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Data centres, energy and regional growth: a road map to success

DELIVERING A BETTER WORLD.

Contents

Adrian Del Maestro
Vice President
Global Energy Advisory,
AECOM

Growth in the data centre sector is accelerating at a rate that is reshaping global investment, energy systems and economic strategy.

This expansion is market-led, driven by consumer demand and powered by the rapid adoption of artificial intelligence across almost every part of the economy. AI is becoming embedded across sectors, from financial services and healthcare to manufacturing and public administration, driving a sharp increase in demand for computing power.

This growth is market-led and fuelled by unprecedented private investment. In 2026, it is estimated the world's largest tech firms will spend upwards $660 billion on data centre infrastructure.

Data centres have moved from the margins of the digital economy to its core. They now sit at the intersection of commercial ambition and geopolitics, raising questions about economic influence, resilience and who controls critical computing power.

As countries compete to establish leadership in AI, access to secure, affordable and scalable digital infrastructure is becoming a defining factor in national industrial strategies.

Against this backdrop, the UK faces a clear choice. Decisions taken now on power, planning and investment will determine whether the country captures long-term value from this growth – or sees AI investment consolidated in other regions.

This report examines how the UK can turn rapid growth in data centres into lasting economic advantage. It sets out the choices that will shape where infrastructure is built, how it is powered and how value is captured across the economy.

Executive summary

Our experience across the data centre sector points to four actions the UK must now take to turn growth into long-term value:

1.

We must actively steer where digital demand is located.

Data centre growth cannot continue to cluster by default in already constrained parts of the country. High-intensity computing should be directed towards locations where it strengthens the energy system, makes use of available capacity and enables heat reuse. Doing so would ease pressure on the grid, lower delivery risk and support more balanced regional growth.

2.

We must establish sovereign data centre infrastructure.

AI is set to drive unprecedented economic growth and will become a key measure of geopolitical success in the coming years. It is critical that AI data centres are established within the UK. Establishing a sovereign framework for AI workloads will not only protect critical data but also reinforce the UK's leadership in the AI driven economy.

3.

We must incentivise data centre players to sustainably improve the energy system.

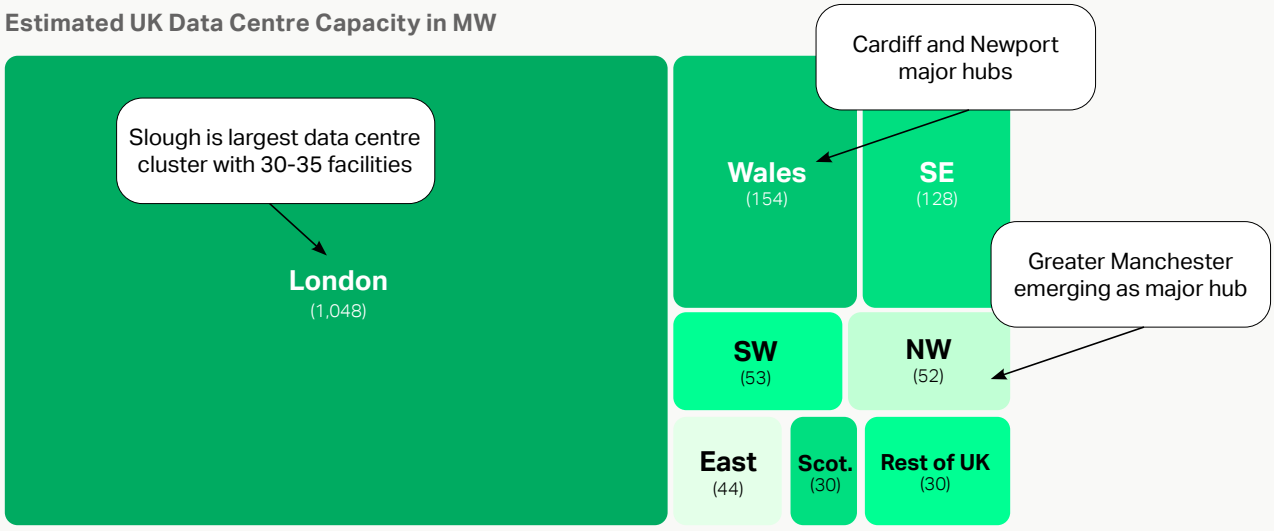
Future developments should do more than consume power and resources. Data centres that provide flexible demand, recover waste heat or incorporate on-site generation and storage should be prioritised over those that do not. Incentivising system-positive design would improve resilience, reduce costs and help secure public consent.

4.

We must treat data centres as engines of regional growth.

Major data centre investments should be planned as part of wider regional strategies, linking digital infrastructure to skills, energy and regeneration agendas. The UK Government's promotion of AI growth zones aligns with this vision, focusing on fostering innovation, driving regional economic growth, and ensuring equitable access to AI advancements. Done well, this would ensure benefits are visible, local and long lasting turning data centres into anchors for growth rather than isolated assets.

Estimated UK Data Centre Capacity in MW

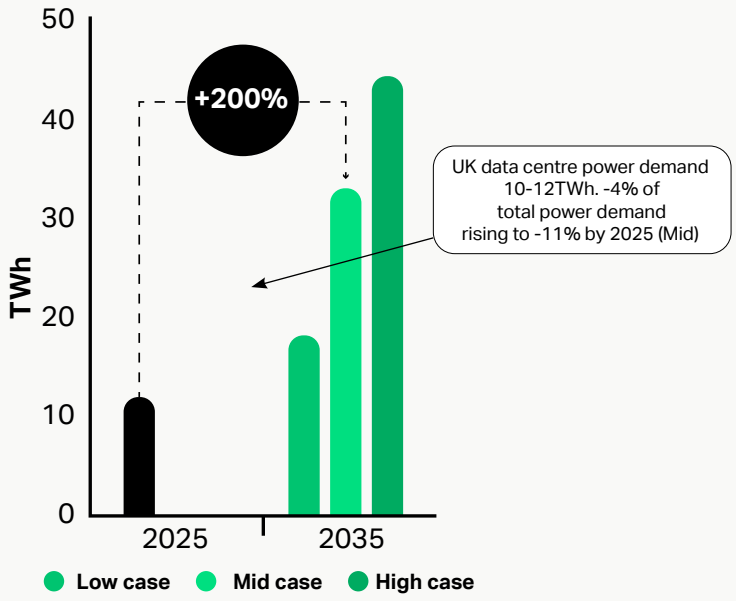


Source: House of Commons: Research Briefing 2025, Data centres: planning policy, sustainability, and resilience

> **This is a revolution. Over the last two years, the sector's growth has been exponential compared to the previous 20 years. It's an ecosystem that includes energy companies, water companies, investors, tech companies, hyperscalers, government, and original equipment manufacturers. Each of these players will benefit from the development and evolution of data centres, which will see up to £100 billion invested in delivering critical AI infrastructure to the UK.**

Mary-Ann Clarke, Director, Data Centre Delivery, AECOM

UK data centre power demand



Source: Aurora Energy Research: 2025, Impact of datacentres on GB power system

Eyes on the prize

The rapid expansion of data centres presents a significant economic opportunity for the UK. But the prize is not evenly distributed, nor is it a given.

Value will accrue to those parts of the system that can unlock land, power, water and integration at speed, and to governments that can create the conditions for investment while retaining strategic control.

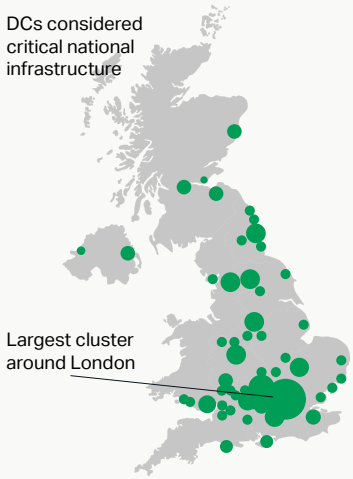
Powered land: the new strategic asset

Access to powered land is fast becoming one of the most valuable inputs in the data centre market. London remains the UK's dominant hub, benefiting from proximity to end users, network density and skills. But it is increasingly congested, with land scarcity and power constraints pushing costs up and timelines out.

As a result, attention is turning to organisations with existing real estate portfolios and grid connections that can be repurposed for data centre use. This includes industrial estates, logistics assets and legacy infrastructure sites, from decommissioned power stations to former chemical and manufacturing facilities, many of which already sit close to transmission or distribution networks.

For asset owners, this represents an opportunity to unlock new value from under used or transitional sites. For the UK more broadly, it opens the door to a more distributed data centre footprint, easing pressure on established hotspots while supporting regional growth.

UK data centre hotspots



Access to power: baseload, flexibility and new models

Data centres are among the most energy-intensive assets in the economy. Securing access to reliable, affordable power is now the defining challenge and opportunity for the sector.

In the near term, providers that can offer firm baseload supply will be critical. Internationally, this has seen data centres in the US rely on natural gas feedstocks for onsite power generation, with gas continuing to play a role in markets such as Dublin. At the same time, the development of Small Modular Reactors (SMRs) is being closely watched as a potential source of stable, low-carbon power for future data centre clusters, however, this will be a more medium to long term play.

Alongside generation, there is growing value in enabling access to power more intelligently. This includes combining renewables with battery energy storage systems (BESS), as well as deploying flexibility solutions. These range from virtual power plants to demand side response, with the latter allowing data centres to modulate demand vis-a-vis grid conditions.

Energy companies, spanning utilities, hydrocarbons and nuclear, will be central to the next phase of growth. In addition, we are starting to see nascent examples of technology companies making upstream investments in power generation, such as blending solar with storage solutions.

Water: from constraint to opportunity

While some water companies may be concerned by the implications of potentially increased water demand triggered by data centre proliferation, the growth of the data centre sector does represent an opportunity to generate new revenue streams.

New AI data centres do not require clean water for cooling, opening the door to the reuse of treated wastewater and final effluent. For water companies, this offers a route to diversify income while supporting a growing sector.

At the same time, the industry is moving away from water-intensive evaporative cooling towards closed-loop systems, reducing overall demand. There is also significant potential to apply AI within the water sector itself, improving efficiency, detecting leaks, optimising treatment processes and reducing operational costs.

Handled strategically, water need not be a brake on growth. It can become part of the solution.

Government, growth and AI sovereignty

Data centres sit at the heart of the UK's AI ambitions. More broadly, governments increasingly see AI as a driver of productivity and economic growth, as well as a magnet for international investment. Recent multi-billion commitments have been secured through high-level engagement with global technology firms underline the scale of capital that can be mobilised when conditions are right.

The UK benefits from regulatory stability, deep capital markets and a mature infrastructure ecosystem. These factors position it well to attract AI-enabled data centres and to host them domestically in a way that supports data sovereignty for sensitive public-sector and regulated workloads.

By aligning AI growth objectives with digital infrastructure strategy, government has an opportunity not only to attract investment, but to shape where value and control ultimately sit.

Whole systems thinking: beyond single assets

Perhaps the clearest message is the UK needs to move beyond siloed thinking. Data centres do not exist in isolation and rather they sit within interconnected energy, water and urban systems.

Waste heat from data centres can be recycled into district heating networks, supporting new residential developments or supplying existing assets, such as hospitals. **Our research** concluded that London's data centres are releasing enough waste heat to warm up to half a million homes each year and on-site generation and storage can reduce pressure on the grid while improving resilience. Integrated planning can ensure that data centres contribute to, rather than detract from, wider sustainability and regeneration goals and in the future, data centres may contribute power to the grid.

The prize lies in whole systems thinking. Designing data centre infrastructure not as standalone assets, but as active components of the UK's economic and energy future.

Key challenges

The opportunity presented by data centre growth is clear. What is less certain is whether the UK can overcome the constraints that increasingly shape where and how investment is deployed.

Power and grid connection delays

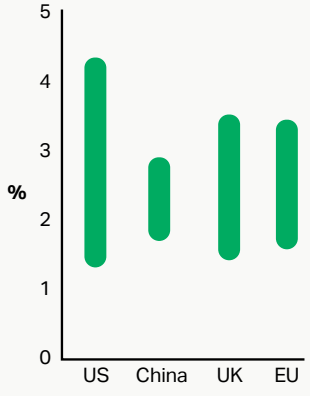
Access to power remains the single biggest constraint on data centre delivery. Demand for electricity from data centres is rising rapidly, yet grid connection times often extend far beyond typical development timelines.

In practice, data centres can be designed and built significantly faster than the transmission and distribution infrastructure required to support them. This mismatch is already delaying projects and, in some cases, diverting investment to markets where power is cheaper and more readily available.

Without faster, more predictable access to power, the UK risks undermining its competitiveness in one of the world's most mobile investment sectors.

Share of data centre electricity demand by region

Range of Data Centre Electricity Demand Estimates as a Share of Total Electricity Demand per Selected Region, 2022



Source: International Energy Agency, 2022

The cost of power

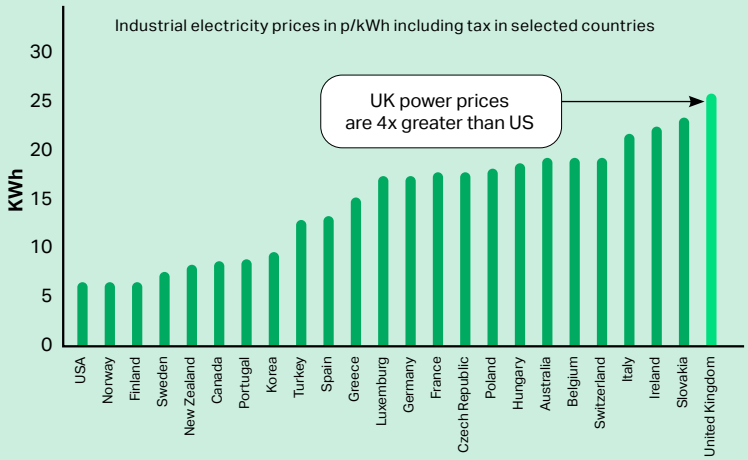
High energy costs compound the challenge of access. Electricity prices in the UK remain materially higher than in competing markets, particularly those seeking to attract AI training workloads, which are especially energy intensive. The cost of power is approximately 25p per kWh in the UK, compared to just 5p per kWk in China and 6p per kWh in the US.

This cost differential risks pushing the most valuable and compute-heavy activity elsewhere, leaving the UK to capture a smaller share of the value chain unless mitigated through system design, flexibility and alternative supply models.

Without action, this will likely stifle the UK's ability to compete internationally, particularly in the field of AI training.

Industrial electricity price chart

Costs are based on 2024 and include tax



Source: House of Commons: Research Briefing 2025, Data centres: planning policy, sustainability, resilience and IEA

Land availability and location constraints

Data centre sites have a long list of very specific requirements, including access to power, proximity to network infrastructure and end users, and more.

London and the south east continue to attract the majority of demand, but congestion, land scarcity and power constraints are limiting growth. At the same time, identifying suitable sites elsewhere requires alignment between landowners, utilities and planners, which is not always forthcoming.

Without clearer pathways to bring new powered land to market, the UK risks reinforcing existing bottlenecks rather than easing them.

Skills shortage

While data centres are not labour intensive once operational, they rely on a highly specialised workforce to design, build and maintain them.

Skills shortages are already evident across electrical engineering, digital infrastructure and operational roles. As global demand accelerates, competition for talent will intensify, creating risks to delivery timelines, cost certainty and long-term operational resilience.

Without action to grow and retain skills, capacity constraints will extend beyond infrastructure into execution itself.

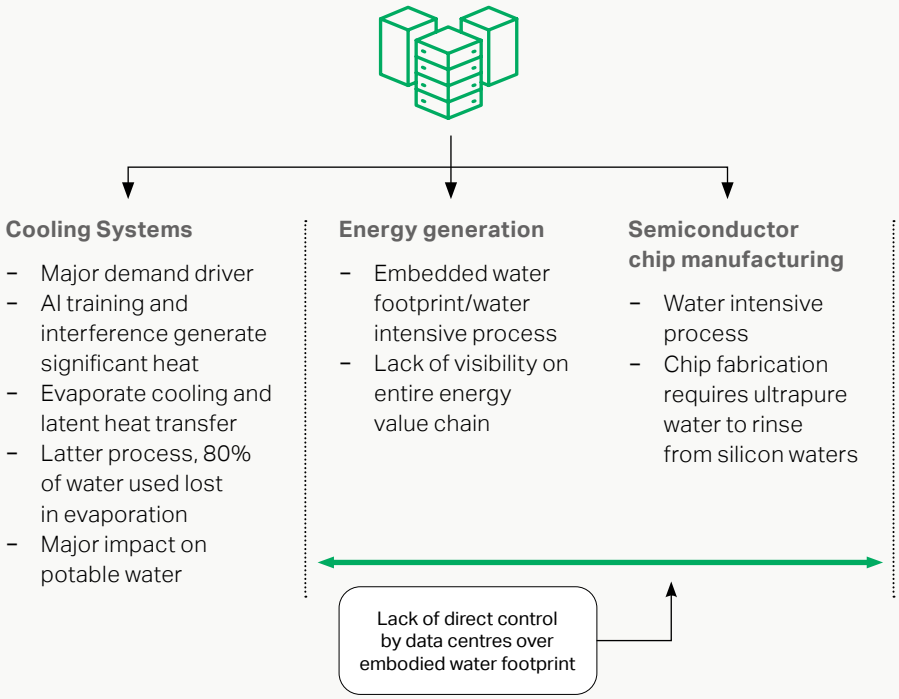
Water demand in water-stressed regions: busting the myths

Water use is often cited as a barrier to data centre development, particularly in water-stressed regions. Yet modern AI data centres are increasingly designed around closed-loop cooling systems and do not require potable water.

That said, legacy data centres still rely on more water-intensive approaches, and overall demand remains an important consideration in stressed catchments.

Water companies in the UK do not currently factor data centre demand into long-term planning, despite the sector's rapid growth. Better alignment between developers, water companies and local authorities will be essential to manage impacts transparently and sustainably.

Water demand profile of data centres



Source: Water use in AI and Data Centre by GSDA Planetary Impact Working Group

Engaging local communities

Despite their growing economic importance, data centres remain poorly understood by the public. Misinformation around energy use, water demand and environmental impact can quickly translate into local opposition.

Winning support will require a clearer market narrative, one that explains not just what data centres consume, but what they contribute. Visible local benefits, from jobs and skills to heat reuse and energy resilience, will be critical to maintaining consent as development accelerates.

> **A major challenge is power; we have projects where our client developers have had to pause projects because they can't be guaranteed a grid connection.**

Mary-Ann Clarke, Director, Data Centre Delivery, AECOM

Key enablers

It's clear that data centres will be fundamental to the future prosperity of the UK.

And the decisions we make today will decide whether or not we are able to remain competitive in the future.

So, what are the solutions that can accelerate the deployment of data centres?

Collaboration: the critical enabler

No single organisation can deliver the next phase of data centre growth alone. Power constraints, land availability, skills shortages and public consent all cut across traditional sector boundaries.

What is emerging instead are integrated partnership models that bring together capital, energy solutions and AI capability under a shared strategy. Recent moves by global investors, which have explicitly linked large-scale capital deployment with AI infrastructure, power solutions and technology partners, point to the direction of travel.

These models recognise that successful delivery depends on aligning three critical elements from the outset: long-term patient capital, access to reliable and scalable power, and the computing technologies – including chips and platforms – that make AI viable. When these elements are planned together, rather than sequentially, delivery risk is reduced and timelines shorten.

For the UK, this approach offers a clear lesson. Unlocking the next phase of growth will depend on partnerships that cut across traditional boundaries, bringing investors, utilities, technology providers, landowners and government into closer alignment around shared outcomes.

Grid reform

Reform of the electricity grid is central to unlocking data centre growth. While demand and capital are abundant, grid access has become the primary gating factor for delivery.

Recent efforts to overhaul the connections process, including the removal of speculative projects from connection queues and the shift away from rigid, first-come-first-served rules, are beginning to restore credibility to the system by prioritising projects that are ready to build and aligned with wider system needs.

But reform must now go further. Grid access needs to move decisively from a queue-based exercise to an outcomes-led approach, where connection timelines, reinforcement and flexibility are aligned with national priorities and delivery readiness.

Greater transparency will be critical. Clearer visibility on capacity, reinforcement plans and realistic connection dates would allow developers and investors to make informed decisions earlier, reducing wasted time and capital.

Sovereign digital infrastructure

As AI becomes embedded across public services and regulated sectors, the question of where sensitive data is stored and who controls the infrastructure that hosts it is becoming increasingly material.

The market alone is unlikely to deliver sovereign capacity at scale. Public sector demand is fragmented, procurement cycles are short, and returns are often less predictable than those offered by hyperscaler-led developments.

Enabling sovereign digital infrastructure will therefore require clear demand signals from government, longer-term contracting models and targeted public participation to anchor capacity in the UK.

This is about ensuring that critical workloads are hosted within secure, accountable frameworks aligned with national interests.

Handled well, sovereign infrastructure can crowd in private capital, strengthen resilience and give the UK greater strategic control over a critical layer of its digital economy.

New energy solutions

Given the scale and urgency of demand, reliance on conventional grid connections alone will not be sufficient.

There are a growing range of alternative energy solutions that can accelerate delivery and reduce pressure on the network. These include on-site generation and microgrids, as well as the integration of renewables with battery energy storage systems.

Flexibility solutions, such as demand response and virtual power plants, also offer a way for data centres to support grid stability while securing earlier access to power.

Looking further ahead, the development of Small Modular Reactors is being closely watched as a potential source of stable, low-carbon baseload for future data centre clusters.

Strategic coordination to unlock land and capacity

Bringing new powered land to market requires earlier and closer coordination between landowners, planners, utilities and infrastructure providers.

More strategic alignment, particularly around grid reinforcement, water capacity and planning consent, can reduce uncertainty, cut risk and accelerate delivery. Joined-up decision-making is essential if growth is to be directed towards locations where it delivers the greatest system-wide benefit.

Without this coordination, constraints will continue to compound.

Incentivising system-positive design

Finally, enabling growth at scale will require a shift in how data centres are valued.

Developments that reuse waste heat, provide flexible demand or incorporate on-site generation and storage can actively strengthen the systems they depend on. Making these features easier to deliver and commercially attractive would help move the sector towards more resilient, publicly acceptable models of growth.

About this report

This report draws upon the insights gathered from a round table discussion that included representatives from the data centre and energy sectors, as well as investors and government officials. Additionally, it incorporates our proprietary in house knowledge and extensive experience in the field.

Future considerations

The next phase of data centre growth will be defined less by demand than by decisions. How the UK aligns power, planning, capital and technology over the coming years will determine whether this infrastructure delivers lasting economic value or simply expands by default.

Whole systems thinking

There needs to be a focus on whole systems thinking: building the infrastructure for AI-driven data centres could have ramifications and unintended consequences. This could include avoiding the siting of AI growth zones in water-stressed regions and advocating for the integration of waste heat recycling into district heating networks.

Unlocking value

Corporates need to identify where the opportunities are in this evolving ecosystem. This will range from companies figuring out how to unlock value from powered land for data centre developers, to the role of OEMs (Original Equipment Manufacturers) in providing power solutions.

Community engagement

Community engagement will be critical for future success. Industry stakeholders from data centre owners, energy providers and government will need to articulate a compelling narrative that highlights the benefits of data centres in driving economic growth and enabling digital transformation, while also addressing potential environmental impacts transparently.

Partnerships

The complexity of the evolving AI data centre market means no stakeholder can single handedly exploit success. Governments, corporates, investors and communities will need to work together to deliver a sustainable growth model for data centres.

About AECOM

AECOM is the global infrastructure leader, committed to delivering a better world. As a trusted professional services firm powered by deep technical abilities, we solve our clients' complex challenges in water, environment, energy, transportation and buildings. Our teams partner with public- and private-sector clients to create innovative, sustainable and resilient solutions throughout the project lifecycle – from advisory, planning, design and engineering to program and construction management. AECOM is a *Fortune 500* firm that had revenue of $16.1 billion in fiscal year 2025. Learn more at aecom.com.

Mary-Ann Clarke
UK and Europe Data Centre Lead, AECOM
+44 (0)7808 077 817
mary-ann.clarke@aecom.com

Adrian Del Maestro
Vice President, Global Energy Advisory, AECOM
+44 (0)7551 606 610
adrian.delmaestro@aecom.com

aecom.com