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# AI for Climate: Redesigning the UK's Net-Zero Planning

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Our AI for Climate series explores what an AI-enabled climate policy programme could look like in the UK, examining how AI can make climate action faster, cheaper and fairer, and how the government can prepare to lead in applying AI solutions to climate change.

## Executive Summary

Britain's net-zero transition is being held back by the way it is being planned.

The transition is no longer about delivering individual projects in isolation. It requires the coordinated transformation of energy, transport, land use, industry and the built environment at the same time. Yet these sectors are still largely designed and delivered separately, with their own rules, approval regimes, investment cycles and data frameworks. That approach made sense when the task was to expand infrastructure such as energy, transport and utility networks incrementally. But it is increasingly mismatched to a transition that depends on electrification, clean heat, industrial decarbonisation and new infrastructure being delivered together and in a sequence that reflects their interdependencies.

In a net-zero economy, decisions are tightly coupled. Electric vehicles (EVs) reshape local power demand, heat pumps and cooling alter when and where electricity is used, storage and flexibility determine grid stability, land-use choices affect where renewables, networks, housing and nature recovery can coexist, and industrial decarbonisation creates new demands

for transport, pipelines and grid capacity. As these choices increasingly shape one another, the infrastructure, institutions and data involved in delivering net zero no longer function independently. They now operate as a single, interconnected system. Yet responsibility for planning and coordinating that system remains fragmented. Departments, regulators and local authorities each control part of the transition, but no one is responsible for how these decisions add up or for resolving the trade-offs between them.

AI can help change that – not by replacing planning, but by giving government a clearer, shared view of the transition and making it manageable at scale.

Used well, AI can provide the system-wide intelligence the transition currently lacks. This means creating a shared understanding of how energy, land, transport, industry and climate resilience interact, and what that means for siting, sequencing and investment. It can surface emerging constraints, test trade-offs between competing uses of land or capacity, and show how choices in one part of the system shape what is possible elsewhere. That system-wide visibility also has direct implications for energy demand and cost. As electrification expands, overall electricity demand will rise, but what ultimately drives cost is not volume alone. It is when and where demand materialises, particularly in the form of peak load and local network stress. By anticipating those dynamics in advance, AI-enabled planning can reduce avoidable grid reinforcement, limit balancing pressures and support more efficient sequencing of infrastructure.

This also matters because the consequences of weak coordination are already being felt. Electrification, digitalisation and decarbonisation are advancing simultaneously, placing pressure on finite resources such as land, grid capacity, skills and supply-chain capacity. Decisions that were once taken sequentially now need to be taken together and with much greater foresight. When they are not, infrastructure arrives late or in the wrong places, constraints are discovered after commitments are made, and delivery becomes slower, more expensive and less predictable.

While public support for net zero remains strong at 60 per cent, fewer than one in five believe that Britain will actually achieve it, indicating widespread doubts about how well it is being delivered.<sup>1,2</sup> Interest in switching to EVs or clean heat remains high, but more than half of potential adopters cite weak or unreliable infrastructure as a barrier. Only a small minority believe infrastructure is being planned in a joined-up way. In short, people support the transition, but they do not yet experience it as a system that works.

Britain is already beginning to use AI to respond to these coordination pressures – from improved forecasting and network management to early digital-twin pilots and modelling of industrial clusters. These efforts show what is possible. But they remain fragmented and largely unable to shape planning and investment decisions across the system as a whole. The tools to model and track these impacts – from smart meters to digital twins – already exist, but they are not yet integrated into a coherent system that links forecasts, decisions and real-world outcomes.

Addressing this requires changes to how government plans, coordinates and governs infrastructure. Many of these reforms would strengthen delivery in any case. What makes them urgent now is that AI can only improve outcomes if it operates on shared, high-quality, system-level intelligence and is embedded in real decision-making processes.

In practice, this means:

1. **Creating a shared view of the system for delivering net zero**, so that AI models operate on consistent, authoritative data rather than fragmented sectoral inputs.
2. **Connecting local decisions to national outcomes**, allowing AI to link place-based development to system-wide constraints and sequencing needs.
3. **Ensuring system-level intelligence shapes real planning, regulatory and investment decisions**, so that AI-generated insights are not advisory but operational.

4. **Treating data and digital capability as critical climate infrastructure**, providing a shared national digital platform with the compute, data access and governance needed for AI to function reliably at scale.
5. **Aligning incentives so that contributing to shared intelligence becomes the default**, ensuring AI has access to the timely, trusted data it depends on.

Together, these changes allow AI to move from fragmented pilots to a practical tool for delivering net zero at pace and scale. Without them, AI will optimise within silos, but with them, it can help government manage the transition as a system. And when planning works in this way, delivery becomes tangible. Infrastructure appears where demand is growing, clean heat and industrial decarbonisation are supported by networks that can handle them, and land-use decisions balance energy, housing, nature and resilience. This kind of visible competence matters not as a communications exercise, but as proof that net zero can be delivered in ways that work for places and people.

Embedding AI in how Britain plans and coordinates the net-zero transition is therefore not primarily a technical challenge, but a design challenge for the modern state. It requires governing a more complex system in ways that remain coherent, intelligible and capable of delivery, and that can adapt based on measured outcomes.

# 01

## The Challenge With Delivering Net-Zero Infrastructure Today

Embedding AI in the way Britain plans and coordinates infrastructure would change not just how fast it builds, but how effectively it delivers net zero.

The challenge is not simply scaling infrastructure, but transforming how the system functions as a whole. Delivering net zero requires the simultaneous reconfiguration of energy supply and demand, transport, land use, housing, industry and climate resilience. Electrification, clean heat, low-carbon transport, industrial decarbonisation and adaptation must be delivered together, and in the right order, for emissions to fall affordably and reliably. Yet the institutions and tools used to plan infrastructure were designed for incremental expansion of stand-alone sectors, not for managing tightly coupled transitions under uncertainty.

As a result, building the infrastructure needed for net zero is slow, fragmented and misaligned. Projects are planned and delivered through overlapping processes and institutions that rarely work in step, even though their decisions increasingly shape the same outcomes: emissions, land use, network capacity, resilience and public confidence.

A typical local net-zero project – for example, a cluster of EV chargers, a neighbourhood heat network, a battery supporting new housing or a mixed-use development expected to meet net-zero standards – begins with a developer and council team stitching together partial answers from multiple institutions. Planning policy, highways, parking and freight access, flood risk and land-use designations elsewhere are all managed through separate institutional processes. The council must consult on land use, the distribution network operator (DNO) confirms capacity and upgrades, highways sign off on access, environmental bodies review impacts, and multiple funders each require their own business case.

None of these processes share a live view of future demand, land constraints, climate risk or emissions impact, so decisions are made sequentially and revisited as assumptions change. Even once approvals are secured, procurement cycles, skills shortages and traffic-management windows can push delivery into the next financial year.

This fragmentation has real consequences. As of 2025, the UK's grid-connection queue – dominated by renewable and storage projects – had reached over 750GW of capacity requests.<sup>3</sup> Connection timelines have stretched into years rather than months, with many projects facing waits nearing six years, delaying delivery of low-carbon infrastructure at precisely the point it is meant to unlock decarbonisation.<sup>4</sup> Meanwhile, the National Audit Office highlights planning approvals and grid connections as major bottlenecks for EV-charging rollout, and a survey of local authorities found 42 per cent cite grid capacity and related delivery challenges as barriers (rather than technology or demand issues).<sup>5,6</sup> Public charging infrastructure remains unevenly distributed. London alone accounts for around 30 per cent of public charge points, with rural areas significantly less well served.<sup>7</sup> These patterns reflect both capacity constraints and institutional fragmentation that frustrate coherent delivery.

Government bodies such as the Department for Energy Security & Net Zero (DESNZ), the Department for Transport (DfT) and the Ministry of Housing, Communities & Local Government (MHCLG), alongside regulators including Ofgem, Ofwat and the Environment Agency, run parallel processes with different data, incentives and timelines. No single actor is responsible for how decisions across energy, transport, housing, land use and resilience add up to a functioning decarbonised system. As electrification and climate impacts accelerate, this lack of ownership across the system becomes more damaging: local priorities, network upgrades, land allocations and national programmes drift out of sync, and constraints are discovered only after commitments are made.

The result is a delivery system that moves slowly and unevenly, holding back emissions reduction and increasing cost. Capacity checks and consents happen step by step rather than in parallel, so grid, transport or land

constraints are often uncovered late, after sites have been allocated or projects designed. Clean infrastructure clusters in places with the strongest delivery capacity, while progress elsewhere lags, reinforcing regional inequality in access to net-zero benefits.

Crucially, councils and delivery partners often lack consistent, interoperable data on building stock, land availability, infrastructure capacity, climate risk and future demand. This makes siting and sequencing defensive, rather than strategic. For net zero, this is not a marginal issue: the order and location of development determine long-term emissions, system costs and resilience. Housing built in locations incompatible with low-carbon transport locks in car dependency, developments that cannot support heat networks or cooling resilience hard-code future retrofit costs, and industrial sites chosen without regard to infrastructure corridors or flood risk constrain decarbonisation options later. Short funding windows and unaligned budgets further inhibit coordination, while consultation often happens late, leaving trade-offs opaque and local benefits hard to see, fuelling opposition and delay.

In effect, Britain is trying to deliver a deeply interdependent net-zero transition with tools designed for isolated projects. The outcome is a system that lacks a clear view of itself, and so it typically plans reactively, duplicates effort and struggles to translate national ambition into local progress that people can see and feel.

## 02

## How AI Changes the Game

An AI-enabled planning system would replace today's legacy model with one that is integrated, anticipatory and adaptive, reflecting the realities of decarbonisation. Its value for net zero lies not simply in speed or efficiency, but in its ability to manage interdependence, spatial trade-offs and sequencing at scale – the features that now define the transition.

AI can integrate data across sectors and places in ways directly relevant to net-zero outcomes. Instead of stitching together partial answers from multiple institutions, decision-makers can work from a shared, system-wide view: connecting housing growth to grid and transport capacity, land-use decisions to emissions, biodiversity and climate risk, industrial clusters to infrastructure corridors, ports and skills, and local development plans to national decarbonisation pathways. This allows planners to test trade-offs explicitly – for example, where renewables, housing and nature recovery can co-locate, or where development would undermine long-term resilience – before decisions are locked in.

AI also shifts planning from reacting to demand towards anticipating it, which is central to net zero – particularly since electrification will increase overall electricity demand over time. Because costs are driven not by total demand alone but by when and where that demand appears (particularly peak load and local network stress), AI-enabled planning allows government to anticipate reinforcement needs, reduce constraint and balancing costs, and sequence infrastructure more efficiently by modelling those dynamics in advance. The impact is not lower demand per se, but a lower cost of meeting that demand than under a fragmented, reactive approach.

By analysing patterns in population change, technology adoption, land use, energy demand and climate conditions, AI can forecast where electrification pressure, infrastructure constraints or climate risks are likely to emerge. This enables infrastructure and development to be aligned ahead of need, rather than retrofitted after problems appear, reducing delays, avoiding bottlenecks and preventing high-carbon or maladaptive lock-in.

Figures 1 and 2 set out how AI-enabled planning would transform both decision-making and system operation.

FIGURE 1

## How the net-zero delivery system thinks and decides

Old model	New model
Linear planning → build → review	Continuous sensing, forecasting and adjustment
Separate departmental models	Shared, federated data environment
Reports for ministers	Live dashboards for joint decisions
Regulation by process	Regulation by outcomes
Static capability	Learning system

Source: TBI analysis

FIGURE 2

## How the system operates and learns

Old model	Intelligent delivery model
One-off national plans updated every few years	Rolling, data-informed delivery pipelines updated quarterly or annually
Fragmented project management	Shared “system dashboards” across departments and regulators
Post-hoc evaluation	Continuous performance monitoring and policy adjustment
Fixed regulatory settlements	Dynamic performance incentives (e.g. Ofgem price controls linked to flexibility outcomes)

Source: TBI analysis

Finally, AI makes it possible to test net-zero pathways before committing to physical delivery. Digital models allow planners to explore multiple spatial and infrastructure scenarios in parallel, assess trade-offs in real time, and understand how the timing and sequencing of investments affect emissions,

cost and system performance. Grid reinforcement, flexibility, EV charging, heat networks, housing growth and industrial infrastructure can be planned and delivered in an order that minimises carbon, and avoids competing demands for the same land and assets. As millions of distributed assets and developments come online, AI can enable them to operate as a coordinated system, extracting greater decarbonisation and resilience from existing infrastructure before building more.

The result is infrastructure planned with foresight rather than hindsight, which is delivered as a system rather than a collection of projects, and can adapt as technology, behaviour and climate risks evolve. For net zero, this is the difference between a transition that stalls under its own complexity and one that delivers visible, reliable progress. When planning works this way, decarbonisation becomes faster, more predictable and more intelligible – both to the institutions responsible for delivery and to the communities expected to live with the outcome.

FIGURE 3

# Real-world examples of how AI supports net-zero planning

SHIFT FROM SILOED TO SYSTEMIC	
Example	What it shows
Australian Energy Market Operator and AI-enabled integrated system modelling (Australia)	Uses AI-supported scenario modelling to optimise generation, storage and transmission as one system.
Kevala (US)	Applies machine learning to fuse grid, land-use and building data into a unified planning-intelligence platform.
SHIFT FROM REACTIVE TO ANTICIPATORY	
Example	What it shows
Electricity System Operator with DeepMind (UK)	AI forecasting to predict wind generation and system constraints hours ahead.
Kraken Flex, Octopus (UK)	Uses AI to forecast EV and heat-pump load patterns and orchestrate distributed assets in advance.
SHIFT FROM ADMINISTRATIVE TO PREDICTIVE	
Example	What it shows
Newcastle & the Connected Places Catapult digital twin (UK)	AI-enabled digital twin used to test infrastructure scenarios, impacts and sequencing before decisions are made.
Mott MacDonald's Moata (UK)	Machine-learning models used to assess system interactions and optimise infrastructure options across sectors.
SHIFT FROM FRAGMENTED TO COORDINATED	
Example	What it shows
California Independent System Operator's AI-enabled demand response (California)	AI-powered coordination of millions of devices to manage peak demand and avoid grid stress.
Piclo Flex (UK/EU)	Uses algorithmic matching and AI optimisation to coordinate flexibility bids between DNOs and distributed assets.
SHIFT FROM FRICTION TO TRUST	
Example	What it shows
National Infrastructure and Service Transformation Authority's AI-supported system pathway modelling (UK)	Uses AI-enhanced modelling to explore long-term net-zero pathways and communicate system trade-offs.
Lightship (US)	AI-driven infrastructure visualisation tools that help communities and regulators understand project impacts and alternatives.

Source: TBI analysis

## 03

# What Needs to Change: Enabling AI to Transform Net-Zero Delivery

If AI is to meaningfully improve how the UK plans and delivers net-zero infrastructure, government must address a deeper constraint than technology adoption. AI tools exist and are being trialled, but the state lacks the shared intelligence, institutional capacity and operating conditions required to use them at scale.

If the UK wants AI to fundamentally improve how net-zero infrastructure is planned and delivered, it must first rebuild this intelligence layer. Five key changes are required, and together they define the minimum conditions under which AI can move from isolated pilots and analytical exercises to a genuine delivery capability.

## 1. Creating a Shared View of the Net-Zero Delivery System

AI cannot improve planning if actors do not have a shared view of how the net-zero system behaves. At present, information on demand, network capacity, land constraints and climate risk is fragmented across departments, regulators, network operators and local authorities. Each institution holds a partial picture, shaped by its own remit, data standards and incentives. The result is a planning system that operates sequentially rather than collectively, with interdependencies managed late and trade-offs discovered only after commitments have been made.

Net zero makes this fragmentation more consequential. Because the transition is path-dependent – meaning early decisions shape and limit what can happen next – late discovery of constraints does not just slow delivery. Instead, it locks in higher costs and reduces future options. Decisions about where to build homes, where to site industry or how quickly to electrify transport shape network requirements for decades. When those

decisions are taken without a shared view of the system, the result is avoidable reinforcement, stranded assets and infrastructure built in the wrong order.

Government must therefore establish a shared, authoritative view of the net-zero system that integrates data across sectors and across national, regional and local levels, and reflects how decisions interact in practice over time. This is not about centralising control or removing institutional responsibilities. It is about ensuring that actors making decisions that affect the same outcomes are working from a common, system-level evidence base.

However, data alone do not create a shared view. A system-wide perspective also requires common modelling assumptions and an institutional home for integrating and interpreting information across sectors. Government should therefore designate the National Infrastructure and Service Transformation Authority (NISTA) to steward a single, integrated national system model that combines cross-sector intelligence and aggregates interoperable local inputs. Building on its existing role, NISTA should act as the neutral custodian of system-wide intelligence, integrating data and publishing a consistent set of assumptions about demand, sequencing and risk. This function would not override departmental or regulatory decisions. Rather, it would provide an authoritative reference point for how sectoral and local choices add up, ensuring that institutions are working from compatible assumptions.

Without this, fragmented intelligence will continue to produce fragmented outcomes, regardless of the sophistication of the tools applied to it. The capability to measure policy impacts already exists in part, through smart meter data, network telemetry and digital twins that can show how demand patterns, peak load and system costs respond to policy changes. What is missing is the integration of those data streams into planning and regulatory processes. Without that integration, policy impacts are observed retrospectively rather than used to refine decisions in real time. Models will continue to reflect partial perspectives, and AI will at best optimise within silos rather than improving outcomes for the system as a whole.

**Recommendation:** *DESNZ should define a core set of climate-critical data sets and common standards for net-zero planning, supported by the Department for Science, Innovation & Technology (DSIT) through the forthcoming National Data Library. Ofgem, Ofwat and the Office of Rail and Road (ORR) should embed data-sharing requirements into regulatory frameworks. In parallel, government should designate NISTA to steward a national system model built on shared data and assumptions, providing an authoritative system-wide view to inform cross-sector planning and sequencing.*

## 2. Connecting Local Decisions to National Outcomes

Net zero is inherently spatial. Clean-energy deployment, housing growth, transport demand, retrofit needs, cooling load and climate risks all vary dramatically by place. At the same time, place-based decisions aggregate into national system outcomes, shaping network requirements, emissions trajectories and resilience at scale. Yet today, local and national planning largely operate in parallel. Local authorities make decisions without a clear view of national capacity constraints or system priorities, while national planners model pathways that are insufficiently grounded in the realities of specific places.

This disconnect has practical consequences. Housing growth can be allocated in locations that are expensive or slow to serve with low-carbon heat and power. Local transport and charging strategies can move ahead of network reinforcement or flexibility. National infrastructure plans can assume patterns of demand and uptake that are not reflected in how places actually develop. In each case, the problem is not poor judgement at either level, but the absence of a mechanism that allows local and national decisions to inform one another in real time.

AI can only add value if local and national intelligence are connected. For planning to become anticipatory rather than reactive, government must ensure that decisions taken in one place are visible and accessible across the system, and that national strategies are continuously informed by

granular local data. Without this connection, AI-enabled models will either remain abstract and disconnected from delivery, or become highly localised tools that cannot shape system-level outcomes.

Achieving this requires a clear framework for interoperability. MHCLG should establish standards for local digital models that capture land use, building stock, local energy demand and relevant climate risks in consistent ways. These models do not need to be complex or bespoke; their value lies in compatibility rather than sophistication. Standardised structures and assumptions would allow insights from local planning to travel up the system, rather than remaining locked within individual authorities or consultancy studies.

To avoid entrenching existing capacity gaps, central government should also ensure that participation does not depend on local technical resources. Shared tools, templates and funding support are essential if all places are to contribute to, and benefit from, AI-enabled planning. Without this, system intelligence will be skewed towards areas with the greatest analytical capacity, reinforcing regional inequalities in delivery.

In parallel, national government needs a way to integrate and interpret this local intelligence. A system-level model is required to combine place-based data with network information, climate scenarios and national pathways, and to surface areas in which coordination or sequencing are needed. NISTA is well placed to steward this capability, providing a neutral, authoritative view of how local decisions interact and where they collectively create constraints or opportunities. Importantly, this local-to-national function should operate as part of the same national system model, rather than as a separate modelling exercise.

Without this connection between place and system, AI-enabled planning cannot prevent spatial lock-in that undermines decarbonisation or resilience. With it, government gains the ability to align local development with national needs, sequence infrastructure more effectively and ensure that decisions taken across the country add up to a coherent net-zero transition rather than a patchwork of place-by-place compromises.

**Recommendation:** *MHCLG should set standards for interoperable local digital models, supported by shared tools and funding so all authorities can participate. These local models should feed into a single national system model, stewarded by NISTA, which integrates cross-sector, network and climate data to show how place-based decisions shape system-wide outcomes, and to guide coordination and sequencing across the transition.*

### 3. Ensuring System-Level Intelligence Shapes Real Decisions

AI does not change outcomes simply by producing better analysis. It changes outcomes when intelligence shapes the evidence that decision-makers are able – and required – to rely on. In infrastructure planning, delivery and regulation, this distinction is decisive.

At present, even high-quality modelling often sits outside the statutory processes that determine what actually gets built. Planners, regulators and delivery bodies continue to rely on static, inconsistent evidence that reflects individual sectors or projects rather than interactions across the net-zero delivery system. AI-enabled analysis may exist alongside these processes, but because it is not aligned with how decisions are formally taken, it rarely shapes outcomes in practice.

This creates a familiar failure mode. New analytical tools generate insight about demand, constraints or sequencing, but those insights arrive too late, are expressed in unfamiliar formats, or cannot be cited in Local Plans, business cases or regulatory determinations. As a result, intelligence that could improve decisions remains advisory, while formal decisions continue to be made on narrower or outdated evidence.

For AI to influence delivery, system intelligence must therefore be translated into practical tools that align with how decisions are made. Government's role is not to mandate specific technologies, but to ensure that shared intelligence can be used consistently across planning, permitting and investment processes.

DESNZ and MHCLG should lead the development of standardised, reusable planning tools that embed system-level intelligence in forms that planners and delivery bodies can actually use. This includes tools such as local demand models, heat-zoning templates and climate-risk overlays, built around shared assumptions and designed to plug directly into local planning workflows. Critically, these tools should produce outputs that are compatible with statutory processes, building out evidence that can be referenced in Local Plans, cited in business cases and scrutinised in regulatory or inquiry settings.

Standardisation matters here not to limit local discretion, but to ensure comparability and coherence. When different local areas work from incompatible models or assumptions, their insights cannot be easily compared or aggregated, and national coordination becomes harder. Shared tools provide a common analytical baseline, while still allowing local judgement about priorities and trade-offs.

Without this translation layer, AI will continue to sit alongside decision-making rather than inside it. Analysis will improve, but outcomes will not. Embedding system-level intelligence in the tools and templates that shape real decisions is therefore essential if AI is to move from informing debate to changing what gets built, where and in what order.

**Recommendation:** *DESNZ and MHCLG should develop standardised, reusable planning tools that translate system-level intelligence into evidence usable within statutory planning, permitting and investment processes, ensuring AI-enabled insights shape real decisions rather than remaining advisory.*

## 4. Treating Digital Capability as Critical Climate Infrastructure

Net-zero delivery is a multi-decade challenge, yet digital capability is still treated as experimental, short-term and peripheral. Planning teams, particularly at the local level, often lack sustained access to the compute, modelling environments and analytical support needed to use AI

consistently. Where capability does exist, it is frequently tied to time-limited pilots or consultancy-led projects that cannot be maintained, scaled or integrated into routine decision-making.

This approach is fundamentally misaligned with the nature of the transition. Delivering net zero depends on continuous forecasting, scenario-testing and adaptation as demand, technology and climate risks evolve. This requires digital capability that is durable, shared and embedded instead of sporadic, bespoke or reliant on external expertise. AI can only support delivery if data, compute and modelling are treated as long-term public infrastructure, in the same way that networks, institutions and regulatory frameworks are.

Government therefore needs to invest in digital capability as part of the core infrastructure of the transition. DSIT should lead the development of a shared national platform for data access and system modelling, building on the research foundations of the Data and Analytics Facility for National Infrastructure (DAFNI) but evolving them into an operational, government-facing capability. This shared digital platform would provide the data infrastructure, compute environment and governance frameworks within which the national system model and associated planning tools operate. This capability should have stable governance, long-term funding and clear accountability, and be designed to support real planning and delivery decisions rather than short-term experimentation.

Critically, this infrastructure must be accessible across the system. Regulators, local authorities and delivery bodies should all be able to use common modelling environments and data sets, ensuring that system intelligence is not concentrated in a small number of well-resourced institutions. Without this shared access, AI risks reinforcing existing inequalities in delivery capacity, accelerating progress in some places while leaving others further behind.

Treating digital capability as climate infrastructure is therefore not about technology for its own sake. It is about ensuring that the institutions responsible for delivering net zero have the enduring capacity to plan ahead,

coordinate across sectors and adapt as conditions change. Without that institutional durability, AI capability will remain fragmented and uneven, and its impact on delivery will remain limited.

**Recommendation:** *DSIT should invest in a shared national platform for data access and system modelling, building on DAFNI to create an operational, government-facing capability with stable governance and long-term funding, accessible to regulators, local authorities and delivery bodies.*

## 5. Aligning Incentives to Support Contribution to Shared Intelligence

Even with shared data, interoperable models and usable tools in place, AI-enabled planning will fail if key actors opt out. Net-zero delivery depends on the coordinated behaviour of many institutions whose individual decisions shape collective system performance. At present, however, sharing intelligence is often optional, unrewarded or under-resourced. Network operators, local authorities and private-sector actors face few incentives to contribute data beyond their immediate obligations, even when that information is essential to planning outcomes elsewhere in the system.

This creates a structural weakness. AI cannot compensate for partial visibility or uneven participation. AI's value depends on timely, trusted inputs from across the system. If contributing to shared intelligence relies on goodwill or ad hoc arrangements, the system will default to fragmented evidence and reactive coordination.

Government must therefore ensure that contributing to shared system intelligence becomes the rational default. For regulated sectors, this is primarily a regulatory task. Regulators – particularly Ofgem, Ofwat and ORR – should embed data-sharing and data-quality expectations directly into regulatory frameworks and price controls, treating the provision of climate-relevant intelligence as a core component of performance. This is a natural extension of regulators' existing roles in setting information requirements, transparency obligations and incentives, rather than a new or discretionary function.

For private-sector actors operating outside direct price regulation – such as charge-point operators, flexibility providers, aggregators and building-management platforms – government should establish clear, governed routes for participation with defined data requirements, accredited access and agreed safeguards, rather than relying on voluntary disclosure. DSIT, working with DESNZ and regulators, should define accredited data-sharing frameworks that specify the data required for planning and coordination purposes, how these data can be accessed and under what safeguards.

These frameworks should prioritise privacy-preserving access, proportionality and clarity of use, enabling relevant operational data to inform planning without creating open-ended commercial or privacy risks. The aim is not blanket openness, but predictable, trusted pathways for contributing information that benefits the system as a whole.

Local authorities present a different challenge. Many councils already hold critical planning and spatial data, but lack the resources to maintain this information to consistent standards or integrate it into wider system intelligence. Expecting local authorities to shoulder this burden without support would entrench existing inequalities in delivery capacity. Central government support is therefore not an additional policy ambition, but a precondition for system-wide participation. This support need not take the form of open-ended new funding streams; it can be delivered through existing mechanisms, including targeted capacity funding, shared tools and centrally provided data services linked to statutory planning and net-zero responsibilities.

The objective across all actors is the same, which is to align incentives so that contributing to shared system intelligence supports faster delivery, lower costs and more predictable outcomes. This is not about centralisation or micromanagement. It is about recognising that net zero is now a collective delivery problem, and that AI can only improve outcomes if the rules, incentives and institutions that govern participation are designed accordingly.

**Recommendation:** *Regulators should embed data-sharing and data-quality expectations into regulatory frameworks and price controls, making contribution to shared system intelligence a core performance requirement. DSIT, working with DESNZ and regulators, should establish accredited, privacy-preserving data-sharing frameworks for private-sector actors. Central government should support local authorities to meet data standards through targeted capacity funding, shared tools and centrally provided services linked to net-zero and planning responsibilities.*

# Conclusion

Britain's ability to plan and deliver the net-zero transition will determine whether national ambition translates into real progress on the ground. As infrastructure becomes more interdependent, the challenge is no longer simply one of investment or execution, but of coordination. AI can help address that challenge – not by replacing the judgement of policymakers, planners or regulators, but by giving them a clearer, shared view of the net-zero delivery system they are collectively responsible for shaping.

The value of AI in this context lies in its ability to strengthen how the state plans, sequences and coordinates action across energy, transport, land use, housing and industry. It allows the effects of policy choices on demand, system costs and infrastructure performance to be forecast in advance and tracked in practice. Used well, it can therefore improve foresight, surface trade-offs earlier and help decisions taken in different parts of government add up to a coherent whole. But this potential will not be realised through isolated pilots or technical upgrades alone. It depends on whether government is equipped to generate, share and act on system-level intelligence with data, tools, incentives and responsibilities aligned accordingly.

If Britain builds these foundations, AI can help turn net-zero ambition into delivery that is timely, coherent and trusted. Infrastructure can be planned and built in the right places and in the right order, core infrastructure can operate more reliably for households and businesses, and decisions can feel connected rather than fragmented. That kind of visible competence is what will sustain public confidence – and what will ultimately determine whether the transition works in practice.

# Endnotes

- 1 <https://yougov.co.uk/politics/articles/53366-how-far-does-the-public-support-net-zero>
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