

The Second National Infrastructure Assessment call for evidence: Ofwat response

Below we set out Ofwat's view on several of the call for evidence questions, taking into account our experiences of regulating the water and wastewater sector in England and Wales. In some areas, we suggest issues that the Commission may wish to explore during the Second National Infrastructure Assessment; in others, we share learning from our own initiatives that may be of relevance to other sectors.

While we have structured our response around answers to the Commission's questions, certain themes stand out as being of cross-cutting importance to the Commission's work. In particular, we believe that the role of competition in addressing the Commission's challenges merits particular focus, and we are keen to discuss further how lessons learned from Ofwat's work in this space – for example, our Thames Tideway Tunnel model and Direct Procurement for Customers (DPC) approach – can be disseminated across the wider infrastructure community.

Question 1: Do the nine challenges identified by the Commission cover the most pressing issues that economic infrastructure will face over the next 30 years? If not, what other challenges should the Commission consider?

One area not highlighted by the Commission's Baseline Report is the need for action to ensure the sustainable supply of key skills in delivering infrastructure improvements. Skills gaps in professions vital to infrastructure delivery have the potential to delay or add significant costs to projects. For example: in Ofwat's [Asset Management Maturity Assessment](#), few companies provided evidence of a systematic focus on specific employee skills related to asset management, asset health and/or operational resilience. This was reflected in lower maturity scores across the sector. Looking ahead to the longer term, the sector predicts that this area will continue to present challenges.

Similar skills gaps may cause particular problems in the public sector, where organisations will be competing with the private sector in the common pool of scarce skills.

We would encourage the commission to consider reviewing this issue alongside the other cross-cutting challenges identified so far.

Question 2: What changes to funding policy help address the Commission's nine challenges and what evidence is there to support this? Your response can cover any number of the Commission's challenges.

It is clear that addressing the Commission's nine challenges will require the delivery of many large infrastructure projects across a number of sectors. In some industries,

including water, customers will be expected to pay for the costs of delivering these projects through bills rather than through taxation. While some sectors have taken steps to protect households with the least ability to pay (for example, through social tariffs in the water sector), utility bills generally make up a larger portion of expenditure for lower income households. It is therefore especially important that these investments are procured and delivered in the most efficient way.

Third party investment can help to address this need, by lowering the cost of finance, increasing innovation, and driving down capital and operating expenditure. At PR19 Ofwat introduced Direct Procurement for Customers (DPC), as a process for water companies to competitively tender for a third party to design, build, finance, operate and maintain infrastructure. While we are in the early stage of implementing the DPC process, we are continuing to develop the process to ensure we can better support delivery. For example, we expect that both Ofwat and bidding companies will increasingly carry forward lessons learned from one tender to the next as the process matures, delivering greater efficiency over time. We are certain that there will be many lessons that Ofwat can share about the design of DPC-style funding arrangements, as well as the Thames Tideway Tunnel model, and we would be keen to share these with the Commission as it develops its second National Infrastructure Assessment.

However, there are currently limitations on how far these funding-style approaches can be developed in other areas. The Thames Tideway Tunnel approach, which makes use of the Specified Infrastructure Projects Regulations (SIPR) has only been used once to date, as legislative provisions act as a high bar to using the approach more widely, even where it could offer better value for money for customers than alternative approaches, and / or provide superior protection for customers. While both Ofwat and the Secretary of State have the power to specify infrastructure projects to be put out to competitive tender they, to do so they currently must, be of the opinion that the project is of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers and is likely to result in better value for money than would be the case if the infrastructure project were not specified. In order for more projects to benefit from these funding approaches, it may be that amendments are needed to this regulatory regime.

The cross-cutting nature of the challenges identified by the Commission also raises important questions about where responsibility of paying for investment sits. This highlights the importance of partnership-based working to ensure that different water users bear a share of costs proportionate to their impacts. This might involve a number of stakeholders co-funding projects that have multiple benefits. [Ofwat has been clear](#) that we see this type of collaboration and systems thinking as being an important principle for water companies to consider as they work to deliver public value, and we encourage the Commission to consider the importance these types of funding approaches as it develops its Assessment.

Question 4: What interactions exist between addressing the Commission's nine challenges for the next Assessment and the government's target to halt biodiversity loss by 2030 and implement biodiversity net gain? Your response can cover any number of the Commission's challenges.

Ofwat has a major and growing focus on promoting biodiversity and, as a result of the Environment Act 2021, our existing duty to 'conserve' biodiversity in England will be amended to a duty to 'conserve and enhance' biodiversity in England.

Our experience suggests that in delivering progress against the Commission's nine challenges, there will be significant co-benefits for biodiversity along the way. For example, Ofwat plays an important role in supporting the delivery of the Water Industry National Environment Programme (WINEP). The WINEP is the most important programme of environmental investment in England. For 2020 to 2025 it consists of £5.2 billion of asset improvements, investigations, monitoring and catchment interventions, and sets out what water companies in England are required to do to fulfil their obligations arising from environmental legislation and UK government policy, largely relating to water quality. It also requires water companies to take account of wider environmental outcomes when developing investment options, including biodiversity. In summer 2020 Ofwat began working with the Environment Agency and Defra to review the WINEP as part of the WINEP reform taskforce. Part of the review examines how to take greater account of wider environmental outcomes such as net zero and biodiversity. Other water sector workstreams such as Water Resource Management Plans (WRMPs), Drainage and Wastewater Management Plans (DWMPs), and water demand management are also likely to result in benefits for biodiversity.

We therefore welcome the Commission's commitment to assess the impact of its recommendations on natural capital as part of its cross-cutting analysis. This approach has the potential to draw out the wider benefits for biodiversity of a range of actions to address the nine challenges.

Question 5: What are the main opportunities in terms of governance, policy, regulation and market mechanisms that may help solve any of the Commission's nine challenges for the Next Assessment? What are the main barriers? Your response can cover any number of the Commission's challenges

We have identified four broad areas of opportunity that may help to solve some of the Commission's challenges: innovation, competition, co-ordination, and effective planning.

Innovation can be a key enabler in solving many of the Commission's nine challenges. For example: new and emerging technologies will play a key role in driving down the costs of emissions removal, thereby helping to deliver net zero goals more cost effectively and efficiently.

One way that Ofwat has promoted innovation in the water sector is through our outcome-focused approach to driving water company performance. At our PR19 price

review, our outcomes framework provided flexibility and freedom to innovate and to develop solutions reflecting the preference of their customers and communities. By setting stretching outcome performance commitments, we challenged companies to innovate and to go further for their customers. This type of outcome-focused approach encourages companies to look for innovative ways to deliver better services to customers and improve the environment.

Ofwat has also sought to promote innovation within the industry through our £200m innovation fund. Funding winners have included cutting-edge innovations to address challenges facing communities and vulnerable customers – such as preventing leakage and improving engagement with hard-to-reach customers – as well as improving the health of our rivers and waterways, and drastically reducing CO2 emissions.

The Commission may wish to consider how innovation can be best promoted across the nine challenges, recognising that different sectors are starting from different positions in terms of innovation culture and practice.

Alongside innovation, increasing competition can be a key driver in driving down the cost of solutions to major infrastructure challenges. The Thames Tideway Tunnel model and Ofwat's DPC approach, as noted above, has the potential to reduce infrastructure costs and ensure that customers only pay for the efficient costs of improvements. Some of the DPC schemes will deliver multiple benefits including improving biodiversity and reducing flooding risk.

Increasing competition can also have the added benefit of increasing innovation. One example is the New Appointments and Variations (NAVs) market, whereby new companies are appointed to deliver water and / or sewerage services in an area formerly served by an incumbent company. By introducing an element of competition to the incumbent water companies, NAVs can play a role in driving innovation and finding efficiencies for new connections to the benefit of customers, developers, and the environment. For example, NAVs are playing an important role in introducing and adopting sustainable drainage systems in new housing developments.

Ofwat has also taken steps to increase competition in other parts of the value chain. For example, in 2020 we introduced measures to promote [the development of the market for bioresources](#), a valuable by-product of the sewage treatment process. By unlocking competition in this way, we can provide benefits to customers and the environment by improving affordability, supporting renewable energy, and avoiding the need to incinerate waste products.

Another key enabler across the nine challenges is co-ordination. Without a degree of co-ordination across infrastructure delivery, there are risks that the complicated accountability landscape could result in mutually conflicting priorities and regulatory frameworks. Ofwat and others have sought to improve co-ordination across the water industry through the Regulators' Alliance for Progressing Infrastructure Development (RAPID). Through RAPID, regulators have come together to identify co-ordination issues at an early stage and work to ensure solutions and mitigations are in place to

address this. We would be happy to set out in more detail for the Commission how RAPID's approach has worked, and any lessons that can be learned for wider infrastructure challenges.

Finally, effective planning approaches will be a key facilitator in tackling the Commission's nine challenges. A key aspect of effective planning is ensuring that investment in infrastructure improvements is done at the right time for the best impact. This 'adaptive planning approach' – whereby improvements may be retimed forward or back depending on the latest intelligence – is an increasingly important part of the water sector's approach, and has been reflected in [the latest WRMP guidance](#). These types of approaches will underpin many of the sector's contributions across the nine challenges.

Question 11: What barriers exist to the long-term growth of the hydrogen sector beyond 2030 and how can they be overcome? Are any parts of the value chain (production, storage, transportation) more challenging than others and if so why?

Question 12: What are the main barriers to delivering the carbon capture and storage networks required to support the transition to a net zero economy? What are the solutions to overcoming these barriers?

Ofwat does not have a direct role in provision or regulation of hydrogen production or carbon capture or storage. However, it should be noted that the growth of both of these industries could potentially place significant new demands on water supplies at a time when major efforts are being made to manage and reduce existing demands (as noted, in the case of carbon capture, in [the Commission's report](#) on engineered greenhouse gas removals). The water industry is working with partners across different sectors to develop robust future plans in these areas, but commercial considerations mean that this type of long-term planning is not straightforward. Therefore, we would welcome further consideration by the Commission about the interactions between these two emerging technologies and managing water demand.

Question 13: In what ways will current asset management practice need to improve to support better infrastructure resilience? Your response can cover any number of the Commission's sectors.

Securing resilient water and wastewater services is a key aspect of our strategic goals to transform companies' performance and make sure they can meet the long-term challenges the sector faces. We expect companies to understand the risks to customers and the environment from asset failure and to demonstrate they are effectively managing them. The effective management of assets is vital in delivering sector-wide operational resilience.

To gain insight in this area, we worked with companies to co-create an [Asset Management Maturity Assessment \(AMMA\)](#). This helped us, and the companies, to

better understand how mature the processes, teams, technologies, and cultures are within companies for monitoring and managing asset health and operational resilience.

Across all areas of the AMMA, we saw a range of maturities in company asset management capability. The areas where companies demonstrated more mature capability tended to be more heavily prescribed areas, influenced by regulation and compliance. More mature areas included: the desire to improve asset management capability; contingency planning and emergency response; established strategic planning frameworks (such as WRMPs); audit, compliance and need for continuous improvement; and reporting of performance commitments and outcome delivery incentives (ODIs).

At the same time, there were areas that companies found harder to evidence, and we highlighted these areas for improvement. These were: board oversight and engagement on risk; linkages between short, medium, and long-term asset management planning and monitoring of asset health trends; uncertainty; data and information strategies; skills and capability; and wider value and benefits realisation. We have also outlined plans for collecting additional asset health measures in our December 2021 publication, [Assessing Base Costs at PR24](#). We would encourage the Commission to review the sector-wide findings of our AMMA as well as our plans for future monitoring, and would be happy to discuss them further.

In terms of wider implications for asset management of the UK's infrastructure as a whole, through our work we have seen the importance of asset owners developing a good understanding of the health of their assets through improved monitoring and data use. Without this understanding, asset owners run the risk of either eroding the useful life of their assets, or of 'gold-plating' – making poorly targeted investments to replace or upgrade assets that may not in fact be necessary. In particular, we consider that there is still more the water sector can do in taking a more proactive approach to incidents and asset failures. Sensor technologies, automation and machine learning create opportunities for smarter systems that could provide early warnings or predict likely high impact events. For example, the implementation of technologies such as spatial analysis or pressure management can both enable the improved targeting of assets that require replacement, and extend the service life of the wider asset base.

In addition, approaches that incorporate systems thinking will help asset owners and regulators develop a better understanding of the interactions and interdependencies between infrastructure systems. This should lead to more effective asset interventions that efficiently address multiple service risks. We are also currently exploring the collection of additional information from companies in relation to asset health and operational resilience.

Finally, it must be emphasised that asset management is only part of the picture. It is a collection of processes, activities and frameworks that can help to enable infrastructure resilience, but only when combined with effective infrastructure delivery and continuous reviewing and improvement. To effectively tackle the Commission's nine challenges, infrastructure owners will need to balance all these considerations holistically, learning from other sectors by sharing good practice as well as from their

own learning; creating new and innovative opportunities for collaboration and systems thinking.