

Data Centre Regulations:

Building the rules to make UK AI infrastructure world class

By The REA's Data Centre Coalition



How proportionate, well-designed regulation can answer the public's concerns and make the UK a serious contender in the global race for AI infrastructure

The UK faces a genuine dilemma on AI infrastructure. The potential economic prize is enormous: domestic data centres bring [high-quality jobs, anchor renewable investments](#) and underpin robust productivity gains. The public concern is also real: planning inquiries fill with questions about water, energy and grid stability, and those questions deserve honest answers rather than unreliable reassurance. The task for government is to write rules firm enough to be credible, smart enough to work, and fast enough to matter.

Regulation should therefore start from a different question: not how to manage the problems data centres create, but how they can help Britain solve its energy challenge. Data centres are potential providers of dispatchable generation, investors in local energy infrastructure, enablers of industrial decarbonisation and anchor loads for renewables-led economic growth. Data centres attract huge swathes of international capital, power the development of AI, support

advanced manufacturing and defence, and create the demand that helps underwrite new renewable projects.

The REA's Data Centre Coalition brings together developers, operators, energy providers and infrastructure specialists from across the data centre value chain. Its purpose is to identify practical solutions that support both clean power delivery and AI infrastructure growth, and the asks below reflect a variety of stakeholders pulling in the same direction.

The REA's Data Centre Coalition proposes a framework that does exactly that, through seven measures that are proportionate, technically grounded and fair to every operator, large or small. Two of these measures address the questions asked most often in public: water and grid stability. Three address the substance of Britain's climate commitments: on-site dispatchable generation, clean power and flexibility. Two address a problem that gets far less attention than it deserves but does more than anything else to determine what really gets built: how the system decides which projects go ahead, and whether it rewards the best of them or merely the best-funded. Taken together, these seven measures ensure that the data centres Britain builds are ones it can truly be proud of.

Proposed Framework Measures

1. Set world-leading water efficiency standards.
2. Require grid citizenship, not grid dependency.
3. Treat on-site generation as a strategic national asset.
4. Set a minimum clean energy standard.
5. Make flexibility the default, not the exception.
6. Connect the best data centres, not the best-funded.
7. Treat waste heat as a resource, not a by-product.

1. Set world-leading water efficiency standards.

Water use is the concern that generates the most noise in planning hearings, and it is also the easiest to resolve definitively. The anxiety is understandable: an older open-loop data centre on a warm summer day can evaporate tens of millions of litres of water. Modern closed-loop systems do not. They circulate the same water through sealed circuits, with no loss to the environment and no visible steam plume. Evaporative cooling per se is not necessarily the villain it is sometimes made out to be: many hyperscale operators use it, many international standards permit it, and some high-density AI

workloads may be best served by a hybrid approach. What matters is how much water a site consumes, not which technology it uses to stay cool.

The UK should establish world-leading efficiency standards for new data centres and set a statutory cap (we suggest 0.3 litres per kWh of IT load) as the maximum permissible water consumption intensity, reviewed every two years as technology improves. Such a target would make best practice the floor, while leaving operators free to choose how they meet it. It removes a legitimate local concern about water abstraction and river impact at near-zero cost to operators already using modern cooling, and it gives government a clean, unambiguous line to hold in public: new British data centres are among the most water-efficient in the world.

2. Require grid citizenship, not grid dependency.

The June 2026 near-miss on the US east coast, when a cascade of data centre disconnections briefly threatened grid stability across several states, has sharpened attention on this issue in the UK. EirGrid, Ireland's system operator, has already introduced fault ride-through requirements for new data centres. NESO will do the same; the only question is whether the UK shapes that process proactively or reacts to the next incident.

The REA Data Centre Coalition urges the government to introduce a two-tier grid stability framework for large-load connections:

- **Tier 1 - fault ride-through, immediate and low-cost:**

all new data centres above 5 MW must use uninterruptible power supplies that remain connected through standard voltage dips and short supply breaks, rather than tripping offline and worsening disturbances. This is already standard in modern UPS specifications and represents negligible additional cost. It should be mandatory from day one.

- **Tier 2 - backup generation as a grid asset, phased and regionally calibrated:**

data centres above 50 MW register their backup generation capacity with NESO and make it available for dispatch in defined grid-support windows, with the terms (frequency, notice, price) set regionally. A bank of generators in Slough, for example, is a last resort; the same capacity in Scotland, where grid constraints are more acute, is a genuine peaking asset for the grid.

A word of caution: Ireland's experience is instructive. EirGrid's Tier 1 requirements (voltage and frequency ride-through) make eminent sense, but its Commission for Regulation of Utilities (CRU) subsequent requirement that backup generation be separately connected to the grid and placed independently into the capacity market, goes further than the evidence supports. Its

proposed requirement to match 80% of consumption with net-new renewables dispatched into the network also risks flooding the wholesale market with unscheduled generation at times of low demand, depressing prices and reducing developer returns. Good intentions, badly specified, produce bad markets, a useful lesson for the UK before it writes its own rules. Data centres are not a systemic grid risk; handled correctly, they are part of the grid stability solution.

3. Treat on-site generation as a strategic national asset.

Backup generation is usually discussed as a grid-support mechanism. It deserves to be seen as something bigger. A great deal of behind-the-meter generation is under consideration, and some is already under construction, across the data centre sector. Those assets can materially support grid resilience, capacity adequacy, renewable integration and black-start functionality.

Data centres should be encouraged to deploy dispatchable on-site generation capable of supporting both facility resilience and wider system security. Planning and regulatory frameworks should recognise the value of appropriately specified low-carbon generation technologies, including renewable gas, hydrogen-ready engines and future net-zero dispatchable technologies.

4. Set a minimum clean energy standard.

Data centres should be required to demonstrate a meaningful share of their electricity consumption is matched, on an hourly basis, with genuinely additional renewable generation within a set period of connection. Hourly matching is the key phrase: annual averaging allows an operator to buy cheap renewable certificates in January and run on gas in July, whereas hourly matching (already adopted by many leading operators) drives investment in the new capacity the grid actually needs at times of peak demand.

This standard should be met through direct power purchase agreements (PPAs) with new-build UK renewable projects, co-located generation, or verified time-matched procurement through the grid, with a rigorous additionality test: certificates retired from existing assets that would have been built anyway should not count. Data centres are already the largest source of corporate PPAs globally (roughly 40% of all deals signed in 2025 according to BloombergNEF). A mandatory standard would turn that voluntary leadership into a market-wide floor, ensuring even the least sustainability-conscious operators contribute to new renewable build, and directly accelerate the UK's Clean Power 2030 target.

5. Make flexibility the default, not the exception.

Modern AI data centres can

shift workloads, defer non-time-critical tasks and absorb surplus renewable generation in ways that most industrial loads cannot. [ECA estimates that up to 50% of data centre load is inherently flexible](#), and that unlocking it could add 1.6-3.3 GW of flexibility to the UK system by 2035.

New data centre connections should be required to register a demand flexibility agreement with NESO, setting out the proportion of load that can respond to price signals or dispatch instructions within defined windows. Participation in NESO's flexibility markets should be a condition of grid connection, not an optional extra, and time-of-use connection charges, already under development, should be accelerated to give flexibility a proper price signal.

6. Connect the best data centres, not the best-funded.

The connections queue is the single biggest constraint on UK data centre deployment, and government's current instinct (most visibly NESO's proposed non-refundable commitment fee) is to solve it with money. That is understandable, but the wrong answer. A fee filters the queue by who can afford to pay, not by who has designed the best project. Pushed hard enough, it simply screens the queue down to the hyperscalers' own self-build programmes and the largest US real estate trusts, squeezing out the the UK developers and specialist operators that

government says it wants to see grow, without improving the quality of a single project that gets built.

The alternative is to let NESO rank the queue on merit. Give NESO an explicit mandate (potentially through its Regional Energy Strategic Plans) to publish the criteria that make a data centre project genuinely valuable to the grid and the communities around it: co-location with renewable generation, credible heat-reuse commitments, willingness to accept non-firm or flexible connections, demand response, and proximity to curtailed renewable capacity that would otherwise be constrained off. Projects that meet more of those criteria move up the queue; those that do not, wait. A modest commitment fee should remain, sized to cover the cost of assessment rather than to act as a wealth filter, with a further payment due only once a project is promoted into the group genuinely being taken forward for connection that cycle.

This is not exotic. Some US grid operators are already moving toward batch-based processes that require applicants to bring their own dispatchable generation to qualify for early connection, precisely because first-come-first-served queues stopped working once demand outstripped capacity. The same logic should extend into planning: central government should set out, for local planning authorities, the characteristics that make a data centre a good neighbour - local heat use, local employment, genuine grid support - so planners have a defensible

basis for rewarding real local benefit rather than being left to adjudicate between competing multinational balance sheets. Done properly, this gives ministers and NESO alike a simple, popular answer to the question a merit-based queue is really designed to settle: select the best project for the UK, not the best-funded project.

7. Treat waste heat as a resource, not a by-product.

Government is still an advocate of district energy, heat networks and industrial decarbonisation, yet the heat that data centres produce in abundance is too often simply vented. Waste heat should be considered a resource, not a by-product. New data centres should be designed with heat export in mind, and planning policy should treat a credible plan to supply nearby homes, businesses or industry as a mark in a project's favour. The same commitments should count when NESO ranks connection applicants, as set out above.

The prize

Taken together, these measures - world-leading water efficiency standards, grid stability standards, a national role for on-site generation, a clean energy floor, mandatory flexibility, a merit-based connection queue and a push to put waste heat to work - produce a data centre sector that uses much less water, drives new renewable capacity, supports the grid with

dispatchable power, responds to price signals like the grid-aware asset the system needs, and channels investment toward the projects that do most for the UK rather than those with the deepest pockets. That is the regulatory dividend. Not a trade-off between growth and public confidence, but both at once.

What to avoid: the airport security trap

Every regulatory debate has its something must be done moments. The temptation, especially under public pressure, is to reach for the most visible instruments rather than the most effective one. Ireland's experience shows what that instinct can produce: well-intentioned rules that create perverse incentives, push investment to other jurisdictions and ultimately fail to deliver the outcomes they promised.

The same trap sits closer to home. A blunt efficiency cap eliminates the worst performers, but on its own gives nobody a reason to go further than the minimum, it simply sets a new floor that the market duly meets and no more. Additionally, a connections queue filtered purely by ability to pay a commitment fee will produce a satisfying headline about the queue getting shorter, while quietly filtering out exactly the developers and technologies government says it wants to encourage, in favour of whichever balance sheet is largest. Both are the regulatory equivalent of banning liquids at airport security: visible, easy to explain,

and only loosely connected to the risk it claims to manage.

The REA Data Centre Coalition is not asking government to go easy on this sector. We are asking for rules that genuinely work: technically grounded, proportionate in cost, equal across all operators, and designed with the system-level consequences in mind. The seven measures above meet that test. The REA's Data Centre Coalition stands ready to work with DESNZ, NESO and the Planning Inspectorate to develop the detailed specifications.

Appendix: share the savings, don't mandate the spend

Developers build to the efficiency figures their tenants' contracts specify, typically a power usage effectiveness of 1.2-1.3 and have no reason to go further: the capital cost falls on the developer, while the saving accrues to the tenant who pays the power bill. Government need not mandate technologies, which would freeze today's solutions in place, instead government could set a default. Where a developer funds a verified efficiency measure that takes a building below its contractual cap, or on-site generation such as rooftop solar, the resulting saving would be shared with the tenant for an agreed period, split evenly unless the parties agree otherwise. A standard default spares deal teams a bespoke renegotiation on every site and opens a market for British cooling and heat-recovery specialists.



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