

REPORT · OCTOBER 2026

# BrainWeb hosting and the environment: *facts, issues, and our position*

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Published 1 October 2026

## Summary and our position

BrainWeb no longer describes its hosting as sustainable, green, carbon neutral or carbon negative, because none of those claims can currently be backed by evidence specific to our clients' sites. That is not because our suppliers are poor. Two of the three are among the more efficient operators in their class. It is because the evidence needed to support a claim does not exist in a form we can check.

Four facts drive that decision:

- **No supplier reports emissions per customer.** We cannot say what any client's site emits, so we cannot say it is low, neutral or negative.
- **"100% renewable" usually means certificates, not electrons.** Most such claims match a year's consumption with renewable certificates, often from generators that would have run anyway. Peer-reviewed research shows this overstates real emission cuts.
- **Offsets and tree planting don't cancel emissions.** One project a supplier funds has been suspended by its registry, and others belong to project types with documented over-crediting.
- **UK law now punishes unsupported green claims.** The Competition and Markets Authority (CMA) can fine businesses directly for misleading environmental claims.

What we do instead is choose efficient suppliers and regions, build lean sites, measure what we can, and publish the facts in this report, including the unflattering ones.

| Supplier          | What we use it for                                               | Where it runs                                                                   | Facility efficiency (PUE)                                   | How its energy claim is backed                                                                  | Published emissions                                             | Independent check                                                  |
|-------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------|
| Kualo             | Managed WordPress hosting                                        | East London facility (not named)                                                | 1.09 operating, 1.05 design target                          | Electricity bought through brokers from existing renewable generators                           | None published                                                  | None found                                                         |
| Google (Firebase) | Static sites (Firebase Hosting); Payload CMS sites (App Hosting) | Google Cloud regions in London (eu-west2) and Eemshaven, Netherlands (eu-west4) | 1.07 at Eemshaven; 1.09 fleet average; London not published | Hourly matching in 2025: 82% carbon-free in the Netherlands, 75% in Great Britain, 65% globally | 18.85 Mt CO <sub>2</sub> e in 2025 (full inventory)             | Limited assurance by Ernst & Young                                 |
| Cloudflare        | Domains, DNS, CDN and security for client domains                | 330+ cities worldwide                                                           | Not published                                               | Annual certificate matching                                                                     | 2024: 62,782 t location-based Scope 2; 43,071 t partial Scope 3 | Limited assurance by a firm that also helped calculate the figures |

PUE (power usage effectiveness) is total facility energy divided by IT energy, so 1.09 means 9% overhead. Each figure is explained and sourced in the supplier sections below.

# Scope

This report covers the three suppliers behind the hosting BrainWeb sells to clients:

| Service we sell                                       | Supplier and product                                                  | Where it runs                                                                                                  |
|-------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Managed WordPress hosting                             | Kualo shared and semi-dedicated hosting, resold under BrainWeb's name | Kualo's East London facility                                                                                   |
| Static site care (Astro and similar builds)           | Google Firebase Hosting                                               | Google's global serving network                                                                                |
| Payload CMS sites and our other Google Cloud services | Payload self-hosted on Google Cloud (Firebase App Hosting)            | Google Cloud regions <code>europa-west2</code> (London) and <code>europa-west4</code> (Eemshaven, Netherlands) |
| Payload content databases                             | Turso (libSQL, a fork of SQLite)                                      | Turso's AWS infrastructure                                                                                     |
| Domains, DNS and edge protection                      | Cloudflare Registrar, DNS, CDN and WAF                                | Cloudflare's network in 330+ cities                                                                            |

Firebase App Hosting is offered in a short list of regions, and `europa-west4` is the only European one listed in Google's documentation ([Google Cloud](#)). Payload's App Hosting deployments therefore run in the Netherlands; our other Google Cloud services use the London region.

In greenhouse gas accounting, all of this is "purchased services" (Scope 3, Category 1) for BrainWeb and for each client. Neither of us owns the servers, so the emissions belong to the supplier first and are passed down to customers only by estimate.

**Out of scope here:** email hosting; client sites on hosts the client chose; and the energy used by visitors' devices and networks, our own equipment and our use of AI. The last three are discussed under "Beyond the data centre", because they may outweigh hosting.

## How hosting's environmental cost is measured

A site's operational emissions are roughly the electricity it uses multiplied by the carbon intensity of that electricity. Manufacturing the hardware and cooling the building add to that. Every claim in this report can be traced back to one of the terms below.

**Power usage effectiveness (PUE).** Total facility energy divided by the energy used by the IT equipment. A PUE of 1.09 means 9% overhead for cooling and power distribution; Google puts the industry average at about 54% overhead. PUE measures the building, not the servers or what they run.

**Grid carbon intensity.** Grams of CO2 per kilowatt hour (g/kWh) from the local grid. Great Britain averaged about 126 g/kWh in 2025, slightly up on 2024's record low of 124 g/kWh because more gas was burned ([Carbon Brief](#)). Intensity swings by the hour: NESO recorded monthly lows of 32 to 38 g/kWh in late 2025 ([NESO](#)).

**Location-based and market-based accounting.** Location-based figures use the grid the servers are actually connected to. Market-based figures subtract any clean electricity a company has bought by contract or certificate. A supplier can report zero market-based emissions while its location-based emissions are large; Cloudflare's 2024 figures are an example.

**Certificates and additionality.** Renewable certificates (REGOs in the UK, guarantees of origin in the EU, RECs in the US) let a buyer claim renewable output. If the generator would have run anyway, the purchase adds no clean power to the grid. A 2022 study of 115 companies with science-based targets found that if the trend continued, 42% of their committed Scope 2 reductions would not result in real-world mitigation ([Bjørn et al., Nature Climate Change](#)).

**Annual and hourly matching.** Most "100% renewable" claims match a year's consumption with a year's certificates, so night-time gas power can be offset against daytime solar. Hourly matching (also called 24/7 carbon-free energy) requires clean supply in the same hour and grid. The GHG Protocol consulted on making hourly matching a requirement from October 2025. Of 909 respondents, 70% gave it little or no support, so the outcome is unsettled ([OneStopESG summary](#)). Current guidance stays in force until revised guidance is published, expected late 2026 or early 2027 ([Dcycle](#)). UK REGOs are issued monthly, and there is no UK hourly certificate system at scale yet ([Compare Your Footprint](#)). Hourly matching is the stricter test, but it is not yet the agreed standard.

**Offsets.** Avoidance credits pay for emissions that supposedly would otherwise have happened, such as forest that would have been cut down. Removal credits pay to take CO2 out of the air. Neither cancels an emission in the way a reduction does: forests can burn or be felled, and baselines can be inflated. In one example, a *Nature Sustainability* study estimated that a sample of cookstove projects was over-credited 9.2 times ([Gill-Wiehl et al.](#)).

**Embodied carbon.** The emissions from making, shipping and disposing of hardware. Measurements on four servers found that operational energy generally dominates, and that manufacturing matters mainly where electricity is low-carbon ([HES-SO study](#)). As grids get cleaner, embodied carbon becomes a larger share.

**Water.** Evaporative cooling cuts electricity use by evaporating water, so a lower PUE can mean higher water consumption. The water a facility consumes is mostly the water that evaporates, so recirculating it does not remove that consumption.

**Website carbon calculators.** Online calculators estimate emissions from the data a page transfers, using average factors for data centres, networks and devices. They are useful for comparing two versions of a page. They do not measure a particular site's real footprint, so we don't quote their numbers as facts.

## Kualo (managed WordPress hosting)

Kualo's UK facility, where all our WordPress client accounts are hosted, is designed for very low overhead. Kualo is a small UK company with no obligation to publish emissions data, and it doesn't. The figures below are Kualo's own, reported as Kualo's; we have not verified them and we don't adopt its environmental claims as ours.

**What Kualo states** ([infrastructure page](#); [green hosting page](#)):

- **Two facilities.** Kualo runs one site in East London and one in Tampa, Florida; customers choose which. All our client accounts are on the East London facility.
- **Efficiency.** The East London facility was designed for a PUE of 1.05 and is said to operate at 1.09 now. No measurement period or load level is given. Tampa runs at a PUE of 1.88.

- **Cooling.** EcoCooling units use outside air on cold days and pass warm air over water-soaked pads on hot days, with cold-aisle containment and high-efficiency fans. There are no chemical refrigerants. On-site solar is listed as planned.
- **Electricity.** UK power is bought through brokers on the Open Energy Market from renewable producers such as Statkraft. The two generators Kualo names are the Baillie wind farm, built in 2013, and the Rheidol hydropower plant, operating since 1962. The US site's renewable supply is Green-e certified.
- **Backup power.** Diesel generators with 48 hours of on-site fuel, test-run every two weeks.
- **Servers.** NVMe storage, LiteSpeed Cache and Redis, which reduce processing per page served.
- **Offsets.** Through Ecologi, Kualo has planted over 20,000 trees and funded removal of over 100 tonnes of CO2. It plants 12 trees and offsets 1.2 tonnes of CO2 per employee each month. It aims to offset over 5,000 tonnes by the end of 2030 to become "truly carbon negative".
- **Memberships.** Partner member of the Green Web Foundation; US EPA Green Power Partner.

#### Issues:

- **Additionality.** Buying output from a wind farm built in 2013 and a hydro plant from 1962 reallocates existing clean generation; it adds no new clean power. Kualo doesn't say whether it holds a direct power purchase agreement or a supply contract backed by REGOs, and there is no hourly matching.
- **No footprint.** Without a published footprint, "carbon negative" and "climate positive" can't be checked. Offsetting a target tonnage is not the same as being negative relative to a measured total.
- **Water.** Kualo says the cooling water is almost entirely recycled, with only occasional top-ups. In an evaporative cooler, the cooling comes from water evaporating, so recirculation reduces waste but not evaporation. No volume is published. In a British climate the pads run only on warm days, so the volume is probably modest, but that is an inference.
- **Third-party errors.** Several online reviews place Kualo in Telehouse Docklands with a PUE around 1.24. Telehouse North and Equinix LD8 are network connection points only; the servers are in Kualo's own facility, which it does not name.

**Our assessment.** Taken at its word, Kualo runs an efficient modern facility on a relatively low-carbon grid, which is a sound basis for a small agency's WordPress hosting. What it cannot support is any claim to be carbon negative or climate positive, so we don't repeat those claims.

## Google Cloud and Firebase (static and Payload hosting)

Google is the best-documented of our suppliers and the only one that publishes hourly, region-level clean-energy data, but its total emissions grew 18% in 2025 as AI expansion outran its efficiency gains. All figures below are from Google's [2026 Environmental Report](#) (calendar 2025 data) unless stated.

**Where our sites run.** We use two Google Cloud regions: `europa-west2` in London and `europa-west4` at Eemshaven in the Netherlands. Payload CMS is self-hosted on Google Cloud through Firebase App Hosting, which runs in `europa-west4`. Static sites on Firebase Hosting are served from Google's global network, so no single facility can be named for them.

## Efficiency.

- **PUE.** Google's fleet averaged 1.09 in 2025; Eemshaven ran at 1.07.
- **Coverage gap.** Google publishes PUE only for campuses it runs itself with at least 12 months of data. No UK campus appears, so the London region's PUE is not published.

## Clean energy, hour by hour (2025):

| Grid region                                | Google carbon-free energy | From Google's own contracts | From the grid itself |
|--------------------------------------------|---------------------------|-----------------------------|----------------------|
| Netherlands (Eemshaven, our Payload sites) | 82%                       | 68 points                   | 14 points            |
| Great Britain (London region)              | 75%                       | 11 points                   | 64 points            |
| Google worldwide                           | 65%                       |                             |                      |

In the Netherlands, Google's own power contracts supply most of the clean energy; in Britain, the grid does. On location-based intensity the picture flips: Google's region data for 2024 put the Eemshaven grid at 209 g/kWh against 106 g/kWh for London ([Google Cloud region data](#)). Both measures are reported here because each flatters a different region.

## Emissions:

| Measure                                                | 2024                  | 2025                   | Change |
|--------------------------------------------------------|-----------------------|------------------------|--------|
| Total (GHG Protocol-aligned)                           | 15.94 Mt CO2e         | 18.85 Mt CO2e          | +18%   |
| "Ambition-based" total (Google's target boundary)      | 12.23 Mt CO2e         | 14.47 Mt CO2e          | +18%   |
| Scope 2, location-based (grid electricity as consumed) | 11.07 Mt CO2e         | 15.15 Mt CO2e          | +37%   |
| Scope 2, market-based (after clean energy contracts)   | 2.90 Mt CO2e          | 2.82 Mt CO2e           | -3%    |
| Water consumed                                         | 8,135 million gallons | 10,869 million gallons | +34%   |

## Issues:

- **The headline total is the narrower one.** Google's widely quoted 14.5 Mt is its "ambition-based" footprint, which excludes 4.25 Mt of supply-chain emissions and nets off 123,000 t of energy certificates. The full inventory is 18.85 Mt.
- **Growth outruns efficiency.** Electricity demand rose 37%. Location-based emissions rose with it, while the market-based figure, the one usually cited as "operational emissions fell", dropped 3%.
- **The 2030 goal is off track.** Hourly carbon-free energy was 65% in 2025, against 66% in 2024 and a goal of 24/7 carbon-free energy everywhere by 2030.
- **Water is rising.** Eemshaven consumed 405.7 million gallons in 2025. Google replenished about 7.7 billion gallons through watershed projects, roughly 78% of its freshwater consumption, against a goal of 120%. Replenishment elsewhere does not reduce local use.
- **Unverified avoided emissions.** Claims such as 41 million tonnes of emissions "enabled" by Google products are modelled scenarios, not inventory. The report states that several avoided-emissions estimates were not independently verified.

**What is independently checked.** Ernst & Young provided limited assurance on selected 2025 emissions, energy and water metrics. That is a review, not a full audit, but the auditor is independent of the calculation.

## Turso (Payload content databases)

Turso is a small part of our footprint; its technology choice matters more than the location of its servers. Payload sites store their content in Turso, a hosted database built on libSQL, a fork of SQLite.

Turso runs many small databases on shared infrastructure on AWS, rather than giving each customer a dedicated server ([Turso](#)). A conventional managed database instance runs continuously whether or not anyone is using the site. For small, lightly visited sites, a shared multi-tenant database avoids keeping a mostly idle server running, along with its share of hardware manufacture. We have not measured that saving, and Turso publishes no environmental data, so we describe it as a design choice, not a result.

## Cloudflare (domains, DNS and edge)

Cloudflare's hardware efficiency is real and well documented, but its "100% renewable" claim rests on annual certificate matching, and its offset portfolio includes a project suspended by its own registry. Figures are from Cloudflare's [2025 Impact Report](#) ([impact page](#)). Despite the title, its emissions data cover calendar 2024.

### Efficiency.

- **New servers.** Cloudflare's 12th-generation servers handle 84% more requests per second per kilowatt than the previous generation. They use AMD EPYC processors ([Cloudflare blog](#)), not the Arm chips some reviews describe.
- **Fewer machines.** In 2025 it replaced over 2,700 older servers with 1,661 new ones, about 40% less hardware for more traffic.
- **Cooling.** It kept air cooling after finding liquid cooling gave little gain for its edge workloads.
- **Caching.** For our clients, Cloudflare's caching serves repeat requests at the edge, so the origin server does less work.

### Emissions (2024):

| Measure                                                | Tonnes CO2e |
|--------------------------------------------------------|-------------|
| Scope 1 (direct emissions)                             | 198         |
| Scope 2, location-based (grid electricity as consumed) | 62,782      |
| Scope 2, market-based (after renewable certificates)   | 0           |
| Scope 3 (four supply-chain categories only)            | 43,071      |

Against roughly 180 GWh of electricity, the location-based figure implies an average of about 340 to 350 g/kWh, nearly three times Britain's 2025 average. That reflects the many grids Cloudflare's network runs on.

#### Issues:

- **Annual matching.** Cloudflare buys renewable credits equal to the electricity it consumes over the year. That brings its market-based Scope 2 to zero but does not change the grids the servers draw from.
- **Offset quality.** Its programme to cover emissions from before 2018 (about 31,000 tonnes, via 3Degrees) includes the Pacajaí REDD+ forest project in Brazil. Verra suspended that project in 2023 over land-rights concerns, and ratings agencies had concluded it was unlikely to deliver its stated climate benefits ([edie](#)). The programme also funds two cookstove projects, a project type with documented over-crediting risk, plus forest management and landfill gas projects. Most of these are avoidance credits, not removals.
- **Netting.** The report's market-based total of 43,071 tonnes equals Scope 3 alone; the 198 tonnes of Scope 1 is netted off with offsets. Standard practice reports offsets separately from the inventory.
- **Verification.** The verifier, Shift Advantage, gave limited assurance and also supported the calculation and the company's climate risk assessment.
- **Inconsistency.** Total 2024 energy is given as 182.89 GWh on one page and 177.89 GWh on another.
- **Water.** Cloudflare declares water not material because it counts only office use. Its servers sit in other companies' data centres, whose cooling water falls outside that boundary.
- **Targets.** Cloudflare has committed to setting science-based targets but has none yet.
- **Bot trees.** Cloudflare donates trees to account for energy spent on bot challenges: 1,957 for 2025, over 100,000 in total. The report doesn't publish how energy is converted into trees, so they can't be treated as a measured offset.

## Beyond the data centre

Hosting is probably not the largest part of the environmental cost of a BrainWeb site. Visitors' devices and the networks that reach them are likely to be larger, and so is our own use of AI.

**Visitors' devices and networks.** The Sustainable Web Design Model, the most widely used method for estimating website emissions, splits the energy of a page view as follows: data centres 22%, networks 24%, user devices 54% ([Green Web Foundation](#); [W3C list](#)). An analyst has publicly noted that the model's cited references do not state these percentages explicitly, so treat them as an informed estimate. The direction is consistent, though: a site's weight and the work it makes a phone or laptop do matter as much as where it is hosted. This is the part of the footprint our build decisions most directly control.

**Automated traffic.** Many requests to any website come from bots, including AI crawlers. Cloudflare's 2025 data shows AI training as the most active crawl purpose across its network ([Cloudflare 2025 Impact Report](#)). Every crawled page is served, cached or computed. Being visible to AI assistants, which some clients want, means accepting some of that traffic.

**Our use of AI.** BrainWeb uses AI models, mainly Anthropic's Claude, as a core part of how we research, write, design and build. Anthropic has not published Scope 1, 2 or 3 emissions or any per-query energy figures ([Earth911](#); [Brightest](#)). Third-party estimates exist but cannot be verified. Long,

multi-step AI work sessions use far more computation than a single chat question, so per-query estimates understate our use. This is likely our single largest operational footprint and the least transparent one.

**Our own operations.** BrainWeb is a one-person business. Its direct footprint is workspace energy, computers and phones (mostly their manufacture), and any travel. None of this has been measured yet.

## Why we no longer make sustainability claims

Earlier BrainWeb material described our hosting as sustainable or carbon neutral, relying on our suppliers' claims. We have withdrawn that wording because we cannot substantiate it to the standard UK law expects. Five reasons:

1. **No customer-level data.** None of our suppliers reports energy or emissions per customer or per site. Any figure we gave a client would be an estimate built on averages.
2. **The underlying claims rest on contested accounting.** "100% renewable" means annual certificate matching at Cloudflare and supply from long-established generators at Kualo. Google's "operational emissions fell" is a market-based figure, while its location-based emissions rose 37%. Offsets include a suspended forest project. Repeating these claims would mean repeating their weaknesses.
3. **Our suppliers' totals are rising.** Google's full inventory grew 18% in 2025. A "green" label implies a direction of travel the data does not show.
4. **Hosting is the smaller part.** Visitors' devices and networks, and our own AI use, are probably larger. A "green hosting" claim would describe a part while leaving out the larger whole.
5. **The law has teeth.** The CMA's [Green Claims Code](#) (2021) sets six principles: claims must be truthful and accurate, clear, complete, fair in comparison, consider the full life cycle, and be substantiated. Since 6 April 2025, the Digital Markets, Competition and Consumers Act 2024 lets the CMA find breaches of consumer law and fine up to £300,000 or 10% of global turnover, whichever is higher, without going to court ([National Law Review](#)). Business-to-business marketing is covered separately by the Business Protection from Misleading Marketing Regulations 2008, and advertising claims by the ASA's CAP Code, Section 11 ([Empcora](#)).

The CMA's supply-chain guidance makes responsibility shared: retailers, brands and suppliers can all be accountable for a misleading claim ([Fieldfisher](#)). If we told a client their site was carbon neutral and they repeated it to their customers, both of us could be exposed. Not making the claim protects our clients as well as us.

## What we do instead

We concentrate on the decisions we control: how heavy our sites are, how much work servers and devices do per page, and which suppliers and regions we use. These are our documented defaults. We have not yet measured how much they save, so we describe them as practices, not results.

- **Static-first builds.** New Astro sites are rendered to plain HTML when they are built, with interactive code added only to the sections that need it. Static sites need no running application server; they are files served from a cache.

- **A running server only where it earns its place.** Payload CMS sites need a server, database and storage running continuously so clients can edit content. Whether a site needs one is decided per project, and that choice is also an energy choice.
- **Lighter images.** Images are converted to modern formats such as WebP and sized for their use.
- **Fewer third-party scripts.** Our default analytics is Umami, which is cookieless and loads one small script. Google Analytics is added only where a client needs it, typically for advertising conversion tracking.
- **Caching at every layer.** WordPress sites use LiteSpeed Cache and, where the plan includes it, a Redis or Memcached object cache. Cloudflare caches content at the edge. Repeat requests are answered without rebuilding the page.
- **Blocking hostile traffic early.** Cloudflare's firewall, rate limiting and bot management stop attacks and abusive bots before they reach the server that hosts the site.
- **Choosing on evidence.** When we choose or review a supplier or region, we weigh what it publishes and whether that is independently checked, not just what it claims.
- **Publishing what we know.** This report sets out what we know and don't know, and it will be updated as suppliers answer our questions.

All else being equal, a lighter page that does less work uses less energy in the data centre, on the network and on the visitor's device. We don't put a figure on that saving until we have measured it.

## Statements for website, blog and social copy

Every public statement should be specific, attributed and checkable. If a claim needs a footnote to be true, the footnote goes in the copy.

### Statements we can make:

| Statement                                                                                                                                                                   | Why it holds                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| We don't describe our hosting as green, sustainable or carbon neutral, because we can't evidence that for your site.                                                        | Our policy, explained in this report                          |
| Our WordPress hosting runs in a UK data centre that reports a power usage effectiveness of 1.09. That is the operator's own figure and has not been independently verified. | Kualo's published figure, with its limits stated              |
| Our Google Cloud services run in Google's London and Netherlands regions; the Netherlands data centre at Eemshaven reported a PUE of 1.07 in 2025.                          | Google 2026 Environmental Report, limited assurance by EY     |
| Google reports that 82% of the electricity in its Netherlands grid region was matched hour by hour with carbon-free energy in 2025, against 65% worldwide.                  | Same report; attributed to Google                             |
| We build static-first, keep third-party scripts to a minimum and cache at every layer.                                                                                      | Our documented defaults                                       |
| Hosting is only part of a website's footprint; the devices people visit it on are probably a larger part.                                                                   | Sustainable Web Design Model estimate, with its limits stated |
| We publish what our suppliers do and don't disclose, and update it when that changes.                                                                                       | This report                                                   |

### Statements we won't make:

| Wording                                                     | Why not                                                                                                              |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Green hosting, eco hosting, sustainable website             | Vague; can't be substantiated for a specific site                                                                    |
| Carbon neutral, net zero, carbon negative, climate positive | Need a measured footprint and offsets of verifiable quality; neither exists for our services                         |
| 100% renewable (as our own claim)                           | Rests on annual certificates or existing generators; may be quoted only as a supplier's claim, with that explanation |
| "A tree planted for every site" or similar                  | Tree planting doesn't cancel emissions, and we don't run such a scheme                                               |
| A website carbon calculator score as a site's footprint     | A modelled estimate from data transfer, not a measurement                                                            |
| Any figure in grams of CO2 per page view for a client site  | No supplier provides the data to calculate it                                                                        |

## What we don't know, and how we'll choose hosting

This assessment rests on published supplier data, which is enough to judge the suppliers but not to put a number on any single client site. Three things remain unknown, and we say so rather than guess:

- **Per-site emissions.** No supplier publishes them. Google Cloud's console offers a Carbon Footprint report per project, which we may add later.
- **Our AI footprint.** Anthropic publishes no energy or emissions data, so this stays an unquantified, and probably significant, part of how we work.
- **Kualo's measured figures.** We report Kualo's own figures as Kualo's.

**Criteria for future hosting decisions.** When we choose or review a supplier or region, we weigh:

1. Facility-level PUE and water use, with the period measured.
2. Location-based and market-based emissions, and hourly carbon-free energy for the region where available.
3. Independent assurance from a party not involved in the calculation.
4. The grid intensity of the region the service runs in.
5. Whether the supplier offers per-customer emissions data or tooling.
6. Whether offsets are disclosed separately from the inventory, and what kind they are.

No current option wins on every criterion. Kualo sits on a lower-carbon grid but publishes no emissions data. Google's Eemshaven site sits on a dirtier grid but buys more clean energy hour by hour, and is audited. We record that trade-off rather than pretend it away.

**When this report is updated:** when our hosting changes, and when new annual reports appear (Google's has been published mid-year; Cloudflare's early in the year).

## Sources

### Supplier disclosures

- [Kualo: Our infrastructure](#)
- [Kualo: Green web hosting](#)
- [Google 2026 Environmental Report](#) (data for calendar 2025)
- [Google Cloud: Carbon-free energy for Google Cloud regions](#)
- [Google Cloud: Developer Connect locations \(Firebase App Hosting regions\)](#)
- [Cloudflare 2025 Impact Report](#) (emissions data for calendar 2024)
- [Cloudflare Impact](#)
- [Cloudflare blog: EPYC performance gain in Gen 12 servers](#)

## Research and methods

- [Bjørn et al. \(2022\), Renewable energy certificates threaten the integrity of corporate science-based targets, \*Nature Climate Change\*](#)
- [Gill-Wiehl, Kammen and Haya \(2024\), Pervasive over-crediting from cookstove offset methodologies, \*Nature Sustainability\*](#)
- [HES-SO: server fabrication and operational carbon](#)
- [Green Web Foundation: Sustainable Web Design Model v4](#)
- [W3C sustainable web list: questions on SWDM v4 sources](#)

## Grid data

- [Carbon Brief: UK renewables in 2025](#)
- [NESO: Britain's Energy Explained, December 2025](#)

## Carbon accounting standards

- [OneStopESG: GHG Protocol Scope 2 consultation feedback](#)
- [Dcycle: Scope 2 revision timetable](#)
- [Compare Your Footprint: Scope 2 changes and UK REGOs](#)

## Offsets

- [edie: Pacajai REDD+ project suspension](#)

## AI disclosure

- [Earth911: AI carbon footprint per query](#)
- [Brightest: AI model carbon footprint](#)

## UK law

- [Net Zero Compare: Green Claims Code](#)
- [National Law Review: CMA green claims guidance and DMCC enforcement](#)
- [Fieldfisher: CMA supply-chain guidance on environmental claims](#)
- [Empcora: UK greenwashing regulations](#)

## Database

- [Turso: Turso on AWS](#)

Some secondary sources were read in search excerpts rather than in full. Before quoting any figure publicly, check it against the primary document linked [here](#).