Running Dry

England's Water Security Crisis

Affinity Water

Contents

Executive Summary

England faces a projected water supply deficit of five billion litres per day by 2050.[1] Closing this gap will require both reduced demand and new sources of supply, yet current plans rely disproportionately on the former while the infrastructure to deliver the latter remains decades from completion in most cases. No major reservoir has been built since the early 1990s, despite a substantial increase in population.[2]

Despite the reforms proposed in the government white paper, the regulatory framework remains fragmented, with no single body accountable for aligning water availability with housing targets, economic growth objectives, and environmental protection. The rapid growth in data centres, central to the government's artificial intelligence (AI) strategy creates an additional pressure concentrated in the most water stressed parts of the country.

Meanwhile, climate change intensifies these pressures and the planning system continues to treat this challenge as a modelling input rather than a strategic risk demanding precautionary investment.

This report argues that England lacks a credible national water security strategy. It examines the limitations of the current planning framework, the evidential weaknesses in demand reduction assumptions, and the consequences of regulatory fragmentation. Ultimately, it sets out **seven recommendations** to address the structural weaknesses in England's water security framework:

1. Publish a statutory National Water Security Strategy with binding commitments and clear accountability. Commitments on per capita consumption must be grounded in savings that have actually been delivered — not targets that were set but not met. Companies have invested significantly in demand management activities, but results have not matched projections. Any future commitments must be accompanied by clear government funding and delivery mechanisms, not assumed in advance of action.

2. Develop a National Water Transfer Network to enable strategic movement of water across England.

3. Place the Regulators' Alliance for Progressing Infrastructure Development (RAPID) on a statutory footing with enhanced coordination powers.

4. Introduce an Environmental Restoration Levy to fund catchment-scale remediation. In practice, this would include river restoration, wetland creation, and habitat enhancement, funded by a levy on sectors responsible for water quality degradation. Government, not water companies or their customers, would administer the fund. The levy framework should be clear about what interventions qualify and how outcomes are measured.

5. Integrate water availability into the planning system through a tiered development framework.

6. Require progressive water charging and mandatory efficiency improvements for large non-household users such as data centres. Rather than audits — which can be completed without any resulting action — the requirement should be for mandatory efficiency improvement plans with binding targets and published progress reports. Water re-use and circular economy innovations should be encouraged as part of this process.

7. Reform economic regulation to prioritise long-term asset health and resilience. This should also explicitly require companies to increase system-level resilience by removing single points of failure and reducing reliance on single sources of supply, maintaining a balance between groundwater and surface water sources to guard against source-specific climate vulnerability.

Introduction

The message is clear: we can no longer continue to take water for granted.

Environment Agency

The Parliamentary Under-Secretary of State for Water and Flooding, Emma Hardy, has rightly emphasised that 'a secure water supply is essential for every home and business throughout the country. It is the foundation of our economy, our communities and our global security'.[4] Her statement reflects a growing recognition across government that water is not merely an environmental concern but a precondition for economic activity and national resilience. Translating that recognition into effective policy, however, has proved more difficult than acknowledging it.

The Environment Agency has not understated the challenge, describing the issue of England's water supply as 'critical', warning of 'an urgent need to deliver actions to adapt to the impacts of climate change to protect the environment, improve the resilience of water supplies and to safeguard the economy from future periods of prolonged dry weather and drought'.[5] It is now widely accepted that without decisive action, England faces a projected supply–demand deficit of approximately five billion litres per day by 2050, equivalent to more than one-third of today's total public water supply. This is a substantial shortfall, yet even this figure may understate the true scale of the problem. Current projections do not fully account for emerging sources of demand, including data centres, housing, and other growth sectors that government policy is actively seeking to expand.[6]

This projected deficit is also largely driven by the legal requirement on companies to reduce abstraction, primarily groundwater abstraction from chalk aquifers, by significant amounts to protect chalk streams and groundwater-dependent habitats. Combined with rising demand from population growth and the reduction of baseflows caused by climate change, these three factors create a compounding challenge that no single intervention can resolve.

It is important to note that these emerging demand pressures, particularly from data centres, are very recently arising issues. Their omission from current plans is not a historical oversight but reflects the pace at which the sector has grown and the slowness of the regulators to respond. The fact that data centres are not included in the Environment Agency's recently issued National Framework, which will guide the upcoming round of water resource planning is puzzling. The challenge for planning frameworks is to adapt rapidly to incorporate them.

5bn

litres per day projected supply–demand deficit by 2050 in England without decisive action

The policy response has failed to keep pace. Current water resources management plans rely heavily on demand-side reductions while supply-side investment remains chronically insufficient. The Climate Change Committee's 2025 progress report found that the average observed supply-demand balance across England's public water systems is at nearly the same level today as it was in 2019/20.[7] For too long, water companies have been unable to build the essential infrastructure required to meet growing demand. Meanwhile, plans have assumed water resource savings from changes in individual behaviour that have not materialised and are unlikely to unless driven by government.

The consequences of supply limitations are becoming more pronounced. In 2025, following one of the driest springs in England since records began, with rainfall among the lowest in over 160 years, prolonged dry conditions prompted some water companies to activate drought plans and implement Temporary Use Bans (TUBs). By mid-2025, TUBs were in force for nearly 9 million people, over 10% of England's population.[8]

Water scarcity is also constraining growth across housing, regional development and wider economic resilience. Analysis by Public First indicates that limits on water availability could remove around £25 billion from the UK economy over the next five years through stalled housing delivery alone, with an estimated £7 billion in lost tax revenues as a result.[9] The House of Commons Public Accounts Committee has similarly warned that weaknesses in planning and regulation at Defra and the Environment Agency mean that supply shortfalls and inadequate wastewater capacity are already impeding housing and commercial development.[10]

This report argues that England lacks a credible national strategy to secure water supply. It is disappointing that the recent government white paper on water reform stops well short of recommending a national water security strategy and only puts forward limited and piecemeal proposals in this area. That said, its proposal to create a single combined economic and environmental regulator is welcome.

The current planning framework is too narrow in scope, covering public water supply but not total water use. It is too dependent on demand-reduction assumptions that lack a robust evidential foundation and is too slow to deliver supply infrastructure at the pace required to offset abstraction reductions, accommodate growing water-intensive industries, and respond to intensifying climate pressures.

The government has also begun to address the supply-side deficit at the scale the evidence now demands. Through Ofwat's PR24 settlement for 2025–30 (AMP8), the sector has been set on a path to deliver around £104 billion of largely private-sector funded investment, almost doubling the previous five-year period.[11]

> **Planning continues to rest on wholly unrealistic assumptions about behaviour change, with supply chronically underinvested as a result.**

However, this investment is heavily skewed towards waste water – particularly overflow reduction. But there is a difference between intentions and delivery. The regulatory system remains fragmented and interventions piecemeal. Planning continues to rest on wholly unrealistic assumptions about behaviour change, with supply chronically underinvested as a result. The consequence is a system increasingly unable to withstand either prolonged drought or sustained growth.

A Case Study: Affinity Water

The pressures facing England's water system are not evenly distributed. They are most acute where economic productivity and environmental pressures are highest and water availability lowest, and nowhere does this tension play out more clearly than the region Affinity Water supplies in the South East of England.

Affinity is the UK's largest water-only supplier serving 3.9 million customers and delivering approximately 943 million litres of drinking water every day.[12] It supplies both dense urban communities and rural areas including outer London and the home counties, placing it at the heart of the second largest regional economy in the UK. It also serves three major airports including Heathrow, key NHS facilities, and the Slough-West London corridor, which hosts the UK's highest concentration of data centres.

Despite being a high-growth zone, the Environment Agency classifies much of Affinity's supply area, home to 10% of the world's rare chalk streams, as 'seriously water-stressed'. Affinity relies heavily on groundwater abstractions from the chalk aquifer, although this reliance is likely to change as new strategic sources, such as the Grand Union Canal Transfer and White Horse Reservoir, are developed. Chalk aquifers recharge typically during wet winter periods over a window of weeks/months thus being vulnerable to successive dry winters. The chalk streams that rely mostly on baseflow from the chalk aquifer, are now subject to strengthening environmental protections.[13] By 2050, as new strategic sources come online, the split may be closer to 60% surface water and 40% groundwater, compared with approximately 60% groundwater today.

The Environment Agency has recently determined that current abstraction levels are unsustainable in many of Affinity's catchments and under the Water Industry National Environment Programme (WINEP) and the Environmental Destination Programme, the company faces mandated reductions that may require significant cuts to licensed abstraction by 2055 up to 68% (of its chalk groundwater licensed volume). The Environment Agency states this is necessary to preserve chalk stream flows and groundwater-dependent habitats.[14]

125

data centres are either proposed or under construction, with some individual facilities requesting supplies of up to 35 litres per second

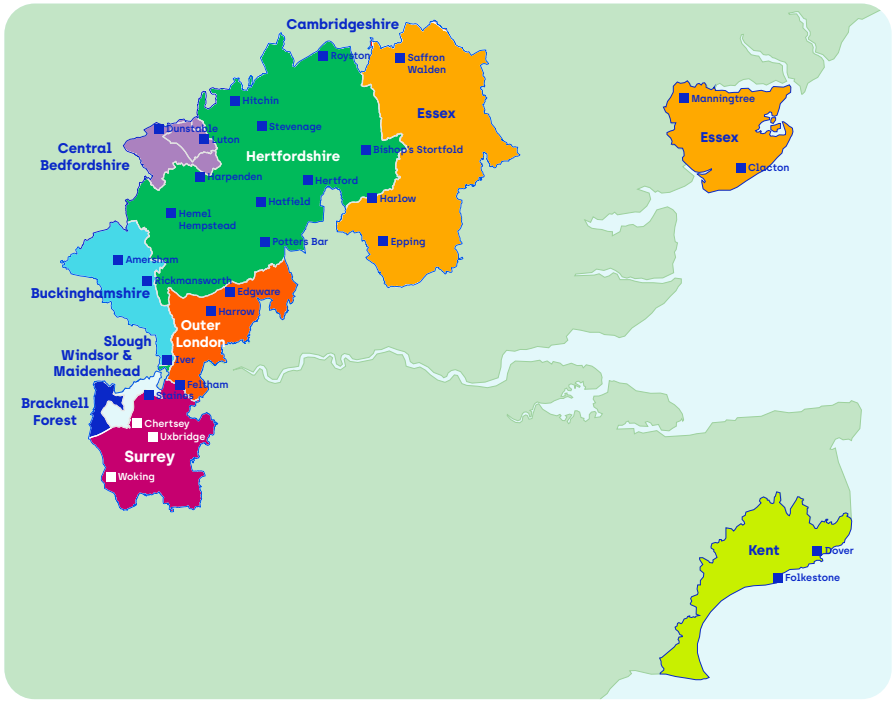
These supply constraints, however, are tightening at the same time as demand is rising sharply. Within Affinity's region approximately 125 data centres are either proposed or under construction, with some individual facilities requesting supplies of up to 35 litres per second, equivalent to the peak water demand of 3,500 homes.[15] One proposal sought to consume 21ML/d, the equivalent to circa 147,000 people. The planning framework is built around household growth and per capita consumption and has not adapted to commercial users whose water needs can match those of a market town. Although the sector is moving away from volume discounts for large users, which means they will pay more, this is still not enough to encourage data centres to consider alternative cooling methods that use less water. The result is a growing gap between available supply, environmental restrictions and actual demand.

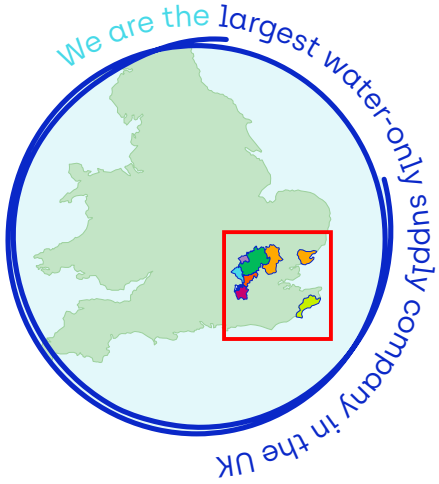
Affinity has taken extensive action within the current regulatory framework to reduce pressure on aquifers and chalk streams. It has pursued large-scale leakage reduction, is rolling out smart meters to improve network management and asset maintenance and has invested heavily in demand-side management—all aimed at reducing the volume of water abstracted. It has also implemented catchment-based schemes and operational controls to manage abstraction during low-flow conditions, helping protect river baseflows. These measures have delivered material reductions in water taken from the environment, but they primarily moderate demand rather than replace supply.

These measures also come with environmental trade-offs. Reducing abstraction from local groundwater sources increases Affinity's reliance on water imported from neighbouring water companies, which increases energy consumption and slows the reduction of carbon emissions. The reductions can also cause an increased risk of groundwater flooding in some areas. Chalk streams are naturally ephemeral and Affinity's river monitoring has shown that reductions in groundwater abstraction do not directly lead to increases in flow levels. River restoration and habitat improvement can have a greater impact on river health than sustainability reductions.

In this context, the competing demands for water could not be more pronounced. Public water supply and ecological restoration vie for the same finite resource, and regulatory policy is sharpening this tension rather than resolving it. Affinity operates where economic productivity is highest, water stress most severe, and the gap between regulatory requirements and infrastructure delivery most visible.

The company is caught between mandated abstraction cuts on one side and rising demand from nationally significant sectors on the other, served by a consenting and planning system that cannot keep pace with either. These pressures are not unique to one company; they are an early sign of constraints that will increasingly shape—and in some cases block—planning and growth decisions across England's water-stressed regions. Affinity Water has already taken steps to address these pressures within the constraints of the current regulatory framework, including developing a data centre policy, piloting incentive-based tariff structures for non-household users, and running a tariff trial for household customers. These initiatives demonstrate that companies can act ahead of the regulatory framework, but structural reform is needed to create consistency across the sector.





The Policy Response: Progress and Its Limits

The governance architecture for England's water sector has been subject to sustained and increasingly damning criticism from official scrutiny bodies.

The House of Lords Industry and Regulators Committee, in its 2023 report The Affluent and the Effluent, found a clear lack of effective coordination between Government, Ofwat and the Environment Agency, stating 'The Government and regulators, including Ofwat and the Environment Agency, have not approached the key issues facing the sector in a joined-up way, including reducing water pollution and securing future supply.'[16]

The National Audit Office has repeatedly highlighted structural weaknesses in the system.[17] The House of Commons Environment, Food and Rural Affairs Committee has been blunter still, concluding in 2025 that 'senior leadership in the water sector and the regulatory system have failed' to encourage investment in essential infrastructure and long-term resilience.[18]

At the heart of these failures lies a chronic absence of strategic direction. In 2023, Affinity Water's 10 Steps to Water Security diagnosed structural deficiencies in England's water resource planning architecture as a key driver for the sector's shortcomings. Affinity warned that accountability for supply–demand management was fragmented, that regional planning lacked statutory force, and that regulatory cycles forced companies to commit to investment before strategic plans had been completed. Above all, the company cautioned that planning placed excessive reliance on demand-side reductions without credible delivery mechanisms.[19]

Since then, the pace of reform has accelerated. The 2024 price determination delivers £104 billion of investment over the next five years, the largest capital programme in the water sector since privatisation. However, investment on wastewater, particularly reducing overflows is three times higher than that in clean water projects. The major water resource investment including nine new reservoirs, seven large-scale water transfer schemes, and several desalination plants will be funded outside the price review process through an as yet unproven route called direct procurement for customers. The sector has also begun its largest smart metering rollout, aiming to install 10 million meters by 2030.[20]

3x

more investment on wastewater, particularly reducing overflows, compared to clean water projects

The Independent Water Commission, chaired by Sir Jon Cunliffe, proposed substantive reforms, including the creation of eight regional water system planning authorities in England with statutory planning functions, clearer strategic direction from government, and an expanded role for RAPID in overseeing strategically important projects.[21]

Progress in delivering the welcome reforms recommended by Cunliffe has been slow and the ambition set out in his report looks to have been diluted. The government white paper published in January 2026 failed to endorse Cunliffe's call for a national water security strategy. Most of the major structural changes are unlikely to be meaningfully operational until the early 2030s. Proposals for integrated regional planning also look to have been at least partially sidelined. The gap between announced investment and operational supply remains considerable, and most new infrastructure will not come online for at least a decade or more.

The consequences of structural weaknesses are already materialising in planning decisions. In Cambridge, the Environment Agency objected to housing developments involving approximately 4,500 homes on water scarcity grounds[22] and in Suffolk, businesses in the Hartismere Water Resource Zone face a moratorium on new or increased non-domestic water connections until 2033, when new supply schemes are expected to be operational.

It is clear that a tangible joined-up strategy that aligns regulation, infrastructure delivery, and spatial development is required with plans put on a statutory footing; otherwise, policy intent will continue to lag behind practical demands, leaving England's growth aspirations at risk of being stymied by water scarcity.

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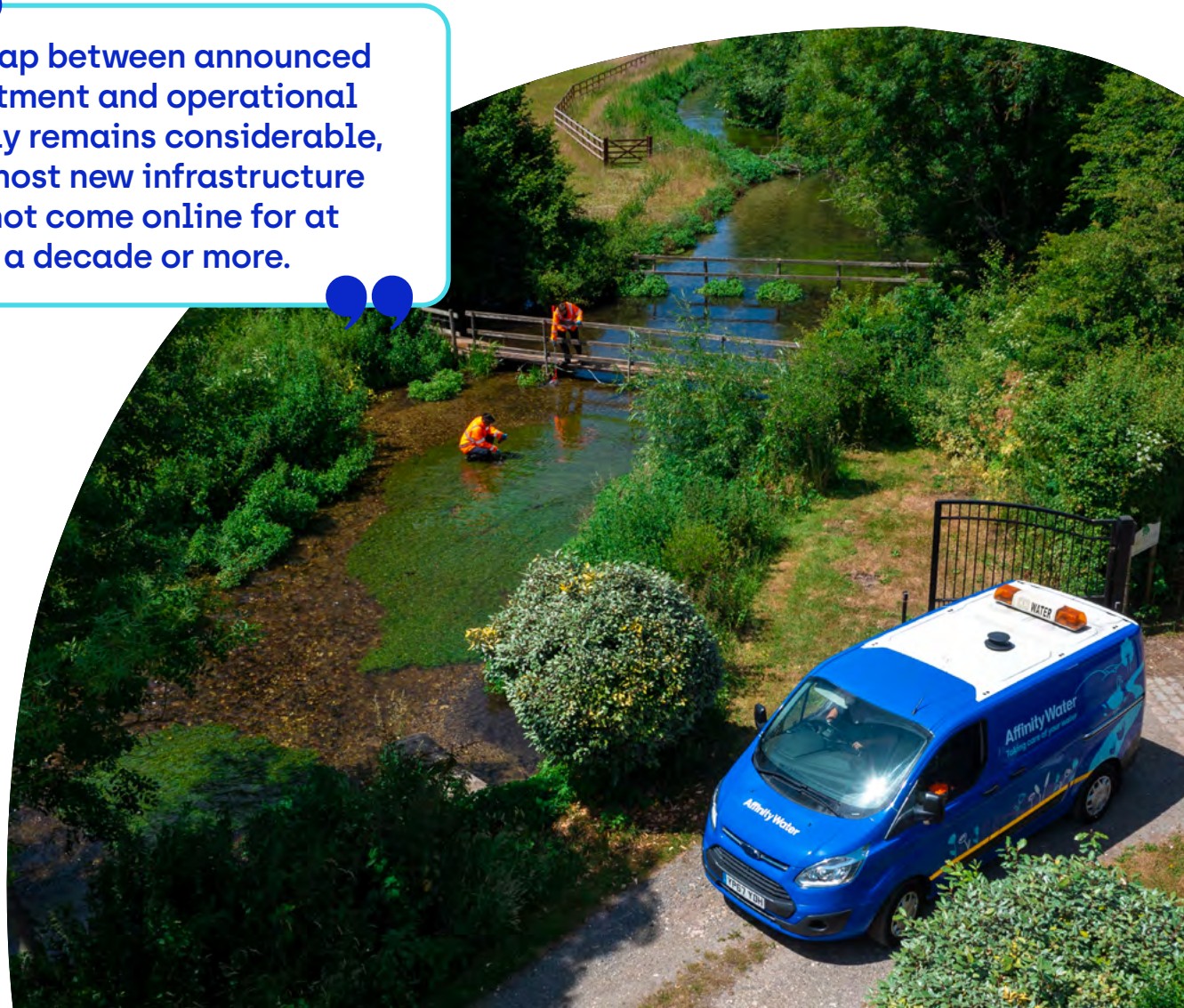


The Supply–Demand Gap: An Outdated Framework

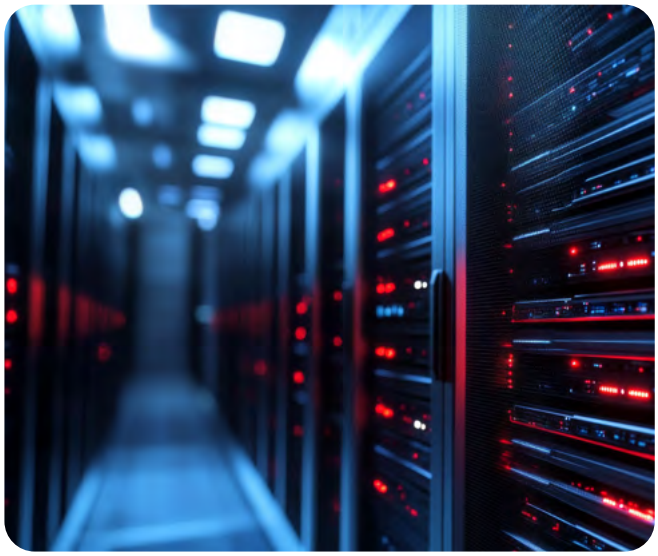
> **This is an overly complex and unintelligible framework, costing the industry an estimated £250m each Price Review cycle, and it is plainly not working.**
>
> Independent Water Commission

Water Resource Management Plans (WRMPs) are the primary mechanism through which water companies forecast supply and demand over a minimum 25-year horizon. They are statutory documents, subject to Environment Agency scrutiny and public consultation and require ministerial approval. In principle they provide a sound basis for long-term planning. In practice, however, their scope is too narrow and their assumptions may be too optimistic. The following sections examine each limitation in turn.

A Framework Designed for a Different Era

WRMPs address public water supply only. They do not address total water use across the economy. The Environment Agency's National Framework estimates that non-public water supply sectors such as agriculture, energy generation, industrial processes, and direct abstractions will account for significant additional demand by the 2050s, much of which sits outside the WRMP framework.[23] The Independent Water Commission found that WRMPs are 'not currently coordinated enough across government and industry to be effective change makers.'[24]

This narrow focus is compounded by a fundamental disconnect between water resource planning and wider government growth objectives. The current round of WRMPs was developed without factoring in the government's target of 1.5 million new homes this Parliament, or its ambitions for AI infrastructure i.e. data centres, and other water-intensive growth sectors. Water demand from data centres is not currently accounted for in WRMP24 forecast calculations, despite estimates that the UK data centre industry currently consumes significant volumes of water annually, with projections suggesting this could increase substantially by 2050, depending on the growth of the industry and the future energy mix of the country.[25]



> **Water demand from data centres is not currently accounted for in WRMP24 forecast calculations, despite estimates that the UK data centre industry currently consumes significant volumes of water annually.**

The disconnect between water planning and the government's growth strategy is perhaps best illustrated by developments in Oxfordshire. Culham has been designated as the UK's first AI growth zone, located just seven miles from the planned White Horse Reservoir in an area the Environment Agency identifies as among the most water-stressed in the country. The AI growth zone is expected to be operational years before the water infrastructure intended to serve the same region becomes available. Public First analysis suggests that if government resources are focused on delivering AI capacity without corresponding water investment, the water intensity challenge could act as a barrier to £1.3 billion of economic growth from other sectors.[2]

Demand Reduction: Targets Without Delivery

National planning frameworks assume that demand management and leakage reduction will do the majority of the work in closing England's future supply–demand gap.

The Environment Agency's National Framework for Water Resources 2025 explains that ambitious actions, including managing demand and reducing leakage, will be essential to address the shortfall before strategic supply options come online.[27] According to the Framework, customer demand management measures are expected to contribute approximately 2.5 billion litres per day, nearly half the total deficit, by 2050.

These are not modest assumptions. They require reducing per capita consumption from approximately 137 litres per person per day today to 110 litres per person per day by 2050 (in dry year conditions), a target the Environment Agency describes as essential if supply is to remain secure.[28] To put this in context, achieving this target would require returning household consumption to levels last seen in the early 1970s, before the widespread adoption of power showers, dishwashers, and multiple-bathroom homes.

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The House of Lords Industry and Regulators Committee heard evidence that roughly one-third of the projected supply-demand gap needs to be closed through customer behaviour change, yet this is where the least progress is being made.[29] Although companies have invested heavily in measures to encourage lower consumption, water is priced at a level that does not provide sufficient behavioural incentives. As a result, customer demand has remained largely unchanged, with limited willingness to use less.

There is, however, a structural asymmetry at the heart of this framework that current plans do not adequately address. Sustainability reductions under the Environmental Destination Programme arrive as hard step changes, with mandated cuts to licensed abstraction volumes taking effect at each five-year AMP boundary. The reduction is fixed and non-discretionary once agreed. Demand reduction, by contrast, is a gradual glide path dependent on behaviour change, regulatory delivery, and government intervention, none of which is guaranteed or instant. These are not equivalent levers. When an abstraction licence is cut, supply falls on a fixed date. When a demand reduction target is set, consumption may or may not follow, and almost certainly not at the pace or scale assumed. A planning framework that treats these two dynamics as symmetrical is systematically underestimating the supply-side risk.

That asymmetry is made more acute by questions about the evidential basis underpinning the sustainability reductions themselves. The Environmental Flow Indicator framework, which the Environment Agency uses to calculate required abstraction cutbacks, was originally intended as a planning guide rather than a binding threshold. It has since hardened into an inflexible target. Critically, the model treats chalk aquifer dynamics in a linear fashion, assuming a direct relationship between abstraction volumes and

river flows. In practice, the relationship between abstraction volumes, river flows, and ecological outcomes may be more complex than current modelling frameworks fully capture, and there are reasonable grounds to question whether the assumed link between flow indicators and ecological recovery is as direct as the framework implies. There is no formal feedback loop within the current system to reassess Environmental Destination targets as evidence of ecological response accumulates. The end objective is ecological health, yet the regulatory framework targets flow as a proxy without adequate mechanisms to verify whether flow improvements are translating into the intended ecological outcomes, or to revise targets where the evidence suggests the original calibration was not well-founded. A governance framework that does not build in regular, transparent reassessment of these targets is not evidence-led planning. It is a ratchet that tightens supply constraints without a mechanism to confirm whether those constraints are achieving their stated purpose.

These structural weaknesses on the supply side compound rather than replace the failures on the demand side. The Climate Change Committee's 2025 progress report concluded that Ofwat's 2024 price review fails to bring forward sufficient credible options for delivering demand reduction targets.[30] Three specific weaknesses warrant scrutiny.

First, a substantial portion of projected savings, approximately 450 million litres per day, is attributed to the rollout of smart metering. Smart meters offer genuine and significant benefits: they improve understanding of network asset health, identify customer-side leaks, improve billing accuracy, and provide consumption feedback that might prompt behavioural change. Yet the assumed impact on sustained demand reduction is considerably less well-evidenced. A meter does deliver a meaningful one-off reduction as customers respond to visible consumption data and newly identified leaks. The harder question is what happens next. Metered customers have already absorbed the initial efficiency benefit. The journey to the 110-litre target requires sustained behavioural change among people who are already aware of their usage.

That is a materially different and more challenging task than the headline shift from unmetered to metered baselines suggests, and the evidence for achieving it at scale over multiple decades remains limited.[31]

Second, nearly half of forecast household demand reductions, approximately 1.2 billion litres per day, have no specific delivery mechanism attached.[32] The Environment Agency's own summary of regional water resource plans acknowledges that over 1 billion litres per day of the customer demand reduction total is expected to be 'delivered through planned government-enabled policies on demand management by 2050.' Planning frameworks that depend on unallocated savings from policies that do not yet exist are not plans, they are aspirations.

1.2bn

litres per day of forecast household demand reduction have no specific delivery mechanism attached

Third, the key government interventions underpinning demand projections have not been delivered. Mandatory water-efficiency labelling for appliances, similar to the energy-efficiency labels that have transformed consumer purchasing decisions in that sector, was due to be introduced in legislation in 2025, with implementation in 2026. This has yet to take place. Although the recent White Paper commits government yet again to delivery of these, it does not commit to a timescale. The promised review of Part G of the building regulations, which would tighten water efficiency standards for new homes beyond the current 125 litres per person per day, has similarly not materialised. Together, these two measures are expected to account for approximately 1 billion litres per day in assumed savings by the 2050s. At present, they exist only as policy intentions. [33]

The gap between ambition and delivery is not new. At PR19, Ofwat set each water company a target for reducing per capita consumption. No company achieved its target. Ofwat subsequently waived penalties until at least 2025, citing the increase in working from home during the pandemic, which drove up household water demand. Increased household demand for water during the pandemic has shown no sustained reduction since.[34]

Ofwat has since launched a customer funded £100 million Water Efficiency Fund which includes a national Water Efficiency Campaign and a Water Efficiency Lab intended to encourage behaviour change and the development of new water-saving technologies, although the roll out of the fund is behind the original timetable and the Water Efficiency Campaign is not yet live. However, Ofwat is not the right body to be delivering these interventions. A national government led campaign backed by policy infrastructure, mandatory labelling, tightened building regulations, and systematic metering would bring the components that successful demand reduction programmes elsewhere have required.[35]

International experience demonstrates that substantial demand reductions are achievable, but not through the mechanisms the UK is currently relying upon. Australia introduced mandatory water efficiency labelling in 2005. Research published by the Parliamentary Office of Science and Technology suggests a similar scheme in England could reduce personal water consumption by more than 27 litres per person per day, representing a 20 per cent reduction.[36] What successful international examples share is that demand reduction was pursued alongside supply-side investment, supported by mandatory regulatory measures rather than voluntary behaviour change alone, and sustained over decades through consistent policy commitment. They also benefitted from a clear public understanding that water scarcity was real, which helped build acceptance for both regulation and behaviour change. In the UK, public attitudes are shaped less by a sense of scarcity and more by concerns about company performance, making an attitude shift a necessary part of achieving comparable outcomes.

None of this means demand reduction targets are unachievable in principle. It means they are uncertain in practice, and that a prudent planning framework would account for that uncertainty rather than treating ambitious targets as a reliable baseline.

Decades of Underinvestment

If demand reduction faces delivery risks, the supply side of the equation offers little reassurance. The National Audit Office has noted that the rate of water mains replacement during PR19, at 0.14 per cent per year, would, if maintained, mean the entire network would be replaced once every 700 years.[38]

Asset condition in parts of the system is deteriorating, and the regulatory framework has contributed to this outcome. The former National Infrastructure Commission calculated in 2018 that proactive investment in water resilience would cost £21 billion over 30 years, compared with £40 billion for reactive emergency responses.[39] Yet investment in long-term resilience was systematically deprioritised in favour of short-term bill minimisation. The consequences of this approach are now visible.

The history of deferred investment is not solely a story of regulatory constraint. Strategic schemes have repeatedly foundered on planning objections and inconsistent decision-making. The White Horse Reservoir was rejected at planning inquiry in 2011 on the grounds that there was 'no immediate need.'[40] Bristol Water's proposed Cheddar Reservoir, which would have provided resilience for the South West, was denied funding by Ofwat in 2014 despite Environment Agency support. The scheme has since been recognised as strategically important and is now scheduled to begin construction in 2029. These examples illustrate a recurring pattern: projects are rejected as premature, then revived years later at greater cost and under greater time pressure.

The history of deferred investment is not solely a story of regulatory constraint. Strategic schemes have repeatedly foundered on planning objections and inconsistent decision-making.

PR24 represents a step change and there is much to be welcomed, however delivery will take time. Major schemes take a decade or more from conception to operation, and the planning system remains a significant bottleneck. Most new reservoirs and water recycling schemes are expected to be operational from the early 2030s, while the White Horse Reservoir will not be operational until 2040. The gap between commitment and completion leaves the system exposed. The sector must rely on demand reductions that have yet to materialise to bridge the period before new supply comes online.

The scale of the PR24 programme shows genuine progress, but the composition of the supply portfolio it is building deserves scrutiny. The strategic resource options currently in development are heavily weighted towards surface water storage and transfer. During the successive dry winters that characterised 2022 and 2025, surface water reservoirs across southern and eastern England were simultaneously depleted as rainfall failed to materialise across all catchments. A network built predominantly on surface water schemes does not resolve this vulnerability. It redistributes it at greater scale. True resilience requires the supply system to draw on source types that respond differently to the same climatic conditions.

Where groundwater and surface water are used conjunctively, a drought that suppresses surface water availability does not necessarily deplete groundwater at the same rate, and vice versa. Retaining meaningful groundwater capacity alongside new surface water infrastructure is therefore not a legacy preference but a resilience requirement. The current programme, by phasing out groundwater reliance without replacing it with a genuinely diversified source mix, risks exchanging one form of vulnerability for another.

Even where funding is secured, delivery faces material constraints. The Independent Water Commission has noted concerns about an ageing workforce and the risk that critical expertise in delivering major water infrastructure may soon be lost. The sector is now being asked to scale rapidly after three decades in which major schemes were not advanced, reflecting the consequences of earlier regulatory decisions rather than any lack of delivery capability or commitment within the sector today. The challenge ahead is one of managing supply chain and skills at pace, which requires government support.

Regional water resource plans also remain non-statutory, meaning compliance is voluntary and structural dysfunction persists. The existing regional planning bodies all have different governance structures and methodologies. Today, the sector remains under the supervision of an overly fragmented regulatory landscape, is insufficiently resourced and inadequately directed, leaving accountability diffused, investment horizons compressed, and no single body holding clear responsibility for the long-term security of supply. Furthermore, these plans carry no statutory legal standing. There is no legal basis on which compliance can be enforced, meaning the framework depends entirely on voluntary adherence by its participants.

Beyond the coordination problem lies a deeper absence. No body currently holds responsibility for optimising water use across the system as a whole. At any given point in time, water is available in some catchments and constrained in others, yet there is no function charged with assessing where extraction capacity exists, where storage could be developed, and how distribution could be configured to make best use of available resources. This is not a coordination failure in the conventional sense. It is the absence of a strategic intelligence function. A genuinely resilient system would also draw on a broader range of storage and supply options than the current framework contemplates, including managed aquifer recharge, slower catchment runoff through improved land management under schemes such as the Environmental Land Management scheme and WINEP, and the harvesting of water during high-flow periods for storage and later use. None of these options requires the construction of major new infrastructure in the short term. They require a planning framework capable of identifying and acting on opportunities across the whole system, and a body with the mandate to do so.

Regulatory Fragmentation

The water sector is governed by four main regulators, a complicated suite of legislation and a set of misaligned planning frameworks and duties, which many stakeholders believe leads to areas of overlap, gaps and a lack of clear priorities.

House of Commons Environment, Food and Rural Affairs Committee, 2025[42]

Responsibility for water security is dispersed across multiple bodies, each with different objectives and operating timescales. Within the water sector, the Environment Agency establishes abstraction limits, Ofwat determines investment allowances, and the Drinking Water Inspectorate oversees water quality. While government has announced plans to create a new single regulator that will bring these functions together in the late 2020s, it remains unclear exactly what functions of the Environment Agency will be subsumed in the new combined regulator. As a result, the current framework will remain fragmented for much of the remainder of this AMP, with multiple overlapping areas causing confusion and pulling the water industry in different directions.

At the national level, Defra sets overall policy direction but controls none of these levers directly. Beyond the sector, decisions taken by other government departments profoundly affect water resources yet are made without systematic reference to water availability. Agriculture, housing targets, data centre expansion, hydrogen production, and nuclear power all place significant demands on water supply, yet local planning authorities approve developments across these sectors without any requirement to consider cumulative water impacts. The result is a system in which no single institution bears responsibility for ensuring that these decisions cohere, or for reconciling policy ambitions with physical water constraints.

A System Without a Centre

The absence of a single accountable body for water security means that trade-offs between competing objectives are resolved, if at all, through ad hoc negotiation rather than strategic coordination.

The Environment Agency can mandate abstraction reductions to protect the environment, but it cannot compel the infrastructure investment needed to replace the lost supply. Ofwat can approve capital programmes, but it cannot direct where new housing or industry should locate. Local planning authorities approve developments without systematic reference to water availability.

The system lacks a mechanism for resolving conflicts between environmental protection, economic growth, and water security before they become acute. The House of Lords Industry and Regulators Committee concluded in 2023 that 'there is still a clear lack of effective co-ordination on issues such as Environment Agency outputs not aligning with what Ofwat deems financeable, and ineffective information-sharing.'[43]

The problem extends beyond coordination to the fundamental structure of regulatory incentives. The National Audit Office reported in April 2025 that 'regulators do not have a shared understanding of the condition of water and wastewater assets, and the level of funding needed to maintain them.'[44] This is not a minor technical disagreement. It represents a fundamental disconnect at the heart of the regulatory system between the bodies responsible for environmental standards and those responsible for funding the infrastructure to meet them.

Coordination Without Compulsion

Regional water resource groups have been established to coordinate planning across company boundaries. These groups have improved information sharing and enabled joint option development although the groups differ considerably in levels of maturity and methodology.

Water Resources South East and Water Resources East are probably the best established, but the lack of consistent approach across other groups is a significant drawback. Also, as the House of Commons Library has noted, these are 'non-statutory plans meaning compliance is voluntary, not compulsory.'[48] No enforcement mechanism exists should companies or regulators diverge from agreed strategies.

They also only cover water companies and, with the exception of Water Resources East, do not incorporate plans for other sectors such as agriculture. The result is a framework that can identify problems but cannot compel solutions. The Independent Water Commission has proposed rationalising industry planning down from nine plans into two core planning frameworks. But even this reform, if and when implemented, would not address the fundamental problem: the absence of any body with both the authority and the incentive to ensure that environmental requirements, infrastructure investment, and economic growth are brought into alignment before constraints become binding.

Climate as a Risk Multiplier

> **Without measurable resilience standards it will be challenging for companies to build further resilience into their systems. Without a clear target to aim for, the need for resilience spend could be challenged by regulators trying to manage upward pressure on bills.**
>
> National Infrastructure Commission

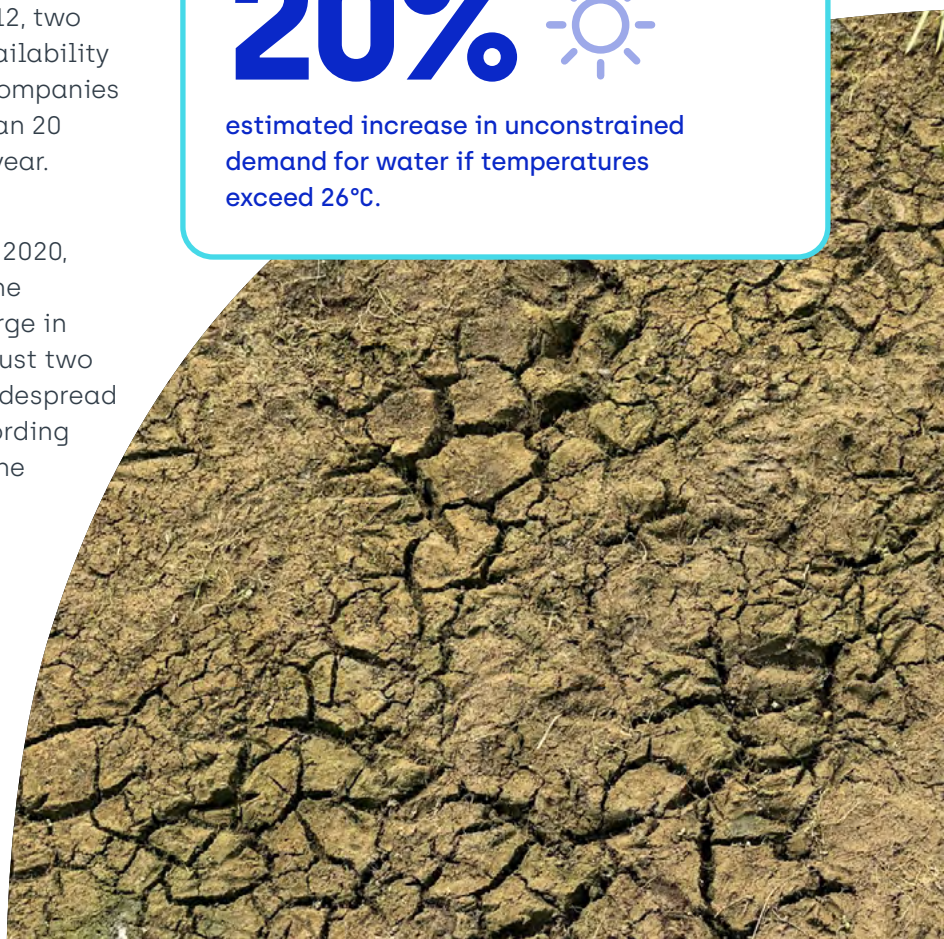
Climate change is often framed as a long-term challenge requiring gradual adaptation. In water resource planning, however, it is already a present constraint—one that current frameworks were not designed to manage. The water sector has experienced a series of stress events that have exposed its limited headroom, and the South East has been at the centre of each. In 2012, two consecutive dry winters reduced water availability in the South and East of England forcing companies to introduce demand restrictions; more than 20 million people faced hosepipe bans that year.

The system recovered, but the underlying vulnerabilities remained unaddressed. In 2020, the COVID-19 lockdown coincided with the sunniest spring on record, producing a surge in household demand of up to 30 per cent. Just two years later, the 2022 heatwave caused widespread water shortages, with the Met Office recording unprecedented extreme temperatures.[49] The pattern has since continued to intensify.

The events of 2025, following the driest spring in over a century, led to TUBs across southern and eastern England, affecting over 10% of the population. Most recently, the National Drought Group has warned that England must prepare for an ongoing drought in 2026.[50] These episodes are no longer exceptional. They are recurring features of a climate that is becoming structurally more volatile and the projections suggest conditions will worsen. The UK Water Industry Research has found that unconstrained demand for water increases by 20% or more when temperatures exceed 26°C,[51] while the Met Office projects that by 2060, summers like that in 2022, which saw the driest July in England since 1935, will be the norm for the UK. The system has coped thus far, but the margin for error is shrinking.

20%

estimated increase in unconstrained demand for water if temperatures exceed 26°C.



Why Climate Makes Everything Harder

Climate change does not act in isolation, instead it multiplies the pressures created by population growth, and economic development. The Environment Agency's 2025 National Framework states that these impacts are already being felt and will intensify.

The Agency warned of 'an urgent need to deliver actions to adapt to the impacts of climate change to protect the environment, improve the resilience of water supplies and to safeguard the economy from future periods of prolonged dry weather and drought.'[52]

For groundwater-dependent regions like Affinity Water's supply area, the forecast is particularly unforgiving. Climate change has been associated with increased frequency, magnitude, and intensity of drought in the UK, and further warming is predicted to produce lower groundwater levels in summer and higher levels in winter by the 2050s. The recharge window may therefore become shorter and more vulnerable. Hotter temperatures increase both public demand and evaporation losses. Environmental flow requirements limit the volume that can be abstracted. These pressures do not operate independently - each reinforces the other. Affinity Water has identified that the increased risk of service outage from extended periods of high demand now requires significant new investment in network resilience.[53]

The Economic Stakes

The current framework continues to treat climate risk as a variable to be modelled rather than a constraint to be planned against, and the price of that complacency is rising.

Multiple regulatory and government assessments have attempted to quantify what is at stake, and while the figures carry significant uncertainty, the orders of magnitude are sobering. The former National Infrastructure Commission estimates that a serious drought, one with a one in four chance of occurring by 2050, would cause water deficits for companies serving almost 40% of the English population. Historic Defra research examining a three-year drought scenario in the 2050s estimated direct economic costs approaching £55 billion, with welfare losses from prolonged restrictions on water use adding a further £45 billion.[54]

£55bn

estimated direct economic cost from a three-year drought scenario in the 2050s

These are not abstract modelling exercises. They represent plausible futures against which prudent infrastructure planning would seek to insure. The challenge is compounded by the fact that climate volatility does not operate in a single direction. The same atmospheric instability that produces hotter, drier summers also generates wetter, more intense winters, bringing turbidity spikes in raw (untreated) waters that disrupt treatment works, surface-water flooding that overwhelms drainage systems, and catchment runoff that degrades raw water quality. Around 5.2 million properties now sit within areas of flood risk.[55] Infrastructure designed for a more stable hydrological regime faces mounting strain from both extremes, and the cumulative effect is a system increasingly characterised by exposure rather than resilience.

The implication is that resilience cannot be deferred until the political or regulatory moment feels propitious. Major supply schemes such as reservoirs, strategic transfers and water recycling plants require a decade or more to progress from conception to operation. The planning, consenting, and funding processes through which they must pass were designed for an era of relative stability, not for the pace of adaptation now required. Water companies have been set stronger planning targets since 2020, with a requirement to achieve resilience to a 1-in-500-year drought by 2040, and this represents genuine progress. But planning targets do not, of themselves, deliver concrete and pipe.

Affinity Water has observed that critical resilience schemes continue to face protracted approval timelines—with some compulsory purchase orders awaiting Defra sign-off for over a year, even as prolonged dry weather has become more frequent. The Environment Agency has on numerous occasions noted the need to act urgently, but the gap between recognition and the speed of actual delivery represents the central policy failure of the past two decades. For regions already operating at the edge of their resource envelope, this is not a technical debate about discount rates or option values. It is a question of whether the infrastructure required to maintain security of supply will be in place before the next major drought arrives, or whether the country will find itself, once again, managing a crisis that could have been averted.

The choice, ultimately, is between two approaches: proactive investment that builds resilience before it is needed, or reactive crisis management that costs more, delivers less, and leaves communities and businesses exposed to disruption that could have been prevented. Whilst proactive investment will result in higher bills, planned and managed costs incurred now avoid the need for expensive emergency spending, the burden of which will fall on future generations.

The evidence from the former National Infrastructure Commission, from the Environment Agency, and from the repeated stress events of recent years all points in the same direction. The question is whether policy will follow.

> **The Environment Agency has on numerous occasions noted the need to act urgently, but the gap between recognition and the speed of actual delivery represents the central policy failure of the past two decades.**

A Nation Ready to Act

The British public cares deeply about water security yet most people don't realise there's a problem. That's the central finding of a survey of 4,002 adults, commissioned by Affinity Water, which reveals a striking information gap at the heart of Britain's water debate.

Before engaging with the facts, just 39% of respondents agreed the UK faced a water security crisis. After seeing the evidence, that figure jumped to 54%, a 15-percentage-point swing that demonstrates the public isn't apathetic, but rather underinformed. When people learn what's happening to Britain's water supply, they understand the scale of the challenge immediately, leaving 50% of the population saying the government should declare a 'national water emergency'.

This information deficit matters because concern is already widespread among those who are paying attention. Over half the public (56%) say they are personally concerned about water security, with nearly one in five feeling highly concerned. Parents show particular anxiety about the future: 31% of those with children describe themselves as 'highly concerned', compared to just 10% of those without, a threefold difference that speaks to intergenerational worry about the legacy we are leaving. Geographically, concern is highest in the regions already experiencing water stress, with 61% of Cambridge residents seeing local water shortages as likely, followed by 68% of Londoners and 64% of those in Yorkshire expressing personal concern.

Crucially, the public is not waiting for others to act. 96% of respondents are already taking at least one water-saving measure, with 81% taking three or more actions and half taking five or more. This near-universal conservation effort reflects a population that believes individual behaviour matters, with 68% thinking household actions make a real difference. What the public now wants is for collective action to match their individual effort, and they are clear about what that looks like. A significant 86% want Government to do more to raise awareness, while 75% support requiring grey water systems in new builds and 85% back making industries take responsibility, such as polluters paying for 'forever chemicals' cleanup.

75%

of respondents support requiring grey water systems in new builds

The public concern around water quality is well-founded. England's drinking water sector faces a growing and underappreciated threat from emerging contaminants, whether through the introduction of new pollutants into catchments or through the tightening of drinking water standards that require treatment processes to respond to substances not previously regulated. Both pressures demand investment in advanced treatment infrastructure to guarantee wholesome supply, and neither is adequately reflected in current planning assumptions. Nearly half of survey respondents (46%) want to see investment in new reservoirs, reflecting a public appetite for the kind of long-term infrastructure commitment that has been absent for decades. The data shows the public sees ensuring there is enough water supply as the top priority for Government to address on water security (22%), with access to safe drinking water (18%) and ensuring enough infrastructure (17%) rounding off the top three most important issues.

The political dimension is notable for its cross-party nature. Seven in ten respondents believe previous governments of all parties failed on water security, framing this as a historic infrastructure challenge rather than a partisan issue. The public has reached its own conclusion: Britain needs to invest in water infrastructure, raise awareness of the risks, and ensure polluters pay their share. They're already doing their bit and they are ready to support the policies that would secure Britain's water future for the next generation.

7 in 10

Respondents believe previous governments of all parties failed on water security, framing this as a historic infrastructure challenge rather than a partisan issue.

Policy Recommendations

The following **seven recommendations** are organised under three themes: strategic governance, demand management, and supply-side investment. Together they address the structural weaknesses in England's water security framework.

1. Publish a statutory National Water Security Strategy with binding commitments and clear accountability

The Government should publish a statutory National Water Security Strategy, replacing or consolidating the existing hierarchy of national frameworks, regional plans, and company Water Resource Management Plans into a single authoritative document with clear legal status. The strategy should set two distinct but equally binding national objectives. The first is drought resilience, defined as the capacity to maintain supply through prolonged dry periods, with a target of resilience to a 1-in-500-year drought event by 2050 and interim regional milestones against which progress can be measured. The second is supply diversity, defined as the reduction of dependence on any single source type or single point of failure within the network, with requirements for companies to demonstrate that their supply portfolios are not systematically exposed to the same hydrological conditions. A system heavily reliant on one resource type may satisfy drought resilience targets on paper while remaining acutely vulnerable to the specific conditions that deplete that source. Both objectives must be measured and reported independently.

Crucially, the strategy should require that demand management assumptions are stress-tested against delivery risk, with contingency supply options identified where household behaviour change falls short of projections. Explicit pipelines for supply-side investment should form part of the strategy, with clear timelines and accountability for delivery. The strategy should also be explicit on the trade offs which future regulators and companies will need to make to deliver water security. It is for ministers, backed by an electoral mandate, to make the hard choices which will be necessary rather than regulators.

The strategy should be subject to five-yearly review, laid before Parliament, and accompanied by an annual progress report. Ministerial accountability should be explicit, with the Secretary of State required to explain any deviation from the strategy's milestones to Parliament.

2. Develop a National Water Transfer Network to enable strategic movement of water across England

The government should designate a national network of strategic water transfer corridors, connecting regions to enhance resource connectivity, and commit to its delivery through a combination of regulatory funding and, where necessary, direct government investment or guarantees. This network should build on the strategic resource options already identified through RAPID, but with enhanced coordination and accelerated delivery timelines.

Designing the network for genuine climate resilience requires more than connecting areas of relative water availability to areas of structural deficit. It requires ensuring that the network itself is not uniformly vulnerable to the same hydrological conditions. The strategic resource options currently under development are heavily weighted towards surface water storage, which means that during the type of successive dry winters that characterised 2022 and 2025, all schemes within the network would face simultaneous pressure as reservoir storage is rapidly depleted. A network built predominantly on surface water transfers does not achieve resilience; it redistributes the same vulnerability at greater scale.

True resilience requires a conjunctive approach, combining surface water and groundwater sources within the network so that different source types respond differently to the same climatic conditions. Where hydrogeology permits, groundwater should be incorporated into the strategic resource mix, providing a complementary buffer during periods when surface water availability is constrained. This balance between source types, rather than the volume of water transferred, is the defining characteristic of a genuinely resilient national network.

Implementation should proceed through a national infrastructure designation that streamlines planning consent, accompanied by a clear cost-allocation framework that spreads the burden equitably between donor and recipient regions. The Environment Agency should be tasked with maintaining a dynamic assessment of transfer capacity requirements, updated every five years in line with climate projections.

3. Place the Regulators' Alliance for Progressing Infrastructure Development on a statutory footing with enhanced coordination powers

RAPID should be reconstituted as a statutory body with a clear legal mandate to coordinate the delivery of strategic water resource schemes across company boundaries. Its functions should include maintaining the national infrastructure pipeline, coordinating procurement to maximise supply chain efficiency, resolving disputes over bulk supply agreements, and reporting publicly on delivery progress against agreed milestones. The body should not duplicate Ofwat's price-setting functions or the Environment Agency's environmental permitting role but should have power to refer delivery failures to the Secretary of State and to recommend licence modifications where companies fail to meet strategic obligations. Governance should include independent chair appointment by ministers, board representation from Ofwat, the Environment Agency, and the Drinking Water Inspectorate, and a statutory duty to report annually to Parliament on the state of strategic infrastructure delivery.

4. Introduce an Environmental Restoration Levy to fund catchment-scale remediation

A new Environmental Restoration Levy should be introduced to apply the polluter pays principle to all sectors responsible for water pollution, with revenues ring-fenced for catchment restoration and advanced treatment innovation. The levy must apply across all sectors responsible for water quality degradation — including agriculture, industrial processes, and urban drainage — not solely to water companies. In practice, diffuse polluters are difficult to identify and frequently do not bear the full cost of remediation under existing mechanisms. The levy design must address this enforcement gap explicitly. The levy framework should be administered by the Environment Agency, with an independent board overseeing fund allocation and publishing annual accounts of environmental outcomes achieved. Levy design should include provision for exemptions or rebates where polluters invest directly in equivalent catchment benefits.

5. Integrate water availability into the planning system through a tiered development framework

The Government should amend the National Planning Policy Framework to require that water availability is treated as a material consideration in planning decisions for major developments, with a tiered approach reflecting local water stress.

In water resource zones facing acute deficit, developers should be required to demonstrate water neutrality, meaning that the development will not increase net demand on the local water system. This can be achieved through on-site efficiency measures, off-site demand reduction, or financial contributions to strategic supply infrastructure. On-site measures should include greywater recycling systems, which offer meaningful demand savings without the water quality risks associated with rainwater harvesting for internal use. Rainwater harvesting should be treated as qualifying only for external applications such as garden irrigation, given the well-documented risks of cross-connections in household plumbing systems that can compromise the safety of drinking water supplies.

To make water neutrality obligations deliverable at scale, the Government should establish a Water Neutrality Fund, administered by water companies on behalf of developers. This would allow financial contributions to be pooled and deployed strategically across a water resource zone, rather than fragmented across individual development sites. A pooled approach reduces the administrative burden on developers, enables contributions to be directed to where they deliver the greatest impact, and provides water companies with a mechanism to plan and fund offsetting measures at the scale the challenge requires.

In zones facing moderate stress, developers should make a financial contribution to regional water resilience, pooled through the same mechanism for strategic investment. In zones with adequate supply, compliance with enhanced building regulations should suffice. Local planning authorities should be supported with clear technical guidance, standardised assessment methodologies, and access to water company supply-demand data. The Environment Agency should maintain and publish the definitive classification of water resource zones by stress category, updated annually, to provide the consistent evidence base on which planning decisions depend.

6. Require progressive water charging and mandatory efficiency improvements for large non-household users

Ofwat should direct water wholesalers to introduce progressive volumetric charges for supplies to large non-household customers, with unit prices increasing for consumption above sector-specific efficiency benchmarks. This wholesale price signal will flow through to retail tariffs in the competitive business market without distorting retail competition.

Benchmarks should be set by Ofwat following consultation with sector bodies and reviewed every five years to reflect technological improvements. Separately, non-household users consuming above a pre-defined threshold should be required to publish regular water efficiency assessments and to implement cost effective measures that reduce their water use.

7. Reform economic regulation to prioritise long-term asset health and resilience

The Government should issue an updated Strategic Policy Statement directing Ofwat to place materially greater weight on long-term resilience and asset stewardship in price determinations. Specifically, Ofwat should be required to assess capital maintenance needs separately from base operating expenditure, using forward-looking asset condition metrics rather than relying solely on backward-looking failure rates. This will ensure that funding for the renewal of ageing infrastructure is transparently determined and sufficient to arrest the current trajectory of network deterioration. These reforms should be implemented in time to inform the PR29 methodology, with interim guidance issued for the remainder of AMP8 to signal the direction of travel to companies and investors.

Conclusion

The evidence presented in this report points to a system under mounting strain and a policy framework that has not kept pace with the scale of the challenge.

Government must treat water security as a strategic national priority, with the governance arrangements, investment commitments, and statutory accountability that status demands. Planning must rest on realistic assumptions about what demand management can deliver and over what timescale, with contingency supply options in place where those assumptions prove optimistic. A statutory delivery body with powers to coordinate investment across company boundaries must replace the current fragmented accountability. Supply-side investment must accelerate, and the consenting processes that delay it must be reformed. Above all, the government must deliver the efficiency measures it has committed to rather than assuming their benefits in advance of action.

The economic consequences of continued inaction are not speculative. Water scarcity is already constraining housing delivery, stalling commercial development, and creating uncertainty for the data centres and growth industries that government policy is actively seeking to expand. The survey of 4,002 adults commissioned for this report underscores that the public is ready to support the necessary action. Once informed of the scale of the challenge, a majority recognise the crisis and back government intervention, with cross-party consensus that previous administrations of all stripes have fallen short. The political conditions for decisive action exist. What has been missing is the strategic framework to channel that public support into lasting policy reform.

The former National Infrastructure Commission calculated that proactive investment in water resilience costs roughly half as much as reactive emergency responses. The question is not whether to act but when. Acting now, at manageable cost, is the only rational course. That choice has been deferred for too long.

The former National Infrastructure Commission calculated that proactive investment in water resilience costs roughly half as much as reactive emergency responses.

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