

2026



ENERGY. AI. CLIMATE WORK.

Per-prompt small. System-scale big. The leverage is upstream of any one of us.

ALONGSIDE ADVISORS

THE QUESTION IN THE ROOM

Staff are asking a fair question:
does a climate organization
betray its mission by using AI?

The viral numbers make it feel obvious.
We're going to check them — and
follow the math wherever it lands.

WHAT YOU'VE HEARD

"A bottle of water for every email you write
with AI."

WHAT YOU'VE HEARD

"One prompt uses ten times the energy of a
Google search."

01 THE BUILD-OUT IS A
REAL CLIMATE PROBLEM.

Data-center load is doubling, and new demand is met by gas and delayed coal.

02 YOUR OWN USE ISN'T
WHAT'S **DRIVING** IT.

A single query is a rounding error against any personal or org footprint.

03 THE FIGHT WORTH HAVING
IS **UPSTREAM**.

Our power isn't personal restraint. It's policy — tariffs, permits, enforcement.

THE AGGREGATE STORY IS **REAL**

Global data centers are on course to more than double — from ~415 TWh in 2024 to **~945 TWh by 2030**.

~945 TWh

By 2030, the IEA expects data centers to use **as much electricity as all of Japan does today**. U.S. centers alone: 4.4% of the grid in 2023, heading to 6.7–12% by 2028.

IEA, *Energy and AI*, 2025 · LBNL / DOE, 2024.

AND THE LOCAL STORY IS WORSE

35 UNPERMITTED TURBINES IN MEMPHIS

Up to **35 unpermitted gas turbines** at xAI's Colossus site. Boxtown, the nearest neighborhood, already carries cancer risk **4× the national average**.

>1,700 tons/yr of smog-forming NOx — likely the area's largest industrial source.

COAL STAYS ONLINE

At least **15 U.S. coal-plant retirements delayed** since January 2025, tied to data-center demand.

Those plants emitted roughly 1.5% of U.S. energy CO₂ in 2024 (DeSmog).

PROMISES ARE FAILING

Google's emissions are **up 81%** since 2019; Microsoft's are **up ~58%** over its 2020 baseline.

"In many ways the moon is five times as far away as it was in 2020." — Brad Smith, Microsoft

MEDIAN TEXT PROMPT

0.24 Wh

Google's production-instrumented measurement of a Gemini text prompt — about **one second in a microwave**, and **0.26 mL of water** (five drops).

Google, Elsworth et al., Aug 2025. Epoch AI, a nonprofit research institute, gets ~0.6 Wh for a 100-word prompt to a free chatbot, including the model's share of its own training.

≈ **9 seconds** of streaming TV

≈ **1 second** in a microwave

≈ **1 / 120,000th** of one U.S. household's daily electricity (~29,000 Wh)

THE "BOTTLE OF WATER" NUMBER IS WRONG

THE VIRAL CLAIM

~~500 mL~~



AFTER CORRECTION

~15 mL

It traces to a single 2024 *Washington Post* graphic built on an assumption of **140 watt-hours per prompt** — somewhere between **50 and 250 times too high**. In 2026 the researcher whose figures were used, **Shaolei Ren**, **walked it back ~33×** — *"should not be used to describe general AI/ChatGPT or today's optimized systems."*

~15 mL includes water used generating the electricity offsite. Google's own measurement of on-site plus upstream water for a median text prompt is **0.26 mL** — five drops.

USAGE: AI VS AIRPLANES

ROUND TRIPS, DC TO SF, PER YEAR OF USE

	CENTRAL ESTIMATE	ASSUMPTIONS STACKED AGAINST AI
MEDIUM-HEAVY USER ~35,000 messages a year	0.1 ROUND TRIPS	0.9 ROUND TRIPS
CLAUDE CODE ALL DAY ~150,000 calls, incl. agentic sub-calls	0.9 ROUND TRIPS	3.8 ROUND TRIPS

The flight number is solid to within about 30%. Our lowest and highest AI estimates differ by a factor of about 50. We know the flight well and the AI badly.

Round trip DC–SFO, economy, ~700 kg CO₂e lifecycle (Google Flights basis; contrails excluded). Rows count different units: model calls for Claude Code, messages for medium-heavy.

EVEN A WHOLE STAFF ON AI TEXT, EVERY
WORKDAY, ALL YEAR

≈ a home-
month
of electricity

That's the whole order of magnitude —
invisible against the travel, heating,
and procurement that actually drive an
organization's footprint.

The caveat: this is text use. Video
generation runs far higher per output and
is worth watching. Coding agents are
already counted in the table on the
previous slide.

< 0.001% of total organizational emissions.

SHARE OF AI DATA-CENTER POWER FROM TEXT
CHATBOTS

20%

WHERE DID THE
OTHER 98% GO?

Training. Image and video generation.
AI baked into search, social feeds, and
enterprise software. Idle capacity.

**Even total abstinence across an entire
staff cannot move that 98%.** This gets
decided by policy, in rate cases and
permit hearings.

Hannah Ritchie, synthesis of IEA data, 2026.

OUR LEVERAGE IS UPSTREAM

UTILITY-TARIFF DESIGN

Make data centers pay for the capacity they demand — not ratepayers.



PERMITS & CLEAN AIR ACT

Challenge unpermitted gas turbines through the courts and agencies.



FERC & STATE-PUC DOCKETS

Who bears the marginal cost of new fossil load on a constrained grid.



DISCLOSURE RULES

Only Google and Mistral have published credible per-prompt accounting.



Delay **one** 500 MW gas peaker $\approx$ **150,000–400,000 tCO₂e a year** — hundreds of thousands of times a heavy user's entire year of AI.

**WE'VE SEEN
THIS PLAY
BEFORE**

The "personal carbon footprint" was popularized by a **\$100M-a-year BP marketing campaign** — built to move blame from corporate emissions onto individual choices.

The same individualizing frame is now aimed at AI. An organization that's fought this deflection for decades should recognize it — and not take the bait.

Geoffrey Supran, Harvard, on BP's 2004–06 campaign with Ogilvy & Mather.

WHAT WE DO

01 **USE AI INTERNALLY – WITHOUT PRIDE OR SHAME**

The marginal climate cost of your own use is unmeasurable. Performing restraint that buys nothing costs you capacity you could spend on the mission.

02 **IF YOU MANAGE PEOPLE, USE A THOUGHTFUL CHANGE-MANAGEMENT APPROACH**

The person who asked the question won't be talked out of it by a footnote. Say where the organization has come down, what you're still uneasy about, and give people a sanctioned way to learn together.

03 **CARVE OUT THE HARMS WE WON'T EXCUSE**

Environmental-justice harms in communities near data centers, unpermitted turbines, and runaway training and video compute.

04 **FIGHT FOR SYSTEMIC CHANGE**

Tariffs, permits, enforcement, disclosure. Intervene in the rate cases. Show up at the permit hearings. Advocate for regulating the AI companies for the public good.
