

Thrive Or Die - Energy And Utilities

UK Energy And Utilities Edition — When AI's Own Appetite Becomes The Disruption

A Charterhouse Consultants white paper by Bridget Convey, September 2025.

Executive Summary

Every other paper in this series treats AI as a technology being adopted within a sector. Energy and utilities is different: here, AI is also the customer, and its appetite for electricity is now large enough to delay UK housing. Data centre demand for grid connections in Great Britain has reached roughly 50 gigawatts in Ofgem's queue, more than the country's entire current peak electricity demand of approximately 45 gigawatts. In parts of West London, completed housing developments have been warned they may not receive a full grid connection until 2037, specifically because data centre capacity is competing for the same constrained network. This paper argues that UK utilities face the standard capability to governance gap this series describes, but they face it as both regulator of the disruption and a direct casualty of its side effects at the same time.

The Premise: The Gap Is The Danger, Not The AI

In October 2023, a group including Turing Award winners Yoshua Bengio and Geoffrey Hinton, alongside Stuart Russell, Daniel Kahneman and more than twenty other senior AI researchers, published a consensus paper in the journal *Science* on the risks of advanced AI. Their argument was precise. AI capability and autonomy are increasing rapidly. Companies and institutions are shifting toward systems that can act and pursue goals with reduced human oversight. Governance is not keeping pace with that shift. The danger they describe does not come from AI itself. It comes from the widening gap between what a system can now do on its own and how closely anyone is still watching it.

That paper is about safety and governance at a societal scale. It does not comment on corporate or institutional strategy, and I want to be precise about that rather than overstate its relevance. What it gives this paper is not an endorsement, it gives us the mechanism. Capability grows. Autonomy grows. Oversight does not grow at the same rate. In UK energy specifically, the gap is visible in the distance between how fast data centre connection requests have grown, National Grid's own chief executive describes a surge in the last twelve months alone, and how quickly the regulator, Ofgem, has been able to build rules to manage a connection queue that already exceeds the country's peak demand.

This is the basis for the claim in the title. Thrive or die is not a slogan layered on top of the argument. It is the plain consequence of the mechanism. An organisation that builds governance at the same pace it builds AI capability closes the gap and survives it. One that lets capability outrun governance does not get a soft landing.

Thrive Or Die: The Pattern In Organisations That Did Not Close The Gap

Kodak invented the first digital camera in 1975 and its own internal research predicted by 1981 that digital would eventually replace film. What it did not close was the governance gap between that capability and a business model still built entirely around film margins. The company filed for bankruptcy in 2012, thirty seven years later. Blockbuster was offered the chance to buy Netflix outright for fifty million dollars in 2000, declined, and filed for bankruptcy in 2010, having eliminated close to eighty four thousand jobs in the collapse. Both prove the same point. The danger was never a lack of capability. It was a governance gap left open until it was unmanageable.

Kodak and Blockbuster show what happens when an incumbent lets a known capability sit unmanaged. UK energy shows a different variant again: a regulator and network operator managing a capability they did not create and cannot slow, arriving faster than the infrastructure built to carry it. National Grid's own projections show data centres could consume up to 9 percent of UK electricity demand by 2035, up from 2.6 percent today, and the company's chief executive has described a marked surge in connection requests specifically over the past year. Ofgem's response, a 'use it or lose it' rule introduced in early 2026 to clear a data centre connection queue that had reached roughly 50 gigawatts of requested capacity against the country's approximately 45 gigawatts of peak demand, is a regulator closing a governance gap in real time, under visible pressure, rather than proactively ahead of it. The clearest evidence that this gap has real-world consequences, not theoretical ones, is in London, where housing developments have been told they may wait until 2037 for a full grid connection because data centre capacity is already competing for the same network.

The Evidence In UK Energy: A Regulator Closing The Gap Under Pressure, Not Ahead Of It

Two pieces of evidence show the scale of the capability arriving, and how the system managing it is responding, largely reactively, in real time.

The Connection Queue Already Exceeds Peak Demand

Ofgem data shows around 140 proposed data centre projects in Great Britain seeking grid connections with a combined demand of approximately 50 gigawatts, more than the country's current peak electricity demand of roughly 45 gigawatts. Not all of these projects will be built at full scale, but the scale of the request itself illustrates the mechanism this paper is built on: capability, in this case demand for AI compute, arriving faster than the institutions responsible for allocating grid capacity can process it. National Grid's chief executive John Pettigrew has publicly described a surge in connection requests specifically over the past twelve months, and the company's own projections show data centres reaching up to 9 percent of UK electricity demand by 2035, up from 2.6 percent today.

London Housing Delayed To 2037: The Gap Made Concrete

In parts of West London, including Hillingdon, Hounslow and Ealing, completed housing developments have been warned they may not receive a full grid connection until as late as 2037, a direct consequence of data centre capacity competing for the same

constrained network capacity. Twenty-nine known data centres in London already account for close to a fifth of the city's electricity use. National Grid has responded with initiatives such as its Emerald AI trial, using AI itself to help data centres flex their consumption around peak demand periods, a genuine thrive-path response, using capability to manage capability, rather than simply restricting connections. Ofgem's 'use it or lose it' reform, requiring operators to demonstrate genuine, viable demand before capacity is allocated to them, is the regulator's parallel attempt to close the same gap from the allocation side.

UK Energy And Utilities In Three Horizons: The Gap Closes Or It Does Not?

If the gap between capability and governance is the real variable, then each horizon below has two outcomes, not one. These are deliberately stated as firm positions, not hedged possibilities, because a board conversation needs something to agree or disagree with.

Two Years: 2026 To 2028

What happens everywhere: Ofgem's reformed connection rules and National Grid's flexibility trials are tested against a still-growing data centre connection queue.

- Thrive path. Grid connection reform and flexibility technology, in the Emerald AI pattern, scale together, so data centre growth is increasingly absorbed through smarter demand management rather than only through new physical capacity that takes years to build.
- Die path. Connection reform manages the queue on paper while physical grid capacity constraints continue to delay housing and other essential connections in the most affected regions, and the trade-off between AI growth and other national priorities becomes a public political issue rather than a managed technical one.

Five Years: 2028 To 2031

What happens everywhere: data centre electricity demand continues its projected rise toward high single-digit percentages of total UK demand.

- Thrive path. UK utilities and grid operators that invested early in AI-managed demand flexibility, following the National Grid and Emerald AI model, turn what began as a capacity crisis into a genuine competitive advantage in attracting further data centre and AI infrastructure investment, on the basis that the grid can actually support it.
- Die path. Utilities that treated data centre demand purely as a connections and capacity problem, without building flexibility and demand management capability, face a permanent, growing backlog between requested and deliverable capacity, with housing and industrial connections continuing to lose out.

Ten Years: 2031 To 2036

What happens everywhere: the relationship between AI infrastructure growth and national grid capacity planning becomes a permanent, structural feature of UK energy policy, not a temporary adjustment.

- Thrive path. The UK becomes a reference case for managing AI's own resource footprint deliberately, with grid capacity, demand flexibility and AI growth planned as one integrated system rather than three separate policy questions.
- Die path. The UK never fully closes the gap between AI-driven demand growth and grid capacity, and the trade-off between hosting AI infrastructure and meeting other national needs, housing chief among them, remains an ongoing, unresolved tension rather than something governance actually solved.

What I Am Recommending To Energy And Utilities Boards

- Treat AI-driven demand flexibility, in the National Grid and Emerald AI pattern, as core infrastructure investment, not an experimental trial, since it is currently one of the only levers that can absorb demand growth faster than new physical capacity can be built.
- Engage directly with the housing and planning consequences of data centre connection priority now, rather than treating grid allocation as a purely technical question separate from wider public and political consequences.
- Build capacity allocation rules, in the spirit of Ofgem's 2026 'use it or lose it' reform, proactively rather than reactively, since the connection queue data shows the gap between requested and viable capacity is already large enough to distort other national priorities.

Conclusion

Energy and utilities is the one sector in this series where AI is not simply being adopted, it is also the demand pressure the sector now has to govern. Ofgem's own connection queue data, at roughly 50 gigawatts against a national peak demand of around 45 gigawatts, shows a capability to governance gap operating at national infrastructure scale, and London's housing delays to 2037 show that gap is not theoretical, it is already reshaping people's lives. Kodak and Blockbuster took decades to demonstrate the cost of an unmanaged gap. In UK energy, the cost is being measured in real time, in gigawatts and in years of delay, and the institutions responsible for closing it, National Grid and Ofgem, are visibly working to close it under pressure rather than ahead of it.