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Europe's Compute Gap and the Data Centre Backlash

Disentangling evidence from emotion in Finland and Germany

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Data centre infrastructure has moved to the forefront of the political agenda in Finland and Germany, just as Europe faces a widening gap between the demand for AI computing and installed capacity. Disentangling the public controversy shows that the salient fears, on electricity prices, water use, and employment, are often exaggerated or misattributed, whereas issues of ownership and control are more pertinent to Europe's tech sovereignty. To prevent an American-style backlash to the necessary buildout, Finland and Germany should accelerate development, distribute its benefits visibly, and treat domestic capacity as bargaining power.

- Germany and other middle powers should legislate statutory permitting deadlines, pre-zone grid-ready sites, and prioritise connections by capacity and purpose. Against Germany's 42 months, China builds in 12.
- The EU should direct training compute to Nordic acceleration zones, conditioned on clean energy, waste heat reused as measured by the Energy Reuse Factor, transparent utilisation data, and flexibility.
- Large Member States should pool multi-year demand for inference and industrial workloads, anchored in the CADA's purchasing mechanisms and the proposed European preference framework, reserving a share of capacity for EU-controlled workloads.
- To address public concerns and prevent a backlash, Member States should set EU minimum standards on clean energy, waste-heat reuse, and grid-cost allocation, secure visible fiscal benefits for host municipalities, and bar nondisclosure agreements covering community impacts. Given its favourable conditions for data centres, Finland could attach research and local-sourcing conditions to scarce grid connections at national

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1 Introduction: Rage Against the Machine

In early September 2026, Google announced that it would invest at least €13 billion in Finnish data centres and supporting infrastructure in the next two years, spread across four locations. The investment is underpinned by a long-term agreement to purchase up to 50% of the output of the Loviisa nuclear power plant.[1] While Finnish ministers promoted the promised jobs and growth, some economists described Google's projections as too optimistic and questioned their long-term labour market benefits.[2] Similar waves of both welcome and scepticism following investments in data centres are currently being observed throughout the Western world. To boost Europe's digital independence and tech sovereignty, the EU intends to triple its data centre capacity within the next five to seven years.[3] **This policy brief discusses the various factors that must be considered in the context of this massive data centre buildout and suggests policies to address the underlying issues of political economy**.

Essentially, many of the current obstacles to Europe's necessary AI computing expansion can be described as a **temporal disconnect**. Earlier industrial revolutions delivered tangible improvements to the lives of the average person within a few years, such as electricity, sanitation, and mass mobility. By contrast, the benefits of AI are projected to arrive more indirectly, through faster scientific discovery and diffuse productivity gains.[4] The anxiety is compounded by a widespread perception that the gains from the build-out flow mainly to foreign, predominantly US, investors, while host communities absorb the local costs and new security exposure without a commensurate tax contribution. This mismatch between visible short-run problems and vague long-run benefits, coupled with the physical presence of large data centres that captures fears of AI displacement and Terminator-style super-intelligence in a very concrete way, explains why much of the public narrative focuses on concerns. **Data centres are the most visible physical manifestation of the AI transition and are therefore the easiest target for the anxieties associated with AI in general**.

The US shows where this leads. A year ago, data centres barely featured in American political advertising; now, campaigns are spending millions per week on ads asking voters whether they want their electricity bills to subsidise a server farm down the road.[5] Yet the American debate concerns overbuilding. In contrast, **Europe's problem is underbuilding**, as it hosts under 5 per cent of global AI computing power, compared to around 75 per cent in the US.[6] China is operating a fleet of over 24 GW, which is larger than the EMEA region, with a pipeline and announced projects totalling around 50 GW.[7] The gap between European demand and installed data centre capacity is currently around 3 GW, and this is expected to widen to 14 GW by 2030.[8] (Note that shares of AI "compute" generally count accelerator

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1 Yle, 'Google Announces €13bn Additional Investment in Finland', 9 September 2026, https://yle.fi/a/74-20245301; Google, 'Google Deepens Commitment to Finland with Two-Year €13 Billion Investment in AI Infrastructure', 9 September 2026, https://www.googlecloudpresscorner.com/2026-09-09-Google-Deepens-Commitment-to-Finland-with-Two-Year-EUR13-Billion-investment-in-AI-Infrastructure.

2 Yle, 'Is Google's €13bn Investment Good News for Finland?', 2026, https://yle.fi/a/74-20245722.

3 See: https://ec.europa.eu/commission/presscorner/detail/en/ip_26_1187.

4 Nathan Lambert, 'When Will Average People Feel AI's Impact?', *Interconnects*, n.d., accessed 9 September 2026, https://www.interconnects.ai/p/when-will-average-people-feel-ais.

5 Full Disclosure / Who Targets Me, 'The American Dispatch, Issue 1', 2026, https://fulldisclosure.whotargets.me/p/the-american-dispatch-issue-1.

6 Epoch AI, 'The US Hosts the Majority of GPU Cluster Performance, Followed by China', 5 June 2025, https://epoch.ai/data-insights/ai-supercomputers-performance-share-by-country.

7 SemiAnalysis, 'The Chinese AI Infrastructure Boom', 25 September 2026, https://newsletter.semianalysis.com/p/the-chinese-ai-infrastructure-boom.

8 Mario Draghi, 'Europe's Difficult Choices on AI', *Financial Times*, 11 September 2026, https://www.ft.com/content/f054f927-b512-452a-b494-ea53f5ac1079.

performance, whereas capacity gaps are measured in gigawatts of data centre power, much of which serves conventional cloud and enterprise workloads rather than AI.) Despite the need for the EU to catch up, **the topic is becoming "toxic" in Europe, too**. Germany is already experiencing local protests against data centre projects,[9] while its federal government is pursuing a dedicated data centre strategy. Meanwhile, Finland is preparing for a national election in spring 2027. Following Google's investment announcement, a Finnish citizens' initiative calling for tighter control of data centres reached the required 50,000 signatures within three days.[10] In early October 2026, Finland's environmental supervisory agency ordered preparatory work at the Muhos and Kajaani sites suspended, after more than 300 hectares of forest were cleared without the mandatory environmental impact assessment.[11]

This policy brief argues that **Europe cannot afford to bring the emotional intensity of the US debate surrounding surplus capacity into the domestic context of a compute shortage**. Public opposition towards data centres tends to conflate several analytically distinct issues: grid access, electricity prices, water use, employment, tax incidence, safety, and ownership and control. Section 2 examines each of these issues in light of the emerging empirical literature and concludes that most prominent concerns are either exaggerated or misattributed and can often be addressed by technological development. The concerns that remain, particularly those relating to local tax benefits and ownership, require political rather than technical solutions. Section 3 considers the implications for "AI middle powers" such as Germany and Finland, offering recommendations ranging from permitting reform to a division of labour between Nordic build-out and German industrial demand. The conclusion then considers the limitations of this infrastructure lever: **hosting data centres does not give Europe control over the models inside them. The practical goal is therefore to have enough domestic capability and computing power to keep essential public and industrial work running in the event of a potential cutoff. In this context, powered land and grid capacity provide Europe with a bargaining chip, provided that its energy prices and permitting processes become more competitive**. This brief does not address the macroeconomic question of whether AI will deliver its promised productivity gains. Its focus is on the infrastructure debate and the evidence needed to inform it.

2 Disentangling the Data Centre Debate

Too often, public debate treats "the" data centre as a single entity that is either very beneficial or very harmful. This approach prevents the development of sensible policy because the costs and benefits in question differ according to the dimension, evidence base, and responsible actor in question. This section thus breaks down the debate into seven key areas: grid access, electricity prices, water and cooling, employment, tax incidence, safety, and ownership. For each, it reviews the most up-to-date evidence, drawing on literature and data, and highlights what remains unresolved.

Two distinctions must be made at the outset because the debate often confuses them. **Firstly, the cloud is a service, not a building**. For instance, a "sovereign cloud" is a legal construct whose control structure is independent of the location of the underlying servers. **Secondly, not every data centre develops frontier AI**. Three categories dominate construction: latency-indifferent training clusters of up to a gigawatt or more, which seek cheap power and fast grid connections; latency-bound inference facilities, which must be located near users and industry; and conventional enterprise and colocation

[9] Stichting Leitmotiv (ANBI), 'Heiße Luft (Map)', 2026, https://heisseluft.org/info.
[10] See: https://www.kansalaisaloite.fi/fi/aloite/17997.
[11] BBC News, 'Finland Orders Halt to Work on Two Google Data Centres', 6 October 2026, https://www.bbc.com/news/articles/cvj6jkx6g1r0o.

facilities, which dominate the existing infrastructure and the empirical literature on local prices and employment. In addition, there is the special category of publicly owned research and supercomputing infrastructure, such as the EuroHPC supercomputer LUMI in Kajaani and the AI Factories hosted in Finland and Germany, which already combine European ownership with access for academia and industry. The cost arguments are not interchangeable between these categories. Several of the recommendations below relate to one of these categories rather than to data centres in general.

2.1 Grid access and generation capacity

In 2024, data centres consumed around 68 TWh of EU electricity and this figure is projected to reach approximately 114 TWh by 2030, just over 3 per cent of EU demand.[12] In Germany, the main constraint on data centre construction is not land or capital, but grid connection. Operators without a firm connection at established hubs are diverting investment to other locations.[13] In the US, the same scarcity has prompted major operators to invest in so-called behind-the-meter generation. This involves building power plants specifically for, and in close proximity to, data centres.[14] Meanwhile, **Finland and other Nordic countries offer well-maintained, flexible grids with fast connection times**. Hetzner, one of Germany's largest independent operators, has expanded in Finland since 2018 and its local director reports that Finnish sites offer grid access within one to three years against up to seven elsewhere in Europe, while Finnish municipalities have learned to steer planning processes efficiently.[15]

In response to the huge demand, Finland's national transmission system operator, Fingrid, expects **electricity consumption to rise sharply over the coming decade, driven substantially by data centres**. In its scenarios, data centre electricity consumption in Finland increases from approximately 2 TWh in 2025 to 9–18 TWh by 2030 and 11–35 TWh by 2035.[16] The wide range reflects uncertainty in both the growth of global data centre demand, including the improving energy efficiency of compute, and Finland's share of global investment. **The central planning task this creates is balancing power**: variable consumption and generation are drifting apart, and the capacity to bridge the gap does not yet exist at the required scale.[17] In the short term, the options for closing this gap are limited. Incremental balancing capacity would largely come from gas-fired generation, with corresponding emissions. Small modular reactors could, in principle, provide firm capacity on shorter timelines, but their rapid, low-cost deployment remains unproven. Conventional nuclear is valuable where it already exists, but new plants take at least a decade to build and require substantial subsidies. Meanwhile, the expansion of

[12] IEA (2026), Key Questions on Energy and AI, IEA, Paris https://www.iea.org/reports/key-questions-on-energy-and-ai.

[13] Tagesspiegel Background, 'Deutschlands Rechenzentrumsmarkt Stößt an Seine Grenzen', 21 September 2026, https://background.tagesspiegel.de/digitalisierung-und-ki/briefing/deutschlands-rechenzentrumsmarkt-stoesst-an-seine-grenzen.

[14] SemiAnalysis, 'US Grid Constraints: Towards 40GW+ of Behind-The-Meter Datacenter by 2028?', 25 June 2026, https://newsletter.semianalysis.com/p/us-grid-constraints-towards-40gw; SemiAnalysis, 'What Is So Hard About Behind-the-Meter?', 10 September 2026, https://newsletter.semianalysis.com/p/what-is-so-hard-about-behind-the.

[15] Fabian Möpert, 'Lieferfähigkeit Wird Bei Datenzentren Zum Schlüsselfaktor [Interview]', 28 August 2026, https://www.gtai.de/de/trade/finnland/branchen/-lieferfaehigkeit-wird-bei-datenzentren-zum-schluesselfaktor--2022532.

[16] Fingrid, *Prospects for Future Electricity Production and Consumption, Q3 2026 (Best Estimate)* (Fingrid Oyj, 2026), 6, https://www.fingrid.fi/globalassets/dokumentit/fi/kantaverkko/kantaverkon-kehittaminen/best-estimate-q3-2026/fingrid_prospects-q3-2026-eng.pdf.

[17] Fingrid, 'Electricity Consumption Is Set to Increase Sharply – More Balancing Power Will Also Be Needed', 18 August 2026, https://www.fingrid.fi/en/news/news/2026/electricity-consumption-is-set-to-increase-sharply--more-balancing-power-will-also-be-needed/.

renewable generation, though considerable, seems currently not fast enough to cover the projected growth in demand on its own.

The Google investment illustrates a potential solution to this problem, albeit only partially, since its power purchase agreement covers an existing plant rather than bringing new generation online: a 22-year agreement for up to 50 per cent of the Loviisa nuclear plant's capacity between 2030–49 will underwrite €1 billion in life-extension investments, keeping the plant operational until the end of its licence in 2050 – the first arrangement of this kind in Europe.[18] **Pairing new loads with firm low-carbon generation through long-term agreements nonetheless converts data centre demand from a system risk into a financing instrument**. The same logic would apply, with greater effect, to contracts underwriting new build.

Three issues being raised in the Finnish debate are important here. The first concerns the **race between build speeds**: Data centres can be operational within one to three years of the decision being made, whereas new transmission infrastructure can take between five and fifteen years to build.[19] The IEA estimates that grid constraints could delay around a fifth of the planned global data centre capacity by 2030.[20] In Finland, approximately one third of the approximately fifty connection agreements that Fingrid signed in the twelve months up to June 2026 were with data centres, with a planned capacity of over three gigawatts.[21] Meanwhile, connection enquiries totalled around 68 gigawatts for consumption and 13 gigawatts for generation. Digital loads that can commit capital quickly and choose their location freely might thus move ahead of traditional industrial electrification in the connection queue.

Secondly, **data centre consumption is consistent and independent of weather, whereas a growing proportion of Finnish generation is not**. Fingrid expects consumption to peak near 15,000 MW on a very cold and calm winter day, of which domestic production can cover around 11,700 MW.[22] This leaves approximately 3,300 MW dependent on imports from Sweden and Estonia. In January 2024, cold and calm weather pushed Finnish spot prices above two euros per kilowatt-hour at peak, up to twenty times normal levels, prompting a government appeal to save electricity.[23] Similar conditions set consumption records above 15,000 MW in January 2026.[24] This is why Google's contract structure should be adopted more broadly.

In this context, it should be noted that **AI-optimised data centre facilities constitute a distinct class of industrial load: they concentrate high-density accelerator hardware, are increasingly dominated by latency-sensitive inference, and require large, firm capacity at specific grid nodes, with limited short-term flexibility unless schedulable training and batch workloads are actively managed around**

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[18] Fortum, 'Fortum and Google Partner to Drive Sustainable Growth in Finland – Sign Nuclear Power Purchase Agreement', 9 September 2026, https://www.fortum.com/en/media/2026/09/inside-information-fortum-and-google-partner-drive-sustainable-growth-finland-sign-nuclear-power-purchase-agreement.

[19] See: https://www.iea.org/reports/electricity-2026/grids.

[20] See: https://www.iea.org/reports/energy-and-ai/ai-and-energy-security.

[21] Fingrid (2026), Half-year report 1.1.–30.6.2026, https://www.fingrid.fi/en/news/news/2026/fingrid-groups-half-year-report-1.1.30.6.2026/.

[22] Fingrid, 'Aurora Line Commissioning Will Help Ensure an Adequate Supply of Electricity over the Coming Winter', 23 September 2025, https://www.fingrid.fi/en/news/news/2025/aurora-line-commissioning-will-help-ensure-an-adequate-supply-of-electricity-over-the-coming-winter/.

[23] Ministry of Economic Affairs and Employment, 'Save Electricity on Friday – Spot Prices Are up to 20 Times Higher than Normal', 4 January 2024, https://valtioneuvosto.fi/en/-/1410877/save-electricity-on-friday-spot-prices-are-up-to-20-times-higher-than-normal.

[24] ERR, 'Cold Weather Driving up Price of Electricity, Putting Production Capacity to the Test', 3 February 2026, https://news.err.ee/1609930625/cold-weather-driving-up-price-of-electricity-putting-production-capacity-to-the-test.

system conditions.[25] Still, some flexibility exists in principle: Recent experimental evidence suggests that schedulable AI training workloads can reduce load by 18–55 per cent over short intervals without violating service-level agreements.[26] This creates the potential to relieve grid congestion and absorb surplus renewable generation, provided that operators make this flexibility available. However, the AI Gigafactory tender criteria published in July 2026 only assign 0.4 per cent of the technical evaluation score to flexibility, whereas operators in the United States already associate up to 13 per cent of data centre electricity consumption with unused infrastructure.[27]

The Finnish Ministry of Economic Affairs and Employment is now aiming to address the grid concerns through a project to prioritise connection requests. In September 2026, the Ministry published a **draft amendment to the Electricity Market Act**, which would require network operators to sort connection requests from consumption sites and electricity storage into four priority groups according to capacity and purpose.[28] Connections for production would be excluded from the scheme. The proposal addresses a weakness of the current first-come, first-served system: data centre permits are obtained more quickly than those for traditional industries, and unmanaged queuing could result in large digital loads absorbing an unfair share of scarce grid connections. This issue was also encountered in Ireland, where the boom in data centres generated substantial fiscal benefits, but regulators were later compelled to impose a “de facto” connection moratorium in the Dublin region.[29] In congested areas, large consumers such as data centres could improve their position in the queue by committing to weather-independent, flexible generation capacity, or by covering part of their consumption through new production in the same area. This updated rulebook is scheduled to enter into force on 1 January 2027.

A third noticeable factor in the Finnish technical discourse, which also has implications for other EU countries, is the location of data centres within the country. Over 70 per cent of Finland’s electricity generation capacity is located in western and northern Finland, whereas over 50 per cent of electricity consumption is concentrated in the south.[30] This geographical disparity is growing. A single new 400 kV transmission line provides approximately 1,000 MW of capacity, which is roughly equivalent to Helsinki’s peak demand. A large AI data centre consumes power equivalent to that of a medium-sized city such as Vaasa. Unlike harbours or heavy industry, most AI data centres are not tied to specific locations, and training workloads in particular are indifferent to latency. This makes their location a free variable in system planning. Siting them in production-dominated regions can shorten connection times by several years, reduce transmission losses – which currently account for around 2 per cent of electricity consumed in Finland, costing around €84 million annually – and avoid the need for new transmission corridors. Fingrid calculates that **better siting of location-independent investments could enable up**

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[25] Maria Nowicka, *Powering AI: How Europe Can Align Its AI Data Centre Buildout with Energy Realities*, Policy Paper (Friedrich-Ebert-Stiftung, Competence Centre Climate and Social Justice, 2026), https://collections.fes.de/publikationen/id/2182084.

[26] Fatih Acun et al., ‘Investigating Power Consumption Flexibility of AI Data Centers for Demand Response Participation’, *Proceedings of the 17th ACM International Conference on Future and Sustainable Energy Systems*, 22 June 2026, 344–48, https://doi.org/10.1145/3744255.3798112.

[27] Nowicka, *Powering AI: How Europe Can Align Its AI Data Centre Buildout with Energy Realities*, 5, 12.

[28] Ministry of Economic Affairs and Employment (Finland), ‘Proposal on Priority Procedure for Electricity Network Connections Circulated for Review’, 18 September 2026, https://tem.fi/en/-/proposal-on-priority-procedure-for-electricity-network-connections-circulated-for-review.

[29] Sen Fearon et al., *How We All Pay for Big Tech: The Social, Economic, and Environmental Costs of Data Centres in Ireland*, MUSSI Working Paper no. 31 (Maynooth University Social Sciences Institute (MUSSI), 2026), 9, https://mural.maynoothuniversity.ie/id/eprint/21841/.

[30] The numbers in this paragraph stem from: Fingrid, *Locating Electricity Consumption Close to Electricity Generation* (Fingrid Oyj, 2026), https://www.fingrid.fi/globalassets/dokumentit/en/news/press-releases-attachements/fingrid-study3-locating-electricity-consumption-close-to-electricity-generation-id-610714.pdf.

to 20 GW of additional connection capacity in the Finnish power system.[31] The main trade-off is the reuse of waste heat, since the north has far fewer district heating networks and households than the south. However, northern siting remains advantageous overall. As grid charges in Finland are currently location-independent, the Ministry's proposed connection-priority procedure, which would allow network operators to divert location-independent investments away from congested areas, is the ideal means of implementing this logic.

2.2 Electricity prices

The most politically explosive claim is that data centres increase household electricity bills. American evidence does not generally support this claim. There is even strong econometric evidence that data centre growth lowered the average US residential electricity rate between 2015 and 2024.[32] For every 10% increase in capacity, residential prices fell by around 0.4%. On average, customers in states with typical capacity growth of 160% paid around 6% less. However, this evidence measures the pre-AI wave of cloud facilities rather than today's gigawatt-scale training clusters, and it predates the current massive expansion, so future supply constraints could reverse the effect. Indeed, other US-centred research found that increasing the number of data centres by one standard deviation raised household electricity prices by 13 per cent and the price for a single hyperscaler facility by 4 per cent, with households bearing a disproportionate share of the costs.[33] The two research papers diverge because they measure different things: average retail rates versus distributional incidence.

A closer look at the two largest US markets helps to explain why the issue of electricity prices became contentious and why the proper solution is a political one of market design: In the so-called PJM interconnection area, which covers 13 eastern states and 67 million people, residential rates are set to rise by around 15 per cent in 2026 compared to the pre-data centre baseline. This follows an overnight increase of approximately 20 per cent in New Jersey in June 2025. In Texas, by contrast, prices have remained stable for three years. According to semiconductor analysts, **this divergence in electricity prices is mostly due to market design and policy choices, including the retirement of conventional power plants and capacity-market rules, rather than data centre demand itself**. The New Jersey facility that is most often blamed generates more than 85 per cent of its own power.[34]

Of course, US and European price-formation mechanisms differ. While the allocation of transmission-level costs for large new loads is an important distributional question, the claim that data centres impoverish electricity consumers is not supported by the data. In Finland, which has some of Europe's cheapest electricity, the energy bill accounts for only a small proportion of household spending. Accordingly, the more important question is income. Moreover, **the efficiency-dynamics touted by the industry do indeed have a certain scholarly basis**: global data centre energy use remained close to 205 TWh in 2018, accounting for around 1 per cent of global electricity consumption, despite an estimated 550 per cent increase in computing workloads since 2010.[35]

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[31] Fingrid, *Locating Electricity Consumption Close to Electricity Generation*.

[32] Asa Watten et al., 'Have Data Centers Raised Your Electric Bill? Causal Evidence from the United States', version 1, preprint, arXiv, 2026, https://doi.org/10.48550/ARXIV.2606.19777.

[33] Cameron Scalera et al., 'Large-Load Electricity Customers and Spillovers on Household Prices: Evidence from U.S. Data Centers', CEPR Discussion Paper No. 21854, 19 August 2026, https://cepr.org/publications/dp21854.

[34] SemiAnalysis, 'Are AI Datacenters Increasing Electric Bills for American Households?', 3 March 2026, https://newsletter.semianalysis.com/p/are-ai-datacenters-increasing-electric.

[35] Eric Masanet et al., 'Recalibrating Global Data Center Energy-Use Estimates', *Science* 367, no. 6481 (2020): 984–86, https://doi.org/10.1126/science.aba3758.

2.3 Water and cooling

Water consumption is the most frequently cited environmental objection, yet the least supported by evidence. Global AI demand is projected to withdraw between 4.2 and 6.6 billion cubic metres of water by 2027, more than the total amount used by Denmark (combined scope-1 and scope-2 water withdrawal).[36] While this sounds alarming, a detailed footprint analysis concludes that data centres are remarkably water-efficient compared to everyday activities, and that viral comparisons systematically misattribute water use.[37] **Technology is moving in the same direction**: Nvidia's next-generation AI chip platform (called "Rubin") circulates coolant directly over the chips in a sealed loop at 45°C, meaning heat is rejected through outdoor dry coolers rather than by evaporation. According to the firm, this reduces facility water consumption from roughly 2.6 million gallons per megawatt-year to almost zero in favourable climates.[38] Of course, many data centres are built with older chips.

Nevertheless, **cooling economics matter, and they favour the Nordics**. A study by Copenhagen Economics estimates that Nordic digital infrastructure saves around €150 million annually through lower electricity and cooling costs.[39] This cost advantage is rooted in climate rather than subsidy. Therefore, the environmental objections are narrower than the public debate suggests, focusing on the carbon intensity of the electricity mix and waste-heat reuse, both of which can be addressed by policy. Indeed, on 21 September 2026 the European Commission proposed a **delegated regulation establishing a common rating scheme for data centres** with a capacity of over 500 kW. This scheme covers transparency on energy and water use, waste-heat reuse, clean-energy generation, and grid flexibility. The first labels are expected in 2027.[40] This is a good example of how environmental performance can be addressed through transparency instruments rather than by blocking construction per se.

Nevertheless, the **concrete standards to be used for the AI data centre build-out remain highly contested, as evidenced by the recent German debate on the proposed amendments to the Energy Efficiency Act** (EnEfG). The Act requires data centres commissioned from July 2026 to achieve a power usage effectiveness ratio of no more than 1.2, but an amendment currently under consideration by German parliament would increase this limit to 1.3 and relax waste-heat obligations. Calculations by the Fraunhofer Institute quantify the implications of this apparent technicality and show that the relaxation alone implies an additional annual electricity demand of around 5 TWh by 2045.[41] Furthermore, switching the statutory benchmark from the measured operational value to a hypothetical design value would increase the additional demand to approximately 9 TWh, equivalent to the capacity of over seven gas-fired power plants. In other words, **efficiency limits also amount to system-level choices about how much generation Europe must build**.

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[36] Pengfei Li et al., 'Making AI Less "Thirsty"', *Communications of the ACM* 68, no. 7 (2025): 54–61, https://doi.org/10.1145/3724499.

[37] SemiAnalysis, 'From Tokens to Burgers: A Water Footprint Face-Off', 15 January 2026, https://newsletter.semianalysis.com/p/from-tokens-to-burgers-a-water-footprint.

[38] See: https://blogs.nvidia.com/blog/liquid-cooling-ai-factories/.

[39] Copenhagen Economics, 'The Economic Value of Submarine Cables in the Arctic', 2 May 2022, 19, Figure 11, https://copenhageneconomics.com/publication/the-economic-value-of-submarine-cables-in-the-arctic.

[40] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_26_1667.

[41] Fraunhofer Institute for Systems and Innovation Research (ISI), *Verschlechterung von Effizienzstandards bei Rechenzentren führen zu sehr großen zusätzlichen Energiebedarfen*, Policy comment (Fraunhofer ISI, Umweltinstitut München and AlgorithmWatch, 2026), https://umweltinstitut.org/wp-content/uploads/2026/10/ISI_EnEfG-PUE_final_layout.pdf.

2.4 Employment and economic spillovers

Employment is another contentious issue and an area where operators' projections are deserving of scrutiny. For example, while Google's own figures estimate that the Finnish construction phase contributes an annual average of €3.6 billion to GDP and creates more than 37,000 jobs nationwide, others have questioned the long-term benefit for the Finnish labour market.[42] Using Google's existing Hamina facility as a benchmark, Matti Ylönen puts permanent direct employment at the new sites closer to 1,200 to 1,300 than the announced figure of 7,000 jobs supported annually, and notes that the public debate relies on figures published by the investor itself, with no methodology disclosed.[43]

According to a recent working paper, a 10 per cent increase in cumulative local data centre revenue implies a roughly 2.7 per cent increase in total employment, a roughly 6 per cent increase in construction employment, and a roughly 3.6 per cent increase in payroll, as well as higher house prices (4.4 percentage points) and electricity prices (0.5 per cent increase).[44] In other words, **economics research supports the positive employment claims and some of the alleged costs relating to expensive housing and electricity**. However, the debate is not yet settled: The literature on local effects is an ongoing source of contention.[45] For instance, a critical study from Maynooth University calculates that Irish data centres consume 23 per cent of national electricity while providing about 3,300 permanent jobs, roughly 144 jobs per percentage point of national demand against 17,500 per point in health care, and argues that the government-commissioned estimate of 876,000 jobs enabled by data centres rests on a misreading of Irish national accounting data distorted by multinational profit shifting.[46]

Crucially, **employment effects depend systematically on facility type**.[47] Both hyperscale data centres (built by cloud and AI companies such as Amazon, Google, Microsoft, and Meta) and colocation data centres (built by data centre landlords who lease space to remote tenants) see growth in the data processing sector, but only hyperscale data centres see gains in the telecommunications sector. This is because a hyperscale campus creates demand for high-capacity fibre connections and network operations centres, whereas a colocation facility merely leases space to remote tenants, who may have no local operational presence. Thus, the extent of positive spillovers varies according to data centre type.

At the moment, **skilled trades are becoming the key scarce labour input, not overall headcount**. Electricians account for an estimated 30–40% of construction man-hours on a data centre project. In the US, wage premiums of 30% were recently paid to attract workers to a large data centre construction site in Texas, which peaked at over 9,000 employees. Analysts expect a severe electrician shortage

[42] Yle, 'Is Google's €13bn Investment Good News for Finland?'

[43] Matti Ylönen, 'Google's Record-Smashing $13bn Data Center Investment as a High-Stakes Gamble for Finland', 23 September 2026, https://www.linkedin.com/pulse/googles-record-smashing-13bn-data-center-investment-gamble-ylönen-nwgrf/.

[44] Fernando Alvarez et al., *Data Centers and Local Economies in the Age of AI: A Shift–Share Approach*, no. w35194 (National Bureau of Economic Research, 2026), https://doi.org/10.3386/w35194.

[45] For an overview, see: Corey Young, 'Clouds on the Horizon: An Integrative Review of Data Centers and Local Governance in the United States', *Oxford Open Energy* 5 (January 2026): oiag006, https://doi.org/10.1093/ooenergy/oiag006.

[46] Fearon et al., *How We All Pay for Big Tech: The Social, Economic, and Environmental Costs of Data Centres in Ireland*.

[47] Dany Bahar and Greg Wright, 'New Evidence on Data Center Employment Effects', 10 August 2026, https://www.brookings.edu/articles/new-evidence-on-data-center-employment-effects/.

emerging in 2027 driven by the huge demand.[48] The industry response to this scarcity has been modular prefabrication, which compresses construction timelines by roughly 36% at lower capital cost.[49]

A promising, yet underappreciated, channel for employment through new domestic data centres is more indirect, as it focuses on broader economic spillovers. For instance, analysis of trans-Arctic fibre cables, which increase productivity and lower trade costs across industries, shows that digital infrastructure development can establish wider regional clusters.[50] Finnish experts have observed the early formation of an equivalent supplier base around Finnish data centres in companies such as Granlund and Nokia, arguing that monitoring this development is more important than debating permanent staff numbers.[51] **In addition to low-latency services such as finance and trade, which benefit from faster connections to Asian and North American markets, robotics provides another tangible avenue for establishing supply chains and spillovers based on the low latency advantage**. For context, it is important to consider the differing role of low latency for AI training and AI inference. AI model training runs still account for the bulk of gigawatt-scale demand. They are indifferent to latency and prioritise cheap power and fast connections, which is why they cluster in the Nordic countries. In contrast, inference, i.e. the use of trained models, especially for interactive and physical applications, must be located near the user. This pulls computing power towards population and industrial centres. As mobile robots and drones can only carry small on-board control and safety models due to limitations in power, weight, and cooling, their more complex cognitive processes must be carried out, for the foreseeable future, in data centres within low-latency reach. This makes **proximity between computing and the factory floor a key factor in future automated production**.[52] In short, regions specialising in manufacturing and equipped with industrial robotics and nearby computing capacity could therefore attract the same kind of supplier network that formed around earlier general-purpose technologies.

However, it is also important to keep these spillover expectations realistic and to conduct further research on their feasibility. In this regard, the World Economic Forum's recently proposed diagnostic framework for national computing strategies is helpful, as it considers electricity, data, and skills to be potential constraints on the outcomes of computing investment.[53] According to this framework, **governments should identify binding constraints on diffusion before investing more in computing, since additional capacity has limited value if people cannot utilise it**. In other words, computing is a necessary input for the new data economy, but not a sufficient one: The envisaged supply networks around Finnish facilities will only be established where the industrial and skills base can absorb the technology. The evidence on electrician shortages and modular prefabrication in the US, reported above, suggests

[48] SemiAnalysis, 'The Wild Wild West Of LEGO Datacenters', 30 July 2026, https://newsletter.semianalysis.com/p/the-wild-wild-west-of-lego-datacenters.

[49] SemiAnalysis, 'The Wild Wild West Of LEGO Datacenters'.

[50] Stiftung Wissenschaft und Politik (SWP), 'The EU's New Arctic Strategy', SWP Comment 2026/C 34, 18 August 2026, https://www.swp-berlin.org/publikation/the-eus-new-arctic-strategy.

[51] Vili Lehdonvirta, 'LinkedIn Post on Google's Finnish Data Centre Investment', September 2026, https://www.linkedin.com/posts/vililehdonvirta_googlen-uusien-datakeskusten-my%C3%B6t%C3%A4-suomen-share-7503721032969789441-1NWJ/.

[52] In the field of robotics, major AI firms are converging on a design in which heavy cognition runs on cloud GPUs, while a small on-board model handles low-level control and safety. However, this only works where connectivity is fast and reliable. Typical handover times between Wi-Fi and 5G access points can consume the entire latency budget. See: SemiAnalysis, 'A Brain Too Big to Carry — On-Device vs Datacenter Inference', 14 September 2026, https://newsletter.semianalysis.com/p/a-brain-too-big-to-carry-on-device.

[53] World Economic Forum, *The Next-Generation Computing Framework*, White Paper (World Economic Forum, in collaboration with the Global Future Council on Next Generation Computing, 2026), https://reports.weforum.org/docs/WEF_The_Next_Generation_Computing_Framework_2026.pdf.

that such constraints are already emerging. In terms of policy, this means that **constraints to diffusion, rather than a specific megawatt target, should determine the rate at which data centres are built**.

2.5 Tax incidence and municipal finance

There are several individual examples in the US where data centre expansion has been favourable from a tax perspective.[54] In Richland Parish, Louisiana, for instance, the surge in local sales tax revenue associated with Meta's $27 billion campus enabled the school board to increase full-time teacher bonuses to $50,935 in June 2026, up from $10,200 the previous year. In Loudoun County, Virginia, data centres provide around 38 per cent of the general fund, despite occupying only about 4 per cent of commercial land. This revenue has supported a reduction in the real property tax rate every year since 2016. In Prince William County, Virginia, data centre tax revenue reached $280 million in 2024, marking a 68 per cent increase from the previous year. However, do these examples generalise?

Whether or not host communities benefit financially is not a matter of fact regarding data centres, but rather a distributive choice embedded in tax and fiscal design. The most compelling evidence in this regard comes from the US municipal bond market.[55] Hsu and Moussawi link data centre locations and power capacity to bond transactions across US municipalities, identifying causal effects through proximity to high-voltage transmission lines built before the AI boom.[56] What do they find? Host municipalities, which negotiate the terms of entry through zoning approvals and infrastructure commitments, show little change in borrowing costs. Neighbouring municipalities are not party to these agreements and bear the consequences: bond spreads increase by approximately 10 basis points for each additional data centre within 25 miles, reducing to 4 basis points at 75 miles. Furthermore, a municipality with average exposure issues approximately $34 million more debt over the subsequent year. In other words, **data centres create a fiscal externality borne by jurisdictions with no seat at the table**.

Still, concrete tax policy determines where these costs arise. Since 2017, 18 US states have introduced data centre tax incentives, typically in the form of sales, use, and property tax exemptions, which are conditional upon meeting minimum investment thresholds. In these states, foregone state revenue reduces transfers to school districts by approximately $673 per student, according to the above-mentioned study by Hsu and Moussawi.[57] This is mainly due to cuts in school employee benefits. Yields on education bonds also rise by around 12 basis points after the introduction of incentives. However, the authors find no evidence of a corresponding local increase in employment, school enrolment, or property values. Thus, tax incentives do not eliminate the costs of data centres but relocate them.

The transparency surrounding any agreements between data centre developers and local communities is as important as the agreements themselves. This is evident in the US, where non-disclosure agreements (NDAs) between operators and local officials regarding projected utility costs and environmental impacts have become a political flashpoint. They have triggered recall campaigns against local officials and prompted Pennsylvania to prohibit its agencies from entering into such agreements for

[54] The examples are taken from: Center for Data Innovation, 'What Communities Stand to Lose by Blocking Data Centers', 7 September 2026, https://datainnovation.org/2026/09/what-communities-stand-to-lose-by-blocking-data-centers/.

[55] Alex Hsu and Hala Moussawi, 'Who Pays for Data Centers? Evidence from Municipal Financing', preprint, SSRN, 2026, https://doi.org/10.2139/ssrn.7202741.

[56] This is because grid access determines where large facilities can be located.

[57] Hsu and Moussawi, 'Who Pays for Data Centers?'

data centre projects in August 2026.[58] In September 2026, Amazon announced that it would stop using non-disclosure agreements with government agencies and allocate $1 billion over five years to host communities,[59] which suggests that this practice can be abandoned without legal compulsion. Europe has an equivalent problem at the EU level: the Commission's 2024 implementing regulation under the Energy Efficiency Directive, which established the first phase of EU data centre reporting, contains a clause that classifies all facility-level data on energy and water use as commercially confidential. Legal scholars argue that this blanket classification may be incompatible with the Aarhus Convention.[60] Furthermore, only around 36% of eligible European facilities had reported data, of which just 80% was deemed reliable. Germany's first public data centre register under this regulation, published in August 2026, shows the same gap at national level: only 319 of an estimated 1,000 obligated facilities disclosed their data by name, and a further 166 reported anonymously.[61] Finland is developing a national data centre register that could help to close this gap. In order to be useful, the register should record the type and purpose of each facility, and apply consistent definitions for electricity consumption and capacity.[62] As we can learn from the debate about NDAs in both the US and Europe, a distributional contract that communities cannot inspect is difficult to present as fair.

Germany is acting in accordance with this logic. The government's draft Income Tax Reform Act 2027, which was adopted by the federal cabinet on 2 September 2026 and introduced in the Bundestag on 28 September (BT-Drs. 21/8235), proposes that the *Gewerbesteuer* (municipal trade tax) for pure data centre operators with at least 500 kW of IT capacity should be apportioned at 90 per cent according to each site's non-redundant contracted grid connection capacity, and at 10 per cent according to payroll. This key has already been applied to wind, solar and battery storage, and will come into effect in 2027.[63] Rather than raising revenue, the reform redistributes it, shifting it from headquarters municipalities such as Frankfurt am Main to rural host sites.[64] Since the key is based on contracted rather than used capacity, the reform would also reward grid connections reserved for future expansion stages. However, it remains unclear at what point cloud or managed services would exclude an operator from being classified as a mixed business. This measure seems to have been taken deliberately to remove a central argument from protests before they reach American proportions.

In any case, **fiscal generosity is the wrong approach**. In the current climate with huge enthusiasm for AI (approaching a bubble), it is above all about speed, so scarce capacity rather than subsidy allocates data centres. Therefore, governments that can offer a fast grid connection and a predictable permitting process hold strong bargaining power and do not need to attract investment with tax exemptions. Lassi Noponen, head of the state agency Business Finland, even argues that Finland is giving away its

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58 Aaron Mak, 'Data Centers' NDA Problem', 3 September 2026, https://www.politico.com/newsletters/digital-future-daily/2026/09/03/data-centers-nda-problem-01063793.

59 See: https://www.aboutamazon.com/news/company-news/amazon-data-centers-built-together.

60 Nico Schmidt and Ella Joyner, 'How Big Tech Lobbied the EU to Hide Data Centers' Environmental Toll', *Tech Policy Press*, 17 April 2026, https://www.techpolicy.press/how-big-tech-lobbied-the-eu-to-hide-data-centers-environmental-toll/.

61 Leonard Burtscher, 'KI-Boom: Wie Die Bundesregierung Die Regulierung von Rechenzentren Aushöhlt', netzpolitik.org, 23 October 2026, https://netzpolitik.org/2026/ki-boom-wie-die-bundesregierung-die-regulierung-von-rechenzentren-aushoehlt/.

62 CSC – IT Center for Science, Data Center Register to Support Decision-Making and Strategic Planning, statement, 5 October 2026, https://csc.fi/en/statement/data-center-register-to-support-decision-making-and-strategic-planning/.

63 Tagesspiegel Background, 'Wie Kommunen Künftig Steuerlich von Rechenzentren Profitieren', 3 September 2026, https://background.tagesspiegel.de/digitalisierung-und-ki/briefing/wie-kommunen-kuenftig-steuerlich-von-rechenzentren-profitieren.

64 Susanne Knoch and Karl Holtkamp, 'Rechenzentren: Wer Bekommt Die Gewerbesteuer?', Tagesspiegel Background, 23 October 2026, https://background.tagesspiegel.de/digitalisierung-und-ki/briefing/wer-bekommt-die-gewerbesteuer.

resources to tech giants on far too modest terms, dismissing municipal benefit packages such as Google's promised saunas in Muhos and solar panels in Kajaani as "lights for the running track".[65] He calls for **national coordination of the conditions attached to data centre projects, since municipalities bargaining alone lack the power to demand research activity or local sourcing**, and identifies the pending grid-connection prioritisation procedure as the right instrument, suggesting that commitments to research and development or Finnish suppliers could move an operator up the connection queue. In light of the current demand for compute, demanding more will indeed not deter international operators.

2.6 Safety and regulation

Security is another underappreciated dimension in the public debate. In March 2026, at the start of the Iran war, drone strikes hit two of Amazon's data centres in the UAE directly and damaged a facility in Bahrain. Iran's Revolutionary Guards then claimed responsibility, citing Amazon's support for the US military.[66] The location of data thus has commercial as well as security consequences. The Commission's proposed **Cloud and AI Development Act** (CADA) addresses part of this question at the service layer, through a four-level sovereignty assurance scheme for cloud and AI services; the physical facilities, by contrast, are governed by siting, grid and security rules, which the Act's Data Centre Acceleration Zones touch only indirectly.[67] As the economic rivalry between the US and China intensifies in the form of export controls on chips and screening of foreign investment, and as regional wars increasingly target commercial infrastructure, the location of computing resources will become an even more important geopolitical factor. Data centres built in a third country will be subject to that country's conflicts and sanctions. Accordingly, data centres must be recognised as critical infrastructure, situated at the intersection of public and private interests.[68]

Consider also that **compute is the AI input that is most detectable, excludable, and quantifiable as well as produced through a concentrated supply chain, making it a convenient point of policy intervention**.[69] This is partly addressed by the NIS2 Directive, which lists data centre service providers under its digital infrastructure sector of high criticality (Annex I), making large providers essential entities subject to registration, risk management, incident reporting, and supervision, with jurisdiction attached to their main establishment in the Union.[70] Notably, NIS2 already distinguishes between "cloud computing service providers" and "data centre service providers", which aligns with the distinction between service and facility drawn in this policy brief. However, NIS2 regulates the operator of the facility, regardless of its location, but does not address who controls it – a topic we address next.

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[65] Yle News, 'Finland Should Be Demanding Much More from Data Centre Projects, Business Promo Boss Says', 9 October 2026, https://yle.fi/a/74-20250638.

[66] Six months later, AWS stated that it could not restore access to resources and data hosted exclusively in that region. CNBC, 'AWS Says It Can't Restore Service to Bahrain, UAE Facilities 6 Months after Iran Strikes', 15 September 2026, https://www.cnbc.com/2026/09/15/aws-cant-restore-service-to-bahrain-uae-6-months-after-iran-strikes.html.

[67] European Commission, 'Proposal for a Cloud and AI Development Act (CADA)', 3 June 2026, https://digital-strategy.ec.europa.eu/en/library/proposal-cloud-and-ai-development-act-cada.

[68] For a similar conceptualisation based on infrastructure and governance theory, see: Young, 'Clouds on the Horizon'.

[69] Girish Sastry et al., 'Computing Power and the Governance of Artificial Intelligence', arXiv:2402.08797, preprint, arXiv, 13 February 2024, https://doi.org/10.48550/arXiv.2402.08797.

[70] Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive), OJ L 333, 27.12.2022, pp. 80–152.

2.7 Ownership and control

Questions of ownership are often discussed politically, but there is emerging – perhaps surprising – evidence that it is also a factor driving public opposition. A survey experiment in Germany found that priming "digital sovereignty" concerns directly only marginally increases support for data centres.[71] However, **public support for data centres varies sharply depending on decarbonisation, geopolitical framing, and local economic impact**. Respondents strongly prefer facilities operated by German or European firms to those operated by US or Chinese firms. These nationality effects are significant, even when compared to the impact of electricity price increases. Polling by Milltown Partners reaches a similar conclusion: the backlash is driven more by anti-tech sentiment in general than by NIMBYism or environmentalism.[72]

However, **opposing the buildout with a regional moratorium is less effective than is commonly assumed** by the media: In the US, an estimated 2.3 GW of planned US capacity is currently delayed by local moratoria, which freeze new applications rather than revoking approvals. They mostly affect projects that are years away from construction. The researchers behind these estimates conclude: "Capacity already under construction, or fully permitted and about to start, is out of reach altogether [by local moratoria or protests]. That covers all of 2026 and most of 2027. To be 100% clear, we think moratoriums COULD delay the buildout, but they just aren't yet at scale. We would need to see them be materially more widespread and restrictive."[73] It is not clear at this time whether this will change after the US midterms, but AI could be one of the key topics in the 2028 US election.

A historical comparison, made by Finnish academic Vili Lehdonvirta, points to the relevance of the ownership variable from a more strategic perspective.[74] Google's expansion could see Finnish electricity consumption return to its 2006 level of around 90 TWh, compared to 84.7 TWh in 2025, he notes, but this is not the main concern. Paper has been replaced by digital technology at roughly the same electricity cost. (Tellingly, LUMI is housed in a former paper mill in Kajaani.) What has changed in this process, Lehdonvirta notes, is ownership: Until the 1990s, forestry was predominantly Finnish-owned and foreign ownership was legally restricted; today, however, Finland lacks the domestic capital and technology to produce hyperscale services. Consequently, the country must rely on American direct investment to a larger extent.

The current financing structure behind the expansion will reinforce this dependence for other middle powers, too. This is because the AI build-out is no longer funded by the cash flows of major cloud computing companies. A frontier data centre with 200 MW of power capacity costs around $8.2 billion. The 200 GW of capacity planned in the US alone implies $8.2 trillion of capital expenditure over ten years. This will now be financed with around 60% equity and 40% debt, with the latter leveraged at around 70 per cent.[75] This is where the chip vendors themselves come in. Currently, lenders will only finance GPU clusters against an investment-grade backstop, typically a five-year take-or-pay

[71] Jonas Heering and Erik Voeten, 'How Sovereign Control, Decarbonization and Energy Costs Shape Public Support for Data Centers', *Nature Communications* 17, no. 1 (2026): 9576, https://doi.org/10.1038/s41467-026-76500-9.

[72] Milltown Partners, 'Behind the Backlash', June 2026, https://cdn.prod.website-files.com/67d182bd6016f997fd72999a/6a38f1fa6f06adc2ada33899_Milltown%20Partners_Behind%20the%20Backlash_June%202026.pdf.

[73] SemiAnalysis, 'Everyone Says Datacenter Moratoriums Are Killing the US Buildout. We Disagree', 15 September 2026, https://newsletter.semianalysis.com/p/everyone-says-datacenter-moratoriums.

[74] Lehdonvirta, 'LinkedIn Post on Google's Finnish Data Centre Investment'.

[75] SemiAnalysis, 'Nvidia GPU Debt Backstop Unleashes the AI Project Trinity: Capital, Offtake and Datacenters', 7 July 2026, https://newsletter.semianalysis.com/p/nvidia-gpu-debt-backstop-unleashes.

computing contract from a hyperscaler. Nvidia has started to backstop neoclouds directly by providing a six-year minimum revenue guarantee on GPU capacity in exchange for a share of the revenue earned above the backstop level. As the guaranteed scenario covers debt servicing, banks size loans against it. Typically, they require debt servicing coverage of 1.3 times and lend 70–80 per cent of the GPUs' value, with the chips serving as collateral.[76] Consequently, there is a **critical circularity in the market: the chip vendor guarantees revenue on clusters built from its own chips, which are then used as collateral, thereby deciding which operators grow**. As these backstops and securitisation channels are US-centric, European operators without access to them must finance compute at a higher cost.

3 Policy Recommendations for AI Middle Powers

The economics of accommodating the data centre backlash are improving as the build-out matures. **As AI labs and their surrounding eco-systems become profitable, the flow of revenue through the computing value chain makes it easier for data centre operators to act as "better neighbours" and support local communities, thereby offsetting the growing opposition**.[77] In other words, the task is to solve the political economy problem behind the compute build-out, not its engineering.

The following recommendations are based on three premises. Firstly, neither Germany nor Finland can match the scale of the American or Chinese compute build-out; therefore, their strategy must be based on comparative advantage and pooled demand rather than visions of a national champion (supported, in turn, by heavy subsidies). Secondly, consent is conditional and opposition should focus on ownership and local distributional effects rather than scepticism about marginal employment benefits or rising electricity prices (see the research summarised above in Section 2). Third, capacity is only as valuable as its complements: where electricity, data, or skills are the binding constraint, additional compute delivers little, so the sequencing of the build-out should follow a diagnosis of which constraint binds.[78] In general, the state should focus on establishing and enforcing the appropriate "rules of the game" for market processes to address eventual bottlenecks, i.e. *Ordnungspolitik* in the classical sense: setting a credible framework under which private and foreign capital builds infrastructure whose benefits are visibly shared, rather than intervening ad hoc in individual siting decisions or prices.

1. **Permitting and grid-connection timelines should be cut to competitive levels**. The German federal government (together with the *Länder*) should legislate for statutory approval deadlines for data centre and grid connection permits. Currently, construction in Germany takes around 42 months, compared to approximately 24 months in the US, largely driven by delays in permitting and network connection.[79] Chinese operators routinely deliver 100 MW facilities in under 12 months, largely free of grid constraints, labour shortages, and public protest.[80] Researchers estimate that delaying the opening of a 100-megawatt data centre by one year costs more than $500 million over its lifetime, or over 5 per cent of its total value.[81] In this context, the pre-zoning of sites with cleared grid capacity, as set out in the recent Federal Data

[76] Stijn Van Nieuwerburgh, 'Data Centers: Financing the AI Buildout', Markus Academy (Princeton), 19 March 2026, https://markusacademy.substack.com/p/data-centers-financing-the-ai-buildout.
[77] SemiAnalysis, 'Everyone Says Datacenter Moratoriums Are Killing the US Buildout. We Disagree'.
[78] For this point, see also: World Economic Forum, *The Next-Generation Computing Framework*.
[79] Alasdair Phillips-Robins et al., 'The Compute Coalition: How to Build the Future of AI in the Free World', Carnegie Endowment for International Peace, 8 June 2026, https://carnegieendowment.org/research/2026/06/the-compute-coalition-how-to-build-the-future-of-ai-in-the-free-world, Figure 4.
[80] SemiAnalysis, 'The Chinese AI Infrastructure Boom'.
[81] Phillips-Robins et al., 'The Compute Coalition: How to Build the Future of AI in the Free World', Figure 1.

Centre Strategy, should be implemented swiftly. These sites should be designated as so-called Data Centre Acceleration Zones directly, once the CADA comes into force, to avoid a second planning round. Grid connection priority should follow the Finnish model, differentiating by capacity and purpose rather than treating all data centres alike.

2. **Designate the Nordics as the EU's primary build-out zone for large-scale training compute**. This recommendation concerns latency-tolerant training and batch workloads, the first category set out in Section 2, not inference or conventional colocation per se. Finland and Sweden should use the CADA to designate Data Centre Acceleration Zones at sites with available grid capacity, providing projects with streamlined permits within a maximum timeframe of twelve months. In turn, the Commission and the EuroHPC Joint Undertaking should prioritise Nordic sites when selecting strategic data centre projects for preferential access to EU funding, and when allocating AI Gigafactory support. The economic case is clear: construction costs in Sweden are around 10 per cent higher than in China, while in parts of continental Europe they are around double the cost.[82] Likewise, Finland is one of the most competitive countries, with permitting processes that are streamlined and run in parallel, as well as having surplus renewable energy generation.[83] The region's cheap firm power, cold climate, and grid headroom make it the most suitable location in Europe for AI training clusters, which are indifferent to latency. (Note, in this regard, that Aleph Alpha's new and widely acclaimed Kolibri model was trained on infrastructure in Germany *and* Finland.[84]) In return, the designation should carry binding clean-energy conditions and requirements for waste heat that is actually reused, measured by the Energy Reuse Factor,[85] rather than mere reuse readiness. Fast-track treatment and public financing should also be tied to transparent utilisation reporting and flexibility commitments so that, when under stress, the system can curtail schedulable workloads and absorb surplus generation at other times.[86] Siting decisions should be aligned to grid development plans. In Finland, acceleration zones should be designated in production-dominated regions in the north and west, where connections are faster and grid capacity more plentiful, accepting a lower waste-heat reuse potential as the price of overall system efficiency.
3. **Create bankable European demand through pooled, multi-year offtake agreements**. This recommendation concerns the second category, inference and industrial AI workloads, where European demand is most fragmented. As most European firms only commit to compute purchases one year in advance, no financier can underwrite gigawatt-scale capacity based on these contracts.[87] The governments of large Member States such as Germany, together with industrial buyers and Nordic operators, should establish a standardised, multi-year offtake vehicle that aggregates industrial demand. This aggregate demand could also be used to support domestic neoclouds, i.e. specialised AI cloud firms that rent GPU capacity at scale. For public-sector demand, the common purchasing mechanisms and assurance levels of the CADA,

[82] Draghi, 'Europe's Difficult Choices on AI'.
[83] Phillips-Robins et al., 'The Compute Coalition: How to Build the Future of AI in the Free World'.
[84] Aleph Alpha, 'Kolibri: A Sovereign European Model on the Pareto Frontier', alphaXiv, 5 October 2026, https://www.alphaxiv.org/abs/2610.kolibri-sovereign-european-model.
[85] The Energy Reuse Factor (ERF) measures the share of a data centre's total energy consumption that is reused outside the facility, for example as waste heat fed into district heating. It ranges from 0 (no reuse) to 1, and is standardised. See also: CSC – IT Center for Science, Comprehensive Sustainability for Data Centres – Proposed EU Rating Scheme Needs Expansion, statement, 5 May 2026, https://csc.fi/en/statement/comprehensive-sustainability-for-data-centres/.
[86] Similar: Nowicka, *Powering AI: How Europe Can Align Its AI Data Centre Buildout with Energy Realities*.
[87] Draghi, 'Europe's Difficult Choices on AI'.

together with the European preference framework of the proposed Public Procurement Act,[88] provide a legal basis for multi-year, bundled contracts. The aim of this initiative is to address inference and industrial workloads. Frontier-scale training is the responsibility of the AI Gigafactories, which should prioritise EU-controlled users as defined by CADA level three when setting access rules. Moreover, the vehicle should build on the EuroHPC AI Factories, which already give industry and SMEs access to public AI compute, including in Finland and Germany.

4. **Sovereignty should be defined by ownership and control, with separate definitions for cloud services and physical facilities**. Unlike Recommendations 2 and 3, this recommendation concerns the cloud service layer rather than any particular category of facility. Ownership of facilities and control over services are only part of the sovereignty question; equally relevant is what data is stored and processed and who controls it, since data is the asset from which value is generated. The CADA's proposed sovereignty framework already reflects this logic: the lowest assurance level requires only data processing and storage in the EU; ownership and control requirements first appear at level three, and level four excludes third-country control outright. During negotiations, the co-legislators should maintain this structure. US hyperscalers are useful for quickly spreading AI throughout Europe's economies in line with the EU's Apply AI initiative. However, their services are still subject to US legal process under the CLOUD Act, regardless of where the servers are located. By contrast, physical siting is governed by permitting, grid, and tax rules. Within the Act's acceleration zones and national siting policy, Germany could focus on latency-sensitive inference close to industry, while the Nordics host latency-tolerant training and batch workloads.
5. **Harmonise community and environmental conditions through the EU instruments, while abstaining from NDAs**. EU Member States such as Germany and Finland should avoid negotiating bilateral environmental regimes for data centres. Instead, they should focus on shaping the European Commission's ongoing work on this issue, particularly the consultation on minimum performance standards for data centres[89] (which closes on 14 December 2026) and the tripartite agreement between operators, grid operators, energy providers, and public authorities.[90] Both countries should advocate for EU-level minimums on clean energy sourcing, waste heat reuse, location away from grid- and water-stressed areas, and fair grid cost allocation, thereby ensuring that looser rules in one part of Europe do not undermine stricter standards elsewhere. These minimums should apply across all three categories of data centres outlined in Section 2. The EU rating scheme should apply a single set of efficiency thresholds across Member States, with climate conditions shown on the label for context, and should report waste heat that is actually reused.[91] Both countries should also aim to avoid nondisclosure agreements covering community impacts in siting negotiations. In this context, cool climates are no safeguard against local conflict. In September 2026, for instance, around 400 people protested in Linz against Google's planned 50-hectare campus in Kronstorf, citing a lack of transparency and unanswered questions about cooling and water drawn from the River Enns.[92] As water

[88] Proposal for a regulation on public contracts and concessions, COM(2026) 590, SWD(2026) 590, SWD(2026) 591, SWD(2026) 592, https://single-market-economy.ec.europa.eu/publications/proposal-regulation-public-contracts-and-concessions_en.

[89] See: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/19293-Data-centres-in-Europe-minimum-performance-standards_en.

[90] See: https://energy.ec.europa.eu/news/flagship-projects-ai-grids-and-data-centre-sustainability-2026-06-04_en.

[91] See also: CSC – IT Center for Science, Comprehensive Sustainability for Data Centres – Proposed EU Rating Scheme Needs Expansion, statement, 5 May 2026, https://csc.fi/en/statement/comprehensive-sustainability-for-data-centres/.

[92] See: https://www.euronews.com/2026/09/22/hundreds-protest-google-data-centre-planned-for-small-austrian-town.

stress is a local and seasonal condition rather than a function of climate zone, the EU's siting minimums should be assessed at the level of individual catchments rather than entire regions.

6. **Coordinate competition and tax policy to ensure that benefits are shared more widely**. National competition authorities and finance ministries should collaborate to scrutinise market entry and concentration in the market for physical data-centre capacity. More importantly, taxation of data centres should be consistent across Europe to ensure that the productivity gains from computing investment accrue beyond infrastructure owners and large industrial buyers. Other countries might consider adopting the logic of Germany's proposed reform of trade tax apportionment to ensure that host communities clearly benefit financially. In any case, the Finnish government does not need to attract investment with tax exemptions. Instead, Finland should coordinate benefit, research, and local-sourcing conditions, using the pending grid-connection priority procedure to attach these commitments to scarce connections. More generally, there is an urgent need for an overarching perspective: Countries across Europe, from Ireland and Sweden to Spain, are facing similar investment waves and rewriting permitting, siting, and tax rules individually. If these different national responses continue, **the single market for computing could become fragmented**, with operators arbitraging regulatory differences between Member States. Harmonisation, coordination, and minimum standards (where applicable) prevent this fragmentation, which is another reason to address this topic at EU level.

4 Conclusion

Reading through social media commentary, the debate surrounding the European data centre buildout treats a heterogeneous infrastructure problem almost like a moral question. When considered separately, the different components behind the decision to construct a data centre behave differently. Grid access, for example, is a planning problem with known solutions. One such solution is the recent nuclear power purchase agreement by Google in Finland, which turns compute demand into a source of clean, firm generation. Household electricity prices are far more responsive to market design than to data centre load, and concerns about water usage are based on comparisons that mostly do not stand up to scrutiny. Claims about employment deserve scepticism in both directions: operators' projections are often overly optimistic, but the real scarcity is skilled trades. Moreover, long-term benefits accrue through supplier networks and spillover effects rather than permanent staffing. The local fiscal imbalance can be corrected by allocating tax revenue to host municipalities, as Germany's pending trade tax reform proposes, and by phasing out subsidies. Once the technical grievances have been resolved, the remaining issues are security and ownership. The recent strikes on Gulf data centres demonstrate that data centres increasingly have physical security implications besides legal ones.

Crucially, having a data centre on European soil does not give a Member State control over the models that run inside it. **A credible European alternative at the forefront of technology requires sustained investment in researchers, computing power and energy across several successive model generations, which no middle power can achieve alone. Therefore, Europe's practical goal should be narrower: to develop sufficient domestic capability to ensure that essential public and industrial work can continue in the event of a potential sudden cutoff, and to negotiate with providers of frontier models from a position of strength**. Grid-connected capacity and powered land are exactly such bargaining chips, since these are what the global AI build-out currently lacks most. However, this bargaining chip will only retain its value if Europe's energy prices and permitting timelines become more

competitive. **For middle powers such as Germany and Finland, a sensible policy answer lies between the extremes of excluding foreign capital, which Europe cannot replace, and unconditional openness, which would undermine the sovereignty that the build-out is intended to secure**. Such a pragmatic compromise would allocate roles within Europe based on comparative advantage, Nordic capacity, German industrial demand, and EU harmonised governance, while sharing the benefits with the communities that host the data centres.

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