STOP BIG TECH'S CLIMATE DESTRUCTION



Actionable Intelligence on
AI Harms and Disinformation

Climate Action
Against Disinformation



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Photos of the "AI is melting the planet" ice sculpture are from a Friends of the Earth and Kairos-led art project during New York Climate Week 2026.

Cover image by Maki Naro.

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1. Evidence-based Action on Climate Disinformation: What Policymakers Need to Know, and Do, to Protect Information Integrity

The Climate Action Against Disinformation coalition began monitoring the annual UN climate negotiations during COP26 in 2021, and the resulting Deny, Deceive, Delay report provided over 100 pages of evidence, analysis and advice for policymakers. The problems identified have not yet been fixed, and the policy recommendations remain relevant. We've documented the harms. Now it's time for action.

In the years since, Deny, Deceive, Delay Volumes Two, and Three, published around 2022 and 2023's COPs 27 and 28, continued to build the evidence base with further case studies, quantifications, and evidence of platform broadcast of harmful false content at scale, for profit. Our 2024 report on Extreme Weather Event (EWE) disinformation, along with subsequent reports offered advice and evidence for health experts and policymakers on the subject, and our Fellowship with Roots providing global examples.

By 2025 it was clear that more good information about disinformation was not enough, and CAAD's report aimed instead to Demystify disinformation by exposing how it made unpopular positions appear more popular and downplayed the demand of an overwhelming 89% majority of the global public for more climate action ahead of COP30, where policymakers recognized the importance of Information Integrity.

The hundreds of pages of evidence from these reports remain relevant as problems identified have been unaddressed or exacerbated. This leaves no need for an updated version of such an exhaustive aggregation of actors, narratives, and posts. The majority of the accounts now have more followers on their respective platforms, where the false narratives are more entangled in conspiracy theories, and networks more enmeshed and emboldened since they were initially identified as sources of disinformation.

COP31 presents an opportunity for policymakers to translate commitments into concrete measures: strengthening information integrity, tackling climate disinformation, and addressing the rapidly growing harms associated with artificial intelligence (AI), including the use of generative AI to produce and spread misleading text, images, and video.

The CAAD coalition has been at the forefront of calling on policymakers to protect the public, with a 2023 Letter and research over the years showing The AI Threats to Climate Change in 2024, along with how Big Tech is GENERATING A(I) CRISIS by abandoning its climate commitments, a prediction which has borne out over the years as, for example, Nvidia's emissions grew 725% selling the chips used to meet demand for AI, even as they make baseless claims about AI's climate benefits.

In 2026's Stop Big Tech's Climate Destruction: Actionable Intelligence on AI Harms and Disinformation, the CAAD coalition now offers policymakers gathering for COP31 in Antalya, Turkey something unique: **Actionable Intelligence** about climate disinformation, extreme weather and artificial intelligence. That means guidance about what to do about climate disinformation when it happens, and more importantly, policies to prevent it.

The evidence base is robust, rigorous, multifaceted and long-running. It's time for policy enforcement to catch up. CAAD's policy platform shows policymakers how.

The time is past due for regulations, as evidenced by our findings that show Big Tech companies have abandoned their climate commitments in order to pursue AI at all costs. Just like Big Carbon, with whom they are partnering to power data centers, and to whom they sell AI to maximize fossil fuel extraction, Big Tech is pursuing profits at the expense of the climate and public health. **The total reported electricity consumption of Amazon, Microsoft and Google has risen an estimated 2.4 times more than their targets, or 240% from 2020 to 2025**, and polluting far more than their AI-driven emission reduction claims.

Then we provide a summary of the constantly-growing examples of the harms of Big Tech's AI propagation, from direct pollution to mental health and other unexpected damages, such as its use in spreading disinformation during extreme weather events.

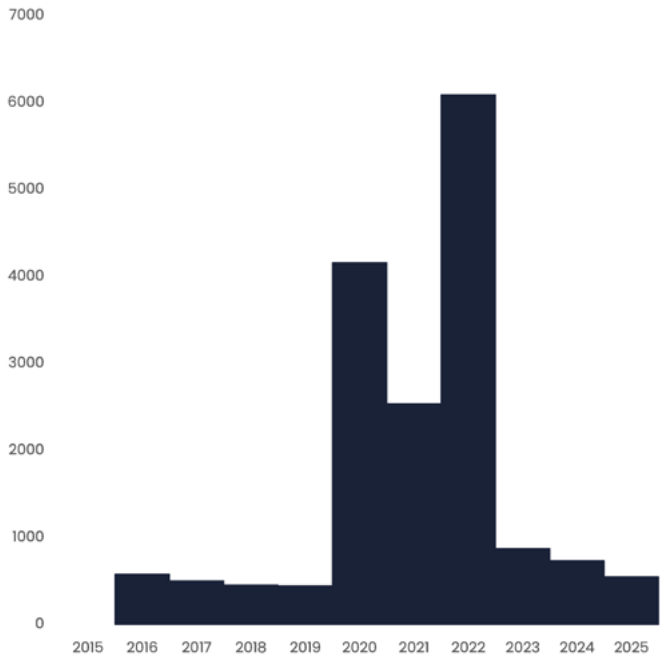
Finally, this report will provide policymakers with Actionable Intelligence from recent reports and the extensive literature found in the aCAADemy of Climate Obstruction Reading List. As the roughly 200 references demonstrate, climate disinformation is not an unstudied mystery.


AI is melting the planet
Meta
Google
ANTHROPIC
OpenAI
NVIDIA
Microsoft

2. FAILURE FACTORIES:
Hard numbers on big tech's climate destruction

"Trust us" was the core plea of Big Tech, back at the advent of this decade. Between 2020 and 2022, the world's largest companies announced a flurry of new net-zero targets. As Oxford's Net Zero Tracker project shows[1], the following years saw a massive drop in new net zero target announcements:

2.1. Figure 1 - Number of new net zero targets, by year



Among those most enthusiastic about net zero were the Big Tech companies. Amazon, Google, Microsoft, Apple and Meta all set climate commitments between 2019 and 2022, joined by NVIDIA in 2025. (See Appendix for full details of each company's net zero commitments.)

Much of the climate failure of the Big Tech companies stems from the climate impacts associated with their rising energy consumption, itself largely driven by the AI boom[2] though the outcome will depend on how much they prioritize energy vs fossil fuels.

The total reported electricity consumption of Amazon, Microsoft and Google has risen an estimated 240% from 2020 to 2025.

(Amazon stopped reporting its total electricity consumption after 2022 without explanation and we have extrapolated this from water consumption data. See appendix for more information.)

[1] Oxford net zero tracker, retrieved October 2026 https://zerotracker.net/analysis

[2] Based on various sources attributing energy growth to AI, see Joshi et al 2026 https://ketanjoshi.co/2026/02/17/big-tech-greenwashing-report/

The equivalent rise in greenhouse gas emissions reported by companies relates to the estimated grid impacts of that new demand, where coal and generators increase output to meet it. However, in coming years, the boom in off-grid gas-fired power stations will worsen this even further.

As explored in our February 2026 report, The AI Climate Hoax, tech companies have been straying wildly from their climate targets.That report published the first combined illustration of how each company's emissions are rising steeply above the trajectory of those targets. This is the case whether you include or exclude the various adjustments companies claim, such as renewable energy certificates.



Expanding on that analysis, here we dive deeper into three key companies–Google, Microsoft and Amazon–quantifying the volume of climate failure and sharing the first climate impact estimates of the consequences of this failure. We also explore companies that claim to be meeting their targets but are using questionable means to do so.

2.2. Emissions Balloon 2 to 4 Times Target Levels

In 2025, Google, Microsoft and Amazon all reported greenhouse gas emissions far above the trajectory of their recently trumpeted climate targets. This is the case whether you consider the 'headline' numbers from the companies (what we term here as 'claimed' emissions, which include often unsupported claims of renewable procurement and offsets), or whether you take the raw, 'unadjusted' values often buried in the footnotes of reports. We estimate in Table 1 and Figure 2 the actual volume of pollution pumped into the atmosphere due to this failure.

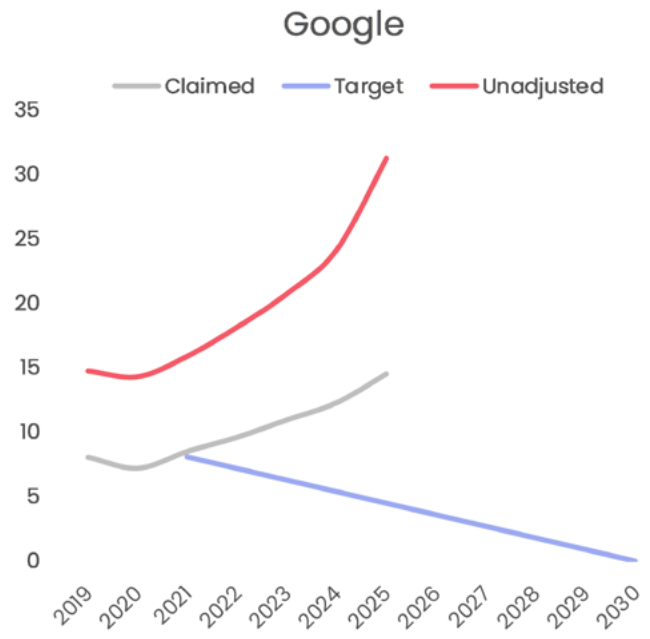
The scale of these failures is remarkable. Google, for instance, claims in its 2026 sustainability report to have avoided 3,000 kilotonnes of carbon dioxide equivalent (CO2-e) through AI-assisted 'contrail avoidance' for aircraft.

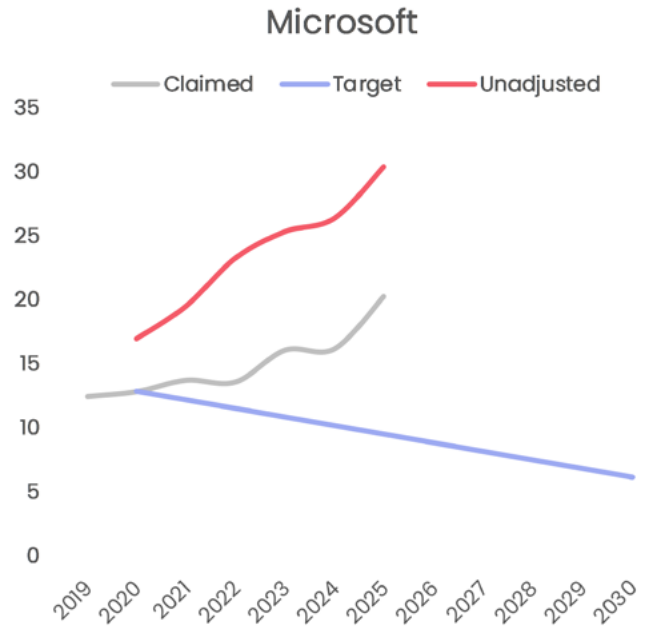
2.2.1. Table 1 - Google, Microsoft and Amazon 2022-2025 total reported vs targeted emissions

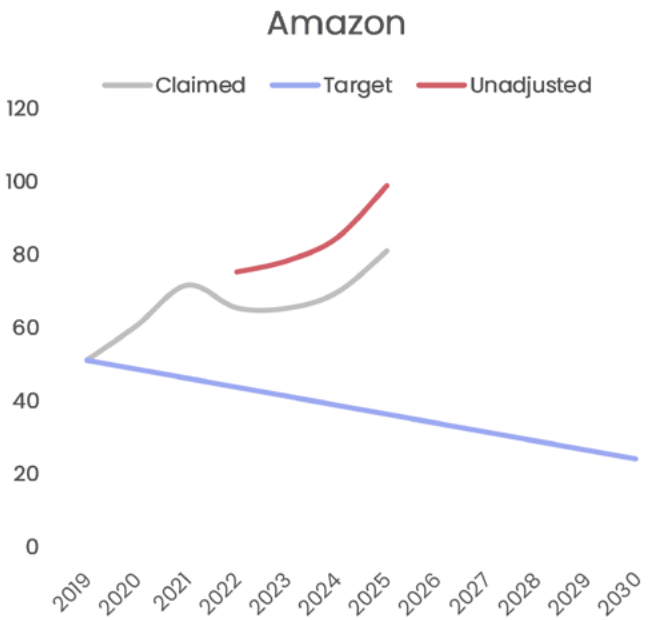
Metric (megatonnes of carbon dioxide equivalent, over four years)	Google	Microsoft	Amazon
Emissions should have been (according to target trajectory, details in Appendix)	**23**	**42**	**160**
Claimed Emissions	**47**	**66**	**281**
Unadjusted Emissions	**94**	**105**	**337**
Failure (using unadjusted)	**4x bigger (304%)**	**2.5 x bigger (150%)**	**2.1x bigger (110%)**

2.2.2. Figure 2 - Company failures to meet emission reduction targets[3]

(megatonnes of carbon dioxide equivalent)







[3] The range reflects whether renewable energy claims—such as renewable energy certificates or power purchase agreements (PPAs)—are counted. We largely exclude these claims because no company substantiates that the claimed renewable energy is additional or generated close to the data center's consumption in time and location. The range is included for information.

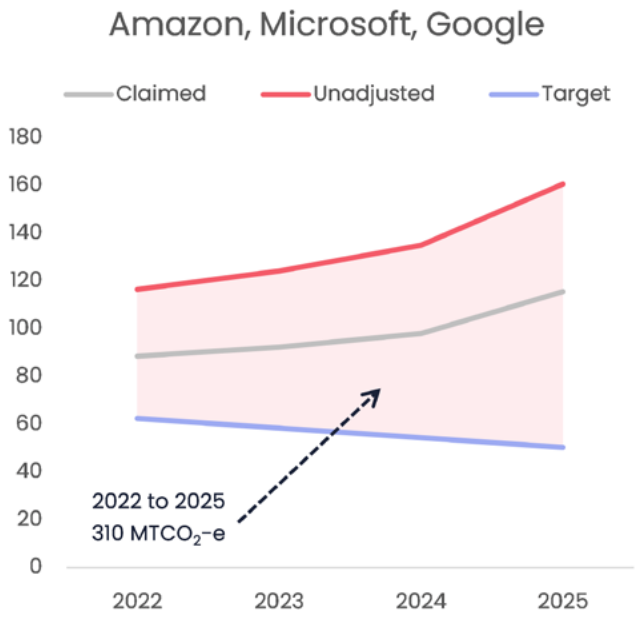
Google missed its emissions target for 2022-2025 by 71 MTCO2-e. Google's reported emissions overshoot was estimated at roughly 24 times the claimed climate benefit of its contrail-avoidance program.

Microsoft missed its target by 63 MTCO2-e. This is 630 times greater than the expected emissions reductions from a sustainable aviation fuel transaction touted in its 2026 sustainability report.

Together, these three companies have emitted, above their targets, an estimated collective 311 megatonnes of carbon dioxide equivalent between 2022 and 2025, as depicted in the light shaded area in Figure 3. This would be 169 megatonnes of carbon dioxide equivalent if accounting for their renewable energy claims. Even using the company's "adjusted" figures, emissions were still 74% higher than their targets.

Amazon, Microsoft, and Google collectively emitted 2.4 times as much as they would have if they'd followed their targets.

2.2.3 Figure 3 - Target failure overview
(megatonnes of carbon dioxide equivalent)



2.3. Company highlight: Amazon

Of all the companies above, Amazon has missed its targets by the largest volume of emissions. However, Amazon's pollution rocket hasn't even taken off yet. As reported by analytics firm Cleanview, Amazon is set to see an almost incomprehensible 17.5 gigawatts of new gas-fired capacity across eight new power stations. This is more gas capacity than is installed in the country of Pakistan; there are 167 countries with less gas capacity than Amazon is building, based on Ember data for 2024.

The largest of Amazon's new projects is 'Homer City', a gas plant that, when built, will be the single largest source of pollution across the entire United States. This facility will be permitted to emit 33 megatonnes of carbon dioxide pollution each year.

Compare this to the claimed emissions reductions from Amazon's 'Climate Pledge' program, where various companies sign up and promise to reduce their emissions. Amazon claims that, between 2021 and 2024, 4.4 megatonnes of carbon dioxide equivalent were reduced for scope 1 direct emissions. (They also claim 9.9 MTCO2-e were reduced for 'scope 2' electricity emissions, but we are excluding this as they are likely related to purchase of questionable offsetting and renewable energy certificates.)

2.3.1 Figure 4 - Homer city emissions vs climate pledge reductions.



One year of 'Climate Pledge' reductions = 4.4 / 3 = 1.5 MTCO2-e. Amounts are the area of each square in megatonnes of carbon dioxide equivalent.

Once operational, a single Amazon data centre will in one year wipe out the efforts of signatories to the 'climate pledge' 22 times over.

2.4. Misleading metrics

Several key companies claim to be aligned with their climate targets, but achieve this claim either by using unproven adjustments of their reported greenhouse gas emissions, or by excluding major components of their climate impact from the range of their target.

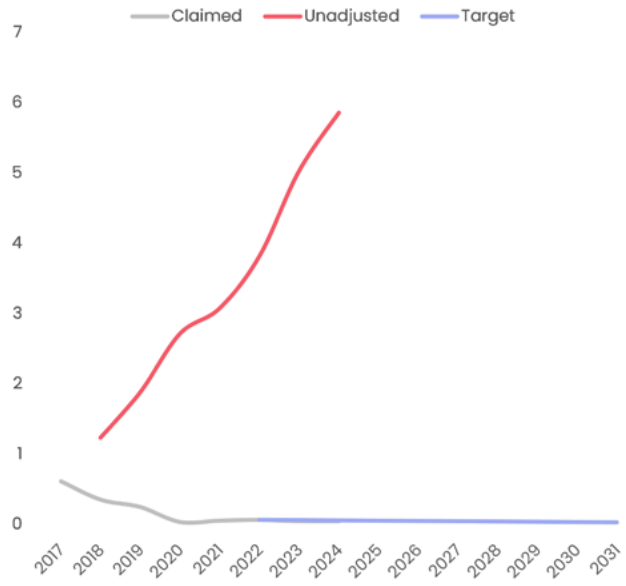
Meta, for instance, uses[4] a variety of claims of renewable energy procurement; primarily the purchase of unbundled renewable energy certificates (RECs). The underlying logic of this claim is that this purchase enables the same volume of new renewable energy as demand increases from Meta. However it is unlikely RECs actually provide this service. Microsoft, for instance, stopped including RECs in its power adjustment claims this year after stating that they have "ceased purchasing non-additional, unbundled renewable energy certificates".

[4] As of the end of October, Meta had not released its 2026 sustainability report; this section is based on its 2025 report.

The gulf between Meta's questionable "adjusted" emissions and the more direct unadjusted reality has only continued to increase.

2.4.1. Figure 5 - Meta's unadjusted emissions vs targets

(megatonnes of carbon dioxide equivalent)

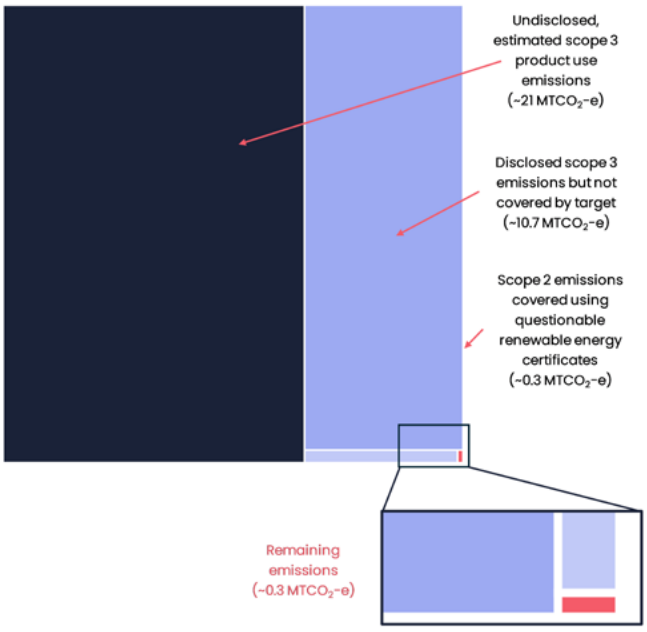


NVIDIA, the subject of our September 2026 report "NVIDIA'S Climate Hoax", recently set emissions reductions targets. From an FY23 base year the company aims to:

- **"Reduce absolute Scope 1 and Scope 2 market-based emissions 50% by FY30"**
- **"Reduce Scope 3 emissions intensity from use of sold GPU products by 75% per PFLOP by FY30"**

NVIDIA had already achieved the first of these targets in the year it was set. Through the use of purchases of renewable energy certificates, the company's FY26 scope 1 and 2 'market-based' emissions were 10,390 tonnes of carbon dioxide equivalent, 86% lower than FY23 (73,017). However, 32,009,263 tonnes were excluded from their climate target:

2.4.2. Figure 6 - NVIDIA emissions vs targets



NVIDIA's scope 3 target is to reduce the "emissions intensity" of the graphics processing unit (GPU) products sold; the computing device responsible for much of the energy hunger in AI data centres. However, as we laid out in our report, better efficiency can distract from rising absolute emissions, as the total volume of product sold and used grows faster than any efficiency improvements.

We estimated that total NVIDIA product use emissions in 2025 were 21 MTCO2-e.

2.5. Big picture: Big Tech Tracking To Exceed Emissions Targets 12.5 Times Over

Assuming the same 19% growth rate of unadjusted emissions between 2024 and 2025, from 135 to 160 MTCO2-e, we estimate that by 2030, Google, Meta and Amazon could have a collective impact of around 381 megatonnes of carbon dioxide equivalent. These Big Tech companies' emissions could be 12.5 times larger than what we expect their emissions to be if they had met their targets and nearly the total annual emissions of Iraq.

The Carbon Impacts Tracer, published by the Australian National University to model the effects of carbon pollution, suggests that achieving corporate emissions targets is a factor in avoiding severe climate outcomes. Based on the Tracer's modeling, the emissions associated with Big Tech's climate target failure at 310 megatonnes of carbon dioxide equivalent is projected to push more than 122,000 people outside the range of a livable climate, and is correlated with 3,300 potential job losses (14.6 million hours of heavy labour lost annually).

We are not simply calling on Big Tech to meet their climate commitments. We are reiterating that greenwashing tactics such as hollow climate promises and empty commitments should be deeply mistrusted. We believe that greenwashing is an insidious form of climate denial, and this analysis shows big tech's ever-worsening climate pollution has been masked through the use of hollow net zero promises.

We urge the public to scrutinise the claims of climate leadership repeated by Big Tech.

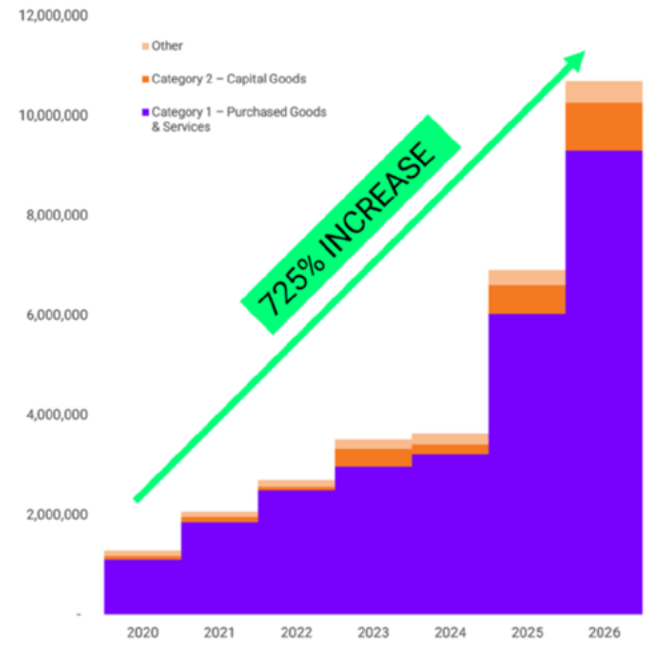
As we show throughout this report, Big Tech is extending the life of the fossil fuel industry—and its energy choices should be strictly regulated to meet climate and public-health goals. The vast gap between corporate promises and actual emissions leaves no basis for giving these companies the benefit of the doubt.

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3. Actual Harms of Artificial Intelligence: An Australia's Worth of Emissions, Deadly Bacteria, Sextortion and more

While Artificial Intelligence is being promoted with promises of potential future benefits, and some nonprofit and academic uses of machine learning are useful, in the present the list of AI harms is long and growing so rapidly that the US Federal Government is moving to exempt Big Tech from having to disclose harms such as how much their air pollution makes people sick as they build what could be the most polluting power plants in the US.



NVIDIA'S DISCLOSED SCOPE 3 EMISSIONS. Years 2020 to 2023 sourced from FY21-FY24 sustainability reports. 2024 to 2026 sourced from June 2026 report. All years are in 'financial year' ending. All values in tonnes of carbon dioxide equivalent. 'Other' relates to categories 3,4,5,6,7 and 8. Note that 'downstream' product emissions are not included here.

The emission increases are entirely a choice, a result of Big Tech's relationship with Big Carbon, like Anthropic's self-proclaimed "responsible" data center development that relies on fossil fuels and false solutions like carbon capture instead of building and powering the data center with clean tech.

The fossil-first approach is why AI is driving more emission increases than it is reductions. For example Nvidia, the chip company supplying the hardware for the AI bubble, has increased its emissions 725% since 2020.

US Data Centers Set to Burn More Natural Gas Than Most Nations, warned one headline in Bloomberg. Per another in WIRED, Data Centers Are Driving an Alarming Gas Power Expansion in the US.

Overall, just 74 proposed gas plants for data centers in the US would produce as much pollution as the entire country of Australia.

But it's not just about climate pollution, per another headline: Data center spills diesel fuel into N.J. river tributary. Or another: 'Tidal wave' of Pfas being launched to satisfy AI industry, campaigners warn. Or another: 'My childhood home is being taken': Eminent domain for data centers targets properties across a thousand miles of grid expansion in

Georgia. One more: Meta's AI Data Center Caught Leaking Deadly Bacteria Into Water Town Uses for Irrigation.

These harms are why a "proposed EPA rule [that] could weaken Texans' voice on certain air permits used by data centers" is so concerning, as they create as much pollution as dozens of coal-fired power plants while doubling their US government lobbying efforts.

For another example of how Big Carbon, Big Tech and AI are undermining democracy. see: Chevron Gave $150K to Bay Area Group Accused of Using AI to Fight Heat Pump Rule.

Or consider how generative AI is being used to hide the reality of factory farming and to flood public comment periods with fake submissions, drowning out the actual public voice on important policies with polluter-directed and supported messages to sabotage climate action.

With 89% global public demand for more climate action, AI is proving useful for generating social media bots and posts to create the illusion of popularity.

Extreme weather crises are made more dangerous by disinformation that endangers lives and hinders emergency response. And generative AI is making it easier to produce and spread harmful content, including during wildfires and other extreme weather events.

Then there's the water issue, where climate change is raising the stakes: hotter conditions increase evaporation and can intensify the impacts of dry spells, while water supplies are already under pressure. For example, even in famously damp England, plans to build one of the EU's largest data centers in Devon are running into trouble over water availability.

Globally, a quarter of data centers are in water-stressed regions, triggering protests against shortages. For example, in Indonesia, residents of Batam island protested after going without piped water for months, while nearby data centers appeared to have enough water to keep operating. Residents fear the facilities are adding pressure to an already streamlined water supply.

In its Dark Side of the Boom series, the Earth Journalism Network worked with newsrooms across Asia to document how data-center and cryptocurrency demand is intensifying competition over water and electricity.

Reporting linked data-center growth to coal plants staying online longer in Mumbai, India, described how crypto mining, mostly Bitcoin, consumed more than a third of Laos's electricity, and warned that data centers could worsen groundwater-driven subsidence (sinking) in Biñan, Philippines. In Vietnam, announced data-center projects could require as much electricity as Ho Chi Minh City's household use, straining the grid and putting climate commitments at risk if they are built and powered as projected.

In the US state of Utah, protests against Kevin O'Leary's Wonder Valley data center project threaten to run it out of town, just as Canadians protested its initial plan in Alberta, Canada, the latest example of the energy and passion that motivated at least 142 protests against data centers in the US in the summer of 2026.

In total, Data Center Watch tallied up that $64 billion of data center projects have been successfully blocked or delayed because of local opposition.

Then there are the social harms. When students outsource homework to generative AI, they may learn less and perform worse on exams, defeating the purpose of genAI as a learning tool. In a professional context, an expert witness used ChatGPT to help write a report defending 3M in litigation over a fatal industrial explosion.

AI infrastructure also has impacts on the physical world associated with its indirect use. In Finland, for example, Google's forest clearing for a data center has displaced local wildlife, with wolves whose habitat was deforested are now roaming a nearby village. It is a literal example of how when Big Tech comes to town, locals are 'thrown to the wolves.'

Generative AI has also enabled new forms of misogyny and abuse, creating new ways to execute "sextortion" scams by sending AI-generated nudes to family chats.

From alleged "research misconduct" to eating books to "making your life more expensive" to ignoring a health crisis, compounding harms to refugees and the UNHCR staff trying to help them, nudifying children and encouraging suicide, generative AI's harms are as creative and varied as the text it generates is mediocre, unimpressive and uninspired.


Google
ANTHROPIC
OpenAI
Microsoft

4. What To Do About Disinformation During Extreme Weather Events: Actionable Intelligence

The Climate Action Against Disinformation coalition has been tracking disinformation during extreme weather events for years, in different languages and countries around the world, from the spanish-language look at Rumores Renovables and lies across Latin America in 2023 when false claims that some fires were set intentionally for renewables or other elite development were just getting started, to the Canadian Flame Wars of 2024 where such conspiracies spread in English across an information environment besieged by a network of fossil fuel backed actors.

We found time and again that, as explained in 2025, Big Tech Enables Climate Disinformation during extreme weather events. That's how we correctly predicted in 2026 that Big Tech [would fan] The Flames Of Wildfire Lies, during what would become A Summer of Extreme Lies. The problem is well-documented.

Across contexts, years and languages the main narratives remain various excuses to blame "anything but climate" for the climate-worsened fires, floods, heatwaves or hurricanes, and most Big Tech platforms have repeatedly proven unwilling to take the necessary steps to protect the public from such claims.

Fortunately, now we can do more than provide evidence of the problem, plenty of which can be found in The aCAADemy of Climate Obstruction Reading List: ten pages of links out to roughly 200 peer-reviewed research, reports from civil society, and other resources.

With those findings in hand, and in mind, CAAD can now provide Actionable Intelligence about solutions to what NATO Canada recognizes as the Hybrid Threat of climate disinformation.

4.1. Policy Problems Require Policy Solutions

Just as climate action requires both cutting emissions and adapting to climate impacts, countering climate disinformation requires both addressing the structural forces that produce and spread it and reducing its harms in the information environment people already navigate.

Most important are the structural fixes, which the NewClimate Institute refers to in its primer on What EU policymakers need to know, and do about disinformation as upstream solutions: measures that address the conditions that allow disinformation to be produced, amplified and believed.

These are the regulatory measures that hold platforms accountable for their role in monetizing and broadcasting harmful false content such as climate disinformation, especially during extreme weather and other crises.

Systemic policy solutions are the only way to reduce the amount of disinformation polluting the information environments during extreme weather events.

Policymakers must enforce false advertising laws, require conflict of interest disclosures and other transparency measures, and hold accountable actors who systematically profit from the production and amplification of demonstrably false or misleading claims.

Policymakers create midstream solutions when they are prepared for disinformation that they can and should reasonably anticipate—for example, at the start of extreme weather seasons, because the rapid spread of harmful false content is now so common. Without that preparation, disinformation will remain inevitable unless and until Big Tech is forced to address it through upstream measures.

Social media is often (over)sold as a short-cut to a public audience, but reaching real people affected by real-world events in real time during emergencies requires something more fundamental: trusted relationships and strong communities. Policymakers should invest in building offline networks of trusted messengers within their real world communities to rebuild public trust among those they represent.

This direct-to-audience approach should **prioritize maintaining year-round relationships with fellow community leaders** such as religious figures, coaches, radio personalities, musicians, artists, activists, and local media.

While digital influencers can and should play a role, they should be considered one (important) piece of a larger landscape of trusted messengers who can provide credible information in times of crisis to an impacted audience through more traditional community organizing measures like phone trees or their modern equivalent, family and group chats. The idea is to create enough content so that people searching for good information find it, instead of an info vacuum eagerly filled by disinfluencers.

Policymakers and public communicators who overemphasize social media engagement further elevates those platforms as places where users should expect reliable information and credible figures, but that may not be the case, as demonstrated by research from the Center for Countering Digital Hate, finding that "Alex Jones' false claims about the LA wildfires amassed 408 million views on X – more than the combined views of posts from 10 major news outlets and 10 key emergency agencies."

Social media platforms sell advertising around posts, including harmful false content. That gives platforms a financial stake in keeping such content in circulation. Regulators can address this as they do foreign state propaganda on TV and radio.

But Big Tech companies have repeatedly proved unwilling to protect users voluntarily, as can be seen across past editions of Deny, Deceive, Delay- Vol. 1, Vol. 2, and Vol.

3, and including during extreme weather events, as CAAD documented in 2024 and then Demystified in 2025. Because Big Tech companies refuse to limit disinformation, we must turn to downstream solutions, such as debunking.

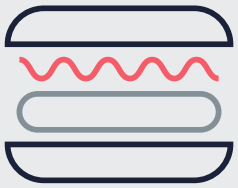
4.2. Serve up a Truth Sandwich To Warn About Disinfo

Key among the downstream solutions are debunkings, correcting false claims after they spread, and prebunking where warnings are issued in advance about expected disinformation. Before extreme weather and other major events, experts and leaders should warn the public about disinformation to come.

Building on reports such as Tactical Tech's 2025 RePlaybook: A Field Guide to the Climate and Information Crisis and C40's Extreme Weather Disinformation Playbook, the Council on Strategic Risk's Weathering Extremes: A Toolkit for Information Resilience Amid Disaster provides a robust set of guidelines for policymakers to take action on climate disinformation exacerbating harms during extreme weather events.

The toolkit highlights two key aspects of debunking. First is **the Truth Sandwich, a structure for addressing disinformation explained in detail in the Debunking Handbook, illustrates how to safely address disinformation by sandwiching it between the facts of reality that the audience actually needs to know.**

THE TRUTH SANDWICH



Fact
Myth
Explanation of fallacy
Fact

In the same way radioactive material would need to be packed safely in a lead-lined case, disinformation should be packed between layers of facts and reality to protect the audience from accidental exposure.

That first "fact" should frame the issue in a way that reflects the real world truth the disinformation is aimed at undercutting, but shouldn't use the false frame.

Step back, think big picture about the impact of disinformation, and respond with the broad reality the disinfo is meant to undermine in the audience.

Then warn about the myth, using a paraphrased retelling that is as basic and weakened as possible.

Instead of a point-by-point rebuttal, a Truth Sandwich structure uses an explanation of the key fallacy as a way to show how the misleading argument was constructed, or an explanation of why a bad actor would go to the effort of trying to deceive people.

The FLICC techniques of science denial, standing for Fake experts, Logical fallacies, Impossible expectations, Cherry picking, and Conspiracy theories, provide a template for identifying the fallacies. Explaining how they

were used educates audiences and inoculates them against that disinformation tactic when they encounter it.

The Truth Sandwich then ends with a main fact, the last thing audiences should leave with, the big lesson to learn and keep in mind going forward. Disinformation often relies on emotional triggers, so debunkings need to replace that emotive story with something equally compelling and memorable.

When establishing the first and last fact for the truth sandwich, Weathering Extremes offers a second vital piece of advice, and graphic illustration, on the importance of framing.



Disinformation is often created to spread not just a specific false detail, but a larger misleading frame, a way of mentally processing and understanding an issue that then shapes how future information is received and believed. It's not just that scientists are wrong about this particular extreme weather event. The more basic message is the worldview that you shouldn't trust scientists at all.

When responding to disinformation, it is critical to speak to the larger truth at stake instead of just negating individual details.

A simple denial can leave the audience working within the mental framework established by the disinformation.

To overcome the impact of disinformation, prebunking or debunking needs to explain reality in a way that offers a more truthful and compelling story that will be remembered instead of the myth. To respond effectively, step outside the false frame and offer a more powerful one.

To address "issue-stacking," when bad actors combine climate disinformation with hate speech, misogyny, transphobia[5], anti-immigrant xenophobia, and other sorts of bigotry, use We Make the Future's well-tested and adaptable Race Class Narrative.

[5] 40 of 45 major US anti-trans organisations have received fossil fuel funding: https://atmos.earth/political-landscapes/fossil-fuel-billionaires-are-bankrolling-the-anti-trans-movement/

We Make the Future also recommends a truth sandwich structure, though in this case with cultural content, starting with a shared value that addresses the core concern, then explaining the bad actors' motives, tactics, or networks, finally closing with a proactive message.

Flavor your Truth Sandwich by explaining how bad actors use racism, misogyny, anti-trans hate, xenophobia, and other forms of bigotry to divide and distract us. When we're fighting each other, we're not united to hold billionaire polluters accountable.

Responses to disinformation need to address the facts and frame them within shared values. This can help avoid reinforcing disinfluencers' worldview and counter their use of racism and emotion to appeal to audiences desperate for meaning and agency.

The Truth Sandwich and Race Class narrative can be applied across the communications spectrum, from official speeches addressing sensitive topics or extreme weather events to social media posts or offhand comments during interviews.

Frequently Asked Questions pages are also a reliable way to address false content for those searching for answers to find them, without quoting bad actors or otherwise proactively spreading the oppositional narratives or centering their world view.

Effective responses lead with facts, limit repetition of false claims, and explain how those claims were constructed.

But communication alone will not stop people paid to keep spreading disinformation. Disinformation is designed to sabotage climate progress, and it works.

Blocking climate progress puts people's health, livelihoods, and lives at risk. Policymakers must design, implement, and enforce regulations that stop people from profiting by spreading disinformation.

EXAMPLE OF A WINNING NARRATIVE:
AMERICA / STATE'S STRENGTH

America's strength comes from our ability to work together – bringing together people from different places and of different races into a whole.	**Opens with a SHARED VALUE that names race and class.**
For this to be a place where everyone can thrive, we cannot let the 1% and the politicians they pay for divide us against each other based on what someone looks like, where they come from, or how much money they have.	**Names VILLAINS using racial scapegoating as a weapon that economically harms all of us.**
We need to join together to fight for our future, just like we won better wages, safer workplaces, and civil rights in our past.	**Emphasizes unity and COLLECTIVE ACTION to solve problem.**
Coming together, we can elect new leaders who will deliver better healthcare for our families, quality schools for our kids, and a fair return on our work.	**Connects joining together to achieve VISION - desired outcomes.**

5. The Climate Action Against Disinformation Coalition's Updated 2026 Policy Asks

AI and tech companies must be regulated like pharmaceuticals, airlines, financial markets, or other major industries, and be subject to similar requirements including safety, transparency, privacy and accountability.

To protect public safety, governments must:

- Require proof of safety before release: a duty of care, socio-technical risk audits for AI and social media, and post-deployment monitoring, applied equally to products already on the market.
- Require substantiation of all product claims, with penalties for misleading statements.
- Guarantee rights to explanation, contestation, redress and non-automated alternatives.
- Prohibit addictive or engagement-driven design, especially design tied to ad serving, and make privacy-first recommender systems the default on all online platforms.
- Apply civil rights law to algorithmic decisions, and suspend AI in coercive state functions pending rights compliance.
- Enact strong privacy laws that protect consumers' data from being used against their will, including data minimization and no secondary use or AI training on personal data without consent.
- Enshrine protection of information integrity in law, in line with the UN Global Principles for Information Integrity, the Declaration for Information Integrity on Climate Change and the UN Global Digital Compact.
- Create policies that align with the UN's Global Advertising Charter, investing media budgets in platforms and outlets that strengthen information integrity, pluralistic media and human rights, with object-level campaign transparency and no greenwashing.
- Regulate the ad ecosystem like a financial market: object-level transparency, deterministic placement logs, "Know Your Customer" requirements, a Best Interests Duty and payment-chain enforcement;
- Make privacy-friendly advertising (contextual, first party) the default, avoid surveillance advertising, and legally mandate Universal Opt Out Mechanisms (UOOMs) so people can refuse unwanted tracking.

To protect the public, companies must:

- Demonstrate that their products are safe for people and the environment, show how that determination is made, and explain how their algorithms are safeguarded against discrimination, bias and disinformation.
- Enforce their community guidelines, disinformation and monetization policies.
- Provide log-level data access to advertisers so they may better audit and ensure they are not monetizing content at conflict with their policies.
- Conduct programmes to protect targeted groups, including scientists, journalists, activists and Indigenous communities.

- Adopt UN/UNESCO-aligned definitions of climate disinformation, including denial of climate science, misrepresentation of data and greenwashing
- Apply strong labor standards for content moderators and AI data workers.

For transparency, governments must require companies to:

- Report on energy use and emissions produced within the full life cycle of AI models, including training, updating and running search queries, and follow existing reporting standards;
- Give researchers access to AI platform data to study systemic risks, and energy and water use.
- Assess and report on the environmental and social justice implications of developing their technologies.
- Explain how AI models' accuracy on climate change is measured, and the sources of evidence for factual claims they make.
- Report on the prevalence of organic and monetized disinformation, coordinated operations and enforcement, with yearly benchmarked plans (ad libraries, multilingual moderation, dispute resolution).
- Publish independently audited AI risk reports modeled on financial disclosure, covering training data, failure modes, environmental footprint and enforcement results

To deliver accountability, governments must:

- Enforce safety and transparency rules with strong, revenue-scaled penalties for noncompliance that deter companies from treating safety failures as the cost of doing business.
- Require reporting to be certified by a chief information officer.
- Protect whistleblowers who might expose AI safety issues.
- Ensure that companies and their executives are held liable for the harms that occur as a result of generative AI, including harms to the environment.
- Enforce competition law across all platforms, including social media, AI and adtech companies, so corporations cannot amass enough power to evade accountability and the information ecosystem stays diverse;
- Place a moratorium on public AI subsidies, and set binding community safeguards for data centers covering water, air, grid and other local impacts.
- Require compliance with intellectual property laws, including identity and creative-work protections, likeness rights, liability for chatbot outputs, and consent and compensation for training data.

6. Appendix: Data Access and Methods

6.1. Emissions Balloon 2 to 4 Times Target Levels

All company targets were sourced directly from company statements, and checked against the latest release (up to end of 2025) of the Oxford Net Zero Tracker report.

FIGURE A.1 - NZ TARGETS BY COMPANY TABLE

Source: Oxford Net Zero Tracker, through to December 2025

Company	Date target set	Target type	End year	Target text
Alphabet (Google)	2021	Net zero	2030	'In 2021, we set out an ambition to reach net-zero emissions across all of our operations and value chain by 2030. To meet this ambition, we aim to reduce over time our absolute, combined scope 1, 2 (market-based), and 3 emissions by 50% from a 2019 base year, and we plan to invest in a range of carbon removal solutions to neutralize our remaining emissions. This year, we're sharing more details about our approach to this moonshot.' (P.83) 'We aim to run on 24/7 carbon-free energy on every grid where we operate by 2030.' (P.79) 'We aim to reduce absolute, combined scope 1, 2 (market-based), and 3 emissions by 50% from a 2019 base year by 2030.' (P.80) 'In 2025, we adjusted the boundary for our carbon reduction and net-zero ambitions to exclude certain scope 3 emissions activities that are peripheral to our core operations or where our ability to influence emissions reductions is limited' (P.80)
Meta Platforms	2020	Net zero	2030	Since 2020, we have maintained net zero emissions across our global operations. We have publicly committed to achieving net zero emissions across our value chain and becoming water positive in 2030. (pg 17)

Company	Date target set	Target type	End year	Target text
Amazon	2019	Net zero	2040	"Through The Climate Pledge , which we co-founded and committed to in 2019, our goal is to reach net-zero carbon emissions across our global operations by 2040, while inspiring and inviting others to take action." (sustainability report 2024 p. 8) "Reach net-zero carbon emissions across our global operations by 2040" (sustainability report 2024 p. 6) "Through The Climate Pledge, inspire and empower others to join us on a mission to reach net-zero carbon emissions by 2040" (sustainability report 2024 p. 6, progress reported in terms of number of signatories, not tCO2e)
Microsoft	2022	Carbon negative	2050	We are committed to being carbon negative by 2030 and by 2050 to remove from the atmosphere an equivalent amount of all the carbon dioxide our company has emitted either directly or by our electricity consumption since we were founded in 1975. Our carbon negative commitment includes three primary areas: reducing carbon emissions, increasing use of carbon-free electricity, and carbon removal. Reducing Value Chain Emissions: By 2030, Microsoft will remove more carbon than it emits. Replacing with 100/100/0 carbon-free energy: By 2030, we will reduce our Scope 3 emissions by more than half from a 2020 baseline. Removing the rest of our emissions: By 2030, 100% of our electricity consumption will be matched by zero carbon energy purchases 100% of the time.
NVIDIA	2025	Emissions reduction target	2050	"We're excited to announce that NVIDIA has committed to two new emission reduction targets. Both targets were validated by the Science Based Targets initiative (SBTi) as reducing greenhouse gas emissions in line with the goal of limiting global warming to 1.5Â°C. We commit to the following science-based targets from a FY23 base year: - To reduce absolute scope 1 and 2 emissions 50% by FY30; - To reduce scope 3 emissions intensity from use of sold GPU products by 75% per PFLOP by FY30" (P.12, FY2025 Sustainability Report)

6.2. Data access and details on company claims

The ongoing collection of company disclosures, including raw data for energy consumption, estimates of greenhouse gas emissions and historical 'versions' of each set of disclosures can be found on the co-author's website.

All calculations and graphics prepared for this analysis can be found in this publicly-shared analysis file[6].

6.2.1. Energy consumption

The table below shows collected energy consumption in megawatt hours per company, and the percentage change in that from the year 2020. Noting as stated elsewhere that the years 2023, 2024 and 2025 are estimates for Amazon based on disclosed water usage.

FIGURE A.2 - APPENDIX ENERGY Estimates for Big Tech

Year	Google	Microsoft	Amazon	Google	Microsoft	Amazon
2020				15,166,800	10,770,714	24,000,000
2021	19.06%	26.47%	28.75%	18,058,300	13,621,517	30,900,000
2022	42.33%	68.54%	61.25%	21,586,400	18,153,454	38,700,000
2023	64.79%	118.81%	127.08%	24,994,000	23,567,502	54,500,000
2024	109.10%	176.95%	159.17%	31,713,900	29,829,540	62,200,000
2025	187.38%	243.77%	274.58%	43,586,600	37,026,353	89,900,000

6.2.2. Google

Google state, in defending their climate failure, that:

"We remain deeply committed to our climate strategy, yet it's become clear that achieving our climate ambition is more complex and challenging than ever"

Google diverts attention away from their emissions rising significantly above their targets by claiming extremely large avoided emissions thanks to their actions and services provided, many claims of which are based on weak evidence.

Google assumes the establishment of Power Purchase Agreements with various renewable energy providers allows for the reported reduction of the company's "Scope 2"

[6] File sharing URL: https://drive.google.com/drive/folders/1DZNiXuSzWG6x8y1k8C3peOljqPD93lXz?usp=sharing

emissions, and hint that some of these deals do include third-party renewable energy certificates. This accounts for the majority of adjusted emissions in their sustainability reports.

They also exclude several categories from their scope 3 reports ("ambition based"). Google does not include carbon offsets in their stated greenhouse gas emissions.

6.2.3. 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.

NOTE: Meta did not release their 2026 sustainability report before publication.

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

6.2.4. 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)

Amazon stopped reporting its total electricity consumption in 2022. Consultant and analyst Hendrik Rood demonstrated that Amazon's disclosures of 'water usage effectiveness' can be used to reverse-engineer an estimate of, at least, 'Amazon Web Services' total electricity consumption, which comprises a majority of Amazon's total. Rood's estimates have been reproduced here, and included in the overall total.

6.2.5. Microsoft

As with other companies, Microsoft attempts to both rationalise and distract from its significant movement in a direction away from its climate targets.

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

Microsoft still adheres to a target of being net 'carbon negative' for its operations (scope 1 and 2 emissions, after adjustments) by 2030, and reducing its scope 3 emissions (also after adjustments and exclusions, which are significant) by half, by the same year. The 'claimed' value in the body text is net scope 1, 2 including removals (which dropped to zero this year) and scope 3 after adjustments, and the 'target' is both targets (net removals for direct and halving scope 3) combined.

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"



6.2.6. NVIDIA

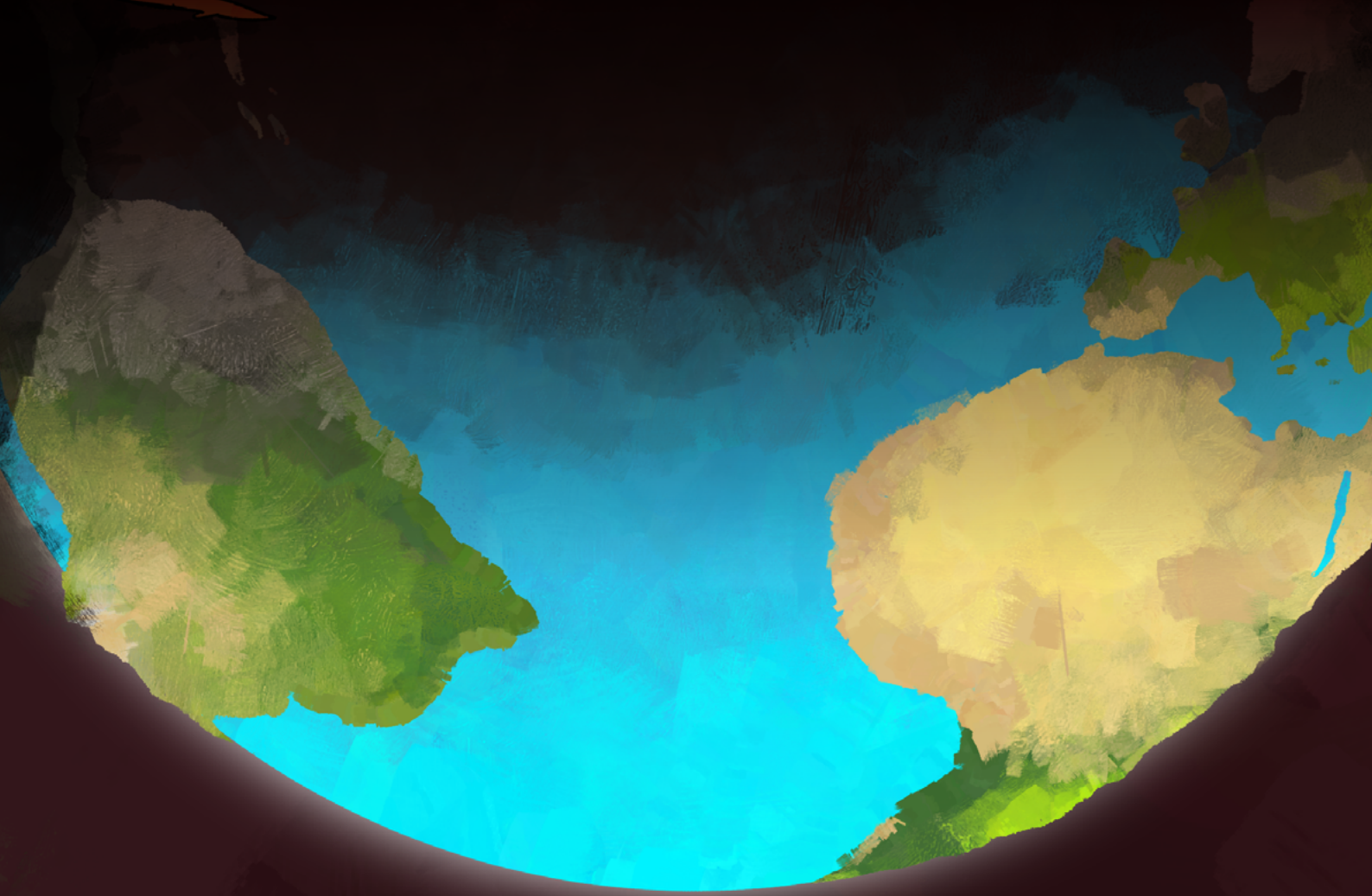
As outlined in more detail in our September 2026 report into NVIDIA:

- Unadjusted scope 1 emissions are disclosed
- Scope 2 both market-based and location-based are disclosed; however NVIDIA does not disclose any details on the renewable energy procurement, including details on the renewable energy certificates they have purchased.
- An estimate of supply chain emissions for the company's products is disclosed, but these are only 'upstream', i.e. the materials used to construct their products. The emissions associated with product use are not disclosed.



NO ARTIFICIAL INTELLIGENCE USED

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