SUSTAINABLE AI

How to do better.

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DISCLAIMER

There’s a lot of stuff we don’t know, mainly because companies aren’t telling us things. This makes it very hard to get a baseline against which we can measure any improvements, which suits them just fine. Not all of these tools have been fully vetted by the speaker and their inclusion should not be construed as a formal endorsement. In using these tools your milage may vary based on criteria including, but not limited to: your location, power source(s), device(s), personal power configuration, and favorite cereal. Information used to make these recommendations may have changed in the four seconds since I last edited these slides. Do not make any medical decisions based on these recommendations.

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AI-SPECIFIC POWER USAGE

2024	2028
76 TERAWATT-HOURS	UP TO 326 TERAWATT-HOURS
7.2 MILLION HOMES POWERED	28-31 MILLION HOMES POWERED

MIT TECHNOLOGY REVIEW

AI-SPECIFIC WATER USAGE

2028

UP TO 720 BILLION GALLONS

18.5 WATER FOR MILLION HOMES

FOODANDWATERWATCH

3X-4X

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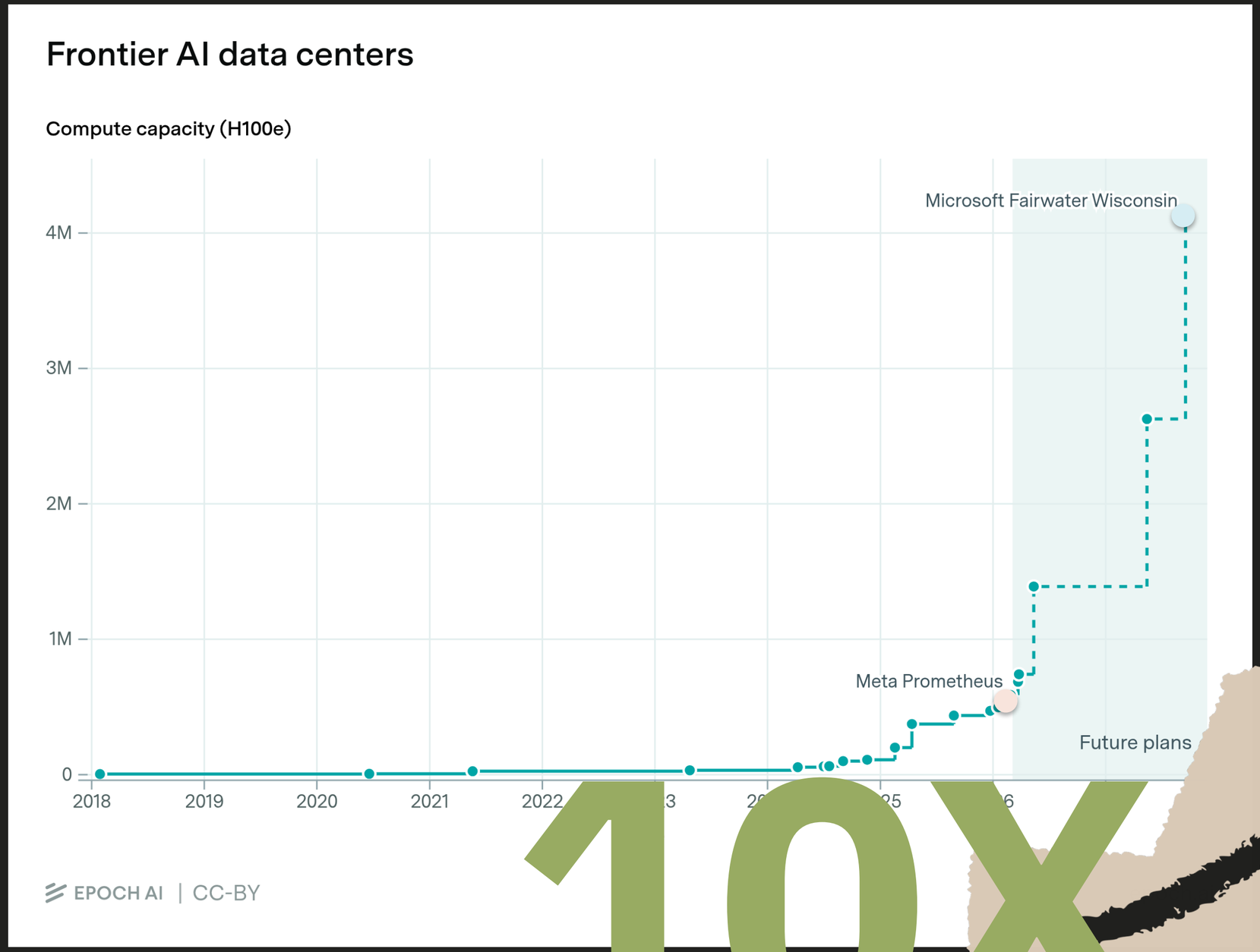
1/2026
500k
H100e CHIPS

9/2027
5.2M
H100e CHIPS



10X

https://epoch.ai/trends

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THE PROBLEM

AI requires unprecedented water and power usage.

Model efficiencies are improving, but can’t keep pace with the environmental impact.

New power plants are being planned, but in the meantime, much of the power in use is the dirty and carbon-intensive power such as coal and gas.

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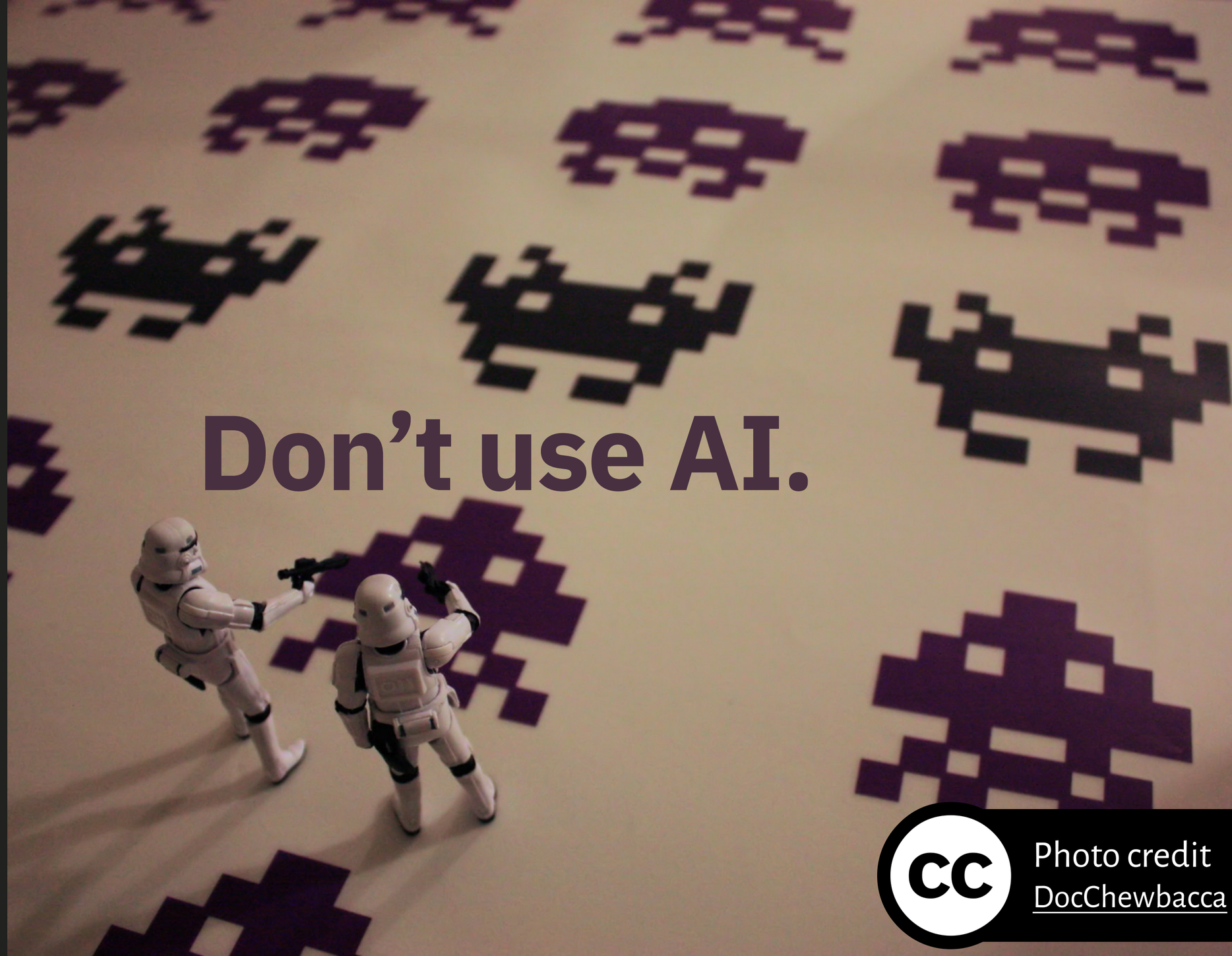
THE SOLUTION



LET’S DO BETTER.

What are the most environmentally-friendly AI options?

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UMMM...

Little available data.

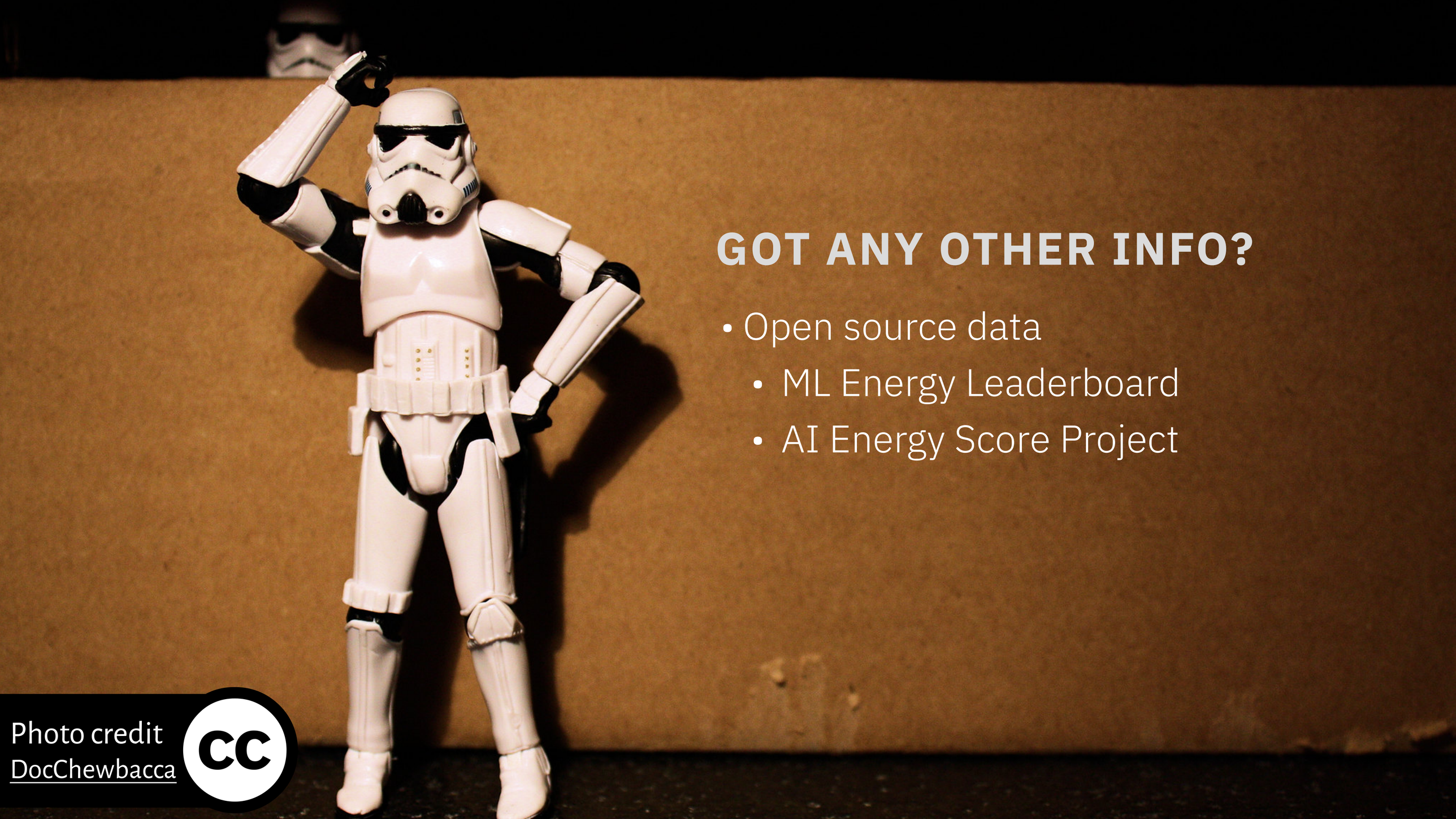
Mostly self reported.

No consistency of data across platforms.

Photo credit
DocChewbacca

WHAT DO WE KNOW?

- OpenAI: no model-level data shared for GPT 4+; runs on MS Azure.
- Anthropic: treats training emissions as proprietary, all we have are estimates.
- Google: 2025 paper on cradle-to-grave emissions, critics debate it; company-wide emissions and water use.
- Meta: good operations disclosures, no training data shared.
- Mistral shares validated training data, water use, resource depletion, etc.



GOT ANY OTHER INFO?

- Open source data
  - ML Energy Leaderboard
  - AI Energy Score Project

Photo credit
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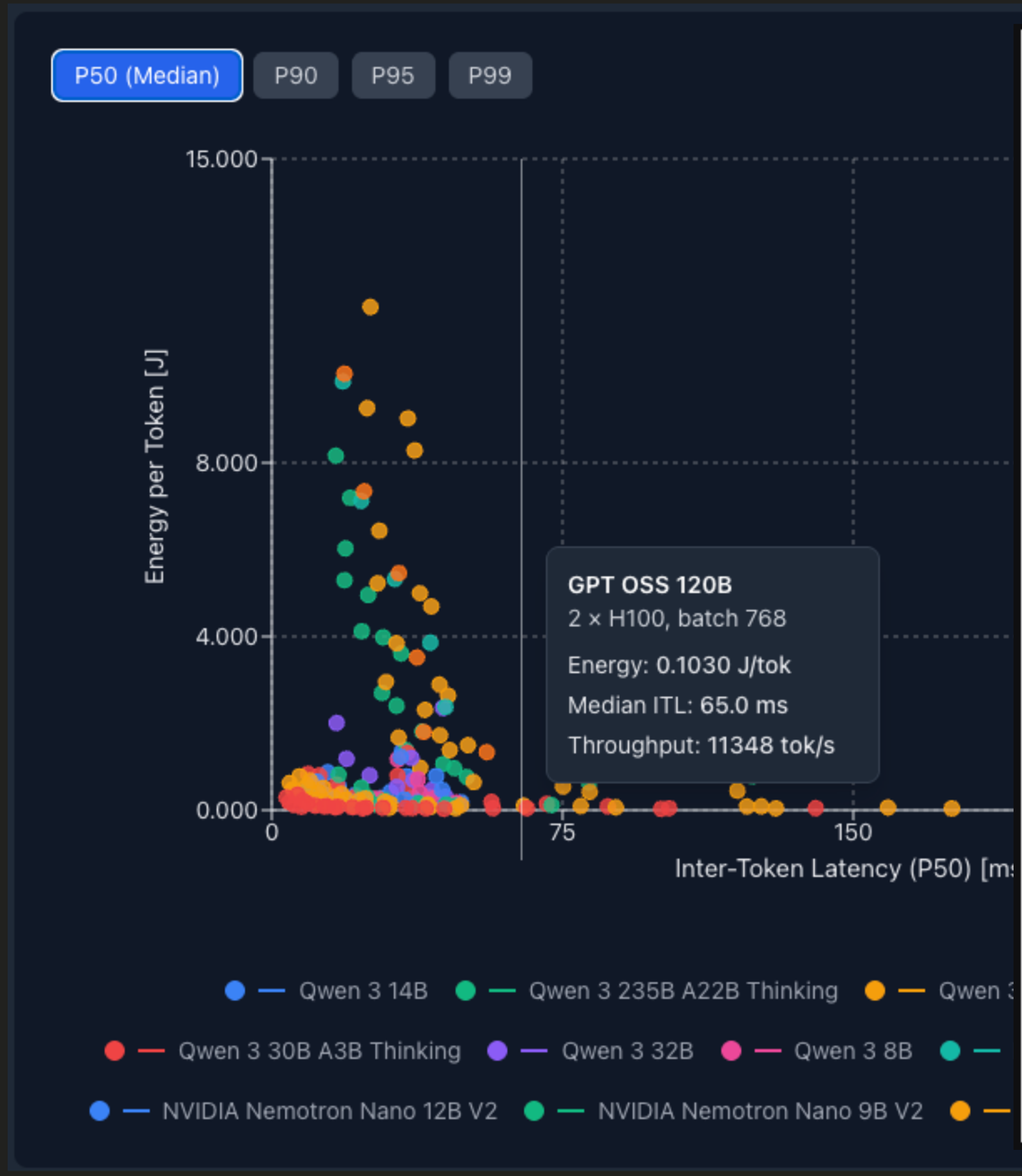

ML Energy Leaderboard

Model	Provider	GPU Energy (...	Score	Test Date
Hunyuan-1.8B-I...	tencent	4.20	★★★★★	Dec 25
gemma-3-270m	google	9.29	★★★★★	Dec 25
Qwen3-0.6B	Qwen	11.83	★★★★★	Dec 25
gemma-3-1b-pt	google	12.33	★★★★★	Dec 25
granite-4.0-micro	ibm-granite	16.63	★★★★★	Dec 25
SmolLM3-3B	HuggingFaceTB	18.35	★★★★★	Dec 25
Phi-4-reasoning...	microsoft	18.42	★★★★★	Dec 25
Apertus-8B-Inst...	swiss-ai	21.74	★★★★	Dec 25
Mistral-Nemo-In...	mistralai	23.19	★★★★	Dec 25
Qwen2.5-Coder...	Qwen	27.12	★★★★	Dec 25
gemma-3-4b-pt	google	34.39	★★★★	Dec 25
*granite-4.0-h-tiny	ibm-granite	81.82	★	Dec 25

AI Energy Score Project


ANYTHING ELSE TO CONSIDER?
• How data centers are powered
• Where data centers are/being built
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Previous Searches (3)

Clear

URL	Green Host	Grid Intensity	PUE	CUE	WUE	Renewable
chatgpt.com	✓	370 gCO_2	1.20	0.10	0.50	75%
claude.ai	✗	370 gCO_2	1.58	0.35	1.80	30%
gemini.google.com	✓	370 gCO_2	1.10	0.00	1.10	100%

Verified green hosted

PUE - Power Usage Effectiveness

CUE - Carbon Usage Effectiveness (kg CO2/kWh)

WUE - Water Usage Effectiveness (L/kWh)

% energy from renewables

ANYTHING ELSE TO CONSIDER?

- How data centers are powered
- Where data centers are/being built
- Future investments
- Hosting your own model

HOSTING YOUR OWN MODEL?

Assess its impact:

- Green Algorithms: https://calculator.green-algorithms.org/
- ML CO2 Impact: https://mlco2.github.io/impact/


SO WE SHOULD USE...?
GreenPT
EU-hosted, privacy-first,
sustainable AI.
Or the best tool for you.
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WHAT ELSE CAN WE DO?

How can I use AI tools more efficiently?

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DON’T USE AI.

Do you really need AI to solve your problem?

OR USE IT LESS.

Use the right tool for the job.
Enforce an AI usage limit for the day/week/project.

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2. CONFIGURE BOUNDRIES.

“I prefer shorter responses.”

“Please provide the basics and ask me if I need more detail.”

“There's no need to provide background on an issue or reframe the problem unless I've specifically asked.”

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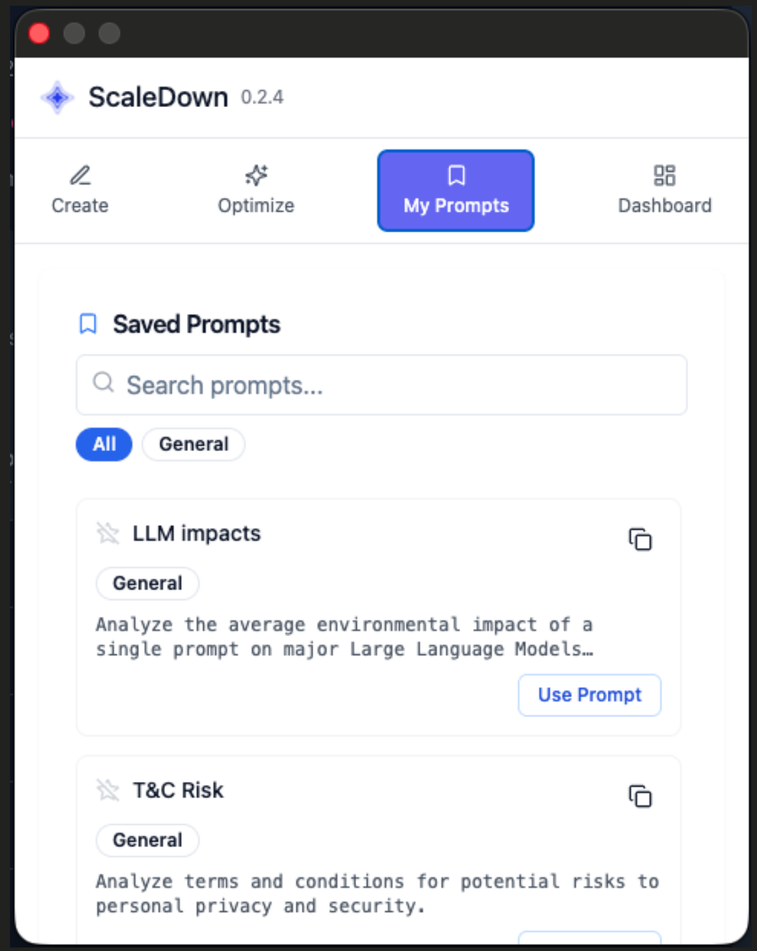
3. OPTIMIZE YOUR PROMPTS.

EcoLogits Calculator
ScaleDown browser extension



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4. USE SMALLER, SPECIALIZED MODELS WHENEVER POSSIBLE.

Google Gems & Notebook LM,
Claude Projects, OpenAI GPTs,
Perplexity Spaces, self-hosted models

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WHAT ELSE CAN WE DO?

How can we increase our level of impact?

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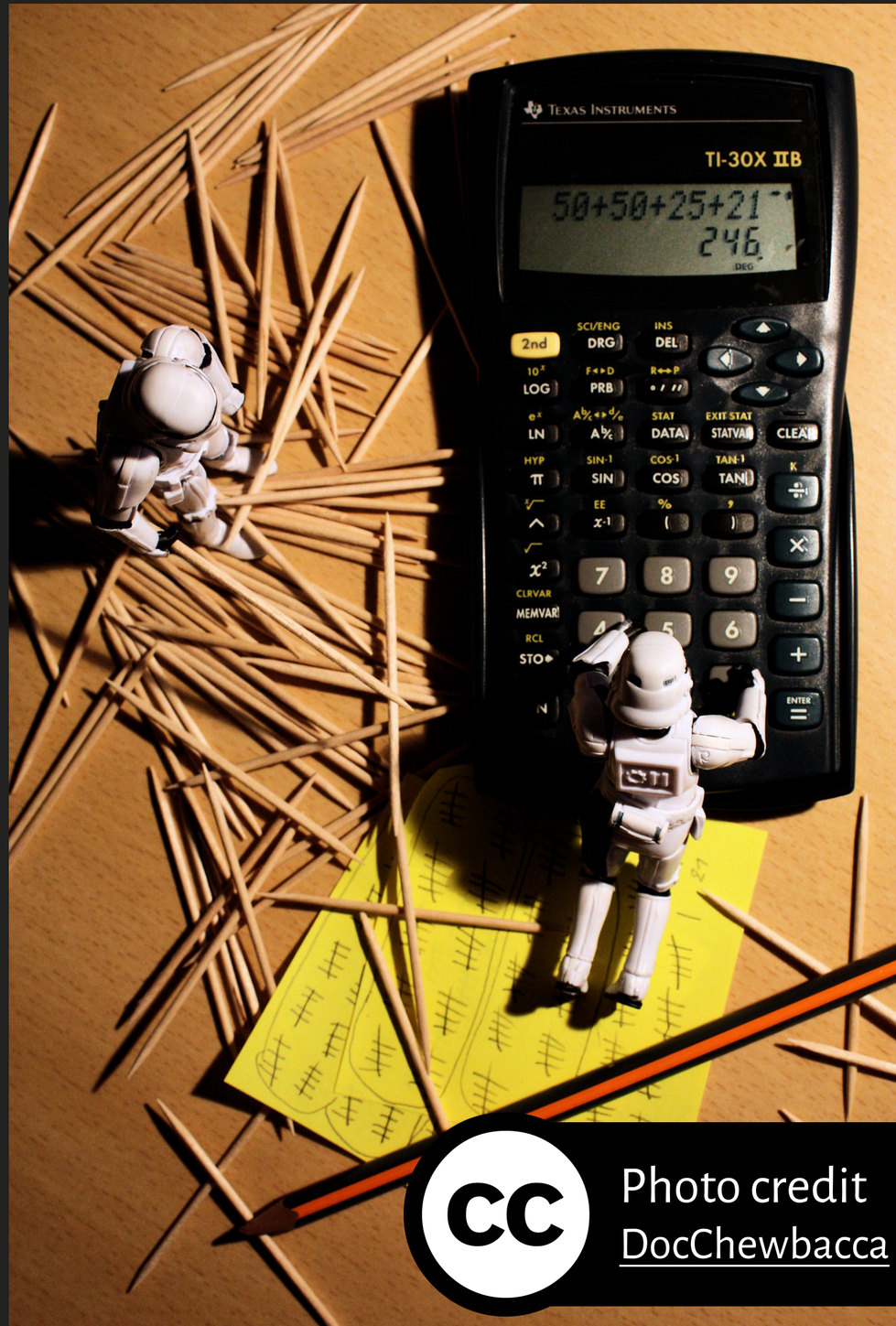
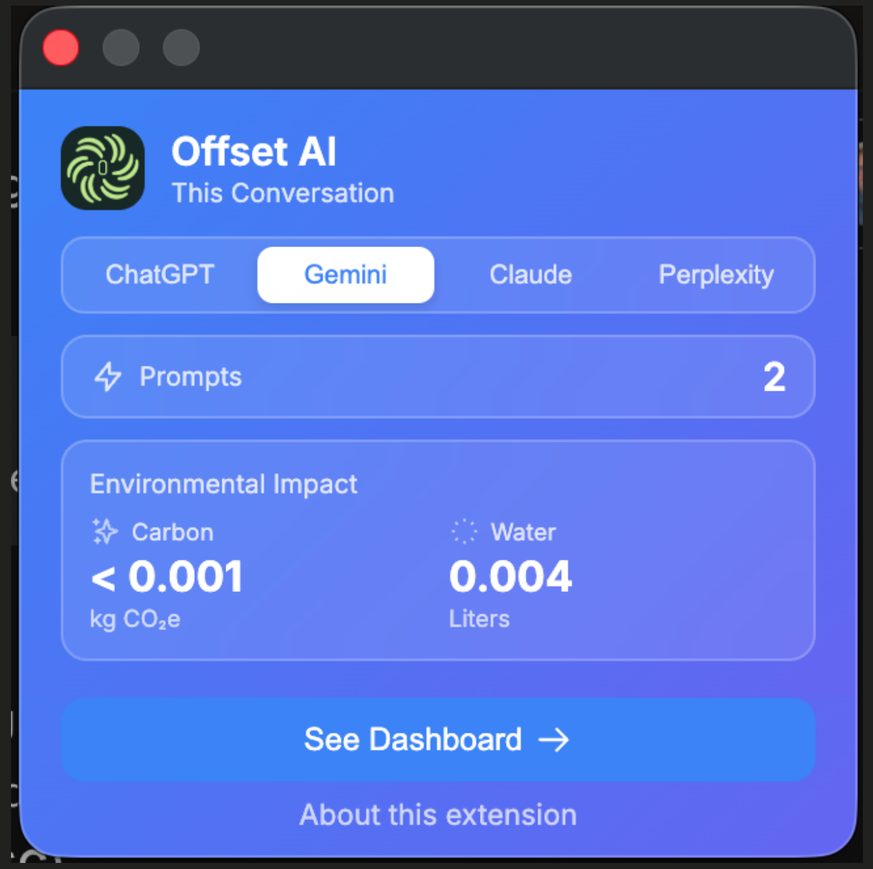
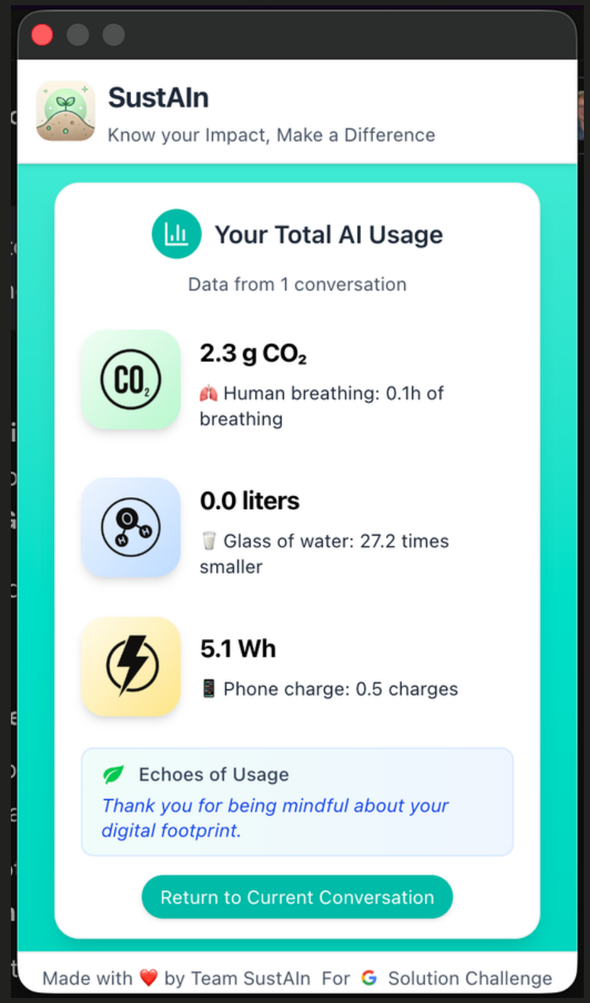
MONITOR.

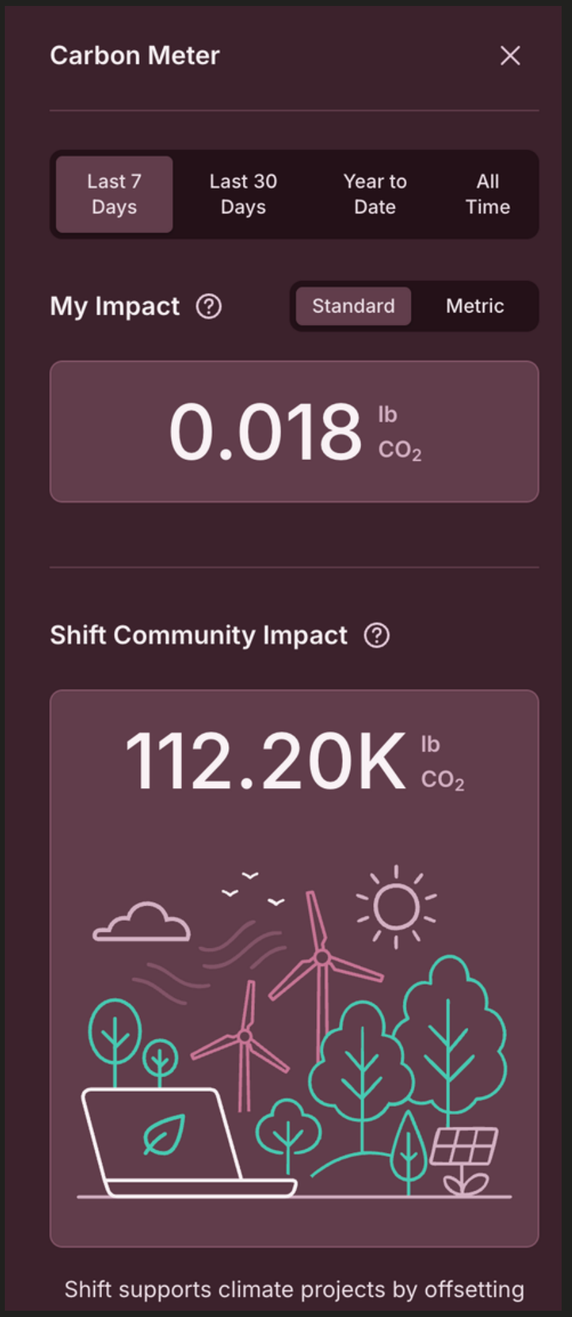
Track, assess, and
offset your AI usage.



SustAIn (browser extension)
AI Wattch (browser extension)
OffsetAI (browser extension+)
Shift Browser

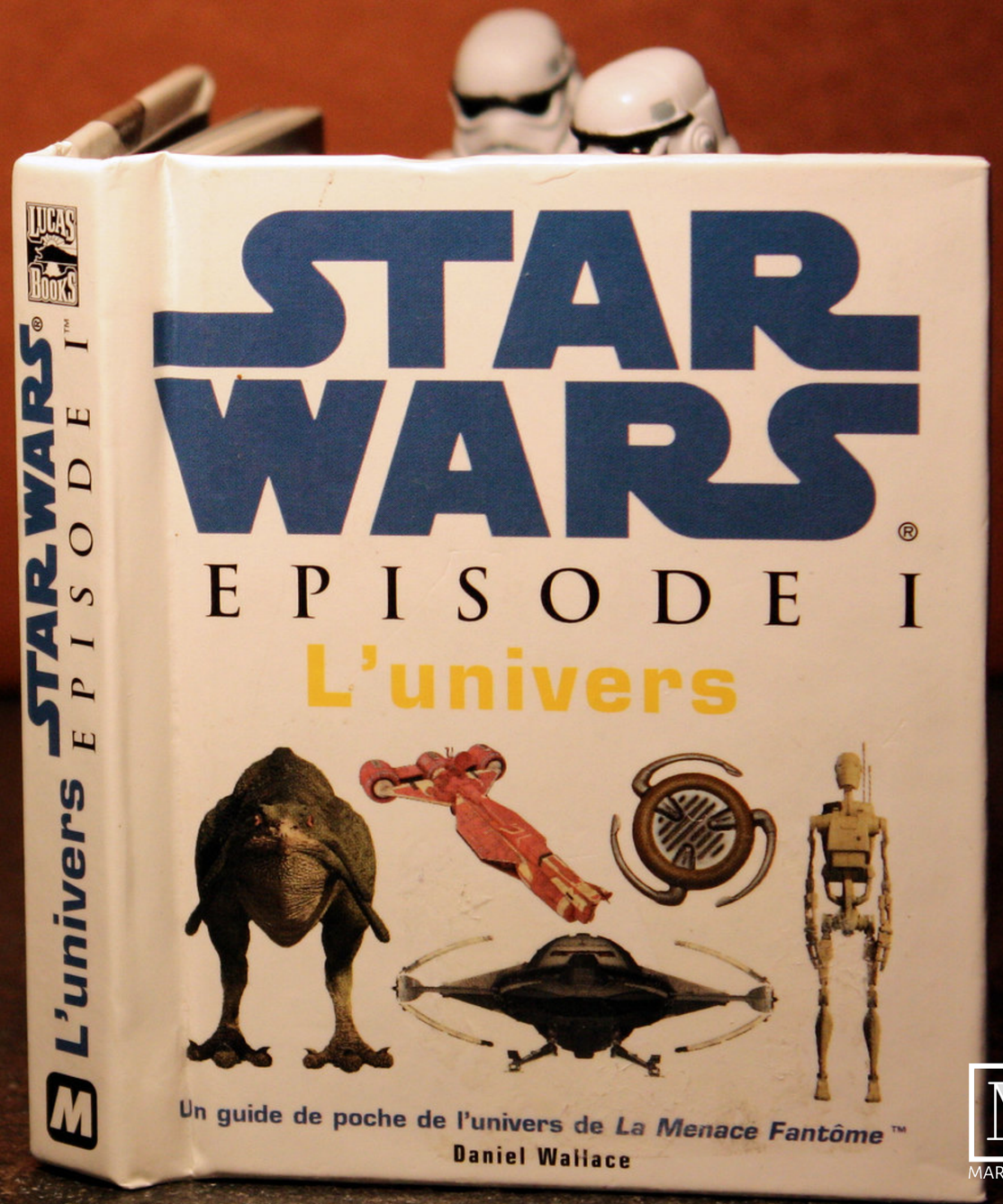






DOCUMENT.

Create best practices
and governance for
your organization(s).



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SHARE.

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SUPPORT.

Support the companies doing well.

Communicate when a vendor you want to work with isn’t environmentally-friendly.

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WATCH.

Keep an eye on what’s coming.

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AI SUSTAINABILITY IS A PROBLEM

But it’s a problem we can all contribute to improving.

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he most common way people give up their power is by thinking they don’t have any.

ALICE WALKER

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THANK YOU.

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Slides +
Resources

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