# European Direct Taxation of AI Data Mining Centres, or the Lack Thereof

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## 1. Introduction

AI has become part of everyday life – but its convenience comes with a large energy footprint. Asking ChatGPT or Claude a question, involves running thousands of calculations to figure out the best possible answer. These calculations are run on servers located in physical data centres. To protect the servers from overheating due to the numerous calculations, the data centres are equipped with cooling systems that run on water and electricity.

This growing energy demand has raised concerns about AI's environmental impact. As the climate crisis deepens, this raises an urgent policy question: should taxation be used to disincentivize excessive energy consumption by AI data centres, or to redirect some of the sector's gains toward financing public goods such as environmental protection?

This paper explains how AI takes a toll on the environment, examines the current EU legislative framework, some Member State's approaches, and brainstorms potential directions for a more balanced tax regime that aligns AI-driven data centres with Europe's climate objectives.

## 2. Understanding why AI is bad for the environment

Training AI, and in particular large language models (LLMs), like ChatGPT, requires thousands of graphics processing units (GPUs) running in parallel for weeks or months, leading to enormous electricity consumption. Each GPU draws hundreds of watts, and the iterative nature of training, since the model's parameters are constantly updated and recalculated billions of times, multiplies the energy footprint.

Once the AI model is trained, it is released to the public. Each time a user asks a question or generates text, the model requires continuous computation for "inference" – the process of generating answers to user queries. Unlike traditional search engines, which execute a few instructions, inference requires parallel processing across large networks, drawing substantial power. Serving millions of queries daily across the globe translates into substantial, ongoing electricity consumption. For example, a single AI query uses 10 times more electricity than a typical Google search.

The CPUs and the other specialized chips, servers, networking devices, together with other equipment needed to run the AI, are stored and operated in data centres. These devices run continuously to process and store data, and in turn, heat up. To prevent equipment failure, facilities deploy large-scale cooling systems such as chilled water loops, industrial air conditioning or liquid immersion cooling. These cooling operations can account for up to 30-40% of a facility's total energy use.

Thus, AI data centres represent a dual burden: high electricity consumption for computation itself, and further consumption for cooling. Without regulatory or fiscal measures, the expansion of AI risks locking Europe into an energy-intensive digital economy at odds with climate commitments.

## 3. Current EU legislation

Currently, there is no EU-wide direct tax specifically designed to address the environmental impact of AI or data centres more broadly. Instead, the sector is indirectly regulated through general energy and efficiency measures. Two instruments are particularly relevant:

**The Energy Tax Directive (ETD) which broadly:**

- sets minimum levels of taxation on electricity;
- allows lower tax rates for business use, with special provisions for energy-intensive industries; and
- allows Member States to apply narrower definitions of business use, targeting specific sectors.

**The Energy Efficiency Directive (EED) (EU/2023/1791) which broadly:**

- establishes a framework for energy efficiency improvements across the Union;
- introduces obligations for large data centres (over 1 MW capacity) to utilize waste heat where feasible; and
- seeks to overcome market barriers and make efficiency a cross-sectoral priority.

While both directives indirectly affect data centres, neither explicitly addresses the disproportionate environmental footprint of AI facilities. It should be noted that the Energy Taxation Directive, dating back to 2003, and updated in 2018 and 2023, was designed in a pre-cloud era and could not anticipate the rapid growth of data centres, let alone the emergence of AI-driven computational demand. Although the Energy Efficiency Directive was created in 2023, its focus is on broad industrial and household efficiency, not the unique challenges posed by hyperscale computing. Thus, these instruments are technically incapable of capturing the pitfalls created by today's data economy – namely, the exponential rise in energy use from AI training and inference. This explains why taxation and efficiency rules still lag behind technological reality: the legislative tools were simply written before the problem existed at scale. This regulatory gap leaves Member States wide discretion in their treatment of AI infrastructure.

## 4. EU and EEA Member States' varied approaches

Considering that, in general, EU directives set frameworks rather than detailed tax rules (and that the existing directives are technically incapable of bringing into scope the taxation of AI data centres), Member States are free to adopt varied approaches to taxing data centres. Here are a few examples of how different Member States have decided to tackle the issue of taxation of data centres.

- Finland

The electricity tax in Finland is divided into two tax categories. The general electricity tax (category I) is 2.24 cents per kilowatt-hour. The lower tax (category II) tax is 0.05 cents per kilowatt-hour. Data centres have historically benefited from Category II.

However, in April 2025, the Finnish government released for consultation a draft proposal to transfer the electricity used in mining and data centres from the lower electricity tax to the general electricity tax from the beginning of 2026. This would raise their electricity costs and potentially encourage greater efficiency.

- Sweden

The electricity tax on data centres in Sweden was at the minimum level in accordance with the Energy Tax Directive

since 2017. From mid-2023, Sweden removed the possibility of a lower electricity tax for data centres.
Sweden adjusts the electricity tax level annually based on inflation, and in 2025 the electricity tax for data centres is 4.0 cents per kilowatt-hour, in line with the general electricity tax rate.

- Norway (EEA)

Norway similarly withdrew its reduced electricity tax for data centres in 2023. Since then, they are taxed at the general rate of approximately 1.3 cents per kWh.

- Lithuania

Lithuania takes a different approach, focusing on investment incentives. Enterprises in Free Economic Zones may qualify for full corporate income tax (CIT) exemptions for 10 years, followed by a 50% reduction for six additional years. These incentives extend to data centres, encouraging inward investment but without explicit linkage to energy use or environmental performance.

These examples highlight the fragmented approach across Europe: while some countries (Finland, Sweden and Norway) are tightening tax treatment to reflect energy intensity, others (Lithuania) continue to prioritize competitiveness and foreign investment.

## 5. Brainstorming towards a fairer and more sustainable tax policy

In the author's opinion, an EU-level policy should aim to reconcile two objectives: maintaining competitiveness in the digital economy while ensuring that AI-driven data centres contribute fairly to climate goals. Several approaches could be considered:

1. Progressive Electricity Taxation
   - Apply higher electricity tax rates as consumption thresholds are exceeded.
   - Offer reductions when facilities meet efficiency benchmarks or utilize waste heat effectively.
   - Discourage wasteful energy use while rewarding sustainability.

2. Minimum EU Tax Floor for Data Centres
   - Similar to the ETD framework, the EU could establish a minimum electricity tax floor specifically for data centres.
   - This would reduce the risk of “tax competition” between Member States seeking to attract facilities through preferential rates.

3. Linkage to EU Taxonomy for Sustainable Activities
   - Tax incentives could be conditioned on compliance with the EU Taxonomy, which defines sustainable economic activities.
   - This would ensure that fiscal measures are consistent with the Union’s broader environmental objectives.

4. Integration with Corporate Taxation
   - Corporate tax incentives, such as those in Lithuania, could be redesigned to reflect energy performance.
   - For example, preferential CIT treatment could be tied to demonstrated reductions in energy use or renewable sourcing.

By aligning fiscal measures with sustainability outcomes, the EU could address both the uneven competitive landscape and the urgent environmental challenge posed by AI infrastructure.

### 6. Conclusion

AI has introduced transformative possibilities for Europe's (and the world's) economy and society, but it also carries a hidden environmental cost. Data centres, the backbone of AI, are among the most energy-intensive parts of the digital economy. Yet at present, the European Union lacks a coherent tax framework that addresses the environmental impact data centres have. Notably, this gap is not unique to Europe: no jurisdiction worldwide has yet introduced a dedicated tax regime targeting the sector.

Current legislation, such as the Energy Tax Directive and Energy Efficiency Directive, applies indirectly but does not single out AI-related facilities. Member States diverge in their approaches: while Finland and Sweden are moving to remove preferential tax treatment, Lithuania continues to offer generous investment incentives. The result is a fragmented system that risks distorting investment decisions and undermining EU climate commitments.

A potential policy would involve progressive taxation tied to efficiency benchmarks, a coordinated minimum tax floor and alignment with the EU Taxonomy. Such measures would preserve competitiveness while ensuring that AI's infrastructure contributes to sustainability goals.

Ultimately, as AI adoption accelerates, the question is not whether Europe can afford to tax AI data centres, but whether it can afford not to. Without coordinated fiscal measures, the sector may deepen Europe's energy challenges rather than supporting its transition to a sustainable future.

# IBFD references:

- EU tax law developments are reported on the daily IBFD Tax News Service.