

VIII CONFERENCE

European and Western Balkan Cooperation in Energy Law

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AI in the Energy Market

The Challenge for Energy Law

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Session I — Energy law as an instrument to modulate energy mix and security of supply



AI has entered the energy market — as physical demand



The core claim

Artificial intelligence is, before it is anything else, an electrical phenomenon — megawatts drawn from real grids, in real places.

Our energy law was written for a different world. The gap between the two is no longer a matter of detail — it has become a matter of coherence.



The scale

How much power AI already draws — and will draw



A new kind of load

Why a hyperscale data centre is not a bigger factory



The legal question

May the law treat it differently? What rules exist — and fail



Who pays — and what to do

The social risk, and three repairs

The appetite of the machine

≈ 11,000

data centres worldwide

concentrated in a few European hubs

≈ 415 TWh

consumed in 2024

more power than many mid-sized states

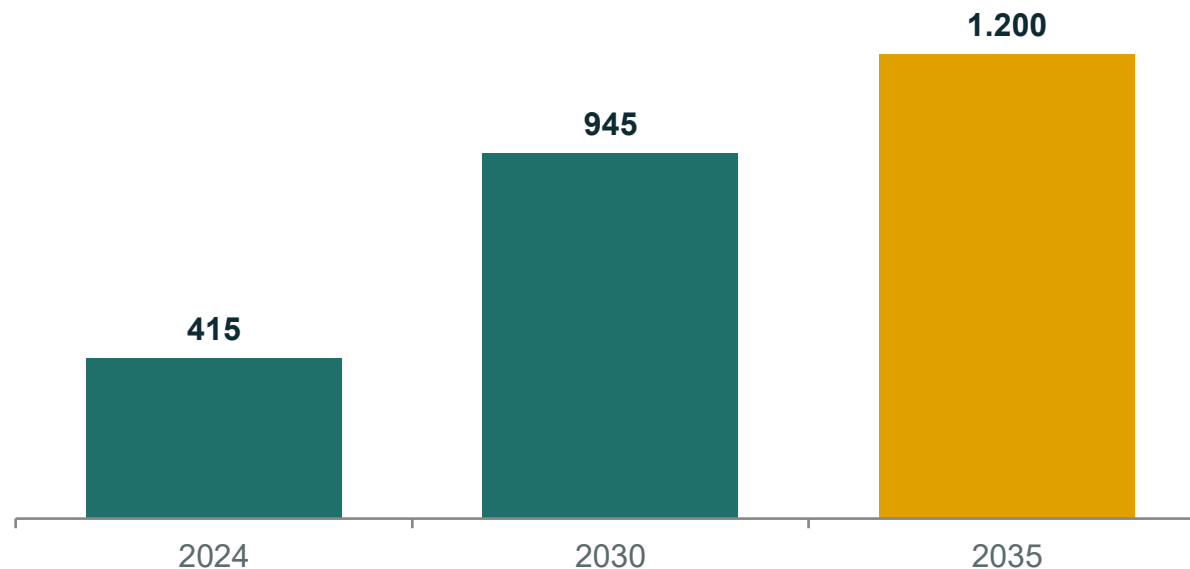
≈ 1.5 %

of all electricity on Earth

today — and rising fast

Global data-centre electricity demand

terawatt-hours per year — projection



Source: International Energy Agency, Energy and AI (2025).

Concentrated, and growing fast

≈ 3 %

of EU electricity demand

twice the global share

× 3

data-centre capacity targeted

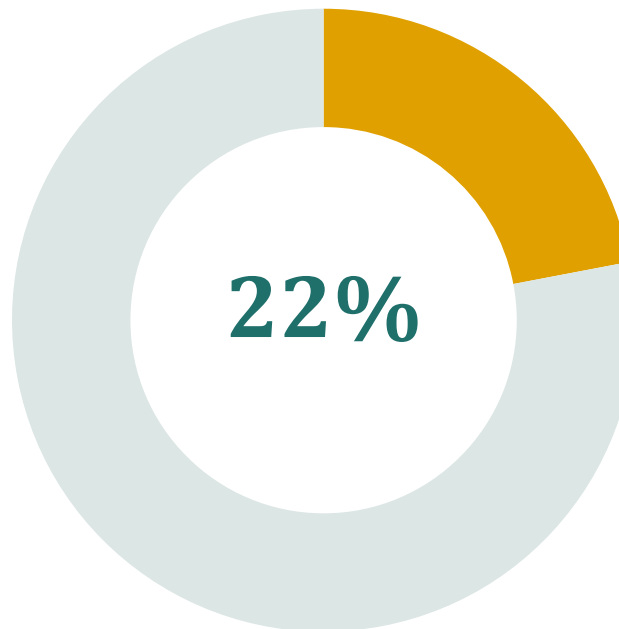
EU AI Continent Action Plan, within 5–7 years

> 100 MW

a single hyperscale campus

the electricity of a city of 100,000

Ireland: data centres' share of metered electricity, 2024



One fifth of a national grid

— against just 5% a decade earlier.

Source: Central Statistics Office, Ireland (2025).

When the system fell over

12:33

the grid collapsed in seconds

≈ 60 M

people lost power

3 countries

Spain · Portugal · S. France

ICS scale 3

worst in Europe in 20+ years



“Technical rules may become outdated, or ineffective, over time.”

European Network of Transmission System Operators for Electricity (ENTSO-E), final report on the Iberian blackout, March 2026

They wrote it of voltage control. It is the defining condition of our discipline in the age of AI.

NOT A BIGGER LOAD — A DIFFERENT ONE

A qualitative novelty

The hyperscale AI facility is not a larger industrial customer. It is a new species of demand. — *Luca Lo Schiavo*



Violently volatile

A training campus leaps from near-idle to 95% of capacity in seconds, and swings by tens of megawatts on sub-second timescales as tens of thousands of processors synchronise.



Self-protective

Built to shield billions of euros of hardware, it disconnects itself the instant the grid wavers — in conditions an ordinary plant would ride straight through.



Clustered

Drawn by fibre, by latency and by tax incentives, these facilities gather into the same few square kilometres — so one fault can take them all at once.

When a load disappears

≈ 1,500 MW

of data-centre load lost

in 82 seconds

Northern Virginia — the densest data-centre cluster on Earth.
A single transmission fault, and the load **disconnected itself** —
it was not shed by the operator.



“The grid has always planned for the sudden loss of a large generator. It has never planned for the sudden loss of a large load.”

North American Electric Reliability Corporation (NERC) — the body that sets reliability standards across the United States and Canada

That sentence is our whole problem in miniature.

Governing 2026 with the rules of 2016

2016

The Network Code on Demand Connection

Commission Regulation (EU) 2016/1388

Calibrated to slow, predictable, heavy industrial loads — smelters, mills, factories that draw a great deal of power, steadily.



2026

The hyperscale AI data centre

Volatile · self-disconnecting · clustered

A new kind of demand that behaves nothing like the loads the Code was written for. No category exists for it.

We are governing the loads of 2026 with a taxonomy inherited from 2016.

Differentiation is permitted — if done correctly



Yes — by threshold

Grand Duchy of Luxembourg v European Parliament and Council (Case C-176/09, EU:C:2011:290)

Obligations imposed only on airports above five million passengers a year do not offend equal treatment. → A megawatt-based threshold for hyperscale loads is a real distinction, not discrimination.



Yes — in the public interest

Anonymi Geniki Etairia Tsimenton Iraklis (AGET Iraklis) v Ypourgos Ergasias, Koinonikis Asfalisis kai Koinonikis Allilengyis (Case C-201/15, EU:C:2016:972)

The freedom to conduct a business (Art. 16 of the Charter) is not absolute; it yields to proportionate intervention in the general interest. → The freedom to draw power may be conditioned.



But — through the regulator

European Commission v Federal Republic of Germany (Case C-718/18, EU:C:2021:662)

Network-tariff methodology belongs exclusively to the independent national regulatory authority, not the legislature. → Differentiate through the regulator's methodology, never by ministerial decree.

More than is sometimes supposed



Transparency

Energy Efficiency Directive (EU) 2023/1791,
Art. 12

Every data centre above 0.5 MW must report its energy use, efficiency and water consumption.



New market tools

Electricity Market Design reform, June 2024
— Reg. (EU) 2024/1747 & Dir. (EU) 2024/1711

Peak-shaving products, and flexible, non-firm connection agreements that allow a load to be curtailed.



Technical powers

The network-code machinery

Already empowers the Union to set the technical rules for how loads connect to the grid.

Three structural gaps

1

Reporting without consequence

The reporting duty sets no minimum efficiency standard. A facility may report a performance far below the European average — and nothing follows. Transparency attached to no lever.

2

Sovereignty without conditionality

The Net-Zero Industry Act (EU) 2024/1735 grants privileged, fast-tracked status to a closed list of technologies — on which data centres do not appear. Priority is given; nothing is required in return.

3

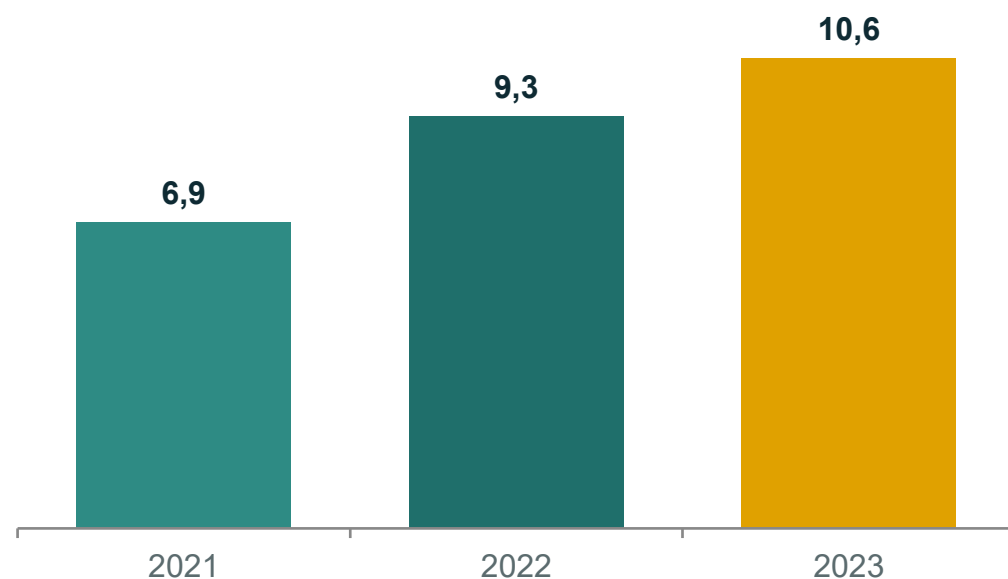
The market reform's silence

The 2024 reform answered the 2022 gas-price crisis, not the AI boom; it never treats the hyperscale data centre as a regulated class. The AI Act (Reg. (EU) 2024/1689) governs the model — not its megawatts.

Who pays?

EU citizens unable to keep their home warm

share of population (%)



Source: Eurostat.



The double burden

A digital divide — AI's benefits accrue to the wealthier — set against an energy burden: the pensioner in a cold flat helps fund the grid that serves a hyperscale campus whose output she will never use.



The principle we are not applying

Cost-causation — those who cause a cost should bear it (ACER, 2025). **The ECB estimates AI demand could lift wholesale gas prices by 7–9% in an extreme scenario.**

Where the answers are emerging



Ireland

Driven by the courts

A new connection policy (Dec 2025) admits a large data centre only on conditions — bring-your-own dispatchable generation, plus a renewables match. The pressure came from the bench: Coolglass [2026] IESC 5 confirmed a “climate sense-check” binding every public body.



United States

A regulator with teeth

The Federal Energy Regulatory Commission (FERC), in a unanimous order (Dec 2025), found a grid operator's co-location rules unjust and unduly discriminatory — holding that behind-the-meter netting improperly shifts costs onto everyone else.



Spain

A new legal category

With much of its distribution network already saturated with connection requests, Spain now allocates scarce capacity by competition — and has written into law a distinction between firm access and flexible access.

Three repairs — and not one tears up the foundations



1

A technical connection framework

Union-level rules on how fast these loads may ramp, on riding through disturbances rather than dropping away, and on visibility to the system operator. The power already lies in the network codes.



2

Conditionality

The privileged status of the coming Cloud and AI Development Act must be earned — conditional on genuine efficiency, on additional renewable supply, and on compliance with those technical rules.



3

Cost-causation

Deep connection charges and locational signals — set through the regulator's methodology (per C-718/18), not by political decree — so that those who cause the costs are the ones who bear them.

A narrow window: 2026 – 2028



**Cloud and AI
Development Act**

to be drafted



Efficiency rules

to be sharpened



Network codes

to be revised

In that window, European energy law can recover its coherence — or keep trailing behind, with the Member States improvising and the Union following.

For the Western Balkans — whose grids draw ever closer to the European framework — that coherence is no distant concern. The choices made in Brussels will become this region's inheritance.

THE ONLY QUESTION THAT REMAINS

We have the principles. We have the precedents. We have the comparative models — several of them on this very continent.

The only question is whether we possess the will to use them.

Thank you.

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