



REPORT

Cloudflare Emissions Inventory – 2023

September 13, 2024

Emissions Inventory

The following represents Cloudflare’s comprehensive global greenhouse gas (GHG) emissions inventory for the calendar year 2023.

Cloudflare’s calculations were prepared in accordance with the GHG Protocol [Corporate Standard, Greenhouse Gas Scope 2 Guidance](#), as well as ISO 14064.

The following inventory results were independently reviewed and verified by [Shift Advantage](#).

Emissions Category		Carbon Dioxide Equivalent (CO ₂ e) in Metric Tons (MT)	Percent of Calculated Total
Scope 1		259	100%
Scope 2 (Location-based) ¹			
	Facilities	1,110	2%
	Network	55,940	98%
Scope 2 (Market-based) ²		0	100%
Total (Market-based) ³		0	100%

1. Location-based emissions reflect the average emissions intensity of grids on which energy consumption occurs.
 2. Market-based emissions reflect emissions from electricity that an organization has purposefully chosen.
 For more information on Cloudflare’s renewable energy purchases, see Renewable Energy and Offset Purchases.
 3. Total (Market-based) emissions include Cloudflare’s 2023 verified offsets and renewable energy purchases.

Methodology

Cloudflare defined its organizational boundaries using the control approach, and included all of its global operations.⁴ Cloudflare Scope 1 emissions resulted from certain Cloudflare facilities that use combustion fuels for heating purposes. For those facilities, Cloudflare estimated its emissions using the average intensity method based on energy use intensity (EUI) factors provided by the [US Energy Information Administration](#).

Cloudflare's Scope 2 emissions are derived from its purchased electricity. Cloudflare elected to subdivide its Scope 2 location-based reporting into its facilities and its network to further aid in transparency and comparability.

Activity data for the Cloudflare global network was collected from each of the points of presence (PoPs), which are located in more than 330 cities in 120 countries around the world.⁵

Activity data at Cloudflare facilities was measured in two ways.⁶ All facilities for which Cloudflare had access to electrical utility information reported actual usage. For facilities that did not have access to actual usage data, Cloudflare used the average intensity method based on energy use intensity (EUI) factors provided by the US Energy Information Administration.

All activity data was converted into emissions via grid average emissions factors. Emissions factor sources included the US Environmental Protection Agency, UK DEFRA, and the International Energy Agency (IEA).

4. Cloudflare's organizational boundaries do not include Cloudflare's China network partners, which are not under Cloudflare's operational control.

5. Cloudflare's network energy data includes compute and networking hardware under Cloudflare's operational control. The calculations do not include energy used to power data center facilities (which house PoPs) not owned or controlled by Cloudflare, nor any other equipment collocated in such a facility. Cloudflare's approach is based on guidance provided by [BSR and the Future of Internet Power](#).

6. Cloudflare facilities refers to Cloudflare-controlled office space.

Renewable Energy and Offset Purchases⁷

Cloudflare’s market-based Scope 2 emissions are zero for 2023 as a result of the company’s renewable energy and offset purchases. Cloudflare purchased renewable energy attribute certificates (I-RECs, RECs, REGO, and others) through its partner [3Degrees](#), equivalent to Cloudflare’s global facilities and network energy usage.

Cloudflare’s purchasing methodology is based on RE100’s technical and geographic criteria. To that end, in 2023, Cloudflare generally purchased renewable energy in the same locality as it consumed in its operations, including in the United States, Canada, the United Kingdom, the European Union, Brazil, Chile, India, Colombia, Costa Rica, Honduras, Mexico, Malaysia, Thailand, Turkey, Vietnam, Morocco, Nigeria, and South Africa.

In certain cases, in part due to the geographically distributed nature of the Cloudflare network, the company purchased equivalent renewable energy products in the same region, or in the case of certain island nations, Verra-certified offsets. Cloudflare also procured Verra-certified offsets to account for its Scope 1 emissions.

7. Shift Advantage’s review did not include Cloudflare renewable energy purchases. Their attestation is limited to Cloudflare’s carbon emissions calculations.

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6/20/2024

Dear Patrick,

Shift Advantage is pleased to provide consulting and advisory services to Cloudflare to support the calculation of Cloudflare's 2023 greenhouse gas emissions. Shift Advantage conducted this independent and impartial limited level of assurance verification of Cloudflare's annual emissions disclosure data in accordance with the standard ISO 14064-part 3 2nd Edition, 2019-04, Annex A against criteria as set forth in the Greenhouse Gas Protocol. This letter is to clarify matters set out in the assurance report. It is not an assurance report and is not a substitute for the assurance report. This letter and the assurance report, including the opinion(s), are solely for Cloudflare's benefit. Shift Advantage consents to the release of this letter but without accepting or assuming any liability on Shift Advantage's part to any other party who has access to this letter or assurance report.

The assurance report covers Cloudflare's 2023 calendar year operations. For Cloudflare's GHG emissions report Cloudflare uses an operational control approach that includes global offices and data centers. Cloudflare's emissions report covers Scope 1 and Scope 2 GHG emissions. Scope 3 GHG emissions are excluded from both the footprint and from this verification. Cloudflare's total reported 2023 emissions are 57,308 MT CO₂e. Verified emissions by scope are shown below:

- Scope 1 Emissions: Direct emissions associated with natural gas used to heat offices - 259 MT CO₂e
- Scope 2 Emissions: Indirect emissions associated with purchased electricity in offices and co-located data centers – 57,049 MT CO₂e (location based)



Daniel Tremblay – Lead Verifier
Shift Advantage



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