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Data Centres and Britain's AI Future

By

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Executive Summary

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Data Centres Become Strategic Assets

- ✦ AI is making data centres a strategic national asset, as computing capacity and electricity become as critical to economic competitiveness as transport and energy infrastructure.
- ✦ The UK hosts 565 data centres and one of Europe's largest digital infrastructure markets, but its computing capacity per capita remains only around one-third that of the United States.
- ✦ The government aims to expand capacity from 2 GW to at least 6 GW by 2030 through AI Growth Zones and Critical National Infrastructure status, although global competition for AI infrastructure is intensifying.
- ✦ Strong investor interest, nearly 100 planned projects, around £25 billion of expected investment from major technology firms, and annual spending projected to rise from £1.75 billion in 2024 to £10 billion by 2029 position the UK as a major European AI infrastructure hub.

Power Becomes the Constraint

- ✦ Electricity, rather than capital, has become the main constraint on UK data-centre expansion, with AI demand exposing long-standing weaknesses in grid capacity, planning processes and high energy costs.
- ✦ Data centres already consume around 6% of electricity in both the UK and the US, and rising AI workloads are intensifying concerns over grid capacity, environmental impacts and local opposition.
- ✦ Grid connection requests surged from 41 GW to 125 GW between November 2024 and June 2025, largely driven by data-centre projects, highlighting rapidly growing demand that far exceeds Britain's peak electricity consumption of around 46 GW.

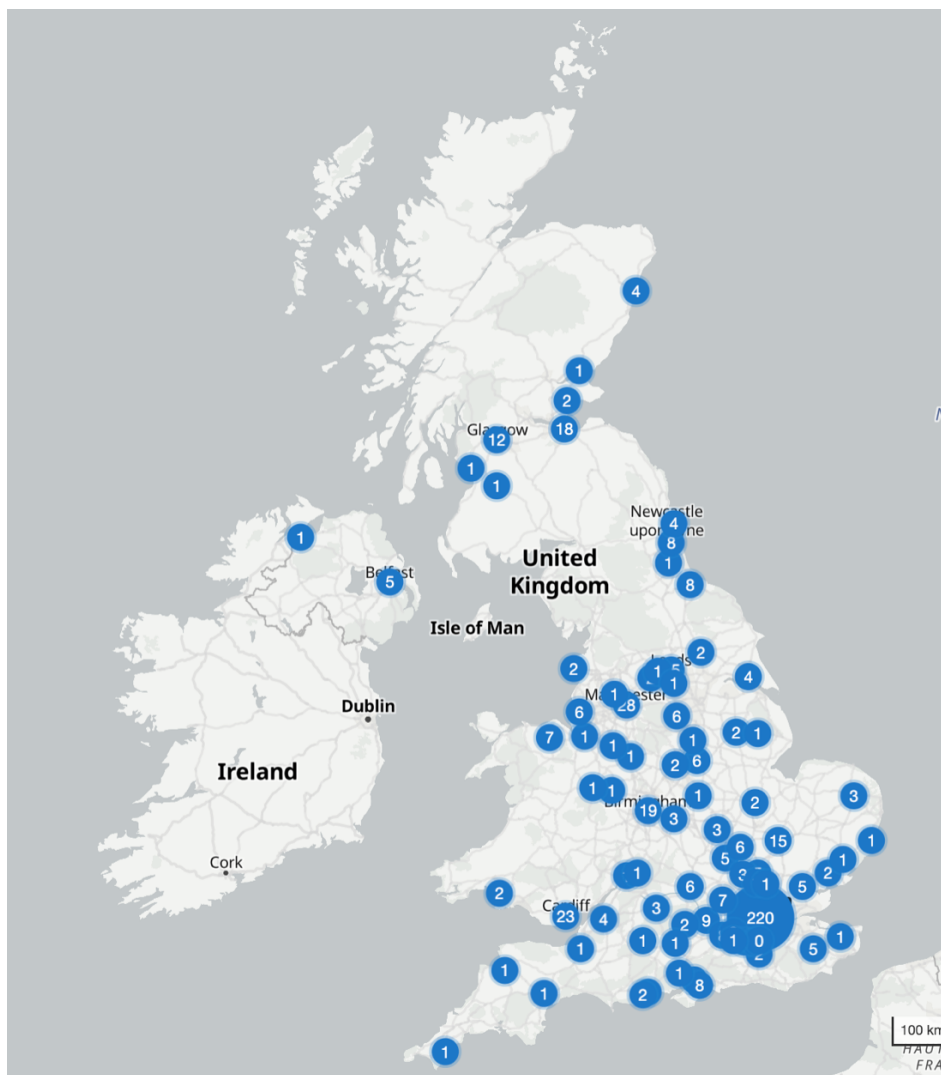
Reforming Grid Connections

- ✦ Ofgem is overhauling Britain's first-come, first-served grid connection system to reduce speculative applications by requiring substantial refundable deposits and strict construction milestones, ensuring scarce electricity capacity is allocated to projects ready to proceed.
- ✦ While the reforms should accelerate viable investments, higher upfront costs could also deter some developers, highlighting the trade-off between improving grid efficiency and maintaining investment incentives.

A Regional AI Opportunity

- ✦ As AI investment shifts from proximity to financial centres toward access to electricity, land and faster construction, regions such as the North East, Manchester, South Wales and Scotland are becoming increasingly attractive for new data-centre development.
- ✦ Britain's long-term AI competitiveness will depend on expanding electricity networks, accelerating planning approvals and delivering sufficient domestic computing capacity to support innovation, strategic autonomy and high-value AI applications.

Key Picture: UK Hosts 565 Data Centers



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Source: [Data Center Map](#)

Data Centres Become Strategic Infrastructure

Artificial intelligence is often portrayed as a race for algorithms, semiconductor chips and increasingly powerful foundation models. Yet the AI revolution ultimately depends on something far more tangible: physical infrastructure. Every large language model, cloud platform and AI application relies on data centres housing thousands of servers capable of processing enormous volumes of information. As AI workloads become increasingly computationally intensive, access to electricity and computing capacity is emerging as a strategic economic asset comparable to transport networks or energy infrastructure.

Britain already possesses a substantial digital infrastructure base. According to Data Centre Map, the country [hosts 565 data centres](#), making it one of Europe's largest digital infrastructure markets. Much of this capacity is concentrated around London, where facilities support financial services, cloud computing and internet traffic. The transformation is already visible in [East London's former docklands](#). Just a short distance from Canary Wharf, highly secure facilities such as Telehouse South process financial transactions, cloud services and AI workloads around the clock. For high-frequency traders, physical proximity is itself a competitive advantage. Telehouse can communicate [with trading firms in Canary Wharf](#) in less than a millisecond, while routing the same data through New York takes more than seventy times longer. Similar latency requirements are becoming increasingly

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important for AI applications such as autonomous vehicles, healthcare and national security. For Britain, these developments present both a major economic opportunity and a growing policy challenge.

Despite this sizeable footprint, Britain remains well behind the world's leading AI economies in computing capacity. The country currently [has roughly one-third as much data-centre capacity per capita](#) as the United States. The government aims to expand national data-centre capacity from 2 GW today to at least 6 GW by 2030. While this would represent a threefold increase, it pales in comparison with the United States, where capacity is projected to rise from 29 GW to more than 90 GW over the same period. The comparison illustrates both the scale of Britain's ambition and the intensity of global competition for AI infrastructure.

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As AI rapidly increases demand for computing power, the question is no longer whether Britain has data centres, but whether it can expand the infrastructure needed to support the next generation of AI development.

Britain's Opportunity in the AI Economy

The UK enters the AI race with considerable advantages. It hosts one of Europe's largest cloud computing markets, globally competitive universities, a thriving AI start-up ecosystem and one of the world's leading financial centres. Recognising the strategic importance of digital infrastructure, the government designated data centres as Critical National Infrastructure in 2024 while launching [AI Growth Zones](#) intended to accelerate planning approvals and electricity connections.

Investor confidence has reflected these strengths. According to Barbour ABI, annual spending on UK data centres is projected to increase from [£1.75 billion in 2024 to £10 billion by 2029](#). Nearly 100 projects are planned nationwide, while major technology firms are expected to invest around £25 billion in UK digital infrastructure over the next five years. [Blackstone's proposed hyperscale campus](#) in northeast England illustrates the scale of private-sector interest.

Electricity Has Become the New Bottleneck

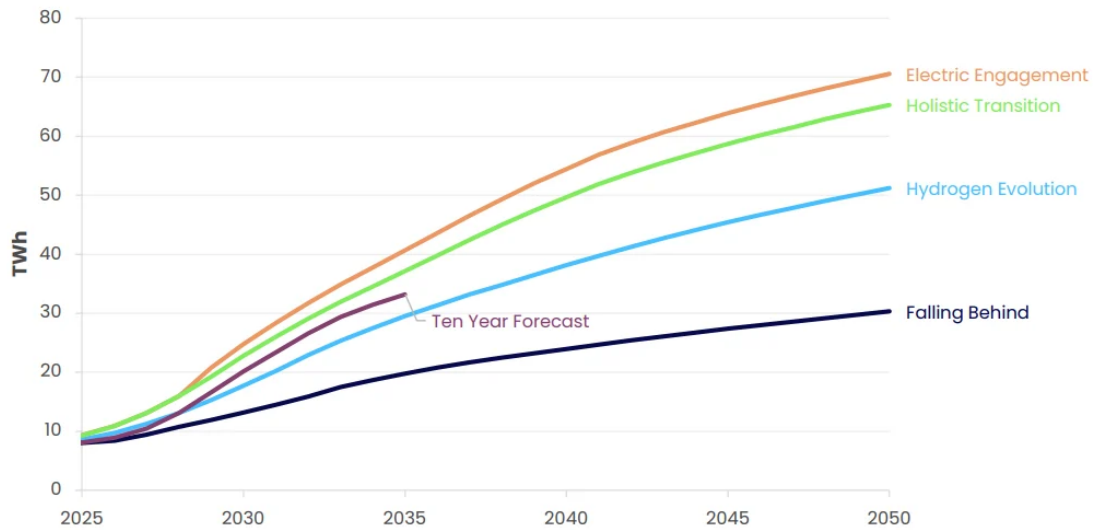
Yet attracting investment is proving to be the easier part. The greater challenge lies in converting announced projects into operational computing capacity. Increasingly, Britain's AI ambitions are colliding with long-standing weaknesses in electricity infrastructure, planning processes, and energy costs. Rather than a shortage of capital or technological expertise, the principal constraint has become the availability of power.

AI is also driving a sharp increase in electricity demand. [Data centres now consume](#) around 6% of electricity in both the UK and the United States, well above the global average of 2%. As their energy footprint continues to expand, concerns over grid capacity, environmental impacts and local opposition are becoming increasingly important considerations for policymakers.

Britain enters this competition with several structural disadvantages. [Industrial electricity prices remain among the highest in Europe](#) (Figure 2) and substantially above those in the United States, while developers frequently face years-long waits to secure grid connections. Microsoft has noted that although constructing a modern data centre may take less than two years, obtaining a grid connection can take several times longer, fundamentally altering project economics.

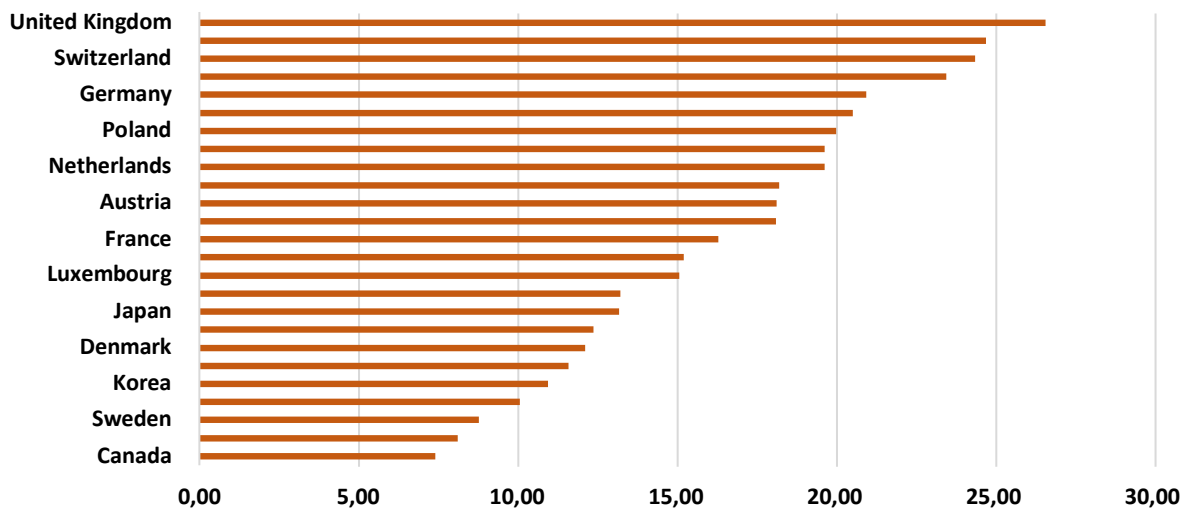
Between November 2024 and June 2025, requested grid connections increased from [41 GW to 125 GW](#), almost three times higher in less than a year. This is substantially greater than Britain's peak electricity demand of approximately 46 GW, highlighting the unprecedented scale of proposed future consumption. Data-centre projects account for the majority of these new applications.

Figure 1: Electricity Demand for Data Centers



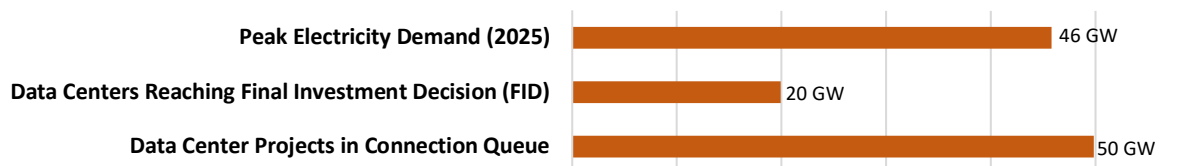
Source: [UK National Energy System Operator](#)

Figure 2: Industrial Electricity Prices Incl. Tax in the IEA, 2024 (Pence per kWh)



Source: DESNZ, [International industrial energy prices](#), Table 5.3.1

Figure 3: Data Center Demand Queue Rivals UK Peak Electricity Use



Source: [Bloomberg](#)

Ofgem's Balancing Act

The surge reflects not only genuine investment demand but also weaknesses in Britain's first-come, first-served connection system. Developers have frequently secured grid capacity years before projects were ready, allowing speculative applications to occupy scarce network capacity.

To address this problem, [Ofgem has proposed](#) one of the most significant reforms to Britain's grid connection regime. Developers would be required to pay refundable deposits of between £237,500 and £712,500 per megawatt, meaning a 1 GW hyperscale facility could be required to commit several hundred million pounds upfront. Projects would also need to meet strict construction milestones or risk losing both their place in the queue and their deposits. The regulator argues that these measures will ensure scarce electricity capacity is allocated to projects that are genuinely ready to proceed rather than speculative developments.

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The reforms nevertheless highlight a delicate policy trade-off. Removing speculative projects should accelerate viable investments, yet higher upfront costs may also discourage some developers in a market already characterised by elevated electricity prices and lengthy planning procedures.

Beyond London: A Regional Opportunity

The geographical distribution of investment may also begin to change. London remains Europe's largest data centre market, supported by dense telecommunications infrastructure and proximity to financial services. However, AI workloads are increasingly shifting investment priorities away from simple geographic proximity and toward access to electricity, land availability, and construction timelines. Regional locations such as the North East, Manchester, South Wales, and Scotland—particularly those benefiting from abundant renewable energy resources—are becoming increasingly attractive destinations for future development. This evolution aligns closely with the government's broader objective of promoting regional economic growth while easing pressure on the capital.

The Outlook: Delivering the Infrastructure Behind AI

Beyond the immediate infrastructure challenge lies a broader strategic question. Britain is unlikely to rival the United States or China in the sheer scale of data centre capacity. Instead, its comparative advantage may lie in combining advanced research, financial markets, specialised AI firms, and high-value services with sufficient domestic computing infrastructure to support innovation and safeguard strategic autonomy. Certain applications, including financial trading, healthcare, defence, and sensitive government services, will increasingly require low-latency processing or sovereign data storage, making domestic capacity strategically important even within an interconnected global cloud market.

Ultimately, Britain's AI ambitions will depend less on announcing new strategies than on delivering the physical infrastructure needed to support them. The country has already demonstrated that it can attract capital, foster innovation, and develop a competitive AI ecosystem. The remaining challenge is more prosaic but no less important: expanding electricity networks, accelerating planning decisions, and ensuring that grid capacity reaches viable projects quickly. In the emerging AI economy, competitive advantage will be determined not only by software and scientific breakthroughs, but increasingly by the infrastructure that powers them. If Britain succeeds in removing these bottlenecks, it is well positioned to become one of Europe's leading AI hubs. If not, the risk is that investment and the long-term economic value associated with it—will increasingly flow elsewhere.