

**UUW39**

# How our plan delivers social and environmental value

**October 2023**

**Chapter 6 supplementary document**

This document presents more detail on the summary of how we deliver social and environmental value presented in Chapter 6 of the main document.

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# 1. How our plan delivers social and environmental value

## 1.1 Key messages

- **Social and environmental value:** We have ensured our plan protects and grows the value we deliver to customers, society and the environment throughout the North West. Our AMP8 investment will drive over £35 billion of value with wide ranging social and environmental benefits to each of Cumbria, Lancashire, Greater Manchester, Merseyside, Cheshire and adjacent areas.
- **Social value:** We deliver substantial social value by further improving our core performance, supporting customers with £525 million of affordability support, supporting creating economic growth in the North West and supporting over 30,000 jobs through a combination of direct employment and through our supply chain.
- **Environmental value:** We plan to meet our ambitious targets set for improvements to the water environment through our largest ever investment programme, planned and prioritised using value-based decision making and long-term adaptive plans. We will protect the environment for the long-term long term by reducing storm overflow operation by 26.8 per cent, reducing leakage by 13 per cent, improving 386km of rivers and improving 11,728 hectares of SSSI land.

## 1.2 Structure

1.2.1 This document presents more detail on the summary of how we deliver social and environmental value presented in Chapter 6 of the main document, and is structured as:

- **Section 2** provides a summary of our strategy; and,
- **Section 3** provides further detail on the social and environmental value of our plan.

## 2. A summary of our strategy for society and the environment

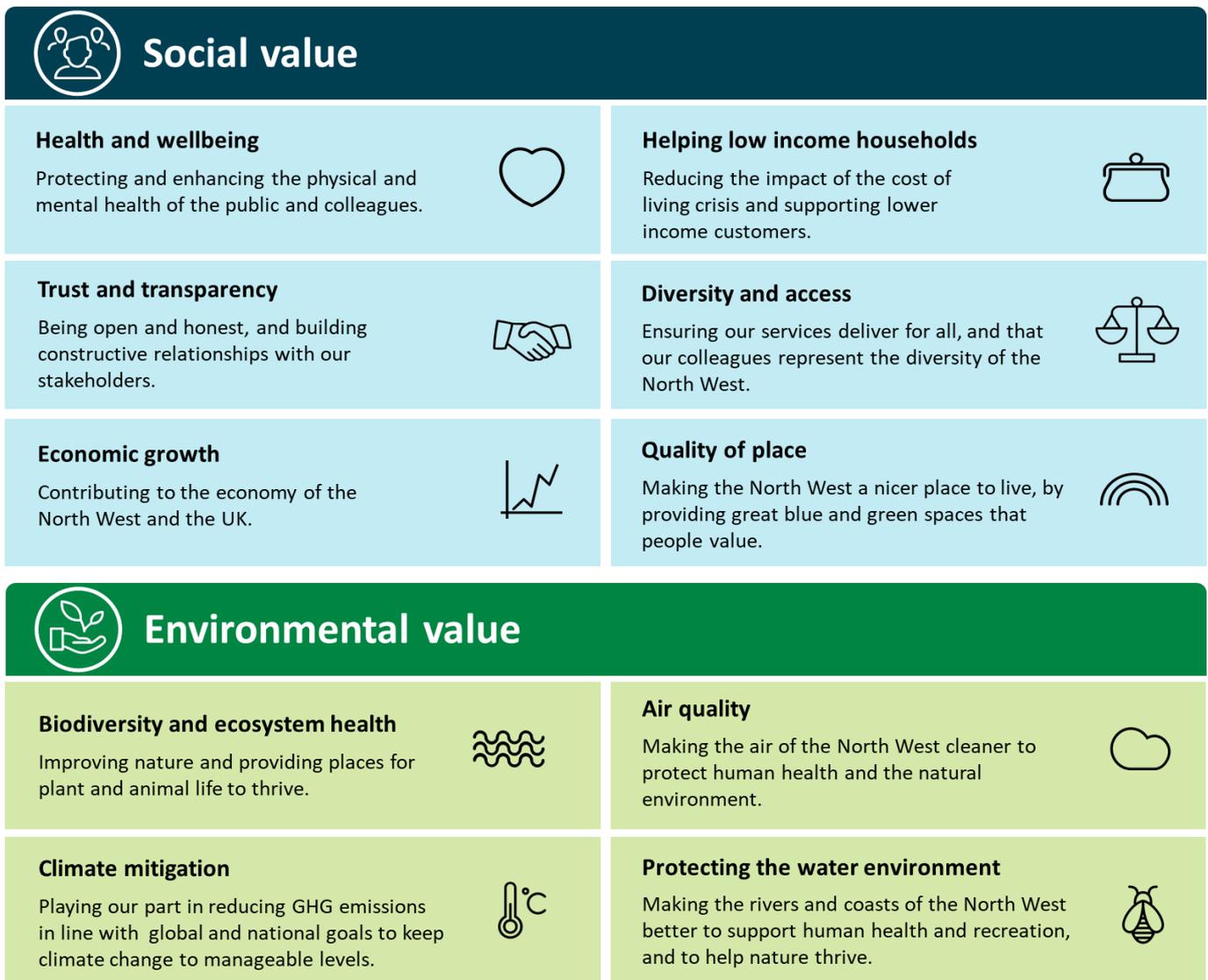
- 2.1.1 We have a vital role in making the North West stronger, greener and healthier. This is at the heart of everything we do as a water company that is constantly managing its impacts and dependencies on air, land and water environments. We do this to provide affordable and resilient public services to over 3 million households and 200,000 businesses in the region, every day of the year.
- 2.1.2 We are proud to serve the North West and its counties. We recognise the great responsibility and opportunity we have to maximise the value we create for society and the environment. This is even more important considering the growing opportunities and challenges we face in AMP8 and the long term. It is in this light that we have built a bold and robust plan to maintain and further enhance the social and environmental services and value that we deliver for the North West.
- 2.1.3 We are proud to submit a plan that will deliver over £35 billion of value for the North West and support 30,000 jobs, including through our supply chain. Further detail on this value can be found in supplementary document *UUW36 - Social and Environmental Value of the PR24 Plan*.
- 2.1.4 Customers want us to deliver more social and environmental value. This is clear from customer research as shown in *Chapter 3 – Customers and communities shape our business plan* and supplementary document *UUW21 – Customer research methodology*, with customers increasingly placing a higher value on the environment over time. This sentiment is backed up by the investor community, with ESG (environmental, social and governance) having a growing influence on where the most attractive financing will be made available. Communities and NGOs that represent the environment are demanding more from water companies to protect and enhance nature. In addition, politicians, the media and our regulators have raised their expectations for water companies, including with new legislative requirements. Our AMP8 business plan is an ambitious next step to delivering more of the social and environmental benefits that our stakeholders are demanding, working towards our six strategic priorities set out in *Chapter 2 – Great water for the North West* and in Figure 1 below:

**Figure 1: Our six strategic priorities**



- 2.1.5 Through these ambitions we will drive better value for the North West. This value comes in many different forms, and we have categorised this value in Figure 2 below:

Figure 2: The social and environmental value we create



2.1.6 Our activities will deliver value against all of these categories. In this document, we explore the social and environmental value that our business plan will deliver for the region we serve, including for each of the five counties that make up the North West. We separate out social and environmental benefits in the structure of this document, but recognise that these two elements are inherently connected. All environmental benefits are ultimately for the benefit of society and social benefits cannot be delivered without a functioning and resilient ecosystem. Much of the social and environmental value we deliver is a result of our core service delivery, and how we deliver these services to offer wider benefits.

**Best value decision making**

2.1.7 The interventions we have prioritised in our business plan are those that deliver both social and environmental benefits, and those that represent best value for customers, when taking into account the costs of the scheme. We have a robust and consistent approach to driving best value solutions across our plan that has resulted in the benefits for the North West we discuss in *Chapter 6 – Delivering Social and Environmental Value* and this document. For more information on our best value decision-making approach, please refer to supplementary document *UUW45 - Our approach to delivering best value totex*.

## 3. Our plans to deliver social and environmental value

### 3.1 Introduction

3.1.1 The next two sections provide more detail on impact and value and how, if accepted, our proposed plans will deliver these. We have structured this against:

- **Social value** – Driving positive impacts for customers and society across everything we do; and,
- **Environmental value** – Showing the positive environmental impacts we deliver through our role in the water cycle.

3.1.2 For each facet of social or environmental value we will summarise:

- **The benefits and value** – Showing the linkage between the benefits we propose to deliver and the social and environmental value they create;
- **Our strategy** – Building on our progress and learnings from previous AMPs, details of our ambitious strategies which help us deliver social and environmental value; and,
- **Our plan** – How we are proposing this strategy will be realised in AMP8, the investments and activities we propose to deliver and how this links to our long-term goals.

### 3.2 Delivering social value for the people of the North West



#### Our business plan delivers social value for the North West by:

- **Protecting public health and wellbeing** – By ensuring we provide safe drinking water; manage flood risk, keep reservoirs safe and make our land available for land access and recreation;
- **Supporting those who most need it** – By supporting customers who are struggling to pay their bills, supporting those in vulnerable circumstances and those on the Priority Services Register and making our services accessible;
- **Being inclusive for everyone** – By recruiting and developing a diverse and inclusive workforce which represents the communities we serve in the North West; and
- **Ensuring reliable services and supporting economic growth** – By avoiding interruptions, ensuring capacity for others to grow, and investing in local jobs.

3.2.1 Our purpose drives us to deliver our services in an environmentally sustainable, economically beneficial and socially responsible manner, reflecting the interests of all our stakeholders. Social value is about delivering benefits to the economy, environment and communities in which we operate. For instance, we deliver value through water and wastewater services but also provide apprenticeships, employee health and wellbeing schemes, pay suppliers on time, reduce our environmental impacts, encourage access to our land and invest in our local communities.

3.2.2 As a provider of essential services, the vast majority of the social value we deliver is in our core service – providing great water and removing wastewater enabling customers to get on with their day. Providing support to customers who are struggling to pay their bill and helping those in vulnerable circumstances provides additional social value. In addition to the core service we deliver, we deliver social value by:

- (a) Protecting and enhancing reservoirs, catchments, rivers and bathing waters that provide a home for wildlife, areas for recreation, tourism, and working hard to reduce negative environmental impacts;

- (b) Building partnerships to support communities to be stronger, working with schools and young people to develop skills and help people get back to work. Much of our land is open to the public and we encourage people to use it responsibly; and,
- (c) Working with teachers and children to raise awareness about water and the natural environment, giving the next generation an understanding of the true value water brings and how we can all play our part in protecting the services nature provides.

### Protecting public health and wellbeing



3.2.3 We impact on public health and wellbeing of the people of the North West in many ways. This section discusses how we are working to deliver more in AMP8 across four key areas which impact health and wellbeing. These are:

- **Providing great quality water** - We take pride in providing a wholesome, resilient supply of drinking water to customers and businesses in the North West. Firmly at the front and centre of our decision-making is our fundamental responsibility to protect public health. We have ambitious plans to continue improving taste, smell and appearance because we recognise that customers' trust and perception of their water supply is vital to their wellbeing.
- **Minimising flood risk to protect public health and wellbeing** – We recognise that internal sewer flooding is one of the worst service failures that customers can experience. It also has the potential to cause widespread financial impacts and economic disruption.
- **Reservoir safety** – We operate a fleet of 162 reservoirs. These reservoirs provide the majority of the water for homes and businesses across the North West. A breach of one of these structures may not result in a flood but is likely to cause significant environmental harm. It is of paramount importance that these sites are kept safe for communities of the North West, whether or not they are located on land with open access to the public.
- **Accessible green and blue space for people to enjoy** – We take pride in our role as custodians of some of the most beautiful landscapes in the North West and we continue to work in partnership to break down barriers to access, ensuring our land has the opportunity to deliver the proven physical and mental benefits for customers. Our access and recreation strategy sets out a strong ambition to work more closely with partners, recreational bodies and clubs to mitigate the risks associated with entering our reservoirs to maximise social value (health and wellbeing) from our natural capital, while addressing public expectations for more recreational access to green and blue space.

#### What did customers say?

- UUW customer priorities research, CCW and Ofwat's customer preferences and ODI rates research show drinking water quality and sewer flooding are top customer priorities which customers place high value on companies addressing and improving. Our service levels for these have been co-created and validated by customers in our WRMP<sup>1</sup>, DWMP<sup>2</sup> and Affordability and Acceptability testing research<sup>3</sup>.
- Our stakeholder feedback and research on river health, sewer overflows, and customer listening feedback on our Better rivers commitments show that customers prioritise reducing river pollution first and

<sup>1</sup> [unitedutilities.com/corporate/about-us/our-future-plans/water-resources/water-resources-management-plan/](https://unitedutilities.com/corporate/about-us/our-future-plans/water-resources/water-resources-management-plan/)

<sup>2</sup> [unitedutilities.com/corporate/about-us/our-future-plans/Our-long-term-plans/](https://unitedutilities.com/corporate/about-us/our-future-plans/Our-long-term-plans/)

<sup>3</sup> Supplementary document *UUW22 – Affordability and Acceptability testing reports*

foremost. Protecting biodiversity, recreation and bathing waters are also things customers want companies to protect.

- Customers have expressed in our customer priorities research and long-term delivery strategy research that health and safety is of utmost importance and customers would prefer for investment in lead pipes to be accelerated as much as possible.
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*.

**Figure 3: Protecting public health and wellbeing – the benefits and value delivered**

Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
26.8% reduction in storm overflow operation	✓	✓				✓	✓			✓
Improvements to 11,728 hectares of SSSIs	✓					✓	✓	✓	✓	✓
Delivering activity at 15 bathing waters impacted by CSOs	✓	✓				✓	✓			✓
Enhancing safety at 10 reservoirs	✓	✓	✓			✓				
26% fewer contacts about water quality	✓	✓	✓			✓				
32% reduction in sewer flooding inside homes & businesses	✓	✓	✓			✓				
13% reduction in sewer flooding outside of homes & businesses	✓	✓	✓			✓				
30,000 lead pipes replaced in homes across the North West	✓					✓				

Source: *United Utilities PR24 Business Plan*

**Providing great quality water to protect public health and wellbeing**

3.2.4 We are proud to provide a wholesome, resilient supply of drinking water to customers and businesses in the North West. Firmly at the front and centre of our decision-making is our fundamental responsibility to protect public health. We have ambitious plans to continue improving taste, smell and appearance because we recognise that customers’ trust and perception of their water supply is vital to their wellbeing. From catchment to customer, delivering water is rooted in the context of the people and environment of the North West. As stewards of extensive catchment land we have opportunities to address water quality risks at source, both now and in the future while providing access to nature and green spaces for the health benefits this brings. Within communities, our plans recognise the diversity of our region and include provisions to protect water quality for all. Prioritising solutions at source delivers wider benefits for nature and carbon. Nature-based solutions enhance the environment of the North West, and they reduce the carbon costs associated with downstream solutions.

**Our strategy to deliver our water quality ambitions**

3.2.5 Our vision is to provide customers with industry leading water quality, which is 100 per cent compliant with current and future drinking water quality standards while ensuring a sustainable and reliable supply of safe clean drinking water.

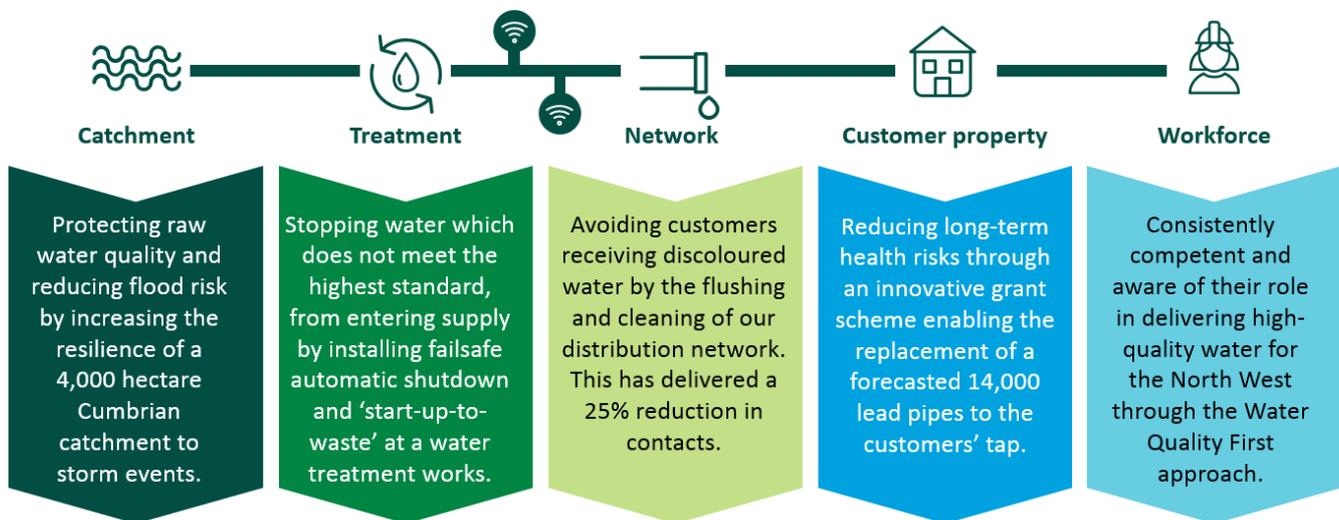
**Table 1: Our 2050 Water Quality Ambitions**

<b>A service that is 100 per cent compliant with regulatory, quality and environmental requirements</b>
A service that is resilient to challenges such as new water quality standards, climate change, asset health and potential risk from emerging contaminants
Customers are confident and trusting of their drinking water quality
We will deliver for future generations by embedding sustainability, innovation and partnership working in our plans

Source: United Utilities (2023) Long Term Water Quality Plan: Securing water quality for future generations January 2023

- 3.2.6 Table 1 above outlines our water quality ambitions to achieve this vision. Protecting public health through compliance is at the core but our ambitions also deliver in the round by building resilience, maintaining trust and safeguarding for future generations.
- 3.2.7 We will not achieve these ambitions by rigidly adhering to traditional approaches, especially in the context of a changing climate, cost-of-living challenges and the potential risk from new and emerging contaminants. Long-term success demands creative approaches, which embrace innovation, collaboration with partners, and maximise synergies between different areas.
- 3.2.8 We have made substantial progress towards our vision through restoring catchments, enhancing assets, improving operating procedures and driving behavioural change.
- 3.2.9 Our progress in protecting health and wellbeing has been recognised by the Drinking Water Inspectorate (DWI), and our Water Quality First initiative won the Drinking Water Initiative of the Year award in the 2023 Water Industry Awards. In 2023 the DWI confirmed that we were no longer in ‘transformation’. The DWI had confidence in our processes, people and direction of travel.

**Figure 4: Our track record in improving water quality**



† Black, brown and orange contacts as per DWI UUT-2020-00005. Performance compared to 2017/18 baseline

**Our AMP8 plans to go even further on Water Quality**

- 3.2.10 We are protecting public health through a carefully balanced plan, which delivers best value across the whole water cycle, intervening at the most effective point, while accounting for affordability, environmental and social value.
- 3.2.11 This begins at source with our Catchment Systems Thinking (CaST) approach where we achieve multiple benefits by integrating risks and working more effectively through co-governance, collaboration and partnerships. Our plans include a second phase of catchment resilience schemes on owned catchments in Cumbria, Lancashire and Greater Manchester. They also include working with other landowners and tenants to reduce diffuse pollution, such as nutrient and bacteria loading on Cheshire boreholes, and realise the wellbeing value from natural spaces.

- 3.2.12 Our plans improve and protect water quality through our treatment and distribution assets. We will operate our assets efficiently and effectively, and invest in long-term asset health, to produce and deliver safe water that complies with the high standards that customers expect.
- 3.2.13 We manage the risk from lead in drinking water but recognise that it is still present in both privately owned plumbing and communication pipes that we own. In AMP8 we aim to build on the success of our current approach by replacing up to 30,000 lead pipes. To go further, we also propose an innovative enhancement case to tackle socio-economic barriers to lead removal, conscious that exposure and vulnerability to lead risk overlaps with many dimensions of deprivation.

#### **AMP8: Building trust in the water supply**

- 3.2.14 Our plan targets a 26 per cent reduction in water quality contacts by 2030 to demonstrate that customers have growing confidence in their water supply. We are proposing:
- Investing £42 million at five water treatment works to mitigate the effects of deteriorating raw water quality in the associated source waters.
  - Investing £151 million in the next stage of the Vyrnwy Aqueduct Modernisation Project to improve supplies to customers in Cheshire and the Liverpool City Region by reducing the risk of discoloured water;
  - Renewing 928km of distribution mains to reduce leakage, with additional benefits of removing pipes linked to discoloured water and reducing the disruption to daily lives from bursts; and,
  - Creation of a digitally enabled water network to detect changes before they impact water quality and guide intelligent interventions.

#### **Protecting public health and wellbeing for water quality in the long term**

- 3.2.15 Resilient water quality delivers long-term value and manages long-term risks so continued research is integral to our plan. Focus areas include: an Innovation Fund study into DNA sequencing to understand sources of bacteria in raw water, the formation of compounds, which affect taste and smell, and research into treatment and removal options for Polyfluoroalkyl Substances (PFAS) and micro-plastics. These issues are not unique to UUW. They are shared across the water industry, across the UK, and indeed across the world. In the North West there is a shared interest in protecting public health and promoting wellbeing. This will be reflected in our engagement with coordinated, collaborative research and through working in partnership to increase efficiency and achieve greater benefits. We envisage this engagement from source to tap, from engaging with environmental partners in catchments, to facilitate the removal of lead pipes with local authorities. We will also engage on a national level to support policies, which protect water quality and help deliver value for customers.
- 3.2.16 The latest research, learning from partnership working, and updated policies will guide us on our long-term adaptive plans to protect public health and wellbeing. These plans, which are outlined in more detail in *UUW12 – Long Term Delivery Strategy*, create the agility to respond to risks and opportunities as we target our 2050 ambitions.

#### **Minimising flood risk to protect public health and wellbeing**

##### **Our strategy to minimise flood risk**

- 3.2.17 UUW recognises that internal sewer flooding is one of the worst service failures that customers can experience. Indeed, qualitative joint research conducted by the Consumer Council for Water (CCW) and Ofwat shows that any type of sewer flooding has a significant negative impact on customers irrespective of severity, with feelings of stress, anxiety, hopelessness and disempowerment reported by customers<sup>4</sup>. UUW's own customer research into sewer flooding experiences further confirms the scale of the long-

<sup>4</sup> Ofwat (2022) *Customer experiences of sewer flooding: A joint report by CCW and Ofwat*. Available [here](#).

term psychosocial impact<sup>5</sup>. It also has the potential to cause widespread financial impacts and economic disruption. As such, reducing the occurrence of these events is a high priority for our business plan.

- 3.2.18 The North West is particularly susceptible to sewer flooding due to the unique regional operating environment. The North West has 40 per cent more urban rainfall<sup>6</sup> than the industry average and the highest percentage of combined sewers in the industry. Drainage systems in the North West are, therefore, more susceptible to sewer flooding than areas with lower proportions of combined systems and lower rainfall, a vulnerability that will only be exacerbated by climate change.
- 3.2.19 An additional link between flooding and customer health and wellbeing is through the resilience of our assets to wider flood risk. This is another strategic priority for the North West following the widespread and recurring disruption felt by communities and businesses from numerous extreme storms in recent years. Flooding can occur from multiple sources, be it coastal, fluvial, or pluvial. As a water and wastewater company, we own and operate assets that closely interact with rivers, lakes and the sea, and that drain large areas of land. The risk of flooding is generally increasing with escalating climate change, requiring greater levels of intervention over time to maintain and improve levels of protection. As a Risk Management Authority we look to manage the risk of flooding to water supply and sewerage facilities and flood risks from the failure of infrastructure.
- 3.2.20 We recognise that effective flood management involves ongoing collaboration by multiple organisations, with our role focused on managing the public sewer network to provide effective drainage. We cannot rely on traditional approaches to flood defences and must work more collaboratively and at a system level, deploying innovative new solutions such as catchment-wide nature-based solutions to offset surface water from ever entering the drainage system.

#### **Progress in AMP6 and AMP7 on flooding performance**

- 3.2.21 **Internal sewer flooding** – Across AMP7 we aim to achieve a 33.8 per cent reduction in internal sewer flooding and 14.5 per cent reduction in external sewer flooding (FY20 to FY25) and are on track to achieve this stretching performance improvement. In AMP8, we will continue to reduce the impacts of sewer flooding on customers, building upon AMP7 improvements.
- 3.2.22 We have carried out cluster analysis of the likely effects of sewer flooding for multiple alternative futures. Using our advanced sewer modelling capabilities we have been able to identify areas of highest risk/networks that are most sensitive to future sewer flooding risk. These are identified in our Drainage and Wastewater Management Plan (DWMP) and solutions to address the risk included in our 'best value' plan.
- 3.2.23 **Wider flood resilience** – In 2015 we were impacted by storms Desmond and Eva, which not only impacted us but also had major impacts on communities in Cumbria and Lancashire. Following on from these events, we have developed risk assessment tools supported by Environment Agency flood extent maps to understand the risks at our assets. We have delivered flood protection investment at previously impacted sites, installing flood defences, raising electrical equipment above flood levels, and building equipment above ground level to protect assets and the essential services they provide. We have upgraded our asset standards to ensure that flood protection is considered from the outset when designing new assets.

#### **Our AMP8 plans to further reduce risk of sewer flooding**

- 3.2.24 For AMP8 we have set ourselves an ambitious target for sewer flooding performance. This equates to a highly stretching 32 per cent reduction in our internal sewer flooding incidents and a 13 per cent reduction in our external sewer flooding incidents. Our AMP8 strategy for managing flood risk, centres

<sup>5</sup> UUW (2021) *Sewer Flooding Experience*. Available [here](#).

<sup>6</sup> Measured as urban rainfall (million m<sup>3</sup>) (wastewater – LAD) (BN4505), per 10,000 connected properties. Taken from Ofwat's urban rainfall calculations dataset [here](#).

on reducing flooding from other causes (FoC) flooding through operational interventions, while increasing resilience to severe weather to reduce our vulnerability to hydraulic/severe weather flooding.

**Managing flooding from other causes (FoC) risk**

- 3.2.25 To reduce the number of FoC flooding incidents, we will continue to mature the machine learning capabilities of Dynamic Network Management (DNM), to reduce the volume of false alerts and refine our response to blockage and high-level alerts. We plan to expand our network of sensors to improve coverage across the region and ensure more customers can benefit from the proactive service provision enabled by DNM.
- 3.2.26 We are proposing a large-scale proactive inspection and rehabilitation programme for our sewer network. This will allow UUW to proactively identify and rehabilitate defects that may ultimately lead to blockages or collapses that cause sewer flooding. Such a programme will be largely enabled by our pioneering partnership with VAPAR, which uses AI technology to automate defect detection from CCTV imagery. In this way, we can increase the rate at which we can process CCTV imagery and standardise prioritisation of rehabilitation.
- 3.2.27 We also want to build on our success in raising customer awareness to reduce the risk of flooding to help improve network use and support embedded behaviour changes through to 2030 and beyond. In FY22, 67 per cent of our blockages could be attributed to customers flushing or pouring materials into the wastewater network which sewers are not designed to receive, such as fats, oils and grease. We, recognise that there is further to go in raising customer awareness of ‘what not to flush’.

**Managing hydraulic flood risk**

- 3.2.28 We understand that repeat flooding is especially distressing for customers. We therefore plan to extend our flood mitigation programme to protect over 1,000 additional properties from internal sewer flooding, through installation of property-level flood devices, including non-return valves and flood barriers. This will require a significant upscaling of our current rate of rollout to reduce the vulnerability of customer’s properties to both FoC and hydraulic flooding. Our plan also reflects an investment of £132 million in rainwater management to keep rainwater out of the system to protect against future deterioration of sewer flooding performance related to climate change in the most sensitive areas of our region (as defined within DWMP). The rainwater management strategy is discussed in more detail in section 3.3.37 of this document.
- 3.2.29 Through our DWMP, a long-term plan that aims to provide robust and resilient drainage and wastewater systems, we are planning to sustainably reduce the risk of sewer flooding in the North West. As part of this we have completed risk assessments for internal flooding, external flooding, flooding of open spaces, and sewer collapses. Throughout these assessments we see increases in risk by the 2050 planning horizon across all DWMP planning objectives. This increase in risk is mainly being driven by population growth and additional surface water resulting from climate change.
- 3.2.30 The DWMP has highlighted the potential to address shared risks and responsibilities, and to harness opportunities for partnership working and solutions. We need to plan in a holistic way and acknowledge the shared responsibilities between UUW and other risk management authorities (RMAs) to ensure that customers and the environment are protected. We will work with the latest available information as and when it arises to build our risk assessment. This will help to identify sites at most risk of future climate change, and helping us to target investment at sites that provide the greatest protections to customers and the environment from the effects of flooding. Protecting the public and environment from flooding in the long term.
- 3.2.31 We aim to invest now to support long term climate resilience, and continue to develop and mature our understanding of the risks posed from climate change, and how both a move to increasingly dry summers and wetter winters will exacerbate the risks. We already calculate the risk of sewer flooding as one of our most significant risks that is sensitive to climate change. More details are provided in our [Climate Change Adaptation Report 2021](#). We are developing future alternative pathways to addressing

flood risk as part of our Long Term Delivery Strategy (LTDS) development, building plans to address multiple futures under different levels of climate change.

- 3.2.32 We will continue to work with partners, other risk management authorities and lead local flood authorities to develop integrated and collaborative solutions to managing flood risk, building on the pilot work underway in AMP7 with the GMCA on Integrated Water Management (IWM).

### **Reservoir safety to protect public health and wellbeing**

- 3.2.33 UUW operates the largest fleet of reservoirs in the UK. These reservoirs provide the majority of the water for homes and businesses across the North West. In addition, the reservoir fleet represents highly appreciated landscape features, providing wonderful opportunities for walkers, anglers and water-sports enthusiasts. In addition to our clean water reservoirs, we have a number of waste water legacy sludge lagoons that may, following verification via surveys, require registration under the Reservoir Act. A breach of one of these structures is unlikely to result in a flood but is likely to cause significant environmental harm. It is of paramount importance that these sites are kept safe for communities of the North West, whether or not they are located on land with open access to the public.

#### **Our reservoir safety ambition**

- 3.2.34 We will ensure that our reservoir fleet is able to provide great water for the people of the North West for generations to come. We will continue to encourage local communities to enjoy our reservoirs for recreation where that can be done safely. We will operate our reservoirs in accordance with the regulations of the Reservoir Act, and we will regularly risk assess every dam against H.S.E. risk tolerability criteria.

#### **Progress in securing reservoir safety**

- 3.2.35 We have continued to operate our dams safely, through adhering to the requirements of the Reservoir Act. A programme of risk assessments has been undertaken to prioritise future investment in additional dam safety measures. We play a leading role in developing dam safety tools and procedures which are shared with other dam operators.

#### **Our AMP8 plans to ensure reservoir safety**

- 3.2.36 Ensuring that our reservoirs will continue to safely deliver great water for homes and businesses in the North West is a key element in our water resources strategy. Because of its large fleet, UUW has larger costs than other companies to deliver dam maintenance. In AMP8 we are undertaking detailed site surveys at ten legacy sludge lagoons and will be registering these structures with regulators where appropriate.

#### **Protecting the public and environment from risk in the long term**

- 3.2.37 Our multi-AMP programme to manage the risk of dam failure began in AMP4 and will continue into the future. We will continue to carry out risk assessments, including using new technologies where this is appropriate, and will prioritise risk reduction engineering works where required.

### **Accessible green and blue space for people to enjoy to protect public health and wellbeing**

#### **Our strategy for delivering social value through access and recreation**

- 3.2.38 We are proud to be custodians of some of the most beautiful landscapes in the North West and we continue to work in partnership to break down barriers to access, ensuring our land has the opportunity to deliver the proven physical and mental benefits for customers. Our access and recreation strategy sets out a strong ambition to work more closely with partners, recreational bodies and clubs to mitigate the risks associated with entering our reservoirs to maximise social value (health and wellbeing) from our natural capital, while addressing public expectations for more recreational access to green and blue space. We know that with our land holding comes great responsibility. Over the next five years we want to maximise the extensive open access network on our land and support the people of the North West to greater health, by immersion in and around our unique and wonderful blue and green spaces with three ambitions. These are to:

- Offer more recreational opportunities for our North West customers to enjoy by creating 10 new recreational clubs at our reservoirs by 2030;
- Supporting partners to ensure that by 2030, 95 per cent of customers will be no further than 30 miles from a bathing water; and,
- Work in partnership at a community level to ensure visitors are safe and can access and enjoy the beautiful landscapes on our land.

3.2.39 Public safety will always be a priority and our approach aligns to the Visitor Safety Council guidelines. We routinely risk assess our open spaces, ensuring there are adequate controls in place assured by external guidance and regularly run seasonal safety campaigns inclusive of targeted use of appropriate social media channels. We engage with others, leading and participating in external forums, at both industry and regional levels; such as the Water UK Safety Group, the Water North West Safety Forum and local forums comprising of other key stakeholders such as Fire and Rescue, the Police, RNLI and Swim England to enable sharing of learnings and collaborative communication and education campaigns.

#### **A history of open access and enjoyment across our land holdings**

3.2.40 We offer 180 open access sites at our reservoirs and green space sites in addition to 65 recreational clubs offering a range of activities including paddleboarding, sailing, kayaking, canoeing and fishing. We also support a number of high-profile events across the year, such as Parkruns at Watergrove. During the pandemic, we saw an increase in demand for access to our open access sites which saw pressures from unpermitted activities, antisocial behaviour and environmental damage. By working in partnership with local organisations, National Parks and community groups, we have delivered co-created actions plans protecting and improving our sites to overcome these pressures.

3.2.41 In addition to collaborating on tactical solutions to mitigate the pressures occurring as a consequence of the COVID-19 pandemic, we work closely with our partner organisations to develop strategic site visions and plans. For example at our Haweswater Estate, RSPB have introduced a number of ecotourism opportunities, and at our Dovestone Estate where with RSPB we are working with the local Muslim community to improve the accessibility of the site.

3.2.42 In a direct response to changing social trends we have been collaborating with our tenanted recreational clubs to ensure they continue to be strong and successful, opening up more and increasing popular activities such as paddle boarding with the support of the Royal Yachting Association (RYA).

3.2.43 During AMP7 we have delivered a successful programme of engagement through our Acres for Nature campaign; delivering a refreshed website design, new site signage and information boards at key visitor hubs and a series of nature-focussed podcasts to support education and engagement with our local communities.

3.2.44 Local people best know local places, and we work hard to ensure that the land we own delivers what is expected by customers and communities. We set up and facilitate both rural and urban resident working groups in areas of key visitor interest, enabling them to co-design appropriate place-based recreation solutions.



#### **Our AMP8 plans go further and build on our strong foundations**

3.2.45 As well as developing our existing recreation proposition, we will seek to ensure the new clubs created will be geographically spread across the North West, are diverse in offerings and accessible to all of our communities by ensuring 'pay to play' finance options and not for exclusive club memberships only.

3.2.46 An aim of our plan is to ensure that 95 per cent of people in the North West are no further than 30 miles from a bathing water. We will continue to develop our approach to working with others to allow customers to receive maximum benefit. For instance;

- Working with the Peak District National Park and the Lake District National Park to access broader rangers provisions; and,
- Utilise our long-term strategic partnerships with organisations such as the RSPB to help connect people and communities with nature.

**Supporting those who most need it**



3.2.47 Water customers in the North West have diverse and differing needs and expectations from their water and wastewater services. These needs can vary over time as people’s circumstances change. In the current economic climate, it is more important than ever that we support those struggling the most and we deliver strong social value through our targeted and tailored support packages.

**What did customers say?**

- Affordability is a key concern for customers and we have tracked the rise of this over time.
- UUW debt research explores how we can better help those at risk or in need of support from UUW, which has directly fed into our propositions and strategy.
- Our affordability package and support has been directly informed by dedicated testing of our support package through our affordability package research and Affordability and Acceptability testing research.
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*.

**Figure 5: Supporting those who most need it – the benefits and value delivered**

Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
£525m of affordability support for customers	✓	✓		✓	✓					
590,000 additional households benefitting from a broader range of affordability support	✓	✓		✓	✓					
£335m on schemes for customers in vulnerable circumstances	✓	✓		✓	✓					

Source: United Utilities PR24 Business Plan

**Our Strategy**

3.2.48 Continuing to make sure our water and wastewater services are accessible for all is a priority of our business plan. This means making sure we are supporting customers who are facing affordability challenges, supporting customers in vulnerable circumstances, and making sure no-one is excluded from receiving the benefits that our plan will bring. Our strategy for achieving great service, every day has three core sections:

- **Affordability** – Providing water without worry and industry leading support to vulnerable customers. Providing value for money, keeping bills as low as possible for everyone through financing and efficiency. In the context of the cost-of-living crisis it is more important than ever to keep bills as low as possible, recognising the knock-on effects of financial difficulties on people’s mental health and wellbeing.
- **Accessibility** – Providing a channel of choice for every customer to ensure that all customers receive great service and support. Providing flexible support for customers through our Priority Services Scheme, supporting those with physical disabilities including chronic health problems, mental health issues, financial vulnerability, language barriers and life events. Having a continuous improvement mind set with customers first.
- **Attentiveness** – Being proactive in our service level management, helping customers by solving their problems, supporting customers with leaky loos, meters and pipe replacement and making decisions in real time, to ensure we give great service every day.

3.2.49 Much more information about our approach to supporting customers who could benefit from extra help with affordability or vulnerability challenges, and our operational response to these, is provided in *Chapter 4* of our business plan and also the supplementary document *UUW25 – Affordability and Vulnerability Operational Response*.

### Our AMP8 plan

3.2.50 In AMP8 we plan to deliver the most extensive support package to customers we have ever had. We will support 590,000 customers with affordability concerns and deliver £2.15 billion of additional social value through our support schemes. We will support through our ISO accredited vulnerability support package, back on track support tariff, help to pay social tariff, payment matching plus, United Utilities Trust restart grants, Water Direct and WaterSure. More detail on the social value delivered through these schemes can be found in *Chapter 4 – Driving Affordability* and *UUW25 – Affordability and vulnerability operational response*.

3.2.51 In addition to the direct support, we are increasing our activities to help people save on their water bills:

- **Water efficiency/water audits** – AMP8 requires a step change in demand reduction for both household and non-household customers. Collaboratively with policy makers, housing providers and others, we will help customers use water more efficiently, which will safeguard our long-term water supplies, protect our environment and benefit customers through reduced bills;
- **Priority Service Register plans** – We provide industry leading support for vulnerable customers, having extended our Priority Services offering to customers that would benefit from extra help, and ensuring that we continue to improve the quality and scale of the support we provide. In AMP8 we will further develop our digital capabilities to enable us to better serve these customers. For example, through development of a priority services application we will enable service registration, service selection, and provide the ability for customers to verify, amend and update their account and service choices. In addition, we plan to deliver improved engagement with multicultural communities, where current PSR engagement levels are low. This will be achieved by training our colleagues, reaching out and making partnerships with multicultural groups. Creating multicultural connectors into the business will enable us to proactively promote our services and the benefits of joining the Priority Services Register; and,
- **Utilities together** – UUW, Electricity North West (ENW), Cadent Gas, Northern Gas Networks and SP Energy Networks have recognised that working together more closely and collaboratively for the sake of customers could only benefit their overall customer experience with us all. By sharing vulnerability support best practice between the five companies, we also have an opportunity to save time, money and resources in putting in place customer support. We have collectively shared an ambition to support customers and communities, often in extreme vulnerable situations. This also supports data sharing partnerships to help deliver water without worry.

3.2.52 Much more information is provided about our activity to support customers through these types of interventions in *Chapter 4* of our business plan and the supplementary document *UUW25 – Affordability and vulnerability operational response*.

**Being inclusive for everyone**



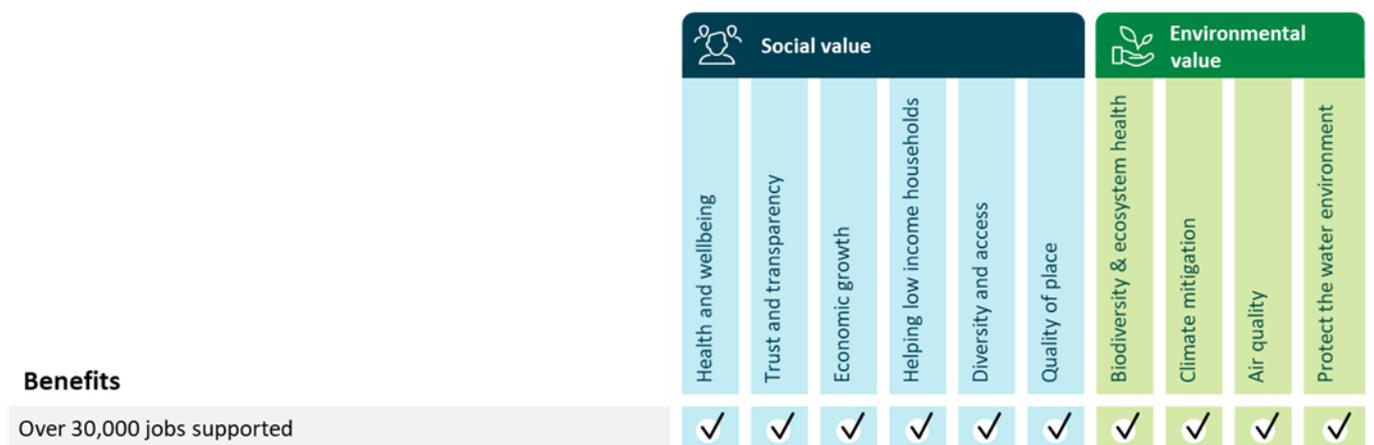
3.2.53 The North West is diverse, with people from all backgrounds. By understanding the communities and counties we serve, we better understand how to deliver the things that matter most. Being inclusive does not just apply to customers and communities, it also applies to our colleagues and supply chain. It is important to reflect the diversity of our region with the people who work with us in order to deliver a service that delivers for all.

3.2.54 Through our business plan we expect to support over 30,000 jobs in the North West, supporting economic equality as an accredited living wage company with a strong track record of diversity and inclusion. As well as this we will continue to have a strong focus on health and safety with colleagues and in our supply chain, to make sure that we provide a safe and great place to work.

**What did customers say?**

- UUW diversity and inclusion research showed that 57 per cent of customers take into account diversity of a company and 59 per cent how inclusive a company is when using a product or service
- In a national survey by Mustard research, 71 per cent said they cared a lot about companies being committed to treat employees fairly
- Our stakeholder engagement and customer engagement in future plans, demonstrates that the number of jobs added to the region by UUW is a valued contribution to the North West
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*

**Figure 6: Being inclusive for everyone – the benefits and value delivered**



Source: *United Utilities PR24 Business Plan*

**Our strategy**

3.2.55 Our strategy to be inclusive for all is to focus on:

- **Working to understand customer views and the North West** – Our five Counties approach underpins our understanding of the region and the counties within it, to make sure that we deliver

the things that are most important to local people and businesses. The North West is diverse so having strong relationships with stakeholders across the counties influences what we do, helping us to represent and serve the diverse communities of the North West.

- **Recruitment and development** – Having diversity and inclusion at the heart of how we attract talent and develop UUW colleagues to help us fully understand and respond to the communities we serve.
- **Supporting diversity led intern strategies** - such as Ambitious for Autism and 10,000 Black Interns.
- **Strong employee led diversity network** – such as Women in UUW, Multicultural and Identify LGBT+.

### Our AMP8 plan

#### Working to understand customer views and the North West

- 3.2.56 In AMP8 we are strengthening the relationships and understanding we have at a county level. This insight into what makes the counties we serve has underpinned how we have built our plan. This has helped to deliver an inclusive plan that delivers for all and influenced how we have designed our services.
- 3.2.57 We will deliver this through an integrated planning approach to co-create place-based 'Integrated Water Management' plans, which set out a vision and outcomes for a place that drives the delivery of adaptive plans enabling communities and nature to be sustainable and resilient to growing pressures on the water environment. Emphasis will be placed on a physical and cultural shift from traditional grey hard engineering to blue/green nature-based solutions, where feasible, and in partnership with others to leverage match funding.
- 3.2.58 Our AMP8 plans have been influenced and shaped by a broad range of customer research to understand customer priorities. 77 per cent of customers and communities have backed our AMP8 business plan proposal, believing it is the right plan for the North West. Ongoing customer and communities research and engagement has informed our planning process from the start. There is a clear link between customers' views and our business plan proposals. In many places, customers and communities have helped us design future solutions. For more information on how our plans have been shaped by the research, see *Chapter 3 – Customers and Communities Shape Our Business Plan*.

#### Recruitment and development

- 3.2.59 Our people are essential in delivering services for customers, and it is a strategic priority to provide a safe and great place to work. We believe the most effective decision-making comes from a diverse range of people who feel encouraged to share their views. Having a skilled, engaged and motivated team of colleagues, suppliers and contractors is fundamental to the performance we deliver and to employee retention, which helps ensure efficient training and better performance. We are committed to protecting the health, safety and wellbeing of our people, and have been awarded the Workplace Wellbeing charter. We measure colleague engagement through an annual survey, and regularly achieve results higher than UK norms. We support thousands of jobs in the North West, including graduate and apprenticeship programmes, helping to secure a legacy for the future in our region. We are an accredited Living Wage Foundation employer, providing colleagues with competitive salaries and benefits, an attractive pension offering, and the opportunity to join the employee healthcare scheme and share incentive plan.
- 3.2.60 We have a strong focus on health, safety and wellbeing. We firmly believe that everyone should be able to go home safe and well. Health, safety and wellbeing extends to mental as well as physical health. We promote awareness of stress and other mental health issues, promoting an all-round healthy lifestyle in the long term which, in turn, reduces the burden on healthcare services.
- 3.2.61 We are proud of our track record of creating an inclusive place to work. We have been:
- Recognised externally in the top 15 FTSE leaders index, exceeding the 40 per cent target for Women on Boards;
  - Included in the Bloomberg LP Gender-Equality Index 2023;

- Successful in winning the Inclusive Companies Inclusive Campaign of the year in 2023; and,
- Investing in dedicated Equality, Diversity and Inclusion resources and delivering actions such as our Women on Board programme, supporting the 10,000 Black Intern scheme and improving people processes to remove bias in selection processes.

- 3.2.62 We support one in 100 jobs in the North West, including graduate and apprenticeship programmes, helping to secure a legacy for the future in our region. This year we have won awards for our graduate programme, were the North West winner of the National Apprentice Service “Apprentice Attraction” category and one of our customer services apprentices won the UK Apprentice of the Year. We are committed to supporting these colleagues in developing new skills, for example through green apprenticeships and graduate schemes, to ensure we've got skills required for the future.
- 3.2.63 Our apprenticeship scheme goes from strength to strength, out-performing national achievement rates at our dedicated Ofsted rated ‘good’ training centre. We continue to invest in green apprenticeships, committing to 100 new Green Apprenticeships by 2025. We have also increased the number of digital apprentices each year and will continue our graduate and apprentice schemes in AMP8, providing the support and training needed to help solve the North West’s challenges in the future. We also continue to deliver 20,000 days of training each year to assure water quality for customers, plus technical and health and safety competence of our people. Our AMP8 plan will support over 30,000 jobs in the North West. Whether these jobs are in UUW directly, or in our supply chain, we are committed to a diverse workforce.

### Ensuring reliable services and supporting economic growth



- 3.2.64 We recognise our essential role as the regional water supplier to the North West, providing not only public water supplies but also enabling economic productivity across the region. Through long-term responsible corporate governance and financing, backed by a strong regulatory framework, we are delivering multi-million-pound infrastructure projects to improve services and resilience for the long term. We ensure the cost of this is shared fairly and affordably between those that benefit now and in the future.
- 3.2.65 In providing reliable and consistent levels of service we make sure that the lives of customers, members of the North West workforce, and businesses run smoothly and without unnecessary disruption, generating the environment and confidence to further invest in the North West. In our capacity as the provider of public and wholesale water services to the North West, we understand the need to ensure that our services are reliable today and for the future. We ensure that there is sufficient capacity in our water and wastewater systems now and over the long term to provide reliable services fit for the needs of customers and businesses. Providing reliable service to customers but also new demands to be met from developers and for industrial needs supporting the growth of the North West.
- 3.2.66 We also recognise that we are a significant employer in the region, with a far reaching economic impact not only with respect to direct employment but also significant regional, and UK supply chains. Supporting 22,700 FTEs and £2.1 billion GVA per annum on average over AMP7 and we expect this to grow to over 30,000 jobs supported in AMP8 due to the size of our ambitious environmental enhancement programmes

**What did customers say?**

- Our customer priorities, WRMP, DWMP and climate change research projects demonstrate that the reliable supply of water and wastewater services now and in the future is a top priority and customers want us to proactively invest against climate change impacts including drought and power resilience. The feedback on priorities and optional appraisal has fed into the service levels and strategies proposed.
- Our long-term delivery strategy ambitions research demonstrates that customers think maintaining pipes and pumps is very important and investment shouldn't be delayed.
- Our affordability and acceptability testing demonstrates support for service levels such as reduction in supply interruptions and mains replacement.
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*

**Figure 7: Ensuring reliable services and supporting economic growth – the benefits and value delivered**

Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
Helping homes and businesses to reduce water usage by 49 million litres a day	✓	✓	✓			✓		✓		✓
Upgrading 928km of water mains	✓	✓	✓			✓				
Providing asset and environmental resilience	✓	✓	✓			✓				
Upgrading 66km of the Vyrnwy aqueduct	✓	✓	✓			✓				
Investing in power resilience at 51 facilities	✓	✓	✓			✓				
Protecting 14 sites at risk from costal and river erosion	✓	✓	✓			✓	✓			✓
Enhancing physical and cyber security	✓	✓	✓			✓				
13% reduction in water supply interruptions	✓	✓	✓			✓				

Source: *United Utilities PR24 Business Plan*

**Our strategy**

3.2.67 Our strategy for delivering a reliable service centres on service resilience, climate adaptation and making sure our plans dovetail with local area plans continuously driving improvements to our services. We will provide ambitious levels of water and wastewater services, delivering enhanced performance across a range of reliability measures. *Chapter 5 – Delivering Great Service* provides details of our AMP8 performance targets and our LTDS provides longer term ambitions. To support economic growth, our plan proposes that we will:

- Deliver enhanced resilience to drought by reducing the need for temporary use bans and drought permits and orders, and the impacts of these restrictions on customers and businesses;

- Deliver our largest ever environmental investment programme to increase wastewater system capacity to support growth and development, while delivering enhanced levels of environmental protection;
- Deliver improved leakage performance and work with consumers in the North West to reduce overall demand for water, thus securing additional capacity for growth; and,
- £7.2 billion of our expected AMP8 expenditure supports improvement in asset health and resilience to reduce the impacts of service failure, and to deliver a consistent level of service that can be depended on.

3.2.68 We will continue to develop adaptive plans in response to the latest climate change projections, ensuring that we adapt, efficiently and appropriately, to a range of future projections, therefore, protecting supplies long term:

- Systematically reviewing and reporting on our climate-related risks and developing action plans to appropriately adapt to future projections, managing the risk to service and developing opportunities to secure additional resilience; and,
- Including a range of climate change projections within our long-term strategic planning frameworks such as the WRMP and DWMP to ensure that future services are resilient to the anticipated effects, ensuring reliable services to customers and business in the face of uncertainty.

3.2.69 We will continue to foster partnerships which help us to work with and engage with others to understand their immediate needs and those of the short, medium, and long-term future:

- Engaging with Local Authority development plans and the latest Office for National Statistics (ONS) population projections to understand future demand and identify areas that require reinforcement;
- Promoting of water neutral developments, encouraging planning authorities and incentivising developers to adopt more blue/green infrastructure in developments; and,
- Continuing to be a 'good company to do business with' removing barriers to development and promoting economic development of the region.

3.2.70 We will continue to engage with our supply chain via our United Supply Chain initiative. Good relationships with suppliers help ensure that we get projects delivered on time, to a good quality, at efficient costs and can identify and realise innovative approaches and solutions. Awareness of issues throughout the supply chain means we can address them together and become more resilient. We rely on suppliers to deliver our services and create value for all.

### **Our AMP8 plan**

3.2.71 To deliver on our strategy, in the next asset management period (2025–2030), we are proposing to deliver further reliability in our core services of water supply and wastewater recycling, improving service reliability in the next five years by:

- Creating additional water supply resilience by delivering the identified best value options set out for AMP8 in our latest WRMP. This includes developing new water sources to support transfers and significantly reducing leakage and per capita consumption (PCC) aligned to our long-term ambitions to halve leakage (from a 2017/18 baseline) and reach 110 litres of PCC by 2050;
- Creating additional wastewater capacity resilience by delivering the necessary best value options, set out for AMP8 in our new DWMP. This includes development of catchment level Natural Flood Management (NFM) to offset increases in surface water connected to rivers downstream and increasing the deployment of blue/green infrastructure in the public realm to attenuate surface water from combined sewer systems;
- Delivering ambitious WINEP commitments to protect and enhance the environment;

- Working with customers and business to inform and engage to help collaboration on better system operation and building resilience by using the services more efficiently; and,
- Improving the health of our asset base, ensuring that it can meet today's demand efficiently even in the face of extreme weather, delivering a consistent reliable service to customers and businesses.

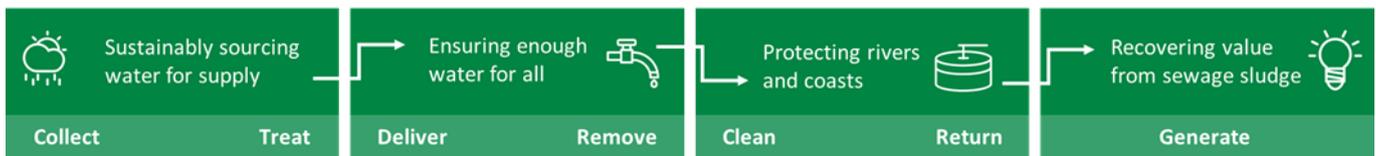
3.2.72 We will further develop our long-term adaptive plans to ensure that we can maintain reliable services for future generations, while enabling the economic development of the North West and protecting the natural environment, by:

- Delivering our core adaptive pathways in the period 2025–2030, tracking key metrics and reviewing decisions points, to assess the need to pursue alternative pathways in the face of new information. This includes refining and developing our understanding of climate change projections on our ability to maintain adequate, sustainable, water resources and wastewater drainage and treatment capabilities. (For more information on our adaptive plans, please refer to *UUW 12 – Long Term Delivery Strategy*); and,
- Continuing to horizon scan to identify drivers for change that may impact our ability to provide reliable services, updating and revising our plans accordingly.

3.2.73 We will continue to regularly engage with and assimilate the latest information from Local Authorities, the ONS, and other development agencies with respect to future development ambitions (for housing, infrastructure, and economic). During AMP8 we plan to be:

- Investing in our network to reinforce critical sections in preparation for pending development;
- Promoting the development of water efficient fittings and white goods in new developments; and,
- Promoting, incentivising, and providing expert support in the design and delivery of Sustainable Drainage Solutions (SuDS) for surface water at a domestic, highway, and commercial level including schools.

### 3.3 Delivering environmental value for the people of the North West



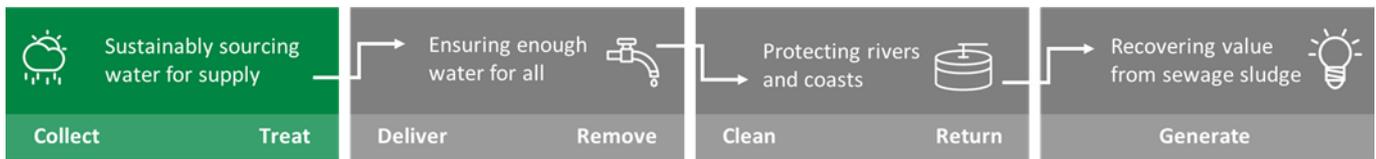
Our business plan delivers environmental value for the North West by:

- **Sustainably sourcing water for supply** – Protecting sources of water and abstracting water in a sustainable way to minimise negative environmental impacts;
- **Ensuring enough water for all** – Reducing our own use of water and tackling leakage, collaborating with customers, both domestic and business to use less and balancing regional and national needs;
- **Protecting rivers and coasts** – Minimising the operation of storm overflows, treating wastewater to even higher standards, and keeping surface water out of our system to manage flood risk; and
- **Recovering value from sewage sludge** – Safely treating sludge, recycling nutrients to land and recovering calorific value by generating renewable energy.

3.3.1 Our core business is inextricably linked to the resilience of the natural ecosystems of the North West. Our strategy will protect and enhance the natural environment to meet the needs of water customers today and tomorrow. We have the opportunity to create environmental value throughout our role in the water cycle, whether this is in collecting and treating water, cleaning and returning it to the environment, or recovering value from sewage sludge.

3.3.2 The following section will discuss these elements in turn, highlighting how our AMP8 plans will deliver better value for the environment.

**Sustainably sourcing water for supply**



3.3.3 Having sustainable access to water is more than simply meeting the requirements of public supply. Access to reliable water plays a key role in:

- Ensuring everyone has access to clean, reliable water now and in the future;
- Protecting habitats and enhancing biodiversity, including in protected areas such as National Parks and SSSIs;
- Supporting the economic development of the North West and supporting industry;
- Providing amenity value to residents and visitors to the North West, providing access to nature and open spaces that promote physical activity and wellbeing;
- Providing third-party critical infrastructure providers, such as the power sector, with essential cooling water for energy generation; and
- Ensuring a resilient food supply chain.

3.3.4 We recognise that UUW is one of many abstractors of water in the North West, and, therefore, the importance of working with others to manage these resources sustainably to support all the needs of the North West, and increasingly the needs of the wider country. That is why we take our role seriously in the stewardship of our asset base, our expertise and leadership, and the services that we provide to the people and environment of the North West in ensuring sustainable water for all.

**What did customers say?**

- UUW customer listening, WRMP, six capitals, state of the nation and customer priorities research all support our plan to improve sustainable supply of water and use options and engineering solutions which reduce its impact on the environment.
- These projects also demonstrate how environmental factors such as carbon and biodiversity have a notable impact on which options customers prefer, therefore, UUW has applied this to our optimisation of options appraisal.
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*

Figure 8: Sustainably sourcing water for supply – the benefits and value delivered

Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
6 million litres a day abstraction reduction from sensitive sources	✓	✓				✓	✓	✓		✓
Restoration of 6,528 hectares of peatland	✓	✓				✓	✓	✓	✓	✓

Source: United Utilities PR24 Business Plan

**Our strategy**

- 3.3.5 Sourcing water for public supply is more than simply having enough in storage to meet demand. Sustainably sourcing water without causing ecological harm and in the face of growing pressures from climate change is paramount. As is monitoring and managing the quality of raw water and our ability to treat it and distribute it to wholesome standards. Our overarching principle is to ensure a water service fit to meet the demands of the North West and deliver environmental protection and enhancement, now and in the future.
- 3.3.6 Our Water Resources Management Plan (WRMP) sets out our strategy to achieve a long-term, best value and sustainable water supply for the North West. This is our plan to ensure that we will have an adequate supply to meet demand over the 25 years from 2025 to 2050, and that our supplies are resilient to drought and other hazards. We update our WRMP every five years to ensure we are acting on the latest available information.
- 3.3.7 We have advanced water resources planning by leading a collaborative partnership with neighbouring water companies in a new regional planning group called Water Resources West. This group has developed a larger scale water resources plan to support resilient and sustainable water supplies at the regional and national scale.
- 3.3.8 We strive to protect sources of water for the long term, to protect nature and to minimise the financial, environmental and climate costs of additional treatment processes. We invest in catchment management to restore natural processes, deliver biodiversity gains and a more resilient water ecosystem, which all ultimately underpins the sustainability, resilience and efficiency of the public water supply. We will deliver Environmental Destination commitments to further reduce abstraction from environmentally sensitive water bodies by 2050. This forms part of our wider water industry natural environment plans to prevent deterioration of the ecological status of the rivers and water bodies of the North West.
- 3.3.9 We will invest in maintaining the health of our asset base including catchment land. This helps ensure that we can operate efficiently and with the flexibility required to enable us to capture, store, distribute and treat precious natural resources. We also ensure that we abstract only what we need, in an environmentally conscious and sustainable way. We will prevent more pollutions from wastewater networks and treatment works damaging the environment, abstracting less water from the environment in the first place, and providing more amenity sites.
- 3.3.10 We will continue to horizon scan for emerging issues, such as raw water contaminants, ensuring that we are developing adaptive pathway solutions to these issues. This will protect our ability to abstract and treat water protecting the environment from loss of sources once they become contaminated. We will

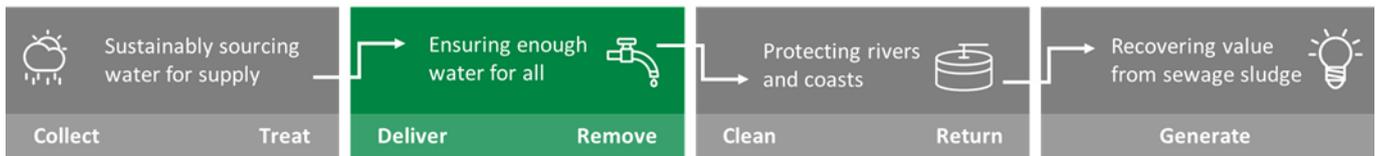
not only continue to plan for sustainable North West water resources, but also with regional and national water resources planning to address the needs for resilient and sustainable water supplies beyond our current operational areas.

### **Our AMP8 plan**

3.3.11 To deliver on our strategy, in the next asset management period (2025-2030) our plan proposes to:

- Improve in excess of 11,728 hectares of SSSI land and protecting and improving 386 kilometres of river. This will contribute towards ensuring that:
  - Catchments are resilient to extreme weather;
  - Habitats are protected from UUW operations;
  - Biodiversity is enhanced across the North West;
  - Water is retained on catchment land for year round resilience; and,
  - The deterioration of the quality of raw water is halted and reversed including diffuse nutrient pollution.
- Invest in the asset health, capability, and capacity of catchment assets (including reservoirs.) This will contribute towards ensuring that assets are:
  - Always safe;
  - Open to the public where possible to provide amenity value;
  - Capable of efficiently capturing/producing and retaining the water that we need to meet the demands of customers, and businesses; and,
  - Able to meet the requirements of environmental compensation flows (including more natural patterns of water release).
- Invest in the asset health, capability, and capacity of water treatment assets. This will contribute towards ensuring that we have assets that are:
  - Able to reliably treat the sustainable abstraction volume from the environment to wholesome standards, at an efficient cost and carbon intensity;
  - Capable of treating, to wholesome drinking water standards, the raw water quality. Including emerging contaminants and taste and odour compounds that customers find unacceptable; and,
  - Protect assets from damage, such as erosion, off the back of extreme weather events providing resilient operation even in extremes.
- Invest in the asset health, capability, and capacity of water distribution assets. This will contribute towards ensuring that we can:
  - Reduce the losses from leakage to reduce the amount of water taken from the environment; and,
  - Maintain our pipes and other assets in close proximity to rivers to reduce pollution risk from burst mains.
- We will deliver options identified in our best value WRMP 2024.
  - Developing new water sources in areas identified as vulnerable to reduced levels of service; and,
  - Reduce total demand for water, promoting sustainable reductions in consumption from both domestic and non-domestic customers, whilst reducing losses from our water system, catchment to customer.

### Ensuring enough water for all



3.3.12 Ensuring enough water is available for all is more than simply having enough in storage to meet demand. It's about making sure that precious resources are used wisely and not wasted, that a range of future scenarios of total demand are understood and pathways developed to meet these projections, how these demands may impact on the environment and customer service levels. Water does not respect the administrative boundaries of the UK's water companies. We work with the other water suppliers in our region and with the Environment Agency to ensure enough water is available for all users regardless of whether they happen to be in the North West. We support and collaborate with customers through smart metering and other water efficiency initiatives to help reduce usage and their bills. Our plan will deliver a step change in our leakage performance to support reduction in environmental impacts such as carbon, but also help build trust with stakeholders and support economic growth.

#### What did customers say?

- Leakage reduction is a top priority for customers, and in the future, customers would like us to accelerate leakage reduction targets if deliverable
- Through our dedicated smart metering research and WRMP research, we have majority customer support for our smart metering rollout plans and moving to 50 per cent reduction in TuBs.
- Customers are supportive of reducing consumption and feel customer education is the key to behaviour change
- 85 per cent of customers support changes in their water supply due to a need to transfer water supplies to other areas in need
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*

Figure 9: Ensuring enough water for all – the benefits and value delivered

Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
13% reduction in leakage		✓	✓			✓	✓	✓		✓
Household - 70 litres saved per property from smart metering		✓	✓	✓	✓	✓	✓	✓		✓
NHH - 84 litres saved per property from smart metering		✓	✓	✓	✓	✓	✓	✓		✓
50% reduction in likelihood of implementing a temporary use ban ("hosepipe ban")	✓	✓	✓			✓				
20% reduction implementing drought permits and emergency drought orders	✓	✓	✓			✓				
Enabling national water trading through 25MLD new transfer of water	✓	✓	✓	✓			✓			

Source: United Utilities PR24 Business Plan

### Our strategy

- 3.3.13 Our strategy to ensure enough water for all is based on the following activities:
- 3.3.14 **Long-term water sufficiency** – We will continue to cyclically produce and review our WRMP in line with regulatory guidance, accounting for demand and growth forecasts and abstraction reduction ambitions to protect the environment of the North West, as well as supporting the national supply system.
- 3.3.15 We have developed adaptive pathways to meet the future demand for water, including adapting to reduced abstraction, customer service levels, and growth from development, and will continue to review and update our plans on the latest best information.
- 3.3.16 We will work with regional partners and as part of the UK water industry to balance the needs of North West customers and those of the rest of the UK, making use of the relatively water rich ecosystem of the North West to help secure resilient services to other regions. We will continue to invest in our asset base to ensure an efficient service is provided that is capable of meeting customer and stakeholder service demands of the North West today and tomorrow.
- 3.3.17 Water sufficiency cannot be disentangled with water quality. Our strategy and plans for protecting public health and wellbeing through water quality can be found in section 3.2 of this document.
- 3.3.18 **Reducing losses** – Proactively minimising the level of losses of clean water from catchment to customer. This will help reduce the level of abstraction needed, minimising the impact on the environment. It will also reduce instances of clean water pollution and help us minimise our impact on climate change by increasing our operational efficiency.
- 3.3.19 **Smart metering** – Supporting our smart networks by moving towards smart meters for customers (both domestic and business), helping us understand our 'mass balance' of water, understand customer consumption patterns and reduce usage. Smart metering can also help detecting and minimising the risk of blockages for customers.

- 3.3.20 **Water efficiency** – Supporting customers to reduce their total water consumption through a range of engagement activities to help reduce PCC. We will work with all water users, including customers and businesses, in the North West and beyond our region, to consume less water.
- 3.3.21 **Water transfers** – Supporting national planning by developing options that would allow us to transfer large volumes of water outside our region, at times of need, making us a net exporter of water to address imminent water needs elsewhere in the country.

### Our AMP8 plan

- 3.3.22 To deliver on our strategy, in the next asset management period (2025-2030) we propose to undertake the following activities in support of long term planning, reducing losses, smart metering, water efficiency and water trading.

### Long-term planning

- 3.3.23 We propose to deliver the options identified in our Best Value WRMP 2024 by investing in our water assets. In doing so, we will be contributing towards ensuring that:
- We maintain infrastructure systems capable of reliably treating and conveying enough water to meet demand, now and in the future. This will involve maintaining water treatment works capacity and facilitating the replacement of significant parts of our single largest water distribution asset – the Haweswater Aqueduct;
  - We aim to reduce losses from our regional supply system from leakage to reduce the amount of water taken from the environment. We are targeting a reduction in leakage of 13% by the end of AMP8, in aligned to our long-term WRMP statutory framework commitments;
  - We will regularly clean and condition our water mains so that the wholesomeness of the water conveyed is protected; and,
  - We will continue to promote enhancements to public health by removing lead pipework from the water supply system, targeting reducing the number of lead pipes in the supply system by 30,000 by the end of the next period.

### Reducing losses

- 3.3.24 In AMP8 our proposed investment to reduce losses of the water we abstract focuses on:
- **Abstraction and raw water losses** – Enhancing monitoring and control of our catchments and raw water assets to minimise losses at a key stage in the water cycle. We aim to supplement this with existing regulatory compensation monitoring and seeking to remotely control compensation where practicable. We will further map and assess the condition of our raw water assets, including catch waters, working with our catchment partners to support this.
  - **Losses at our sites** – As the fourth largest user of water in the North West, we will continue to eradicate avoidable use and leaks on our own sites. We will meter our sites with connections to the water network and implement a site standard and carry out process optimisation and audits to identify and remove even more unnecessary use and recycle the remainder. Finally, we will seek to use raw water quality data to reduce shutdowns and the requirement to use Start Up To Waste (SUTW).
  - **Network leakage** – We will continue the transformation from reactive to proactive approaches, predicting and preventing leaks to drive continual improvement in our leakage performance. This will support our ambition to digitally enable the proactive management of our network. We will aim to deliver this through our “PALM” strategy:
    - Prevent – This means ensuring our networks are effectively optimised and managed via ‘calm networks’, live valve status and remote control with focus on the operation of pumping stations, service reservoirs and valves. We will look to apply intelligent maintenance to water network assets including sensors, meters, pumping stations, service reservoirs and valves and avoid deterioration in water network asset health. We propose to implement an integrated mains

renewal programme for the water network, ensuring that we have already applied appropriate operational mitigation and that any new network is leak-free via standards, tests and qualifications.

- **Aware** – We propose to use regional prioritisation to target enhanced monitoring (acoustic, flow, pressure) at district metered areas (DMAs), installing dedicated sensor boxes as part of our enhanced metering programme. Using the latest data analytics and prediction techniques (combining asset, customer, environmental and operational data) we will better understand criticality, propensity to leak, root causes and the size of leak. This prediction will support our prevention strategy but will also help us to further shift the balance from customer reported leaks to proactively found leaks.
- **Locate** – Working with our suppliers, we aim to develop and implement greater automatic correlation for pinpointing leaks to reduce leak runtimes and to continue to investigate opportunities from fibre and in-pipe robotics.
- **Mend** – We are proposing to further improve repair prioritisation and reduce disruption by continuing to seek out and implement ‘no dig’ and ‘in pipe’ repair techniques, as well as utilising temporary repairs for leak mitigation.
- **Customer-side/private leakage and plumbing losses** – We will work with customers to reduce leaks from supply pipes and in homes. Supported by smart metering and water efficiency enhancements proposed in our business plan, we will look to tackle the ~150 MI/d of customer-side/private leakage and plumbing losses (including leaky loos and taps.)

#### **Smart metering**

3.3.25 In AMP8, to deliver against our Smart Metering strategy, we propose to:

- Increase smart meter penetration by offering new external fits with a lowest bill guarantee, maximising internal meter take up through customer campaigns, installing all new builds with smart meters and supporting all new accounts to be metered if moving to a new property.
- Improving meter technology and extracting the maximum value from the data we have from our current automated meter reading (AMR) meters. We also test advanced metering infrastructure (AMI) in advance of a broader roll out.
- We propose to install 500,000 new smart meters and replace ~421,000 existing meters with smart meters to support us in monitoring our network and help customers and businesses reduce their usage and bills.

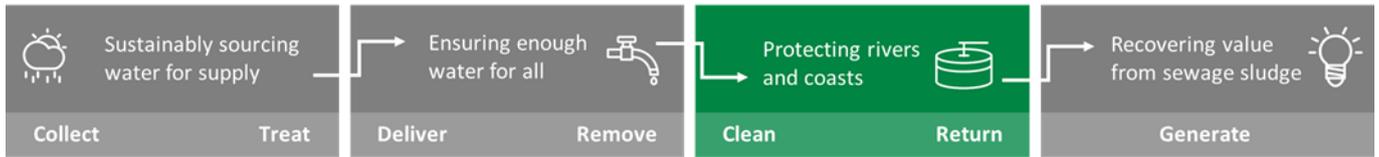
#### **Water efficiency**

3.3.26 In AMP8 we will continue our efforts to support customers with water efficiency. We will invest in a mixture of strategic and operational interventions ranging from working with and incentivising developers, through to water efficiency engagements to support reductions in plumbing losses and behaviour change. We will focus our investment on household water efficiency visits, water efficiency devices, flow regulators, rainwater harvesting and water re-use in new builds and support water efficiency visits to non-household customers.

#### **Water transfers**

3.3.27 We will propose to invest £77 million to develop three new supply options to be able to transfer 25Mld to Severn Trent Water by 2030. This programme is expected to provide both national and local resilience benefits.

**Protecting rivers and coasts**



3.3.28 We will continue to deliver long-term environmental value for customers through taking responsible action to further reduce the potential for sewage pollution, continuing to develop our surface water removal strategies and promoting the uptake of SuDS. Our multiple strategies aimed at protecting our rivers and coasts, driven by our AMP8 plan will deliver multiple benefits for customers and the environment. AMP8 will see a step change in performance levels on CSO spills, reducing these by 26.8% by the end of the period. This will help protect rivers and coasts, and the biodiversity these habitats support. Through the continuation of our Better Rivers programme, we are putting the protection of rivers and coasts at the heart of our plan for AMP8 and beyond.

**What did customers say?**

- UUW customer priorities and regulatory customer preferences research demonstrates that customers support investments to sewer upgrades and reducing sewer overflows. Our customer listening research tested our better rivers commitments and used customer feedback to shape our strategy on overflows and commitments listed in the table above.
- In our sewer overflows research, customers ideally wanted zero spills, but recognised they did not want to pay for this due to the considerable investment.
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*.

**Figure 10: Protecting rivers and coasts – the benefits and value delivered**

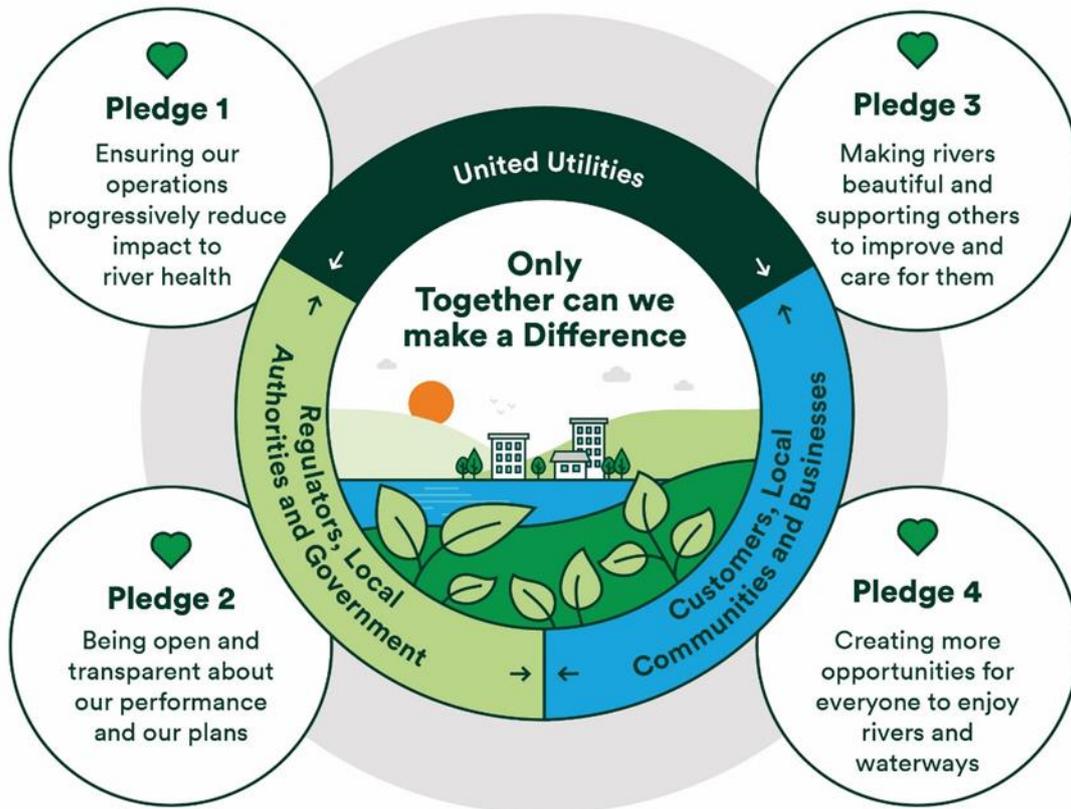
Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
Improvements to flow measurement at 184 sites	✓	✓	✓				✓			✓
5% reduction in sewer collapses	✓	✓	✓			✓	✓			✓
26.8% reduction in storm overflow operation	✓	✓	✓			✓	✓			✓
Screening 335 overflows, reducing sewage litter entering water courses	✓	✓				✓				✓
36 schemes to deliver septic tank improvements		✓	✓							✓
386km of river improved	✓	✓	✓			✓	✓		✓	✓
Tackle nutrient enrichment in 46km of river designated as Special Areas of Conservation	✓	✓	✓			✓	✓			✓
25% reduction in pollution events	✓	✓	✓			✓	✓			✓
40% of overflow improvement projects to contain blue/green solutions	✓	✓	✓			✓	✓	✓	✓	✓

Source: United Utilities PR24 Business Plan

**Our strategy**

- 3.3.29 The North West is home to some of the most beautiful natural landscapes. We take our role in protecting them very seriously so they can be enjoyed by all. We are investing significantly to reduce the impact that wastewater, in addition to climate change and population growth, has on the natural environment and our long-term ambition is to eliminate pollution incidents.
- 3.3.30 Our strategy to tackle this in AMP8 is part of our long term plan for wastewater to reduce overflow spills in line with the government’s Storm Overflow Discharge Reduction Plan (SODRP), to reduce pollution incidents, protect and restore catchments and embrace the latest innovative approaches.
- 3.3.31 Our ambition to scale up and accelerate our focus on river health comes together in our Better Rivers: Better North West plan which we launched in 2022. This plan sets out our four-point plan to drive a step change in the quality of the North West’s rivers which includes improving our wastewater network and treatment assets, collecting more data and sharing it, greater innovation and more use of nature-based solutions as summarised in Figure 11 below.

Figure 11: Better Rivers: Better North West



Source: United Utilities

- 3.3.32 We are determined to build a coalition of the willing to improve the region's river water quality and catalyse action from many parties. At the heart of this will be addressing surface water management at scale and securing continued investment in effective end-to-end wastewater management is necessary to improve river water quality.
- 3.3.33 In order to deliver these objectives, we will manage rainwater, to lower the chance of filling sewer capacity and work in partnership with the many stakeholders that have impacts on rivers and costs. We will focus on the asset health and resilience of our asset base, scaling up the use of our predictive analytics to reduce the instances of pollution due to asset failure to a minimum. We will also invest in our assets to balance nutrients in water bodies building on our experience of nutrient catchment balancing and embracing biological phosphorous-removal.
- 3.3.34 Together this strategy will help us to contribute to the government's target for three quarters of UK's rivers to be rated 'good' by 2027, and contribute to our long term ambitions to further improve the North West's rivers and coasts beyond 2030. For more context on how our strategy for protecting rivers and coasts links to our Long Term Strategy, see *UUW12 – Long Term Delivery Strategy*.

### Our AMP8 plan

- 3.3.35 In AMP8 we will make significant investments across these strategies which will impact on the health of the North West's rivers and coasts making a step change in sewer overflow activations and nutrient management.

### Better Rivers: Better North West

- 3.3.36 Building on the success we have seen in AMP7, we are ramping up our efforts for Better Rivers: Better North West plan in AMP8. Within this programme, we have set out our plans to ensure our operations progressively reduce impact to river health. Investment under the Better Rivers: Better North West covers many different types of intervention, with the shared purpose of improving the rivers in the North West. We will continue this flagship project in AMP8 by:

- Aiming to deliver 26.8 per cent reduction in impact caused by storm overflows and sewage treatment works;
- Reducing pollution events by 25 per cent;
- Investing £50m in flow compliance, to improve dry weather flow at WwTW, as well as ensuring high quality data continues with flow meter replacements for those at the end of their asset life;
- Aiming for no serious pollution events;
- Replacing EDM monitors which come to the end of asset life, to ensure we remain open and transparent with real-time data from our storm overflow monitoring;
- Planting over 1 million trees by 2030 to support the pledge to make rivers beautiful; and,
- Creating opportunities for everyone to enjoy rivers and waterways through new bathing water designations, meaning 95% customers will be no further than 30 miles from a bathing water.

### **Rainwater management**

- 3.3.37 We plan to invest in rainwater management to mitigate the impact of climate change on deterioration of sewer flooding performance through our Water Industry National Environment Programme (WINEP) storm overflows programme, through our Advanced WINEP and through our rainwater management enhancement case. Through collaborative working, we will incentivise what, where and how natural flood management (NFM) is installed within catchments. We will control rainfall at source; by managing the first 5mm of rainfall, this natural resource is productively utilised, while reducing peak flow to sewers and increasing efficiency and performance of drainage networks. In our WINEP options development we identified hybrid solutions for 40 per cent of storm overflows, which means we will increase the use of blue/green infrastructure in the public realm to attenuate and slow the flow of rainfall entering sewers.
- 3.3.38 We are promoting the adoption of SuDS to reduce the amount of water that enters sewers and subsequently reducing flooding. Our SuDS for Schools programme in priority drainage areas will be scaled up, in addition to our partnership with organisations such as the Department for Education.
- 3.3.39 We will incentivise customers to reuse rainwater to enable a reduction in discharges to sewers. We will do this by providing customers with tools to install source control SuDS where this will benefit sewer capacity. This customer incentive will be blended by behaviour and finance. This is important as we plan for the long term through our Drainage and Wastewater Management Plan (DWMP), recognising that we need to adapt to climate change and accommodate for population growth.
- 3.3.40 We deliver against these objectives through both our enhancement and base maintenance programmes to benefit both storm overflow activations and flood risk.

### **Better system operation**

- 3.3.41 To expand our monitoring and control capabilities to enable smarter management of our network, we are proposing to expand DNM monitoring to an additional drainage areas and introduce pressure transient monitoring across the high risk rising main stock.
- 3.3.42 In order to collate comprehensive asset condition data to ensure investment is prioritised effectively, we will undertake several inspections programmes, including rising main conditioning surveying, air valve inspections and sewer inspection rehab programme.

### **Treatment and network asset resilience**

- 3.3.43 In AMP8 we are investing in the health and resilience of our assets to ensure that pollution of rivers caused by asset failure is minimised. We are investing in asset health and resilience for our wastewater and network treatment assets. This will contribute to 25 per cent fewer pollution incidents by the end of AMP8. For more information on our approach to ensuring the health and resilience of our assets and systems, see *Chapter 7 – Resilience and Asset Health*.

**Nutrient management and preventing deterioration**

3.3.44 Through our AMP8 WINEP we propose to invest £1.2 billion in nutrient management, to remove phosphorus from the water bodies of the North West. We will continue to monitor for additional opportunities for catchment nutrient balancing throughout the AMP. To deliver the step up in phosphorus removal by 2038 we will need to deploy a multifaceted approach to achieving catchment phosphorus targets through:

- Chemical phosphorus removal;
- Catchment interventions;
- Balancing of catchment permits;
- Biological phosphorus removal; and,
- Phosphorus recovery.

3.3.45 These different interventions have advantages and disadvantages that we will consider as we progress towards delivery.

3.3.46 We will also prevent deterioration of rivers as part of our WINEP through improvements to wastewater treatment works final effluent. Over £1 billion of the expenditure on nutrient and sanitary standards in our WINEP relates to mitigating the long-term dissolved oxygen issues in the Manchester Ship Canal. For more information on our approach to nutrient management and preventing deterioration see supplementary document *UUW35 – Environmental Strategy*.

**Collaboration**

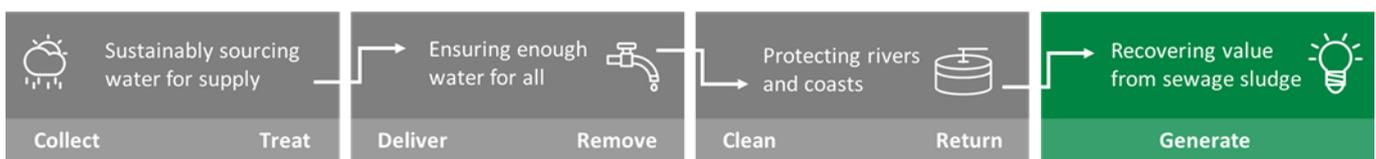
3.3.47 We will continue to work closely with others to tackle some of the issues that impact river water quality, building on existing partnerships and actively pursuing new opportunities. For example, with the Greater Manchester Combined Authority (GMCA) Trilateral partnership, The Rivers Trust, RSPB, Love Windermere and through the work of the River Rangers. Detail on these partnerships can be found in the *UUW38 – Working in Partnerships*.

**Long-term planning**

3.3.48 All these investment plans have been made with the long term in mind. Our DWMP has informed the investment that we have made in AMP8 to make sure that what we do now is no regret for the future.

3.3.49 Adaptive planning will be key for both AMP8 and the longer-term as in order to deliver resilient and improved services over the long term we need to optimise the delivery of interventions in a timely and affordable way. Over time, our understanding of the scale and impact of external risk factors will become more certain as data and modelling develops. Additionally, the understanding of the costs, benefits and timescales of delivered interventions will improve. Further information on our approach to adaptive planning can be found in our Long Term Delivery Strategy and as part of the DWMP that is available on our corporate website at <https://www.unitedutilities.com/dwmp>.

**Recovering value from sewage sludge**



3.3.50 Each year we treat and recycle over 200,000 tonnes dry solids of sludge as a critical part of our service to customers and the environment. Sludge is a resource from which there is potential to recover valuable energy and nutrients. However, we are in an unprecedented period of change with regards to the management of sludge. Against a backdrop of increasing challenges from climate change, environmental standards, market competition, volume of sludge production and emerging risks posed by novel chemicals, we and the rest of the water industry, accept the need to continue to improve performance to protect and enhance the environment. Facing into these significant uncertainties, we will take

decisive action where we have the greatest certainty we can add value. Our AMP8 business plan is focussed on low regret interventions, where we have high certainty in the scope and the investment needed to meet new service standards. This approach includes the necessity of a Notified Item as a means of managing the residual investment risk over uncertain future investment requirements. We believe this is the right approach to best protect the interests of customers.

3.3.51 It is our strategy to follow circular economy principles to continue to develop and maximise the value created through recovery and re-use of bioresources and deliver significant benefits to society. We treat our sludge using anaerobic digestion, and the resulting biosolids are recycled to agriculture. This process has many environmental and economic benefits. We generate renewable electricity or green gas and biosolids applied to land are a sustainable source of nitrogen and phosphorus, as well as other plant nutrients and organic matter, which can provide long-term benefits to soil structure and fertility.

**What did customers say?**

- When engaging with customers about bioresources, customers supported upgrading processes to meet the latest standards and to reduce the risk of harmful emissions protect river water quality.
- The majority of customers were supportive of the principle of recycling sludge, rather than sludge disposal using technologies such as incineration.
- Customers valued a balanced approach to sludge management that kept one eye firmly on the future. Managing risks of air pollution, carbon and micro plastics were important for many customers and this has directly fed into our strategy.
- Much more detail about our customer research and our customer research library is available in supplementary document *UUW21 – Customer Research Methodology*.

**Figure 12: Highlight benefits and the value they deliver – Recovering value from sewage sludge**

Benefits	Social value						Environmental value			
	Health and wellbeing	Trust and transparency	Economic growth	Helping low income households	Diversity and access	Quality of place	Biodiversity & ecosystem health	Climate mitigation	Air quality	Protect the water environment
100% of biosolids beneficially recycled to land	✓	✓	✓			✓	✓			✓
Self-generation of 19% of UUW’s energy needs	✓	✓	✓				✓	✓	✓	✓
Upgrade our sludge digestion centres to deliver enhanced environmental protection		✓	✓						✓	✓
60 days contingency storage to improve resilience in biosolids recycling		✓	✓				✓			✓
Reduce our operational carbon emissions	✓	✓	✓			✓	✓	✓	✓	✓
New capacity to manage sludge growth		✓	✓				✓	✓		
Enhanced sludge screening to improve the quality of over 400,000 wet tonnes of biosolids per year	✓	✓	✓			✓	✓			✓

Source: United Utilities PR24 Business Plan

### Our strategy

- 3.3.52 It is our strategy to follow circular economy principles to continue to develop and maximise the value created through recovery and re-use of bioresources and deliver significant benefits to society. We treat our sludge using anaerobic digestion, and the resulting biosolids are recycled to agriculture. This process has many environmental and economic benefits. We generate renewable electricity or green gas and biosolids applied to land are a sustainable source of nitrogen and phosphorus, as well as other plant nutrients and organic matter, which can provide long-term benefits to soil structure and fertility.
- 3.3.53 The bioresources core asset pathway, for Advanced Anaerobic Digestion (AAD) and biosolids recycling to agriculture, is a continuation of our approach for AMP7. This approach aligns to the best practicable environmental option for biosolids management in the UK, in most circumstances. It has three key overarching principles:
- Centralise sludge treatment into fewer, larger AAD hubs to enable the development of future ‘bio-refineries’ or resource recovery hubs;
  - Increase resilience against disruption in the sludge supply chain to agriculture; and,
  - Phased reduction in reliance on agricultural landbank over the longer-term.
- 3.3.54 Our approach to managing sewage sludge is based on the circular economy principle of keeping materials in use, at their highest value and our plans support the minimisation of waste to landfill or incineration. The nutrients that we provide to land owners and farmers in the North West and beyond provides nutrients with a direct economic value of almost £8.5 million each year. The renewable energy we generate from sewage sludge plays a key role in ambitions for net zero. In addition, this renewable energy helps our own energy security as a company and as a nation by providing clean and home grown energy for our use or sent to the national grid.

#### A resilient biosolids recycling service to agriculture

- 3.3.55 In AMP7 our biosolids recycling service to agriculture has successfully driven substantial environmental benefits for customers and the North West. Biosolids recycling to agriculture is entirely dependent on access to third party landbank and acceptance of our products by farmers and land managers. The reliance on agricultural land as an outlet makes this area of the business vulnerable to changing market demands, and in AMP7 we have seen multiple shocks to biosolids market, from diverse impacts such as Covid and changing regulatory expectations.
- 3.3.56 To enable delivery of a successful service during this challenging period, we have overhauled our operations, expanding our field management service and increasing our haulage and logistics capacity to manage an additional quantity of biosolids. We work in partnership with farmers, fostering good relations and delivering a quality product. Our field staff are FACTS (Fertiliser Advisers Certification and Training) qualified and we offer free agronomy and nutrient planning advice to our farmers to support them in using our biosolids compliantly and with minimum risk of harm to the environment. In AMP7:
- Each year our biosolids supply nutrients, minerals and valuable organic matter to almost 20,000 hectares of agricultural land. This delivered an equivalent financial value of almost £9 million worth of sustainable fertiliser to the farming sector in the financial year 2021/22; and,
  - We recycle the majority of our biosolids to agriculture, and in 100 per cent compliance with the Biosolids Assurance Scheme, over and above the minimum regulatory compliance standards.

#### Maximising energy recovery from sewage sludge

- 3.3.57 We continue to optimise our sludge processing to maximise the value we recover from our sludge. Year-on-year we have increased the amount of electricity and green gas generated. In the year to March 2022:
- We generated ~133.8 GWh of electricity from combusting biogas, used predominantly to power our treatment works with some exported renewable power to the national grid;
  - We utilised 121.6 GWh of recovered heat in our digestion and pre-treatment processes; and,

- We injected ~50GWh (net of propane addition) of green gas into the grid, this is equivalent to meeting the demand of 4,000 homes per year.
- 3.3.58 Our activities to increase our renewable energy generation, have not been at the expense of air quality. Our bespoke Air Quality Performance Commitment focuses on reducing the Nitrous Oxides (NOx) emissions per unit of renewable electricity generated from bioresources.
- 3.3.59 We set an ambitious goal of reducing emissions by 40 per cent by 2025. In the financial year ending March 2023 we have delivered a reduction of 30 per cent, equivalent to 52,800 kg of NOx equivalent to removing 26,000 cars from the road. The value generated, from avoided costs due to reduced human health impacts of NOx, is calculated between £375,000 and £1.42 million per year.

### **Our AMP8 plan**

- 3.3.60 Delivery of our AMP8 Bioresources business plan will continue to maximise the value recovered from sewage sludge. Our plan proposes the following activities:
- Through our WINEP actions we will increase the resilience of our sludge to land operations by providing 60 days covered strategic storage to provide resilience against disruptions and closed periods in the agricultural calendar. We will also double our production of enhanced quality biosolids cake a year at a higher percentage of dry solids, enabling access to greater and more diverse areas of landbank, increasing the flexibility and resilience of our operations.
  - In a first for the industry, we will deploy fine screening of all our sludge, going beyond current best practice, seeking to minimise microplastics and other non-degradable material in biosolids recycled to land. We anticipate that this will eliminate over 900 truck movements to agriculture each year.
  - We believe that in the right conditions market forces could help to create greater economic and environmental value within the provision of bioresources. We will take a leadership role in development of the bioresources market and seek a market solution for up to 20 per cent of our sludge treatment activity to meet rising demand.
  - We will invest to meet increasing environmental regulatory expectations including compliance with Appropriate Measures for the Biological Treatment of Waste, Industrial Emissions Directive and the Environment Agency Sludge Strategy.
  - At our largest wastewater treatment works, we will install a phosphorus recovery plant to recover 255kg of phosphorus per year from sludge liquors. In combination with further sewage treatment changes, this approach embraces circular economy principles to recover phosphorus, rather than using chemicals to lock it up in sewage sludge or return it to the treatment works to cycle back to the river system. This innovative solution forms part of the overall end to end improvements being delivered across Davyhulme wastewater treatment works. The approach will support a more sustainable sludge recycling service whereby we are ensuring that valuable nutrients are supplied where they are needed most and are not over applied through supply of our biosolids.

### **Our approach in AMP8**

- 3.3.61 We anticipate that biosolids recycling to agriculture will reduce over time to match the growing environmental ambitions of customers and regulators. While we know that the future will not be 'business as usual' there is significant uncertainty of the scale and timing of this change. Collaborative industry national landbank modelling has identified that changes to the regulation of sludge recycling to agriculture activities may lead to a national landbank shortage.
- 3.3.62 Our approach in AMP8 is to use our adaptive plan to navigate through the uncertainty. We are prioritising investment in low and or no regrets activities where we have certainty over the need and outcomes. We have deferred significant investment (an additional circa £1 billion) to implement actions to move away from biosolids recycling to agriculture in AMP8. There is a risk that this investment may not be completely required and investing significantly now could be detrimental for customers.

3.3.63 Should landbank, or other investment needs crystallise in AMP8, the base cost allowance is insufficient to deliver the scale of investment that would be required to move away from biosolids recycling to agriculture. The impact is anticipated to be an entire step change in the business model for bioresources, and would take many years to implement fully. We are promoting management of these significant risks through a Notified Item in our wider business plan submission.

3.3.64 There are two core challenges to developing a long term strategy with certainty, which have informed our approach in AMP8:

- Clear objectives – there is uncertainty on how the multiple risks and benefits associated with the management of sewage sludge should be balanced and prioritised to deliver the optimal overall outcomes in the national interest; and,
- Scale of the change – the challenge is so significant no single company can absorb the first-mover disadvantage by moving out of landbank and deploying new technologies in isolation.

#### **Partnership and collaboration**

3.3.65 The strategic challenge to optimise biosolids management, requires multiple parties to collaborate (private, public, charity sector and academia). To tackle this, we aim to build open collaboration across several sectors.

3.3.66 There is a need for a Systems Thinking approach, which considers sludge as part of the wider, dynamic environmental system and the end-to-end wastewater treatment process. Only through recognising the interdependencies and the full scope of bioresources, can the greatest value be delivered.

3.3.67 We are a thought leader in the sector calling for national collaboration. Our paper, “*Unlocking greater value through a national bioresources strategy*”, published in November 2021 was the first call for development of such an approach and was the impetus for developing the Long-term strategy for bioresources in England, project managed by CIWEM.

#### **Strategic innovation pathways**

3.3.68 Innovation will be at the heart of our transformation to deliver new technologies that ensure that we embrace and realise the benefits of a more circular economy, generating higher value products that reduce our impact on the environment and deliver significant benefits to society.

3.3.69 The Long-term strategy for bioresources in England has set out innovation pathways in areas of high uncertainty, nurturing new industrial and technological landscapes. Co-designing innovation policies orientated towards the global challenge of bioresources management is essential.

#### **Long-term planning**

3.3.70 All these investment plans have been made with the long term in mind. Our bioresources Long Term Delivery Strategy has informed the investment that we have made in AMP8 to make sure that what we do now is considered ‘no regrets’ under all plausible scenarios for the future, but we also seek to ensure that we do not close off any potential pathways on our adaptive plan.

3.3.71 Unless we act now and start to plan for alternative, uncertain and long term options, we face the risk of being unable to provide a resilient sludge management service, and ultimately risk having no outlet for sludge disposal in future AMPs. Given the scale of the potential investment required we are reliant on a Notified Item to trigger an interim determination (iDoK) if risks materialise in-AMP. Further information on our approach to adaptive planning can be found in our Long Term Delivery Strategy.

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**Water for the North West**