How data centre expansion risks derailing climate goals and how to fix it

ecos

From innovation to overshoot

The increasing popularity of AI and other digital technologies is driving a boom in the need for data centres. AI is framed as a vehicle for progress, but its unchecked evolution also has a darker side: it risks undermining climate goals, destabilising energy systems, and deepening environmental and social inequalities.

Until now, efforts to make data centres more sustainable in the EU have prioritised efficiency — and while this is needed, it is not the only solution. **We urgently need to go beyond efficiency** and integrate sufficiency, circularity, and transparency principles into the foundations of digital infrastructure.

Rising environmental and social concerns

Data centres are essential infrastructure for the digital economy. However, their rapid expansion is driven by an increasing demand for computational power — often dedicated to tasks of questionable necessity or low societal value. AI, although not the sole contributor, exacerbates this issue by fostering a culture of computational excess.

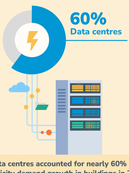
Emissions

- **Tech companies are increasingly backtracking on previously stated climate goals**, and reports indicate that emissions from data centre operations are significantly underreported.

Emissions from data centres are estimated to be 662% higher than what is publicly disclosed

Energy

- **Energy demand is increasing globally** — largely due to digitisation — and so are related carbon emissions.
- **Big tech companies are shifting from renewable to non-renewable energy sources** to accommodate the substantial energy requirements, with major oil and gas companies showing interest in the data centres energy market.
- **Energy grids are under mounting pressure from data centres**



Data centres accounted for nearly 60% of electricity demand growth in buildings in 2024

Circular economy and waste

- **Many materials and resources are used for hardware production** — often inefficiently.
- **The rapid obsolescence of equipment and hardware components** used in data centres contributes significantly to the growth in e-waste.

Raw materials

- **Masses of raw materials such as copper, aluminium, rare earth magnets, precious metals, silicon, tantalum, and semiconductors are needed** for data.
- **Extraction of raw materials can perpetuate harmful practices** including deforestation, pollution, and the displacement of local communities.
- **Data centres require large amounts of land, electricity, and water.**

Water

- **Heavy processing means that data centres generate a lot of heat.** Large amounts of water are often used to cool down hot components, which can cause such as water scarcity.

AI models consume about two litres of water for every 10 to 50 queries

How to drive a sustainable digital transition

A coherent EU vision addressing the innovation and societal changes driving demand for data centres is vital — and lacking. We recommend that the EU develops a holistic approach to the drivers and impact of data centre uses, including ambitious environmental targets, as well as geostrategic, competitiveness, and societal objectives. Including:

1 Focus on more than just efficiency

- **Introduce legally binding, sector-specific targets for reducing energy consumption and greenhouse gas emissions**, aligned with EU climate goals.
- **Incentivise data centres to source renewable electricity**, applying strict additionality criteria to ensure only newly added renewable capacity is counted.
- **Integrate data centres into national energy strategies** to mitigate grid stress and avoid fossil fuel lock-in.
- **Establish targets for circularity across the full lifecycle of data centre infrastructure**, from design to decommissioning.

2 Prioritise transparency

- **Develop regulatory and standardisation tools to guide the sustainable development** of data centres by establishing mandatory, harmonised methodologies for reporting data centre environmental impacts.
- **Exclude Guarantees of Origin (GOs)/Renewable Energy Certificates (RECs) from environmental reporting** if they are used to offset rather than avoid actual emissions.
- **Make it a condition of public funding and incentives** to demonstrate progress toward environmental and social objectives. Policies must reward actual reductions in environmental impact, not specific technologies or sectors.

3 Adopt sufficiency principles

- **Optimise existing infrastructure** to ensure current data centres operate at full potential before approving new construction. Expansion must be justified, with particular caution taken in regions that face energy constraints.
- **Prioritise sufficiency measures** by optimising digital workloads, minimising non-essential data storage, and focusing AI and digital services on socially valuable applications.

4 Give society a choice

- **Involve local communities and stakeholders** from the outset of any new data centre project. Conduct inclusive consultations and supply chain-wide impact assessments, with special attention to marginalised and vulnerable groups.
- **Develop consumer-facing awareness campaigns to inform users of the environmental impacts of digital services** and promote more sustainable digital habits. Introduce labelling for AI and digital services where relevant.

EU policies to build on as part of a coherent vision on data centres

Energy Efficiency Directive (EED)

Renewable Energy Directive (RED II and RED III)

Ecodesign regulation for servers and data storage products

Sustainability reporting frameworks

e.g., the Corporate Sustainability Reporting Directive (CSRD), the Corporate Sustainability Due Diligence Directive (CSDDD), and the EU Taxonomy Regulation

Green Public Procurement Criteria for Data Centres, Server Rooms and Cloud Services

The Cloud and AI Development Act and the AI Continent Plan

Read our report:
'From innovation to overshoot: How data centre expansion risks derailing climate goals'
→

Rising environmental and social concerns - Data sources: emissions (The Guardian), energy (IEA), water (The Times),