

BEHIND THE CLOUD

Ireland's AI Infrastructure and Environmental Disclosure Policy

Peter McNulty · Trinity College Dublin · Laidlaw Scholars Leadership & Research Programme



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



RESEARCH AIM

To investigate the environmental, political and social impact of growing AI data centre infrastructure and related energy consumption in Ireland.

METHODOLOGY

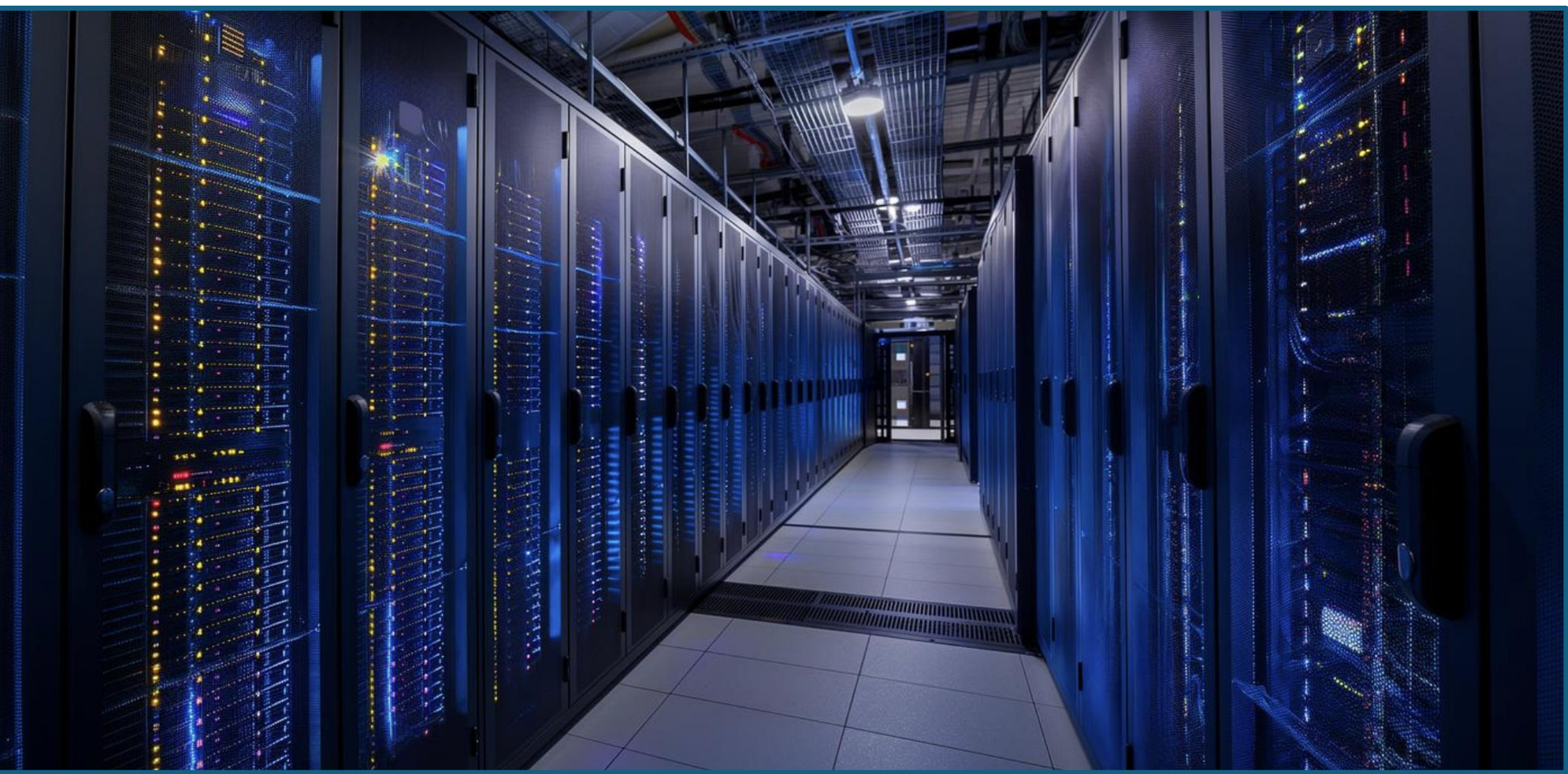
Desk-based analysis of public electricity, emissions and household data, combined with a review of water use, disclosure policy and Ireland's FDI history.

DATA SOURCES
CSO 2025 metered electricity; SEAI carbon factor; European Parliament / IEA accelerated-server proxy; Teagasc forest data.



KEY LIMITATION

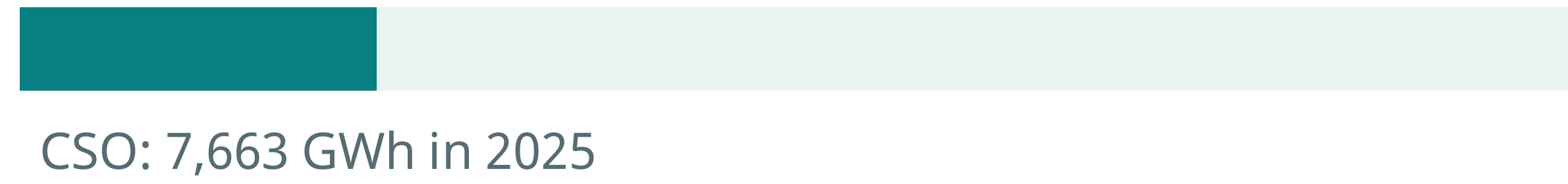
Accelerated servers are an imperfect proxy for AI. Their actual workloads and cooling demand are not reported separately. This lack of mandatory disclosure and reporting causes further political and societal ambiguity.



MEASURED NATIONAL FINDING

23%

of Ireland's metered electricity was used by data centres in 2025



AI DENSITY ATTRIBUTION

Calculation in the paper:
 $7,663 \text{ GWh} \times 24\% \text{ assumed AI share} = 1,839 \text{ GWh}$.
This is a proxy-based scenario, not a reported AI figure.

24% of consumption attributable to Accelerated Servers

SCALE COMPARISONS

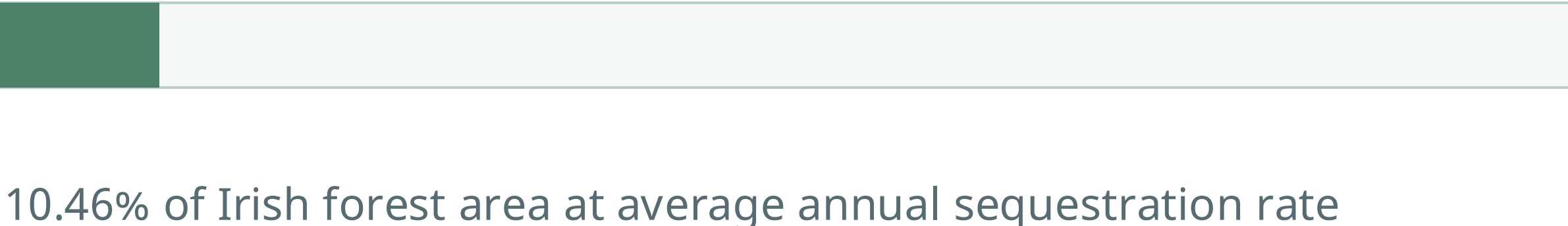
Household Electricity Equivalent of AI Energy Consumption

570,000 median households

Carbon Emissions of AI Energy Consumption

364 kt CO₂

Forest Sequestration Needed for AI Carbon Emissions



WATER USAGE

999 Million Litres

Reported data-centre water usage in 2025. 556,513,000L (55.71%) was used at the META CLONEE Data Centre Facility.

As reported by the Environmental Protection Agency (EPA)

TRANSPARENCY & POLICY

Despite being a country legally obliged to follow EU Directives as an EU Member State, Ireland is yet to implement the public-disclosure obligation (Article 12 of the Energy Efficiency Directive) yet. Publicly available workload detail remains too limited to isolate AI consumption and usage. If policymakers cannot distinguish AI consumption, it becomes difficult to balance costs and benefits of future projects.

CONCLUSION & FUTURE RESEARCH

Environmental impacts of AI consumption extend beyond electricity and emissions to water supply, infrastructure and ecological systems. Assessing these implications helps us better understand whether Ireland can continue to facilitate digital infrastructure growth while remaining committed to environmental targets.

Future research will be enabled by further disclosure regarding AI Inference and Training consumption. Exploring the opportunity cost of electricity on the Irish grid will become a central point of interest as infrastructure expands.

KEY REFERENCES

CSO (2026), Data Centres Metered Electricity Consumption 2025; SEAI, Conversion Factors; IEA (2025), Energy and AI; Directive (EU) 2023/1791.

SCAN THE QR CODE FOR
FULL PAPER & REFERENCES

