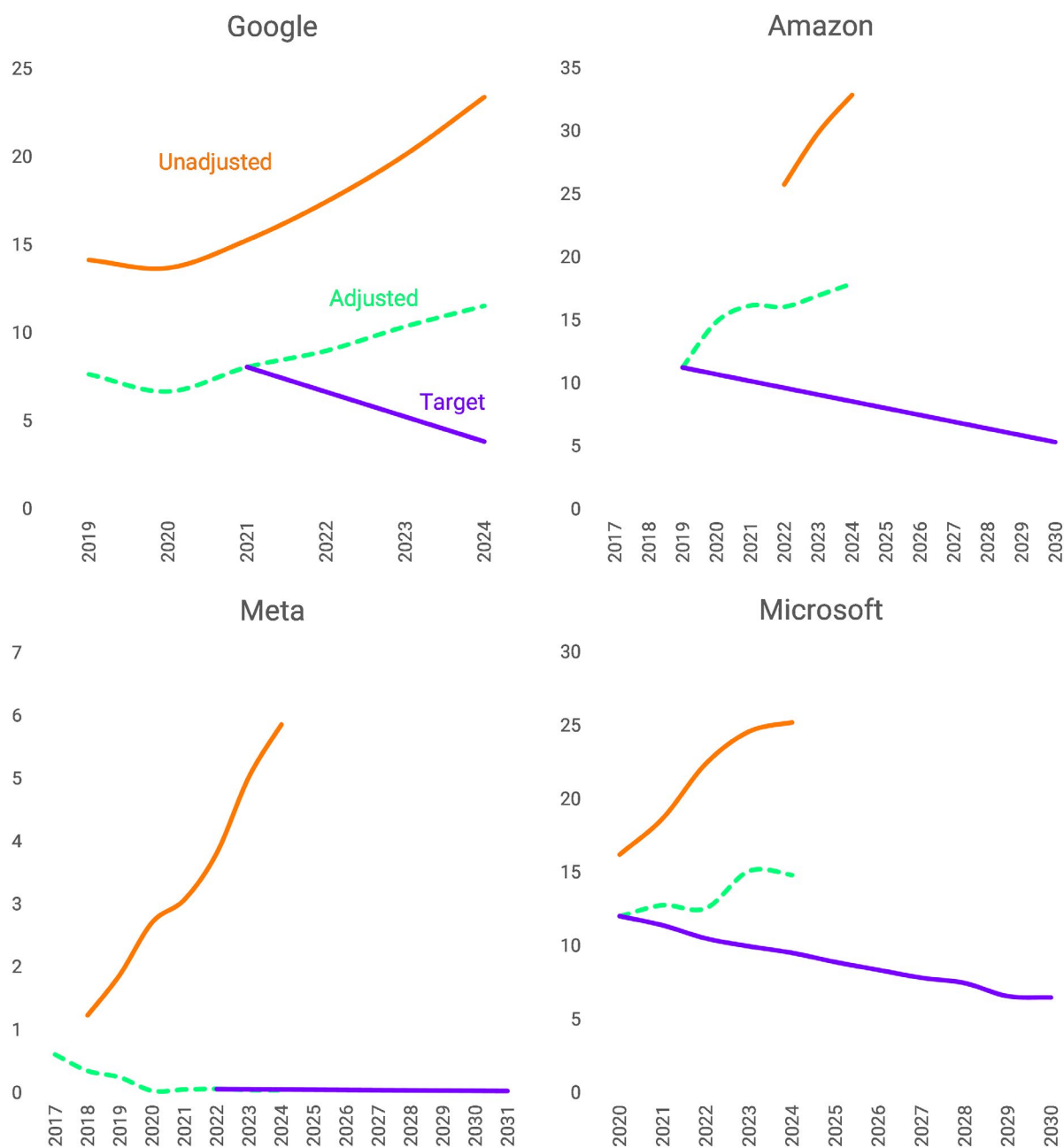
**The significant increase in greenhouse gas emissions associated with data centre expansion, strikingly manifested in the trajectories of large technology company emissions, is occurring for a key reason: the increased deployment of AI technologies.**

### The explosion of AI companies' energy use

The fundamental nature of the generation of text, images and videos requires both the ingestion of large volumes of data into a machine-learning model, the ongoing "training" of that model with new data, and the computationally-intensive 'inference' of information when users submit queries that require a synthesised output.

A core belief within various AI development circles has been the idea of 'scaling laws', which theorise more efficacy only stems from increasingly large and energy-intensive models. Recently, OpenAI CEO Sam Altman said "I do guess a lot of the world gets covered in data centres over time"<sup>27</sup>; an extremely unlikely scenario but illustrative of the scale being considered by key players in the industry. Another reason for growth is the trend of AI becoming embedded non-optionally into most digital services, being triggered without the express intent of users. A recent study<sup>28</sup> examined examples of this, such as Google's "AI Overviews" in search results.

While precise shares are difficult to pin down, it is clear AI computation is growing, alongside pre-existing functions such as file storage, cloud computing, video streaming and cryptocurrency. The IEA's "Energy and AI" report estimates approximately



**FIGURE 2 - COMPANY EMISSIONS GOALS**

These charts show compiled emissions data for four major tech companies compared to the trajectory of targets they set in recent years. “Unadjusted” emissions estimate the volume of fossil fuels used in their power consumption on a grid. “Adjusted” emissions account for certificates from renewable energy companies, or power purchasing deals. For some companies, these adjustments include arbitrary exclusions of certain categories of emissions. More detail can be found in the appendix of this report. All raw data are publicly available at author’s website. All values are in megatonnes of carbon dioxide equivalent.

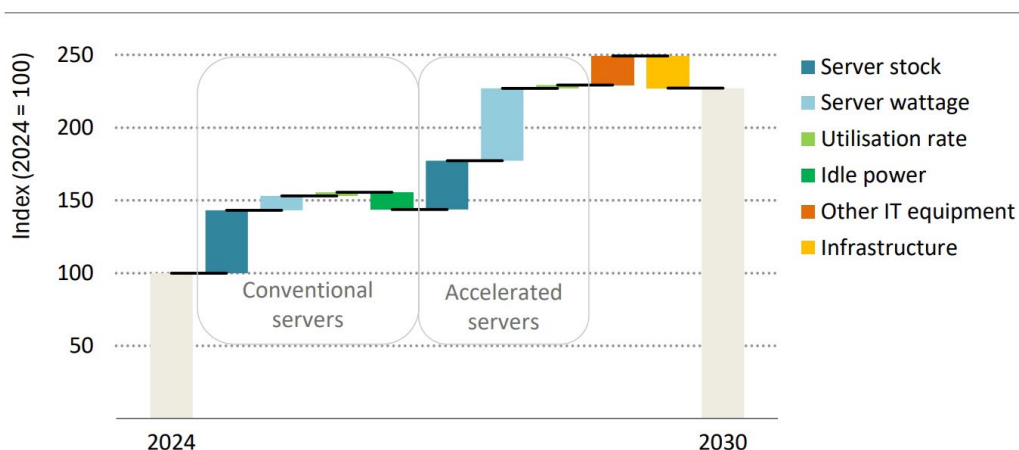
15% of existing data centre demand is attributable to AI applications, noting that estimate is highly uncertain.

Researcher Alex De Vries-Gao estimated<sup>29</sup> that global demand for AI systems was between seven to twelve gigawatts in 2024 (11-20% of data centres), based on the deployment of AI-specific hardware units. Another paper<sup>30</sup> by De Vries-Gao estimates the total global footprint of AI to be “between 32.6 and 79.7 million tons of CO<sub>2</sub> emissions in 2025”. This range is partly corroborated in a November 2025 paper<sup>31</sup> published

in Nature, which estimates an additional 24-44 million tonnes of CO<sub>2</sub> annually between 2024 and 2030, purely for the United States.

**However, the proportion of AI in the growth of data centre demand seems higher.** The IEA’s “Energy and AI” report pins half the growth in the coming half-decade to ‘accelerated servers’, which the IEA says is the computation hardware most associated with AI services. The IEA also cautions this could be an underestimate of the portion of growth related to AI.

**Figure 2.10** ▶ Breakdown of the factors driving electricity demand growth in data centres in the Base Case, 2024-2030



IEA. CC BY 4.0.

*The main drivers of growth in electricity consumption from data centres are the increases in the stock and wattage of servers*

### FIGURE 3 - IEA SERVER GROWTH

Figure 2.10 from the IEA’s “Energy and IA” report, illustrating the large proportion of growth relating to ‘accelerated’ servers

Australia’s Clean Energy Finance Corporation recently estimated<sup>32</sup> 84% of new hyperscale facilities in the country will relate to AI applications.

It is clear that AI already accounts for a substantial proportion of total global data centre demand, and will be the key driver of growth in the coming half-decade. This growth is causing a worsening of greenhouse gas emissions.

In De Vries-Gao’s most recent paper<sup>33</sup> quotes<sup>34</sup> are included from Meta, Microsoft and Google each

specifying that AI has been a primary cause of their growing energy consumption and emissions.

However, none of these companies disclose material estimates of energy demand growth that relates specifically to computation for AI applications. Notably, companies like Google have shown<sup>35</sup> they can estimate the energy and emissions impact of single generative AI interactions, suggesting publishing approximations of the absolute, company-wide climate impact of AI could be possible.

## Big tech greenwashing

As the impacts of rapid data centre growth have emerged, so too have efforts to erase, distract from or mask these impacts. This has often relied on traditional ‘greenwashing’ tactics, including:

- **Hiding emissions:** Many companies artificially lower their reported emissions using clever accounting strategies, such as buying certificates for renewable energy while their actual operations are powered by fossil fuels<sup>36</sup>. Some companies are trying to worsen this practice and prevent reforms of the accounting standards<sup>37</sup>.
- **Empty promises:** The promised use of nuclear fusion<sup>38</sup>, carbon capture and storage<sup>39,40</sup>, space-based data centres paired with solar power<sup>41</sup> or direct air capture of carbon<sup>42</sup> abounds. In extreme cases, key players claim “superintelligent” AI will find a solution to climate change. The claims are superficially plausible, incredibly expensive and unlikely to work. Empty tech promises distract from near-term increase in the burning of fossil fuels and construction of new fossil fuel infrastructure<sup>43</sup>.
- **Downplaying:** Many technology companies have begun drip-feeding small and relatively meaningless “disclosures” of AI-related sustainability information. One recent example is Google sharing the carbon emissions of a single chatbot query, but not disclosing the entire system’s carbon footprint, nor the impacts of images, videos or longer queries<sup>44</sup>.
- **Tactical fatalism:** Prominent voices in tech declare climate goals essentially unachievable, such as Google’s former CEO Eric Schmidt<sup>45</sup>, Crusoe Energy’s CEO<sup>46</sup>, or the former CEO of Ireland’s grid operator (also a prominent voice in the technology sector)<sup>47</sup>.
- **Empty ambition:** The setting of ambitious targets paired with notably insufficient action to achieve them in the short or long term, with a particular reliance on the techno-solutions mentioned above and often framed as a ‘moonshot’<sup>48</sup>.

Aside from these ‘traditional’ tactics, **the most prominent defence of the growth of the AI industry has been the claim that it will serve as a major accelerant of climate action**, and offset its emissions through this effect.

### BOX 1 - GOOGLE’S HOLLOW AI EMISSIONS CLAIM

An early claim of this manner can be found from Google’s representatives, which claims that “research shows that by scaling currently proven applications and technology, AI could mitigate 5 to 10% of global greenhouse gas emissions by 2030—the equivalent of the total annual emissions of the European Union”<sup>49</sup>. The statistic was widely repeated, included in published papers and in Fortune Magazine, alongside frequent usage across Google’s sustainability talks and materials. As recently as April 2025,

Google used this claim in a policy roadmap<sup>50</sup> targeting the European Union.

However, subsequent investigation by this author tracing the claims back through the links showed Google were relying on a 2021 blog post by consulting firm BCG, which had extrapolated the figure from their ‘experience with clients’<sup>51</sup>. This questionable extrapolation of massive global climate benefits justified on seemingly anecdotal evidence was the first clear instance of what has become a longer-term trend of overstating the climate benefits of AI.

The claim that the growth of AI will directly result in a large-scale global reduction in emissions has emerged from other sources. The IEA's April 2025 "Energy and AI" report (peer reviewed by members of Google, Amazon, Nvidia, Meta and Microsoft among others) calculated estimated benefits of AI, as well as estimated downsides (particularly due to data centre expansion). The IEA concluded in a video presentation of the report that<sup>52</sup> "even if [rebound effects occur], if we were to put in place the right conditions to have widespread use of AI in the energy sector, the potential for emission reductions, cutting cost, making [the] energy more affordable far outweigh the direct emission that we would have from the electricity sector".

A similar conclusion was reached in an analysis<sup>53</sup> published in Nature, by Lord Nicholas Stern, which claimed AI deployment's net benefit would be a 36% reduction in measured global emissions, towards

climate goals and away from 'business as usual', by 2035. Dr Amy Luers, head of Sustainability Science and Innovation at Microsoft, published a paper in Nature<sup>54</sup> citing both Stern and the IEA in claiming AI's development will not only yield a net climate benefit but serve as a major global accelerant in achievement of global climate goals. Most sustainability reports from the core technology companies, such as Google and Microsoft, prominently feature this concept of 'climate-beneficial AI', often dedicating large sections to it, listing a large number of case studies and examples to buttress the overall claims of a climate benefit.

These claims, which appear too good to be true, beg the question: is the deployment of AI likely to bring about these deep, rapid and sustained global cuts in climate pollution? The answer has two parts. The first is what type of AI we're really talking about. The second is whether these claims are being made based on strong forms of evidence.

### AI EMISSIONS TRADE-OFF

Widespread deployment of artificial intelligence (AI) tools in the energy sector could cut 1.4 gigatonnes of annual greenhouse-gas emissions by 2035 — more than twice the amount projected to be produced by data centres. Further reductions could come from AI use in electricity, transport and food sectors.

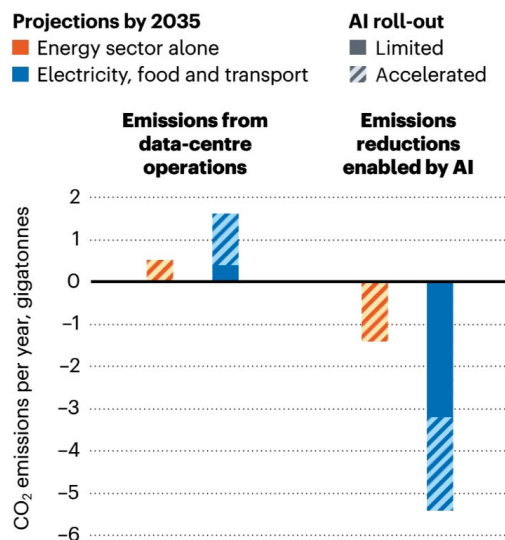


Chart 1 - Luers et al

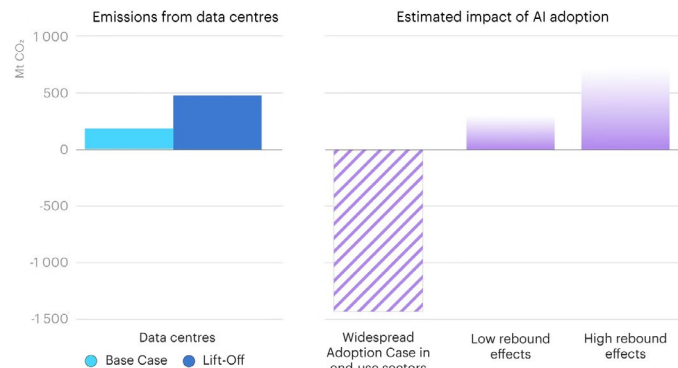


Chart 2 - International Energy Agency

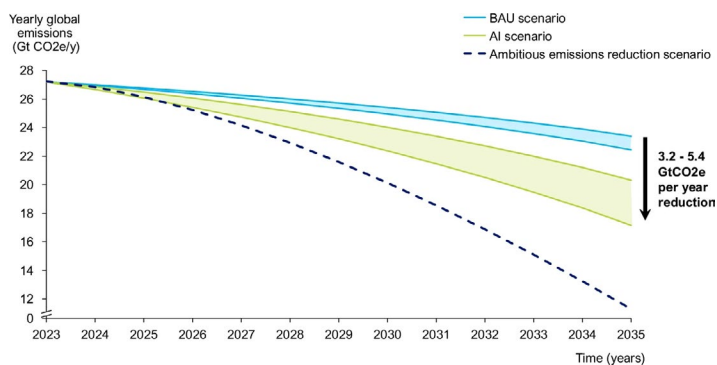


Chart 3 - Stern et al

### FIGURE 4 - GRAPHICAL CLAIMS OF NET CLIMATE BENEFIT

These charts, drawn from the references above, show how estimated climate impacts of AI are presented against the assumed benefits to suggest a likely net benefit. Note that the Stern Et Al graphic includes an estimate of data centre emissions, and shows a 'net' result of both decrease and increase.

## What type of AI? Generative versus traditional AI

The phrase “artificial intelligence”, or AI, was originally coined as a marketing term<sup>55</sup> in the 1950s by researchers focused on machine automation. As explored in journalist Karen Hao’s book “Empire of AI”, the term has been used to describe a broad set of technologies. As Hao noted<sup>56</sup> in a recent interview:

**“People think that to get any benefit from AI in general, which is a huge category of technologies, they somehow have to accept the most environmentally egregious form of AI. I really reject that premise. The term AI is so vague that it’s like the term transportation. You could be talking about a bicycle or a rocket, and those are fundamentally different forms of transportation. And in AI, we mishmash a bicycle in the rocket into the same, broad category. But that doesn’t mean that the benefit from using the bicycle also justifies us building the rocket”**

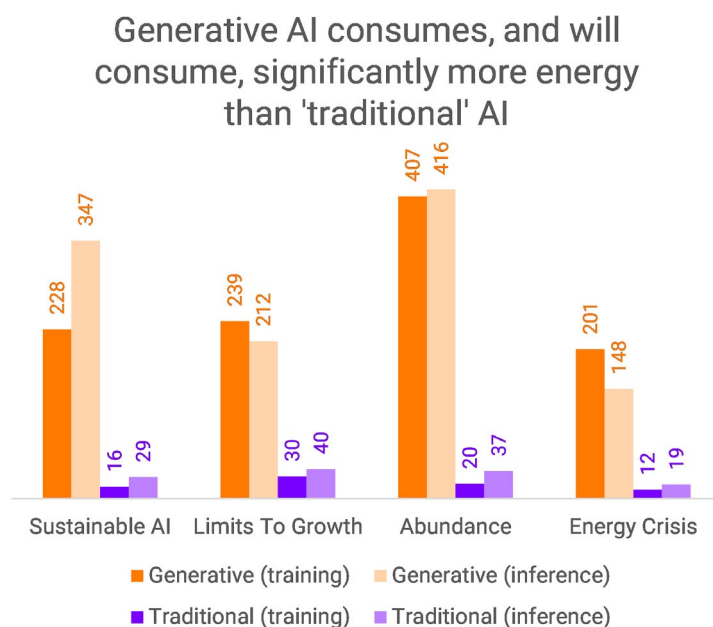
In 2019, researcher David Rolnick published “Tackling Climate Change with Machine Learning”<sup>57</sup> and co-founded the “Climate change AI” non-profit, which

“catalyses impactful work at the intersection of climate change and machine learning”. The seminal 2019 paper lists a large number of potential climate beneficial applications for machine learning. Rolnick recently expressed a similar frustration to Hao on social media<sup>58</sup>:

**“I’m so tired of this sales pitch: “AI is using a lot of energy but it’s also helping the climate”. The AI that helps the climate is generally very different from the AI that uses a lot of energy (e.g. LLMs like ChatGPT). We can have the former without the latter”**

The increased fossil fuel use of AI has been justified by corporations and institutions as worthwhile on the grounds that AI as a general technology can deliver a climate net benefit. **However, much of the projected energy consumption of AI will stem specifically from “generative AI”, rather than more traditional forms of machine learning.**

This distinction was laid out in detail in a recent report published by Schneider Electric<sup>59</sup>, where various scenarios of future AI growth all show a clear difference between discrete AI technologies in terms of energy growth:



**FIGURE 5 - ENERGY CONSUMPTION BY AI TYPE**

This chart shows the estimated global energy consumption of AI by application type in 2030. Across the scenarios, generative AI consumes between six to fourteen times more than traditional AI. Values are expressed in terawatt hours.

If the majority of climate benefit claims relate to traditional AI, these are separable in corporate decision making from the deployment of climate-damaging, resource-intensive and constantly-scaling generative systems. Such claims cannot be used as a defense of missed climate targets or new fossil fuel incentivisation. It matters, then, whether the majority of climate claims relate to traditional or generative AI.

**This project aims to approximate the distribution of claims of AI climate benefits across the various discrete forms of AI technologies by analysing the key documents in which those claims are made and assigning the 'type' of AI the claim relates to.**

**Given the significance of claiming overall climate benefit, this project also records the characteristics of evidence put forth with the aim of estimating the strength of climate benefit claims regardless of AI type.**



# Methodology

To determine the ‘types’ of AI being used to present the narrative of climate benefits, and the strength of evidence, this analysis first set a definition of a climate claim: statements from institutions on the public record, asserting that an “artificial intelligence” or “AI” technology will lead to a material net decrease in greenhouse gas emissions through its deployment.

Based on this definition, an internet search surfaced several major institutional reports, academic papers and corporate publications repeated regularly in media coverage. A set of definitions of different AI types was created, using the IEA’s “Energy and AI” report as reference, with an additional sub-category of generative AI relating either to ‘narrow’ generative AI (such as training a language model on Intergovernmental Panel on Climate Change (IPCC) reports) and ‘consumer’ generative AI (large public

tools trained on a massive corpus of public digital information from the internet, such as ChatGPT). **A full list of sources and definitions can be found in the appendix.**

Between September and October 2025, these sources were each analysed to separate each claim of climate benefit, and to code each of these claims for (a) the type of AI referenced and (b) the type of evidence referenced. Each climate claim was collected in a spreadsheet; the full collection of claims is publicly accessible<sup>60</sup>. No generative software systems were knowingly and intentionally used at any stage in the production of this report (as noted earlier, some systems such as Google ‘AI Overviews’ or Adobe PDF summaries activate without express user intention. The generated image used in this report’s graphics was retrieved from Adobe’s stock library).

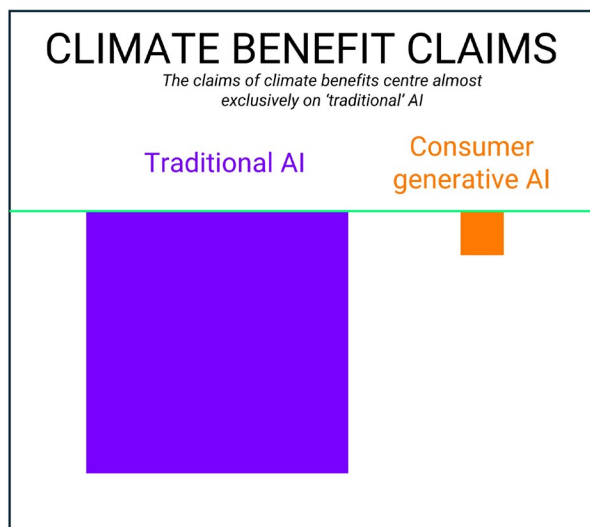
## Results

This analysis found that the overwhelming majority of AI climate benefit claims relate to ‘traditional’ forms of AI rather than generative AI, and that the evidence presented for AI climate benefit claims, including the ‘traditional’ types, largely involved weaker forms of evidence or no evidence at all.

### AI type

Across 8 sources, 154 claims of climate benefits for AI applications were coded (18 additional claims of benefits for climate adaptation and resilience were coded, but are reported separately in the appendix). 150 (97%) relate to ‘traditional’ AI, such as predictive models, computer vision (eg the tool discussed in BOX 2) or a narrow application of generative systems. Only 4 (3%) related in any way to recognisable forms of consumer generative AI systems, such as interactive chatbots trained on large public datasets.

**At no point did this search or analysis uncover examples where consumer generative systems such as ChatGPT, Gemini or Copilot led to a verifiable and substantial level of emissions reductions.**



**FIGURE 6 - NUMBER OF CLAIMS BY AI TYPE**

This graphic shows the volume of climate benefit claims by type of AI in the analysis. The larger traditional AI applications are 38 times more numerous than the consumer generative AI applications, as represented by the area of the two squares.

The four claims related to consumer generative AI applications were from the ‘Microsoft Sustainability Playbook’, published in 2023. These include

statements such as “At Microsoft, we are working with partners to use generative AI to help practitioners distill the vast amount of information needed for sustainability work”, or “the GitHub Copilot solution

uses generative AI to assist developers in writing code, enhancing their productivity significantly by producing code up to 55 percent faster”, under the broad heading “empower the sustainability workforce”.

## BOX 2 - GOOGLE’S SOLAR BENEFIT CLAIM

The Google’s 2025 Environmental Report<sup>61</sup> claimed rooftop solar power installations in the US assisted by the company’s computer vision powered solar production mapping tool Solar API would “help enable partners” to reduce 6 million metric tonnes of greenhouse gas emissions in 2024. The report argued that this is “around 6,000 times greater than the approximately 1,000 metric tonnes” from the service’s computational operation in 2024. However, a close reading of the footnotes provided in the paper shows that the figure of 6 million tonnes is an estimate of the total emissions avoided by these rooftop solar installations (due to them producing low-emissions energy), not an estimate of the additional reductions specifically attributable to the AI mapping tool. While it is worded carefully and caveated<sup>62</sup>, it may create the impression of attributing all of the climate benefits of those solar panels to the use of an AI image recognition tool in their development.

This is a key example of a claim of material climate benefits that (a) does not relate to consumer generative AI and (b) does not come with strong, verifiable and independent evidence from a third party.

## Evidence strength

Weak evidence, generally relating to corporate claims or unevidenced statements, dominated reports claiming AI climate benefits could offset the harms. Of 154 climate benefit claims assessed, **only 26% cited published academic papers. 36% did not cite any evidence at all.** Of the rest, 29% cited corporate publications, and 8% cited media, NGOs, institutions or unpublished academic papers.

The majority of corporate sources, such as sustainability reports and websites, did not include any primary assessable evidence or peer-reviewed and published academic work to support their claims.

Through the listing of examples and case studies, these sources paint a picture of a massive, globally significant climate benefit from the deployment of AI technologies. As noted earlier, many of these relate to ‘traditional’ AI rather than consumer generative AI. However, these results also show that even

Number of climate claims by evidence type and source

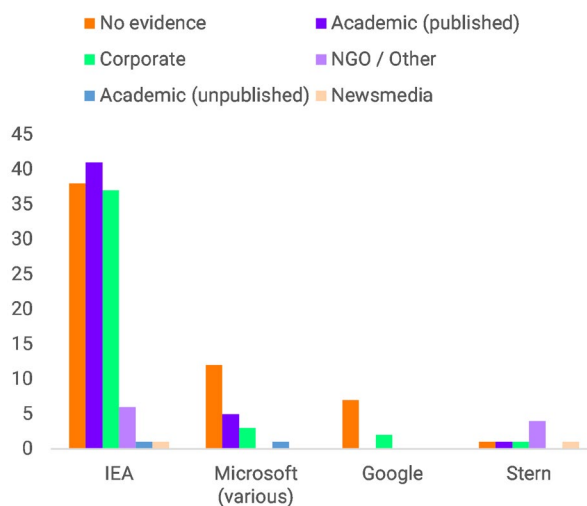


FIGURE 7 - TYPES OF EVIDENCE FOR CLIMATE CLAIMS

This graphic shows the distribution of evidence types by source. Corporate sources tended to rely on no evidence or corporate sites. The IEA’s claims drew from a mix of academic, corporate and no evidence.

the narrower, older forms of AI may be seeing an exaggeration or overstatement of their climate benefits, considering the lack of strong, peer-reviewed and verifiable evidence of their deployment in reducing greenhouse gas emissions in the real world.

The evidentiary basis for claiming ‘good’ applications of AI can offset environmental harm at a gigatonne-scale is clearly insufficient. These

results do not suggest AI technologies will have no climate benefits; indeed many examples cited reference published academic work and include examples of real-world, measured reductions in emissions. However, **the narrative of a gigatonne-scale shift in global emissions that “offsets” the harm of generative AI is not supported by the results of this analysis.**

### BOX 3 - WEAK REFERENCES FOR CLIMATE CLAIMS

While the IEA’s report referenced a large number of formal published academic papers, there were many significantly weaker references throughout the report.

In a section focusing on “AI in building design and construction”, the report’s authors claim that “AI can also help reduce wastage of construction materials, thereby reducing embodied carbon emissions from buildings. Estimates indicate that up to 50% of material waste can be avoided using AI tools (Usman, 2024)”. Following the references

leads to the corporate website for “Construct Estimates”, a multinational construction cost estimation company. No primary evidence exists on this site to support the claim.

Another section claims that “AI-powered energy optimisation systems enabled Carnival Corporation, the world’s largest cruise line operator, to achieve a 5% reduction in fuel consumption across its fleet (Sailor Speaks, 2024)”. However, the website, “Sailor Speaks” (claiming to be a maritime information site) bears no information regarding human authors and unreferenced, verbose articles dominate the site.



## Conclusion

This analysis shows that virtually all stated climate benefits relate to ‘traditional’ AI, whereas modern commercial consumer generative applications barely feature. Considering the climate impacts stem largely from these consumer generative applications, this analysis finds the claim of a net ‘climate benefit’ from generalised “AI” to be based on the illogical false coupling of completely different technologies. The benefits and harms exist in discrete technological domains; rendering the core ‘net climate benefit’ defence of AI growth utterly implausible.

This analysis also finds that, regardless of the ‘type’ of AI, the stated climate benefits of AI are likely being overstated, with many of the analysed examples and case studies referencing no evidence, or referencing corporate claims and reports rather than published academic papers. Claims of gigatonne-scale global emissions reduction in response to AI technologies are not well founded. In fact, **the assertion that AI’s climate benefits will outweigh harm lacks any credible basis.**

Together, this false-coupling of technologies and weakly-evidenced over-statement of benefits is used as a modern, novel greenwashing tactic whereby

companies **shed themselves of accountability relating to their decisions to deploy resource-intensive and environmentally harmful AI.**

### A new greenwashing tactic

For this report, we adopt the definition of greenwashing used for the proposal for the EU Green Claims Directive<sup>64</sup>, where: “consumers are faced with the practice of making unclear or not well-substantiated environmental claims”. The use of ‘tactical vagueness’, in this case a lack of specificity regarding the types of AI that supply benefit or cause harm, seems to be a novel format for greenwashing. The vague umbrella term “AI” is being leveraged here as a pathway for shedding decision-making responsibility from corporations.

This would be considered illogical in any other context in the climate technology discourse space. Consider a company that sells luxury private jets simply describing their products as “transport”, and claiming them as a net benefit to society simply because they exist in the same category as bicycles (and therefore, ‘transport is a net climate benefit’).

There are many examples of high-emitting industries attempting to “offset” or cosmetically cleanse their significant harm by highlighting a narrow and overstated ‘good’. The automotive industry’s investments in ‘clean hydrogen’, the fossil fuel industry’s investments in point-source carbon capture and storage or direct air capture, and the decades-long and fraud-ridden use of ‘carbon offsets’ all serve as key historical examples.

However, the widespread use of a vague umbrella term “AI” to misleadingly couple discrete technologies with vastly different environmental impacts seems to be without precedent, and it is

significant that the AI boom has itself created a novel format of greenwashing unique to this highly-polluting industry.

The novelty of generative AI and data centre expansion has lent itself to a novelty of greenwashing tactics. This analysis shows the responsibility for sustainability lies with companies wielding the money and power to do the right thing: bringing the deployment of digital services in bounds with the physical limits of the planet and human society, rather than perpetuating ever-worsening environmental harm and climate impact, masked by vague terms and weak evidence.

# Appendices

## Appendix A - Methodology details

### Data sources

This report examines prominent statements, reports and publications from corporate interests regarding the claim “AI” is both a climate solution and a technology that, when adopted, will see its benefits “offset” or cancel out its negative effects.

Sources were selected for their prominence and based on the time constraints of the analysis period (reports published before 2025). Some relevant sources were published after this period; they were excluded from the core analysis and are discussed further in these appendices.

“Climate solution” includes any claim of mitigating greenhouse gas emissions. Claims of benefit

for adaptation and resilience were coded but are presented separately later in these appendices as they are not emissions reductions claims.

Several statements in the sources did not explicitly claim a direct emissions reduction benefit, but were part of a broader increase in efficiency, lowering of cost or increasing deployment and efficacy of disparate climate solutions technologies (such as lowering nuclear power development cost); these were considered claims of climate benefits for the purpose of this analysis.

The modelling exercises conducted to claim a net climate benefit in gigatonnes of greenhouse gas equivalent were not considered in this coding process; the focus was on written claims only.

TABLE 1 - SOURCES

Source	Hyperlink	Notes
IEA and Energy - Chapter Three (2025)	<a href="https://www.iea.org/reports/energy-and-ai">https://www.iea.org/reports/energy-and-ai</a>	Large collection of written analysis along with mathematical analysis claiming net climate benefit
IEA and Energy - Chapter Four (2025)	<a href="https://www.iea.org/reports/energy-and-ai">https://www.iea.org/reports/energy-and-ai</a>	Large collection of written analysis along with mathematical analysis claiming net climate benefit
Stern et al (2025)	<a href="https://www.nature.com/articles/s44168-025-00252-3">https://www.nature.com/articles/s44168-025-00252-3</a>	Research article published by London School of Economics and Political Science / Grantham Research Institute on Climate Change and the Environment + Systemiq (consultancy)
Microsoft - Nature (2025)	<a href="https://www.nature.com/articles/d41586-025-02641-4.epdf?sharing_token=sKQwrDMsv24dn suM0PGKc9RgN0jAjWe19jnR3ZoTv0MM m4DWsTzVhQ4NyXb-Wb0UPyKNoQ9Vby1 hxxY3PSngzINso1MsuGyr4f9Yf-1YY-D645yy0ivQicga3yp9NrtInysmm iVC60crIOcn1045FRAJ4p0sLHlw-4HZs57PM%3D">https://www.nature.com/articles/d41586-025-02641-4.epdf?sharing_token=sKQwrDMsv24dn suM0PGKc9RgN0jAjWe19jnR3ZoTv0MM m4DWsTzVhQ4NyXb-Wb0UPyKNoQ9Vby1 hxxY3PSngzINso1MsuGyr4f9Yf-1YY-D645yy0ivQicga3yp9NrtInysmm iVC60crIOcn1045FRAJ4p0sLHlw-4HZs57PM%3D</a>	Comment piece in Nature written by Amy Luers, senior global director for Sustainability Science and Innovation, Microsoft. Includes a chart claiming a net reduction in emissions from AI deployment.

TABLE 1 - SOURCES (Continued)

Source	Hyperlink	Notes
Microsoft sustainability playbook (2023)	<a href="https://msblogs.thesourcemediassets.com/sites/5/2023/11/Microsoft-Accelerating-Sustainability-with-AI-A-Playbook-1.pdf">https://msblogs.thesourcemediassets.com/sites/5/2023/11/Microsoft-Accelerating-Sustainability-with-AI-A-Playbook-1.pdf</a>	An older (2023) white paper published on Microsoft's website with a large number of 'AI for climate' claims. Pages 22 and 23 discuss the likelihood of a net 'benefit' for climate
Microsoft - Corporate website (2025)	<a href="https://www.microsoft.com/en-us/sustainability/learning-center/ai-for-sustainability">https://www.microsoft.com/en-us/sustainability/learning-center/ai-for-sustainability</a> <a href="https://web.archive.org/web/20250831163408/https://www.microsoft.com/en-us/sustainability/learning-center/ai-for-sustainability">https://web.archive.org/web/20250831163408/https://www.microsoft.com/en-us/sustainability/learning-center/ai-for-sustainability</a>	A section of Microsoft's website featuring a summarised listing of 'AI for climate' claims. Several claims of a net environmental benefit from AI deployment.
Microsoft - Sustainability report (2025)	<a href="https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/msc/documents/presentations/CSR/2025-Microsoft-Environmental-Sustainability-Report.pdf#page=01">https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/msc/documents/presentations/CSR/2025-Microsoft-Environmental-Sustainability-Report.pdf#page=01</a>	Microsoft's 2025 corporate sustainability report
Google - Sustainability Report (2025)	<a href="https://sustainability.google/reports/google-2025-environmental-report/">https://sustainability.google/reports/google-2025-environmental-report/</a>	Google's 2025 corporate sustainability report
'AI for a planet under pressure' (2025)	<a href="https://www.stockholmresilience.org/news--events/ai-for-a-planet-under-pressure.html">https://www.stockholmresilience.org/news--events/ai-for-a-planet-under-pressure.html</a>	Excluded from analysis -  Released after analysis period - a Stockholm Environment Institute paper, funded and written in part by Google and its employees; excluded from data collection.
Climate Change AI project (2019)	<a href="https://www.climatechange.ai/summaries">https://www.climatechange.ai/summaries</a>	Excluded from core analysis - this paper does not claim that there will be a 'net benefit' of AI; rather it narrowly lists a collection of AI technologies without making a claim regarding the overall societal adoption of AI. Also pre-dates the widespread release of consumer generative AI

## AI classification

This analysis required relatively clear definitions of the different technological subcategories within “AI”. These were drawn from the IEA’s “Energy and AI” report. The report splits types of artificial intelligence into four discrete categories: predictive, computer vision, physical and generative. The results are summarised simply as “traditional” (predictive, computer vision, narrow generative and physical) and “generative” (consumer generative).

This analysis expands generative into ‘narrow’ (such as the generation of different forms of chemical

structures from a narrow dataset) and ‘consumer’ (such as the generation of text, images and videos from a corpus of human-created books, webpages, social posts and videos in tools like ChatGPT or Google Gemini). This distinction reflects the material difference in the scale and size of deployment between these two different applications of ‘generative’ AI.

Claims with insufficient information, significant overlap between categories or ambiguous descriptions were classified as ‘unclear’.

TABLE 2 - AI TYPES

AI category	AI type	Definition	Example
Traditional	Predictive	“Predictive AI refers to the use of AI models to predict future outcomes” - IEA	Improved wind predictions using machine learning
Traditional	Computer vision	“Computer vision focuses on enabling machines to interpret and understand visual data, such as images and videos, in a way that mimics human vision” - IEA	Detecting vegetation regrowth in satellite imagery
Traditional	Physical	“Physical or embodied AI refers to systems that physically interact with the real world, such as autonomous cars, robots and drones” - IEA	Automated laboratories producing experimental materials for solar panels
Traditional	Unclear	Insufficient information, overlapping categories	
Traditional	Generative narrow	Generation of text or search retrieval for a narrow, constrained input and a narrow set of outputs	A chatbot trained only on IPCC reports
Generative	Generative consumer	Generative AI refers to applications that focus on generating new content, such as text, images, audio and video	A chatbot marketed as general use and trained on vast amounts of digital information

## Evidence strength coding

Each claim was checked to determine whether a reference was included. If a reference was

included, the source was assessed for its characteristics. In instances where multiple sources were provided for one claim, the strongest evidence was noted.

TABLE 3 - EVIDENCE TYPES

Characteristic	Definition
No evidence	Whether primary evidence is cited for the claim that the AI technology is an effective climate solution, and if so, what type of evidence
Corporate website	The website of a private corporation
Corporate report	A report published by a private corporation
Academic (unpublished)	An academic report not yet published in a peer reviewed publication
Academic (published)	An academic report published in a peer reviewed publication
NGO, Government, Other	Reports, analyses and websites published by non-governmental organisations, governments and other similar institutions
Newsmedia	Journalistic outlets

## Appendix B - Caveats

Two relevant papers are excluded. The 2019 “Tackling Climate Change with Machine Learning” paper by Rolnick et al was excluded on the grounds that it does not claim a ‘net benefit’ from the deployment of AI, and pre-dates the onset of consumer generative AI. A more recent discussion paper published by the Stockholm Resilience Centre, “AI for a planet under pressure”, was published in November 2025 after the analysis period ended. Future updates to this analysis will incorporate reports published after the end of the analysis period.

Many sources claiming a climate benefit from AI rely on mathematical modelling and economic analysis, alongside a listing of examples and case studies. These extrapolate the characteristics of AI to a massive global scale using modelling and empirical estimates. Our analysis focuses on listed examples and case studies, and does not interrogate the mathematical modelling behind claims of global climate benefits. However, the findings regarding

evidence strength also draw these modelling exercises into question; given many of them are based on the listed examples and case studies.

In our analysis, 17 claims involved ‘unclear’ types of AI, but did not relate to any form of consumer generative AI; the lack of clarity related to the sub-category of traditional AI (eg, predictive versus computer vision). These were included in the ‘traditional’ AI category.

## Appendix C - Company emissions targets adjustment explanations

The following is a more detailed explanation of how “unadjusted” measures of per-company emissions are derived. All raw data (both unadjusted and adjusted) can be found at reference number 27; the author’s self-hosted customised collation of corporate emissions data reports. The 2025 Corporate Climate Responsibility Monitor (technology industry focus)<sup>65</sup> is also a useful reference regarding the most recent updates on technology company

targets. Each company measures progress against targets incorporating these adjustments; the 'unadjusted' number has additionally been included in this report to provide further context.

## Google

Google assumes the establishment of Power Purchase Agreements with various renewable energy providers allows for the reported reduction of the company's "Scope 2" emissions. This accounts for the majority of adjusted emissions in their sustainability reports. They also exclude several categories from their scope 3 reports ("ambition based"), which accounts for a lesser proportion. Google does not include carbon offsets in their stated greenhouse gas emissions.

**Target:** "We aim to reduce absolute, combined scope 1, 2 (market-based), and 3 emissions by 50% from a 2019 base year by 2030" (2025 sustainability report)

## Meta

Meta's primary climate target relates only to their Scope 1 and 2 emissions. Therefore, the only adjustment used here is a mixture of renewable energy certificates and power purchasing agreements.

**Target:** "Reduce our Scope 1 and 2 emissions by 42% in 2031 from a 2021 baseline" (2025 sustainability report)

## Amazon

Amazon's net zero by 2040 target lacks specifics, however the adjustments depicted in the chart show the company's use of renewable energy certificates and power-purchasing agreements. Amazon does not use carbon offsets when reporting headline emissions.

**Target:** "Reach net-zero carbon emissions across our global operations by 2040" (2024 sustainability report)

## Microsoft

Microsoft present a mixture of renewable energy certificates, power purchase agreements and exclusions of scope 3 categories ("management's criteria") in their 'adjusted' headline emissions numbers.

**Target:** "By 2030, Microsoft will cut its emissions by more than half compared to 2020 and remove more carbon than it emits. By 2050, we will remove the same amount of carbon we have emitted operationally since our founding in 1975"

## Appendix D - Climate adaptation and resilience claims

While claims related to climate adaptation and resilience were not included in the results of this report, they were coded where found in the source materials and are presented below as additional information.

Source	PRIMARY_EV	ComputerVision	Predictive	Unclear
<input type="checkbox"/> Google_SustReport2025	NO_EVIDENCE	1	1	
<input type="checkbox"/> IEA_EnergyAI_Chap3	NO_EVIDENCE		2	
	NGO_OTHER		1	
	CORPORATE_WEBSITE	1	1	
	ACADEMIC_PUBLISHED	3	4	1
<input type="checkbox"/> MSFT_SustReport2025	NO_EVIDENCE		1	
<input type="checkbox"/> Stern_et_al	CORPORATE_WEBSITE		1	
	ACADEMIC_PUBLISHED		1	

FIGURE 8 - TABLE EXTRACT FOR ADAPTATION CLAIMS

The graphic below shows an extract from the raw data representing claims of AI benefits for adaptation and resilience, none of which involve the use of consumer generative AI systems.

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Victoria O'May

### About Beyond Fossil Fuels

Beyond Fossil Fuels is a civil society network committed to ensuring a just and rapid transition to a fossil-free, renewables-based future. Building upon the Europe Beyond Coal campaign, its goal is for Europe to be coal-free by 2030 and phase out fossil gas from the power sector by 2035. A clean and flexible energy system will deliver lasting benefits for people, the climate and the broader economy. Beyond Fossil Fuels is a non-profit organisation with an office in Berlin, with staff spread across Europe. <https://beyondfossilfuels.org>

### About Stand.earth

Stand.earth is a global advocacy organization delivering large-scale change for our planet and its people by interrupting the systems that create environmental and climate crises. Its mission is to challenge corporations and governments to treat people and the environment with respect. Stand's worldwide community of more than one million members advocates for a climate-safe, equitable future, where environmental and climate justice policies uphold the dignity of people everywhere – at the scale our world requires. <https://stand.earth>

### About Climate Action Against Disinformation

Climate Action Against Disinformation is a global coalition of over 120 leading climate and anti-disinformation organisations across the globe demanding robust, coordinated and proactive strategies to deal with the scale of the threat of climate misinformation and disinformation. <https://caad.info>

### About Friends of the Earth U.S.

Friends of the Earth U.S. works to reduce the spread of disinformation that potentially affects all of our campaigns. As technology and media companies consolidate their power, our fundamental ability to campaign on any issue is threatened, as corporate polluters gain more control over the basic communications systems that are needed for social change and democracy itself. <https://foe.org/projects/disinformation/>

### About Green Screen Coalition

The Green Screen Climate Justice and Digital Rights Coalition is a group of funders and practitioners looking to build bridges across the digital rights and climate justice movements. The aim of the coalition is to be a catalyst in making visible the climate implications of technology by supporting emerging on-the-ground work, building networks, and embedding the issue as an area within philanthropy. <https://greenscreen.network>

### About Green Web Foundation

Green Web Foundation is a non-profit organisation working towards a fossil-free internet by 2030 by reducing absolute emissions and phasing out fossil fuels in data centres – fast, fairly and forever. The foundation maintains the world's largest open dataset of websites that run on green energy and builds open source tools for measuring and mitigating emissions from digital services. <https://greenweb.org/>

**DISCLAIMER:** The data used in this report is provided on an 'as is' basis and was assembled using the best available data at the time of publication. Whilst every effort has been made to ensure the information in this publication is correct, we cannot guarantee its accuracy and the author and organisations that have contributed to the development of this briefing shall not be liable for any claims or losses of any nature in connection with the information contained in this document, including (but not limited to) lost profits or punitive or consequential damages or claims in negligence.