AI Explained · Why We Fear AI, Part 4

The Physical Footprint

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THE 2-MINUTE SUMMARY

A data centre can be a small part of global electricity demand and a large new customer for the local grid. The two facts can sit alongside each other.

Measuring the electricity or water used by one request helps us understand that request. A planning decision also needs the total demand, its timing, and what happens in a dry spell or when the grid is stretched.

Developers should show what a site will draw, what upgrades it requires and who will pay for them. People affected by the decision should be able to check the answers.

When the grid is already full

In July 2022 the Greater London Authority warned developers that electricity capacity could constrain new housing in parts of West London. Large data centres were among the demands on the system. The question for someone waiting for a home was immediate: what else can the local grid serve, and how long will it take to add capacity? The warning predates the current wave of generative AI and concerns data centres more generally.[1]

Ireland offers a sense of scale. Data centres accounted for 23% of its metered electricity consumption in 2025. Globally, the International Energy Agency puts consumption by all data centres at about 485 terawatt-hours in 2025. Its central projection is about 950 terawatt-hours in 2030, around 3% of world electricity demand by then. The Irish figure describes a national share of metered consumption. The global figure for 2030 is a projection. Both include services beyond AI.[2,3]

Who gets a say?

A company can make a serious case for new capacity. The computing may support services people use daily, and a project can bring investment. Residents can still ask whether they get a meaningful say, what the project will draw from existing infrastructure, and what benefits or disruption they should expect. A reduction in the global energy cost of computing cannot answer a question about the next available connection in West London.

Devine-Wright's research on a power-line proposal shows how place attachment and attitudes to the company can shape responses to new infrastructure. Applying that idea to data centres is an inference. It gives a planner a reason to pay attention to how a project changes a place and whether the people affected trust what they are being told.[4]

Geek Box · One request and a whole service

Training uses electricity to build or update a model. Inference uses electricity to answer a request with a model already trained. Google reported that a median Gemini Apps text prompt used 0.24 watt-hours and 0.26 millilitres of water in its measurement. That is a company's result for a particular service and type of request. Long documents, lengthy model reasoning and generated video can have very different costs. Repeated use adds up, even as the cost of answering a particular type of request falls.[3,5]

What the figures should let you ask

Water use depends in part on the cooling system and on how the electricity is generated. Li and colleagues distinguish water used at the site from water used to produce the power it draws. The questions for a proposed site are how much water it will use, where that water comes from and what it will need during hot or dry weather. A decision about cooling can trade water demand against electricity demand. Ask for the figures for the actual design.[6]

Electricity source matters too. The IEA's outlook considers demand that may be met by gas as well as demand met by other sources. A proposal to use renewable power is worth examining in terms of what it will add to the grid and when it will be available. Running a model locally can give the user more control, as Open Weight v Closed Weight Models explains. Energy per useful answer still depends on the workload, equipment and how it is used.[3]

I would require a developer to publish the expected demand, the upgrades the project needs, who will pay for them and how compliance will be checked. That gives residents something specific to support, question or contest. The final part asks what equivalent control looks like when a system is already running and something starts to go wrong.

Sources and notes

[1] Greater London Authority (July 2022), West London Electrical Capacity Constraints.

[2] Central Statistics Office, Ireland (7 July 2026), Data Centres Metered Electricity Consumption 2025.

[3] International Energy Agency (2026), Key Questions on Energy and AI, executive summary, including the updated electricity demand outlook.

[4] Patrick Devine-Wright (2013), Explaining 'NIMBY' Objections to a Power Line: The Role of Personal, Place Attachment and Project-Related Factors, Environment and Behavior 45(6), 761–781.

[5] Google researchers (2025), Measuring the Environmental Impact of Delivering AI at Google Scale, arXiv:2508.15734. The median describes a Gemini Apps text prompt.

[6] Pengfei Li, Jianyi Yang, Mohammad A. Islam and Shaolei Ren (2025), Making AI Less 'Thirsty', Communications of the ACM 68(7).