

# Climate Adaptation Report

Published January 2025



YorkshireWater

# How to view this document

## Contents page

Our contents page links to every section within this document. Clicking on a specific section will instantly take you to it.

- 1 Click on the contents button to return to the contents page.
- 2 This button takes you to the previous page.
- 3 This button takes you to the next page.

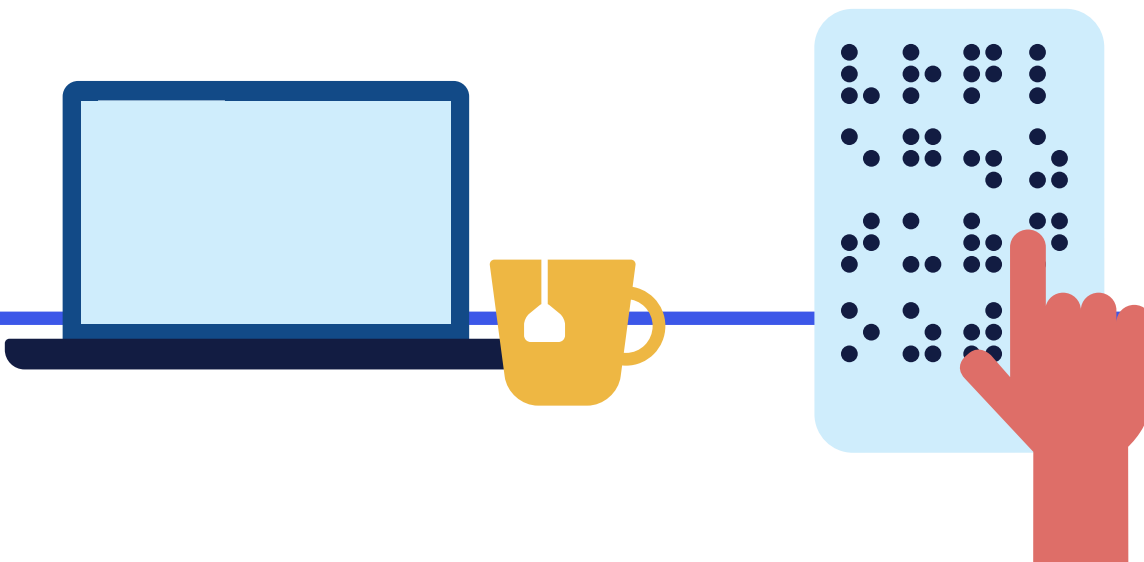
There are also many other clickable links within this document which we've made easy to spot by underlining and **highlighting** them in blue.

## Accessibility matters. That's why we want all of our customers to be able to engage, navigate, and understand our Climate Adaptation Report.

By using assistive technology like screen readers, text-to-text speech programmes and Braille displays, we can provide equal access to anyone with visual, mobility, or cognitive impairments.

### We've taken steps to ensure this document supports additional accessibility needs:

- Screen readers will recite content in a logical order, as well as identifying headers and providing alternative text for images.
- Table of contents and bookmarks to aid navigation.
- Easy-to-read text that's structured using headings, clear paragraphs and tables.
- Comfortable colour contrast.





# CEO foreword

## I'm pleased to share Yorkshire Water's latest Climate Adaptation Report with you.

Too much. Too little. Too dirty. These are the things I hear people say when they are remarking on flooding, droughts, and discharges into rivers and seas from combined sewer overflows, all of which could be made worse by climate change.

So far, we've focussed on making our infrastructure more resilient to flooding (by putting in flood defences and working with nature to manage flood risk), reducing discharges into rivers and seas from combined sewer overflows (where we've invested £180m on top of our previous plans just in the last two years), and safeguarding drinking water supplies and helping our customers save water to make sure there's enough for everyone.

We've also considered the impacts of climate change on our supply chain and other sectors we work with to ensure that we're resilient to problems they may face (such as power outages during a storm) and that we can provide our customers with the support they need during extreme weather events.

We have more to do in all of these areas and have detailed plans over the next five years for each – all of which are aligned to our long-term plans for the whole network to ensure we can deliver safe, reliable, affordable services to our customers now and in the future.

On top of this, we've made further progress on adapting to climate change since we published our last Climate Adaptation Report in 2021. We've matured our understanding of climate-related risks and opportunities, embedded climate scenarios into our long-term strategic plans, and taken action to reduce risks across our business. We are more resilient now than we were before.

Securing a climate-resilient future for Yorkshire is not a task we face alone – we need to collaborate with others to address our shared challenges. Partnerships are central to the way we operate, which is why I want to continue working with stakeholders to address climate risks and build resilience across the region. Effective climate adaptation will also require changes to the current regulatory framework to support the scale of investment required in future.

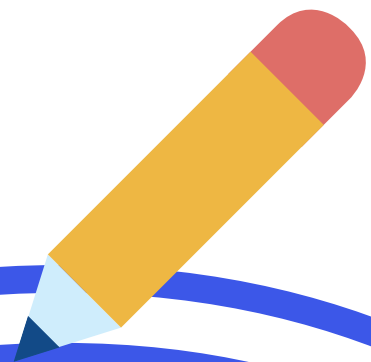
**Together, I'm confident we can adapt to the challenges of climate change and achieve our vision of a thriving Yorkshire, right for customers and right for the environment.**

**Nicola Shaw CBE**  
Chief Executive Officer

# Key messages

## The case for climate adaptation is stronger than ever.

- We've experienced severe storms, widespread flooding, and summer drought conditions across our region in recent years.
- More changes are expected in future. The latest climate projections show average temperatures in Yorkshire will be between 2°C and 4°C higher by 2100, with drier summers and wetter winters.
- As the climate changes, so do the risks to our business. These include increased customer demand for water during hot dry periods, changes in the water quality of rivers and reservoirs, additional pressure on our wastewater network during heavy rainfall events, and physical risks to our infrastructure.
- We also face further climate-related risks associated with society's transition to a low-carbon global economy, and interdependency risks from other sectors on which we rely.
- Together, these challenges underscore the need to adapt to climate change and ensure we can continue to provide safe, reliable, and high-quality services to our customers in the years ahead.



## We're building climate resilience across our business and in our communities.

- Since our last report in 2021, we've made significant progress to adapt to climate change across all areas of our business. For example, we're restoring upland landscapes to protect drinking water supplies, deploying the latest smart metering technology to reduce water demand, upgrading our pipes and treatment works, and using nature-based solutions to manage wastewater and protect the environment.
- We're also helping our customers and local communities to adapt to the challenges of climate change. For our customers, we offer a range of support to help reduce water usage and save money on bills. And through our Living with Water partnership, we're building flood resilience among communities in Hull and the East Riding, with plans for similar partnerships across the region in future.
- We've integrated climate change into our long-term strategic investment plans, recognising the benefits that early investment in adaptation measures will bring to the region. As part of our £8.3bn investment in Yorkshire between 2025 and 2030, we'll be investing to safeguard water resources, reduce leakage and manage demand, improve water quality, and protect local communities and the environment from flooding and pollution.
- We know there's much to do and in this report we've set out the steps we're taking to manage our climate-related risks and improve climate resilience. We've designed our plans with flexibility and affordability in mind. This helps us invest in the right adaptation measures at the right time, ensuring we manage risks while keeping bills fair and affordable for our customers now and in future.

## We all have a role to play in securing a climate-resilient future.

- Our essential services underpin almost every aspect of society, and climate change affects almost every aspect of water and wastewater management. That's why it's so important that we work together with our stakeholders to build climate resilience across the region.
- We're expanding our approach to working in partnership with others, building on our strong experience of regional collaborations to deliver benefits for our customers, communities, and the environment.
- To deliver our adaptation plans successfully, we need to secure support from the government, our regulators, and other stakeholders to accelerate progress on climate adaptation across the whole water cycle and beyond. This includes a regulatory framework that enables the scale of investment needed to deliver long-term benefits for customers and the environment. We can only be truly resilient by acting together.

# Contents

We've created colour-coded sections to help you to navigate this report easily. Just click on the section you are interested in on the contents page, and it will navigate you to that section.

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# About Yorkshire Water

Yorkshire Water provides some of life's most essential services to the people and businesses of Yorkshire and the Humber, playing a key role in the region's health, wellbeing, and prosperity. We do this by supplying water and wastewater services to over 5 million people and 140,000 business properties, as well as being custodians of essential infrastructure and the natural environment.

**Our vision is to create  
'A thriving Yorkshire:  
right for our customers,  
right for the environment'.**



We supply **1.3 billion litres** of fresh tap water every day, that is around **550 Olympic-sized swimming pools**.



We invest **£2m every day** to maintain and enhance our network of pipes, pumps and treatment works.



We serve **5.5 million customers**, including **2.2 million homes** and **140,000 businesses**.



We manage **28,000 hectares of land and countryside**, making us the **second largest landowner in Yorkshire**.



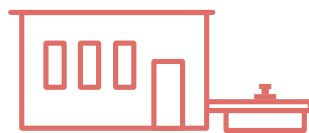
We supply **essential services** to **65 hospitals, 12 universities** and **2,500 schools and colleges**.



We manage **32,000 km** of **clean water pipes** and **53,000 km** of **sewer network**.



We collect, treat and return to the environment **2.2 billion litres** of **wastewater** and **rainwater every day**.



We have **605** wastewater treatment works, **50** water treatment works and **2,608** sewage pumping stations.



We manage **2,190 storm overflows**.



We have **3,773 colleagues** and support a further **6,000 jobs** across our suppliers.



We have **115 reservoirs**.

Find out more about what we do here: [yorkshirewater.com/about-us/making-yorkshire-brilliant/](https://yorkshirewater.com/about-us/making-yorkshire-brilliant/)



# About this report



**Climate change represents a key challenge for our business. We're already seeing its impacts on our natural environment, which in turn affects our customers, the communities we serve, and the way we operate. We're committed to playing our part in tackling climate change as well as adapting to the challenges that we're facing now and are likely to face in the future.**

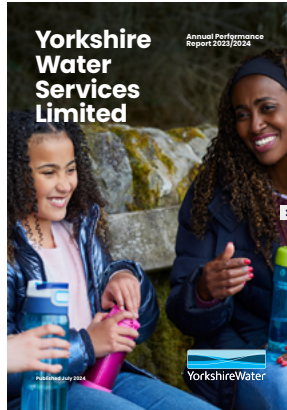
In this report, we describe the key climate-related risks that we're facing and how we're working to respond to them by embedding climate resilience across our business. We highlight the steps we're taking to support our customers in our adaptation plans, outline some of our current barriers to adaptation, and provide a range of case studies to help bring what we do to life.

We're publishing this report in line with the requirements of the Climate Change Act (2008), building on our previous Adaptation Report published in 2021 and our Climate-related Financial Disclosures, which are published each year in our Annual Report and Financial Statements.

## You can find more information about our current performance and future plans in our other reports:



[Annual Report and Financial Statements](#)



[Annual Performance Report](#)



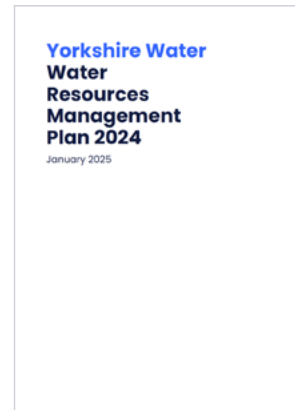
[Long-Term Delivery Strategy for 2025-2050](#)



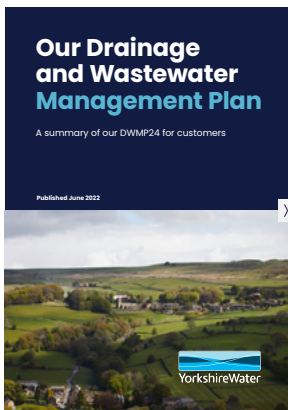
[Business Plan for 2025-2030](#)



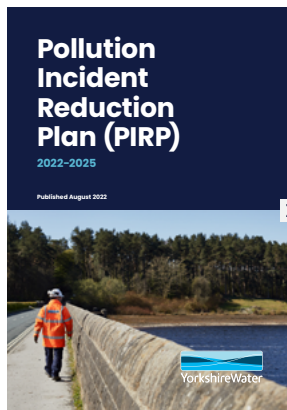
[Drought Plan](#)



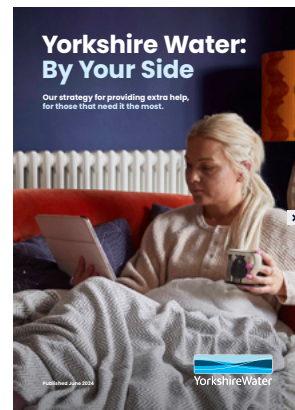
[Water Resources Management Plan](#)



[Drainage and Wastewater Management Plan](#)



[Pollution Incident Reduction Plan](#)

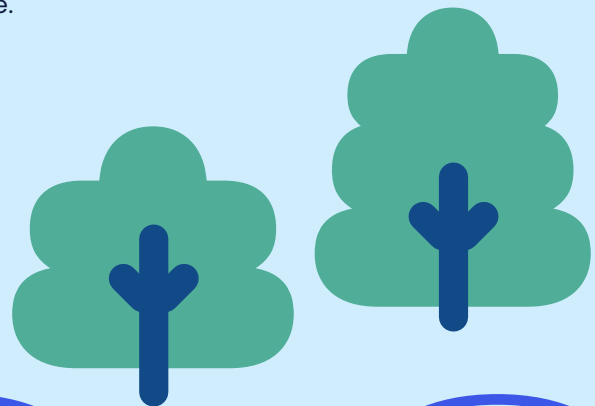


[By Your Side customer strategy](#)

# How climate change affects our business

**Climate change has the potential to impact almost every part of our business, both in terms of its physical effects and also those associated with society's transition to a low-carbon global economy.**

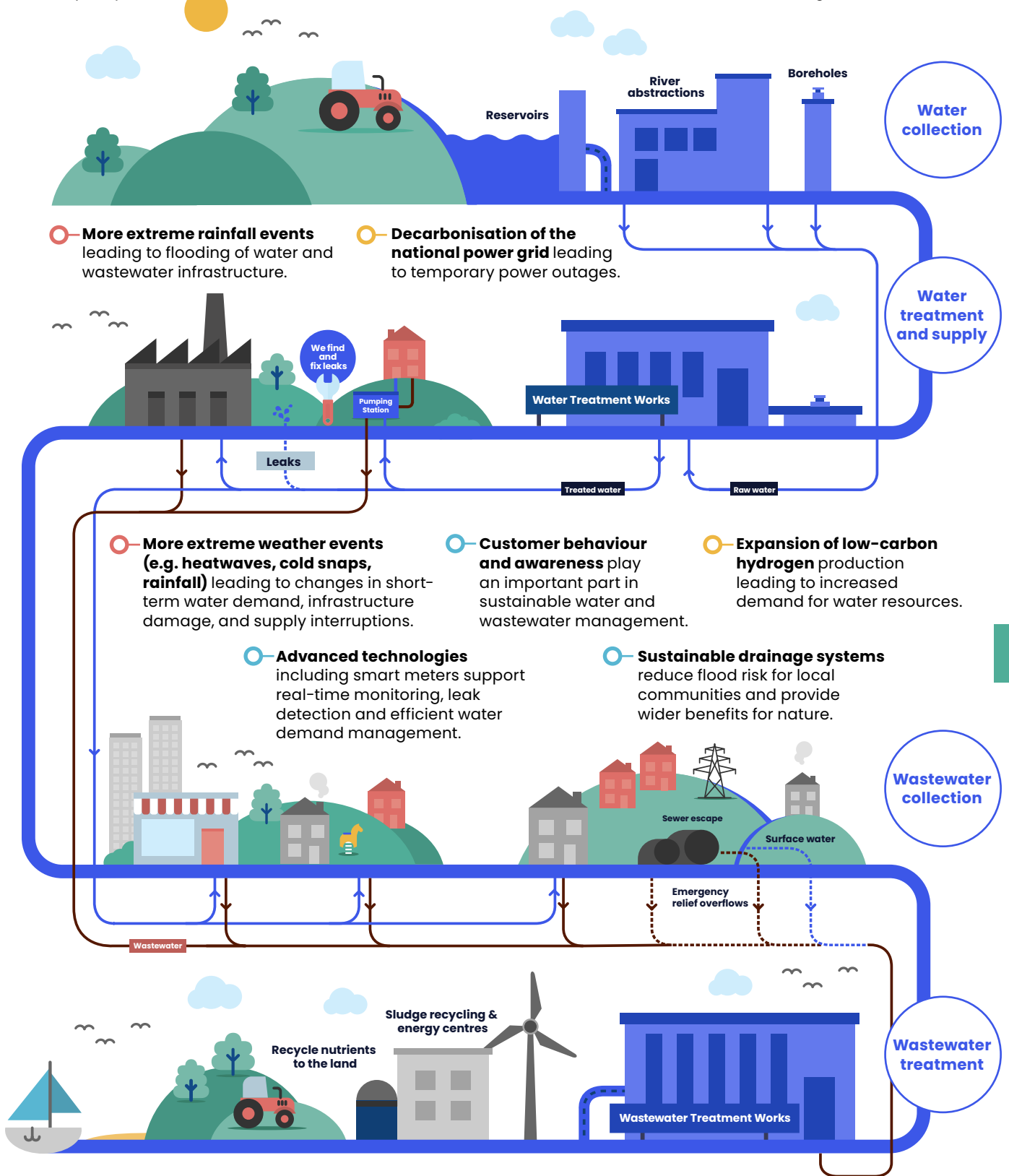
On the following page we show some of the key climate-related risks that pose challenges to our ability to deliver our essential services to customers, as well as opportunities that can support effective adaptation to climate change.



○ **Hotter drier summers** and **increased winter rainfall** leading to reduced raw water quality.

○ **Sustainable land management practices** can retain water in the landscape, improve water quality, and reduce downstream flood risk.

○ **Hotter drier summers** leading to reduced water resource availability from rivers, reservoirs and groundwater.



## Our world is changing quickly and we're already seeing the effects of climate change across the Yorkshire region.

Since our last report in 2021 we've experienced several extreme weather events that have posed challenges to service delivery, asset integrity, operational costs, and regulatory performance targets. We've highlighted some examples below.

### Summer drought

During the summer of 2022 we faced the first drought in Yorkshire for more than 25 years, including the lowest recorded rainfall in parts of the county since records began 130 years ago. Our reservoir stocks dropped swiftly throughout spring and summer, while the unusually dry and hot weather led to ground movement which damaged pipes and increased bursts.

This led us to implement a Temporary Use Ban (commonly known as a hosepipe ban) to protect customer water supplies. We also increased pumping of raw and treated water around the region, laid temporary pipework to support some of our reservoirs, and increased our focus on reducing leakage. While we were able to maintain customer supplies during this challenging period, we estimate the drought led to an additional £25m of costs in the year.



### Freeze-thaw conditions

In December 2022 we experienced a period of freezing weather followed immediately by a warmer spell. This sudden change in temperatures caused performance issues for our clean water network, with an increase in bursts and associated disruption to customer supplies.

In response, we re-planned our field and customer support resources to mitigate and quickly respond to any loss of supply or other incidents. We placed additional resources at key water treatment works, increased our reactive support to bursts and customer raised incidents, and extended our customer contact centre operating window to provide extra support to customers.

## Winter storms

The 2023/2024 storm season brought 12 named storms to the UK, the greatest number of named storms since 2015. Storm Babet in October 2023 was a particularly severe event, causing widespread flooding and damage and claiming the lives of seven people across the UK. In Yorkshire, two months' worth of annual average rainfall fell in a single day across some parts of the region, impacting local communities and putting considerable pressure on our operational resources.

During this time, saturated soil conditions caused large volumes of groundwater to enter our sewer network, leading to the deployment of emergency pumps and tankers as we sought to reduce the risk of flooding to customer properties. In some areas, we continued pumping operations for several months until groundwater levels had fallen.

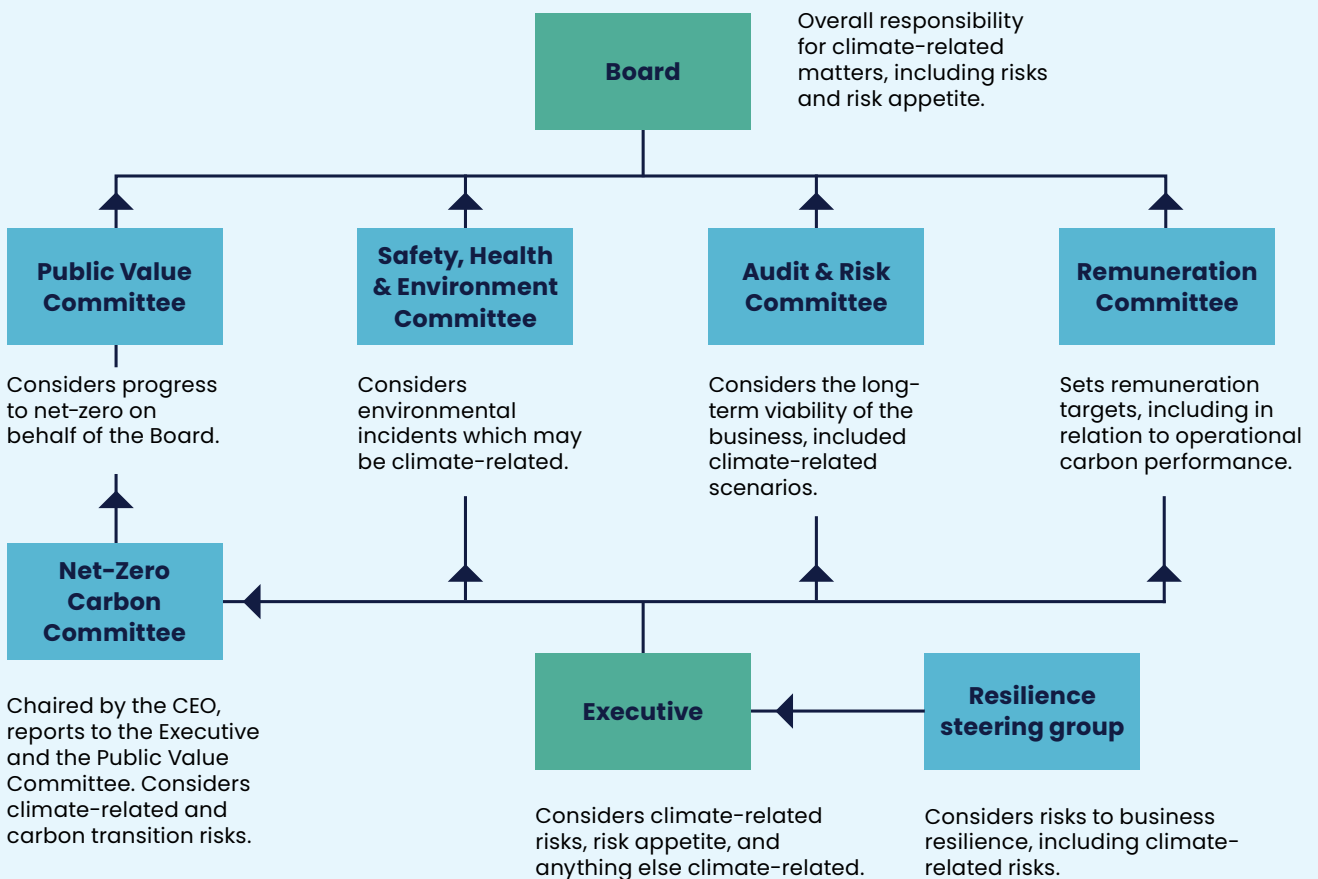


In light of these recent events and the latest future climate projections, we know there is a pressing need to adapt to climate change to build resilience to the risks we face. In turn, this will mean we are able to continue to provide reliable, high-quality and affordable services to current and future generations of customers, while also safeguarding the environment on which we all depend.

# Climate leadership and governance

**We take climate change extremely seriously and have a robust governance structure in place to ensure we manage our climate-related risks and opportunities effectively.**

Our Board has ultimate responsibility for climate-related matters and is supported by a number of Committees and our Executive team. The diagram below shows the flow of information on climate-related matters between the Board and its Committees.



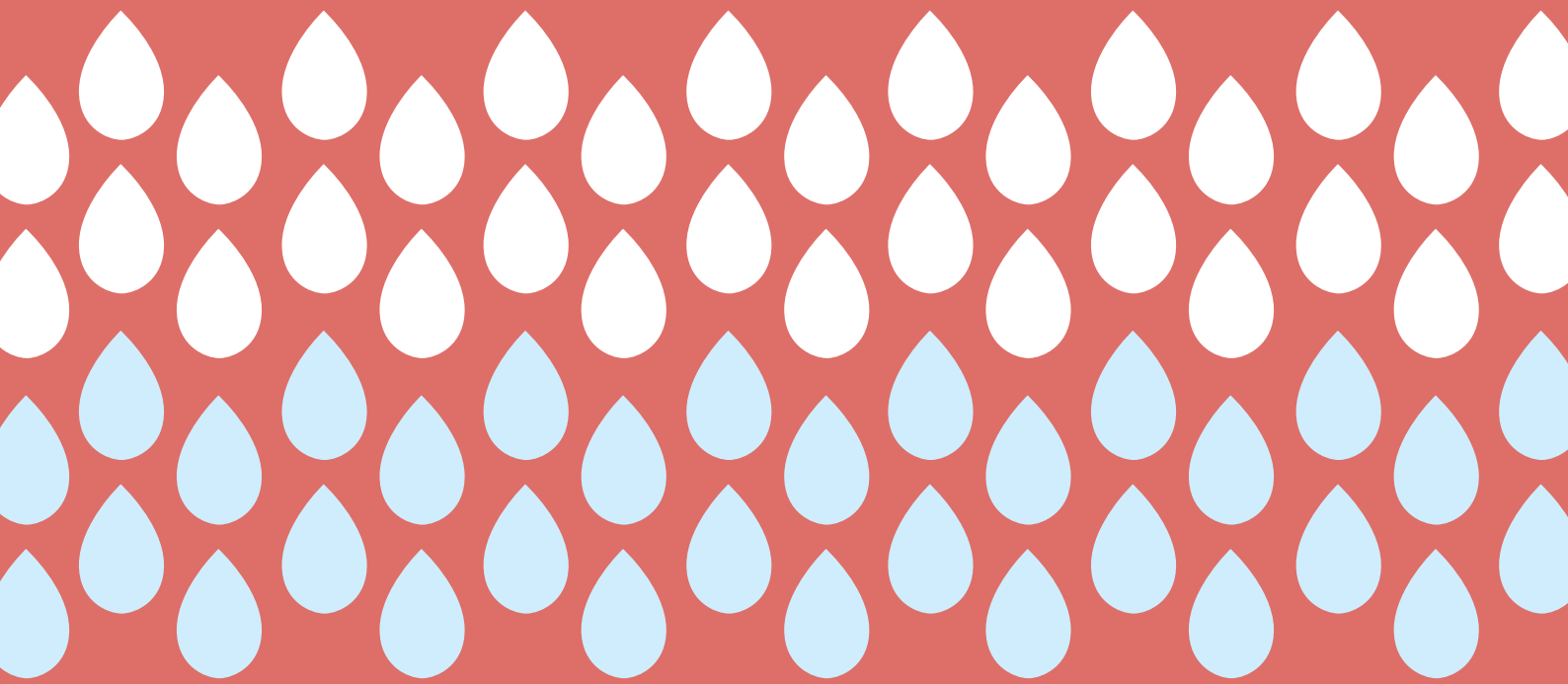
The principal risks for our business, including climate-related risks, are reviewed by the Executive team and Board every six months. The Executive team and Board also carry out deep dives to discuss and set organisational risk appetite for climate-related risks.

It's important to us that our Board has the right skills and experience needed to manage climate-related risks and opportunities effectively. Our Nomination Committee monitors the capabilities of our Board regularly to inform areas for development or future recruitment requirements.

In 2023 we set out our new ten-year corporate strategy centred around our vision for a thriving Yorkshire that's right for customers and right for the environment. Within our strategy, we recognise that we need to adapt our business to the impacts of a changing climate. This intent is reflected in our strategic plans, operational processes, and management systems to ensure we build climate resilience across our business and value chain, working in line with best practice standards for climate adaptation (e.g., ISO14091).







# Understanding our climate risks

## Updates to our risk assessment

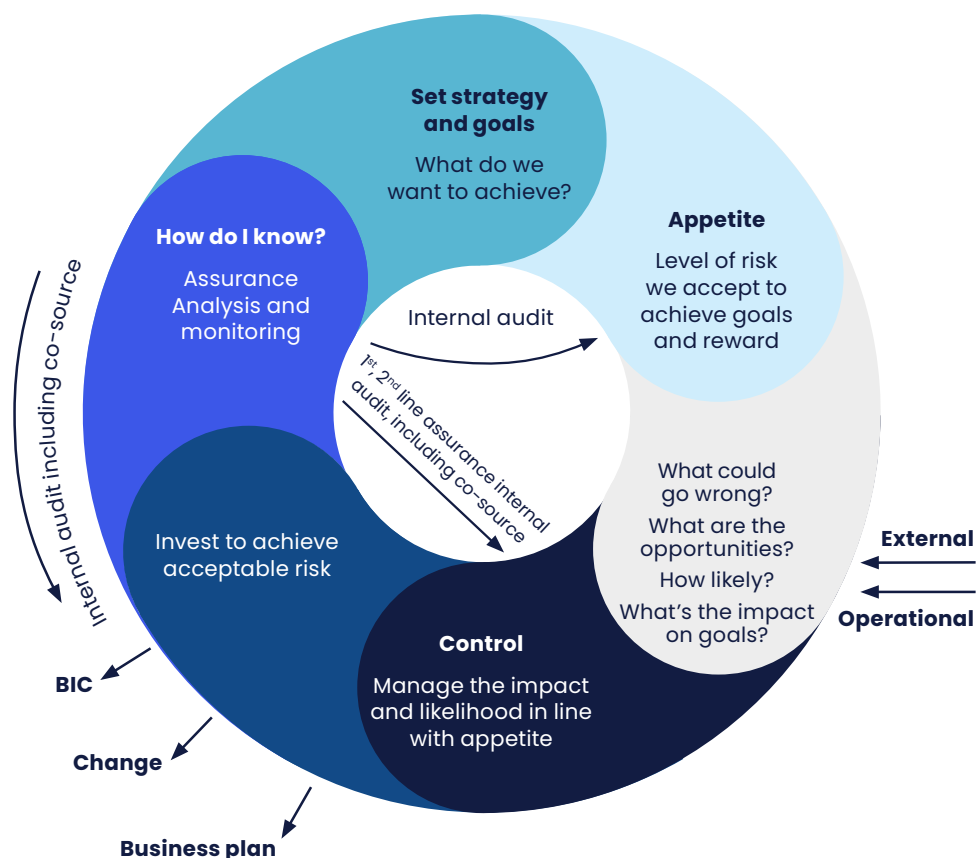
**We've made some changes to our climate change risk assessment since our last update in 2021. These help us improve how we identify and manage climate-related risks.**

### **The key changes we've made are:**

- Aligning our detailed climate change risk assessments with our corporate risk management framework.
- Moving from a qualitative to a quantitative risk assessment process.
- Considering risks associated with both physical changes and the transition to a low-carbon global economy in our assessment process.
- Stress-testing the resilience of our long-term strategic plans under different future climate scenarios.

# Our risk management process

We're committed to strong risk management to allow us to consistently meet customers' needs, protect the environment, and ensure bill affordability without compromising our long-term resilience. Our risk management framework is aligned to ISO31000, the international risk management standard, and provides a structured approach to identifying, assessing, and managing risks.

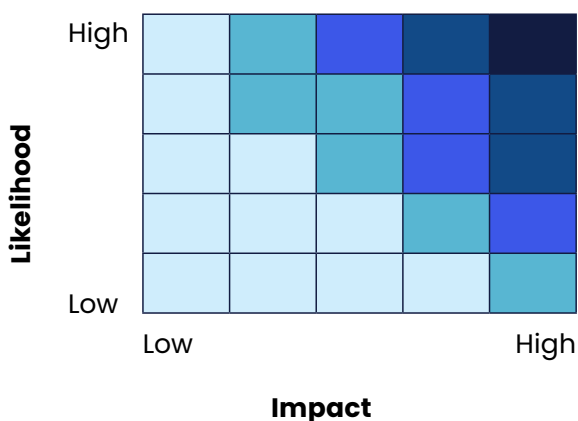


As with our other company risks, we manage climate-related risks following our enterprise risk management framework. This allows us to identify and assess risks to achieving our strategic objectives and put plans in place to manage these effectively. When identifying climate-related risks to our business we consider both acute physical risks linked to discrete events, such as

floods or fires, and chronic physical risks driven by longer-term shifts in climate patterns, such as sustained higher temperatures. We also consider risks associated with the transition to a low-carbon global economy, such as future changes in climate policies, markets, and societal expectations.

Our risk management framework applies to all activities, decisions, and processes, and we aim to balance the cost of control with the risk appetite and long-term viability of the business. We conduct regular horizon scans with subject matter experts to identify emerging risks, including climate-related risks. Our risk identification processes focus mainly on the Yorkshire region given the location of our operations but extend to consider national and international geographies on a risk-specific basis.

We use a standard risk assessment matrix to ensure consistent measurement of both impact and likelihood, allowing us to compare all our climate-related risks on a like-for-like basis.



We have a structured approach to identifying and managing interdependency and cascading risks, which is based around cross-sector collaboration, stakeholder engagement, mitigation planning and a culture of continuous improvement. Interdependencies are incorporated into our main risk assessment process, helping us understand how different risks are interconnected and how we can manage them proactively.

We take part in cross-sectoral working groups and local resilience forums, which are also attended by representatives from the emergency services, local authorities, regulators, and other Category 1 and 2 responders as defined by the Civil Contingencies Act 2004. Through these groups, we collaborate to identify interdependency risks, develop effective mitigation plans, and share information and best practices. This approach helps us stay informed about potential risks, develop coordinated responses to interdependency and cascading risks, and capture learning from different organisations.

We have strong systems of internal control in place to mitigate risks to an acceptable level in line with risk appetite, which is set by our Board. Risks are monitored by leadership teams using key risk indicators with further risk-based assurance provided through our Internal Audit function and external auditors. Our Executive team and Board provide oversight of the action plans to address risks that move outside of appetite.

**The specific management approach we take for each risk depends on its time horizon, as set out in the table below.**

	Short-term	Medium-term	Long-term
<b>Time period</b>	0-2 years	Up to 2030	Up to 2050 and beyond
<b>Management approach</b>	Implementation of tactical response plans	Investment through regulatory Asset Management Plan cycle	Strategic planning activities
<b>Key plans</b>	<ul style="list-style-type: none"> <li>Drought plan</li> <li>Pollution Incident Reduction Plan</li> <li>Vulnerable asset plans</li> </ul>	<ul style="list-style-type: none"> <li>Five-year regulatory Business Plan</li> <li>Capital delivery programmes</li> <li>Repair and maintenance programmes</li> </ul>	<ul style="list-style-type: none"> <li>Water Resources Management Plan</li> <li>Drainage and Wastewater Management Plan</li> <li>Long-term Delivery Strategy</li> </ul>

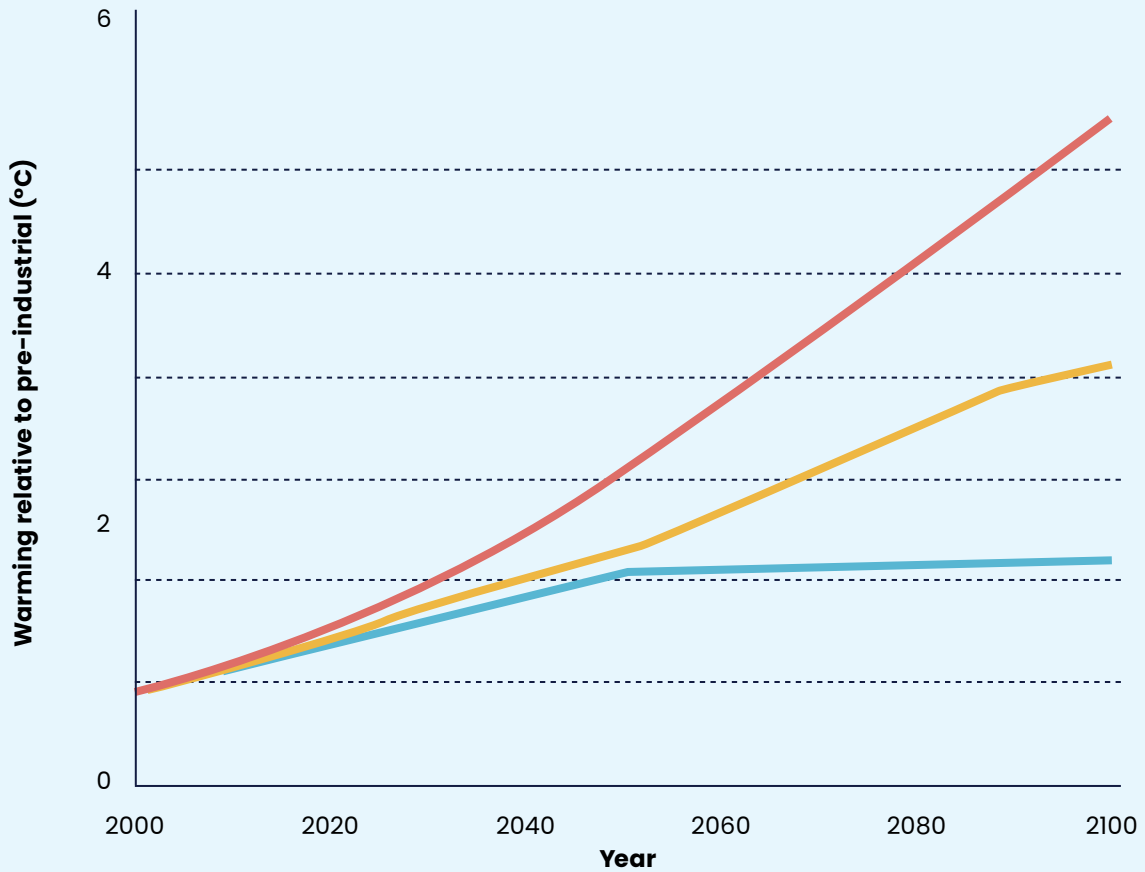
# Climate scenario modelling

**We use climate scenario modelling to stress-test the resilience of our long-term strategic plans. This helps us to understand the potential impacts of climate change on our business and prepare for a future operating environment that may be very different to that of today.**

Scenario analysis is based on quantitative modelling following best practice and national guidance from the Department for Environment Food and Rural Affairs (DEFRA), Ofwat and the Environment Agency. In our latest assessment we have used three plausible climate scenarios that represent an optimistic-, intermediate-, and pessimistic-case of forecasted future emissions, respectively.

At this time, we have focused on physical climate scenarios as these are most relevant to the key climate-related risks and opportunities facing our business. However, we intend to expand our analysis to include transition scenarios in future. We typically renew our climate scenario analysis every five years in line with water industry strategic planning framework cycles.

Physical climate scenarios	Description	Rationale	Key assumptions and estimates
<p><b>Low</b></p> <p>UKCP18 probabilistic projections, RCP2.6, 50th percentile probability level.</p>	<p>An approximate 1.6°C warming scenario by the year 2100 – corresponding to an ‘optimistic’ emissions scenario.</p>	<ul style="list-style-type: none"> <li>Scenarios represent a central pathway and plausible extremes of potential physical climate trajectories.</li> </ul>	<ul style="list-style-type: none"> <li>No material changes to Yorkshire Water’s operational service area.</li> <li>Regional population growth and water demand evolve in line with current forecasts.</li> </ul>
<p><b>Central</b></p> <p>UKCP18 probabilistic projections, RCP6.0, 50th percentile probability level.</p>	<p>An approximate 2.8°C warming scenario by the year 2100 – corresponding to an ‘intermediate’ emissions scenario.</p>	<ul style="list-style-type: none"> <li>Aligns with requirements of DEFRA, Ofwat and the Environment Agency.</li> </ul>	<ul style="list-style-type: none"> <li>Water and sanitation services continue to be delivered using existing networks rather than decentralised (off-grid) systems.</li> </ul>
<p><b>High</b></p> <p>UKCP18 probabilistic projections, RCP8.5, 50th percentile probability level.</p>	<p>An approximate 4.3°C warming scenario by the year 2100 – corresponding to a ‘pessimistic case’ emissions scenario.</p>		<ul style="list-style-type: none"> <li>No material changes in future government policy or legislative requirements.</li> <li>Changes in climate occur within the envelope of RCP2.6 and RCP8.5 scenarios.</li> </ul>



**Key**

- RCP2.6
- RCP6.0
- RCP8.5

*Global temperature projections during the 21st Century under Representative Concentration Pathways 2.6, 6.0 and 8.5*



Read more about our approach to identifying and assessing the risks of climate change in our **Climate-related Financial Disclosures** included within our **Annual Report and Financial Statements**.

# Climate-related risks and opportunities

**Here we show our highest priority climate-related risks and a summary of the actions we are taking to address these. More information about how we manage our climate-related risks is provided later in this report.**

Our assessment shows how climate-related risks are likely to evolve over time if we took no further action beyond the existing control measures we've already put in place. This underscores the need for further investment to manage and adapt to climate risks across our business operations and infrastructure. In later sections of this report, we outline how we're working to address these risks and strengthen our long-term resilience to climate change.

More detail on each risk and how it links to the water sector risks that have been identified by the UK Government and Defra can be found in [Appendix 1](#).



**Key**



Risk	Potential impact and existing or planned mitigations	Short-term	Medium-term	Long-term
<b>Acute physical risks</b>				
More frequent and/or severe cold snaps.	Burst pipes and increased customer contacts, service disruption and pressure on emergency response. <b>Mitigations:</b> Asset management programme, emergency response plans.	High	High	Low
More frequent and/or severe heatwaves.	Reservoir misuse by members of the public, creating public health and safety-related incidents. <b>Mitigations:</b> Drought plan, public education, site rangers, 24/7 Service Delivery Centre monitoring and response.	Medium	Medium	High
More frequent and/or severe rainfall events.	Flooding of above ground assets, wastewater network inundation, poor quality biosolids and saturated agricultural soils, resulting in service disruption, asset write-offs, pressure on emergency response, sewer flooding, pollution events, and restrictions on ability to recycle biosolids to land. <b>Mitigations:</b> Flood risk screening for all new capital schemes, physical flood defences, vulnerable asset plans, Drainage and Wastewater Management Plan.	High	High	Very high
More frequent and/or severe storm events and coastal storm surge events.	Damage to physical infrastructure and inundation of coastal assets, resulting in service disruption and pressure on emergency response. <b>Mitigations:</b> Physical flood defences, relocation of assets.	Medium	Medium	High
<b>Chronic physical risks</b>				
Increased winter rainfall.	Increased agricultural run-off and soil erosion, resulting in raw water quality deterioration. <b>Mitigations:</b> Catchment land management, dynamic source selection.	Low	Medium	High

**Key**



Risk	Potential impact and existing or planned mitigations	Short-term	Medium-term	Long-term
<b>Chronic physical risks</b>				
Hotter, drier summers.	Pressure on water resources, wildfires and potential degradation of raw water catchments, algae growth and cyanobacterial blooms in reservoirs, network blockages, the introduction and spread of invasive non-native species, resulting in temporary use bans, raw water quality deterioration, taste and odour issues, sewer flooding, pollution events, damage to assets and the environment. <b>Mitigations:</b> Water Resources Management Plan, catchment land management, dynamic source selection, biosecurity programmes, infrastructure repair and maintenance programmes.	Medium	Medium	Very high
Sea level rise.	Coastal erosion, flooding, salinisation of water resources and restricted outfalls, resulting in damage to assets, raw water quality deterioration, service disruption. <b>Mitigations:</b> Physical flood defences, relocation of assets, community resilience programmes.	Low	Low	Medium
<b>Transition risks</b>				
Lack of supply chain capacity or readiness to decarbonise at the pace required.	Continued reliance on a carbon-intensive supply chain, resulting in increased capital and operating costs and a reputational impact. <b>Mitigations:</b> Supplier engagement and incentivisation.	Low	Medium	Medium
Temporary power outages linked to decarbonisation of the electricity grid.	Unexpected shutdowns of electrical equipment, resulting in asset damage and disruption to service provision. <b>Mitigations:</b> Investment in power resilience infrastructure, cross-sector collaboration to develop power resilience plans.	Low	Medium	Low
Introduction of new environmental protection requirements.	Increased carbon and energy footprint associated with new capital works or changes in operating processes, resulting in increased costs and slowing of progress to net-zero. <b>Mitigations:</b> Long-term strategic planning, asset management programmes, engagement with policymakers and regulators.	Medium	Medium	High
Expansion of low-carbon hydrogen production in the Yorkshire region.	Potential impact: Increased demand for water resources, resulting in supply interruptions and temporary use bans. <b>Mitigations:</b> Water Resources Management Plan, cross-sector collaboration.	Very low	Medium	High



**Key**



Risk	Potential impact and existing or planned mitigations	Short-term	Medium-term	Long-term
<b>Transition risks</b>				
Increased societal expectations to transition to a low-carbon economy.	Demand for further progress from investors, resulted in an increased cost of capital. <b>Mitigations:</b> Stakeholder engagement activities.	Very low	Low	Medium
Pace of regulatory change misaligned to the climate transition timeline.	Insufficient regulatory funding for climate-related activities. <b>Mitigations:</b> Stakeholder engagement activities.	Medium	Medium	Medium
National emergency water transfer to other regions.	Increased demand for water resources, resulting in supply interruptions and temporary use bans. <b>Mitigations:</b> Cross-industry collaboration on strategic resource options.	Very low	Medium	Medium
<b>Opportunity</b>				
<b>Chronic physical opportunities</b>				
Hotter, drier summers.	Reduced heating demand for wastewater treatment processes, resulting in cost efficiencies.	Very low	Low	Medium
<b>Transition opportunities</b>				
Emergence of low-energy or nature-based treatment technologies.	Reduced energy and chemical consumption, resulting in cost efficiencies and reduced emissions.	Low	Medium	High
Roll-out of smart household water meters.	More effective water demand management, resulting in reduced pressure on water resources.	Low	Medium	Medium
Introduction of water efficiency labelling and increased public awareness of water consumption.	Reduction in per capita consumption, resulting in reduced pressure on water resources.	Very low	Medium	Medium
Lower costs of renewable energy solutions.	Increased renewables deployment on operational sites, resulting in greater security of energy supply.	Low	Medium	Medium
Increased demand for low-carbon materials.	Emergence of resource recovery markets, for example, biosolids, resulting in new revenue streams.	Very low	Low	High
Increased societal expectations to transition to low-carbon economy.	Greater customer support for climate-related activities, resulting in increased likelihood of regulatory approval for climate-related investment.	Very low	Low	Medium

# Managing our climate risks

This section describes how we're proactively adapting our business to the challenges of climate change. By building resilience across our operations, infrastructure, and business processes, we aim to ensure we can continue to deliver our essential services reliably and affordably to customers in future.

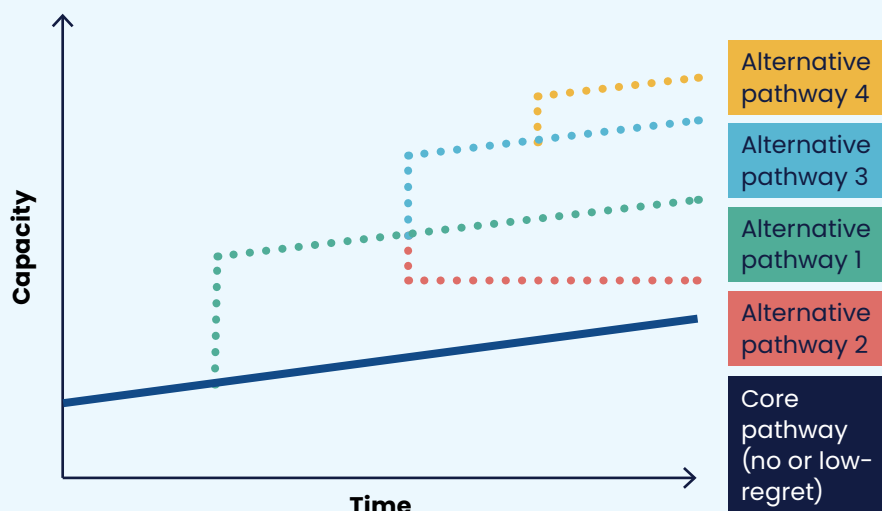
## Adaptive planning for an uncertain future

Adapting to climate change is challenging due to uncertainty about its future impacts coupled with potential changes in the economic and social context for adaptation over time, such as population growth, funding availability, and societal preferences.

To address these challenges, we're using an 'adaptive pathway' approach to incorporate flexibility into our decision-making and account for future uncertainties. This means our long-term strategic plans contain core pathways of low or no regrets investment to meet short-term requirements and keep future options open.

Alongside these core pathways, we've also developed a series of alternative pathways with further adaptation measures that may be triggered in future if certain conditions occur.

Adapting to climate change will require upfront investment. Our adaptive pathway approach helps us to consider uncertainty and embed flexibility within our strategic plans. This ensures we invest in the right adaptation measures at the right time, helping us to keep bills fair and affordable for our customers while building climate resilience for future generations.



Example of our approach to adaptive planning, showing a core pathway of no or low-regret investment and a series of alternative investment pathways that may be triggered in future to address emerging risks or opportunities.

# Securing safe and clean water supplies

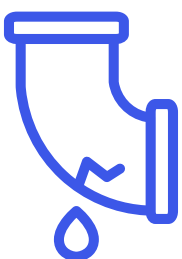
**Climate change poses one of our largest risks to maintaining a safe and reliable water supply to customers over the long term. This is compounded by other pressures such as population growth and the need to leave enough water in the environment to protect the health of rivers and wildlife across the region.**

We've made good progress in managing risks to drinking water supplies in recent years. For example, we're on track to drive down leakage by 15% between 2020 and 2025, and our customers use less water each day than in most other areas of the UK. Despite these successes, however, our latest risk assessment shows that we may not have sufficient supply to meet demand in the future if we do not take further action.

Our latest Water Resources Management Plan, which we've been given permission to publish by the Secretary of State for Environment, Food and Rural Affairs, sets out the measures we'll take to ensure resilient water supplies over the next 60 years. This is based around a twin track approach to increase supply options and reduce water demand.

We're increasing available water supplies by investing in new groundwater and river abstraction sites, as well as expanding capacity at our water treatment works and developing new water transfer pipes across the region. To reduce water demand, we're investing in active leakage reduction processes and technologies and upgrading 1.3 million household and non-household meters to smart meter technology by 2030. This will provide better visibility of water demand across our network and help us make targeted interventions where they will have the greatest impact. More widely, we're making repairs and upgrades across our 32,000km clean water network to enhance resilience to changes in temperature and ground movement and support better pressure management to reduce the risk of pipe bursts. We'll further reduce demand by promoting water efficiency measures to reduce water use among our household and business customers, supported by government policy interventions on water labelling and building regulations.

**12.7%**  
**Leakage reduction since 2020,**  
and on track to achieve 15% by 2025.



**1.3m smart meters**  
installed by 2030 to manage demand and help our customers save water.



**11,000ha Land conserved or enhanced**  
since 2020 to safeguard water supplies and benefit nature and local communities.



We're working with Water Resources North, a group of water companies and other interested stakeholders in northeast England, to look for opportunities to share water and create integrated long-term plans for managing water resources in the region. We're also building our resilience to drought, learning from recent events and industry best practice to improve the security of water supplies to customers and better protect the environment during long periods of dry weather.

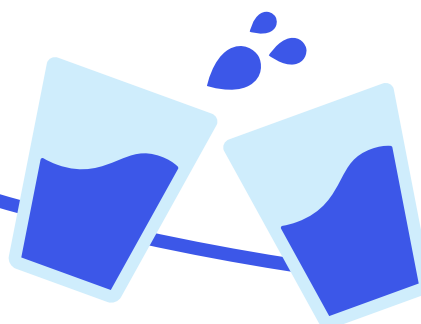
Climate change is likely to affect not only the availability of future water supplies, but also the quality of that water. A trend towards hotter, drier summers is likely to cause more wildfires on catchment land and increase algal growth in reservoirs. In winter months, increased winter rainfall may increase soil erosion and runoff of nutrients and other pollutants from fields and roads, potentially contaminating both surface water and groundwater sources. Without intervention, these changes might pose risks to achieving stringent water quality standards (e.g. bacteria and nitrate concentrations), change the look, smell or taste of drinking water supplied to our customers, and affect the health of river ecosystems.

To address these risks, we're taking an integrated catchment management approach to manage water at a landscape scale while also delivering wider benefits for nature and communities across Yorkshire. For example, we're carrying out schemes to safeguard raw water supplies by restoring peatlands and increasing soil organic matter in lowland areas. We're also working with farmers to reduce the impact of agricultural operations on water quality, and through our Beyond Nature® programme, we're combining innovative research with practical approaches to manage land sustainably for biodiversity, livelihoods, and water stewardship.

Investments in new technology will also help us improve how we manage raw water sources, such as by installing automated valves and water quality monitors for real-time source selection. Similarly, we're upgrading equipment at our water treatment works and across our clean water network to improve drinking water quality and build resilience to climate-related risks.

Yorkshire Water  
Water  
Resources  
Management  
Plan 2024  
January 2025

Find out more about our long-term plans to provide customers with safe, reliable and affordable water supplies in our **Water Resources Management Plan**.



# Helping our customers use less and save more

We all have a role to play in using water responsibly. Here we highlight some of the ways in which we're supporting our customers to manage their water usage, save money on their bills, and help to protect our precious water resources for the future.

## Water meters

Our customers with a water meter typically use around 40 litres per person per day less than those without.

For most of our customers we're able to provide a meter free of charge. And starting in January 2025, we'll be upgrading over a million meters to become smart, providing customers with a detailed breakdown of their water usage across the day.



## Water saving packs

We offer free water saving packs to our customers to help them reduce water use in their homes. From shower regulators to cistern bags to leaky loo detection strips, these simple products can make a real difference in cutting household water use.



## Tips and advice

We provide our customers with a range of useful information to help them save water in their homes and gardens. These include fixing leaky appliances, lagging pipes in winter months, and using a watering can instead of a hosepipe.



## Water butts

Collecting rain in a water butt is a great way for our customers to save water and make sure they have plenty for their gardens during drier weather. As an extra bonus, water butts can also reduce excess rainwater entering our sewers, which helps to lower the risk of surface water flooding for local communities.



## Community engagement

We offer free education programmes to local schools to help young people learn about the value of water and how they can support us in looking after our water resources and doing the right thing for the environment.



## Report a leak

With over 30,000km of water pipes across the region, our customers often spot leaks and bursts before we do. We make it easy for people to report leaks to us, because the sooner we know about a problem the sooner we can fix it.



## Climate resilient landscapes to safeguard drinking water sources

Much of the drinking water we provide to customers is collected from upland catchment areas in the west of our region. The condition of these landscapes has a strong influence on the amount and quality of the water that runs into our reservoirs and onwards to our water treatment works.

In some of our upland catchments, wildfires and land drainage schemes have caused a deterioration in water quality in recent years, which will be worsened by the warmer, drier summers we expect in future. Poorer water quality requires more expensive treatment before it can be supplied to customers. In extreme cases, it may not be treatable at all, which poses a risk to the security of our future water supplies.

In response to this risk, we've invested £8m into catchment management activities over the last five years to protect and improve the quality of raw water entering our reservoirs, with more investment planned for the future.

These activities help us address risks to future water quality while also delivering wider benefits for climate, nature, and people.

For example, we're restoring moorland habitats in collaboration with the Yorkshire Peat Partnership and Moors for the Future by planting seedlings on bare areas to stabilise the ground and reduce soil erosion. And through our Landscapes for Water programme with the National Trust, we'll be planting more than 300,000 trees and installing 3,500 leaky dams across the South Pennines to trap sediments, slow the flow of water and protect peatland soils from erosion and wildfires.

By tackling water quality issues directly at source, we're working with nature to build climate resilience at a landscape scale, helping to reduce our costs and keep customer bills low. But that's not all – our activities also create wider benefits by reducing flood risk to local communities, creating habitat for wildlife, and providing opportunities for people to connect with nature.



## Smart technology for sustainable water management

Securing sustainable water supplies for all our customers across the region is really important to us – today, tomorrow, and in the long-term. As summers become hotter and drier, we're using the latest smart metering technology to help us plan and manage water demand to make sure there's enough for everyone.

Our Yorkshire-wide smart metering exchange programme is now underway, building on successful trials that we've run in recent years. Between now and 2030 we'll be installing over a million household smart meters for our customers across the region. Smart meters will provide customers with real-time visibility of their water usage across the day, giving them greater control and helping them to save money on their bills.

As an added benefit, we're using the data provided by smart meters to identify potential leaks within customer properties, which account for around a third of all leakage across our water network. This gives customers a chance to fix their leak sooner, saving money, avoiding bill shocks, and reducing the chance of costly damage to their property.

We're also deploying new equipment such as automated valves and smart controllers to manage flows across our wider clean water network. These help to reduce stress on our pipes, reducing the risk of bursts and providing real-time data to help us repair leaks quickly.



Supporting our customers to improve their water efficiency and driving down leakage across our network means we need to treat and supply less water, helping us to build resilience to climate change and increase long-term water security for the region.



## Raising awareness of the value of water in our communities

As the climate continues to change, it's increasingly important that we all play our part in sustainable water and wastewater management. Through our public education programmes, we're raising awareness among children and young people of the need for water efficiency and responsible use of the wastewater system.

We currently provide education activities to local communities through interactive and engaging in-person sessions at our visitor centres, outreach events in schools, and online.

In these sessions, we cover topics such as the water cycle, water conservation, preventing blockages and how to protect the environment.

Since 2020 we've reached over 135,000 young people across the region, supporting our climate adaptation journey by encouraging positive behaviour change among our current and future generations of customers.

Looking forward, we're planning to expand our education programme and target our sessions to schools in areas where we need to do more to influence customer behaviour change.

**"It has already led to discussions at home with the parents on how they can save water."**

Pilgrim Primary Academy

**"It has benefitted us immensely as it has changed mindsets and behaviours that we don't usually think about."**

Bradford College

**"Opened their eyes to where our waste can end up and how much water we use. We're having a big push to not flush wipes and to share that with families."**

Saltaire Primary School



# Maintaining resilient wastewater services

**We collect, treat and return to the environment 2.2 billion litres of wastewater and rainwater that goes into our 52,000km of sewers every day – playing a crucial role in taking care of our customers and protecting the environment from pollution.**

Climate change is expected to bring more intense and frequent rainfall events to our region, increasing the risks of sewer flooding and storm overflow discharges and underscoring the need to take action to build climate resilience across our wastewater network and treatment works. Furthermore, our wastewater system also faces challenges from population growth, urbanisation, and changing societal expectations linked to increased awareness of the importance of the natural environment.

To address these risks, we recently published our Drainage and Wastewater Management Plan that we created through consultation with our customers and key stakeholders including Lead Local Flood Authorities, Rivers Trusts and the Environment Agency.

This sets out how we'll adapt our wastewater network to ensure we can continue to deliver safe and effective wastewater services to our customers while protecting the environment in future.

Our plan focuses on a combination of managing and reducing the amount of rainfall entering our network to reduce our levels of risk (e.g., through the use of blue-green infrastructure and Sustainable Drainage Systems, known as SuDS) while also increasing the capacity of our network by building bigger pipes, storage tanks and upgrading our existing assets. Together, these interventions will reduce the likelihood of our wastewater network becoming overwhelmed during intense rainfall events. In turn, this will reduce the risk of sewer flooding and discharges from storm overflows to rivers and seas.

We're also investing in targeted interventions to help us manage our wastewater network effectively in the face of climate change. These include proactive inspections and the use of sewer network sensors and alarms to provide real-time insights into network operations and help us plan maintenance activities before problems occur. This work is supported by our targeted customer campaigns to promote responsible use of drains and sewers to reduce the risk of blockages.

**40,000**  
**Customer sewer alarms installed**

to help identify and address potential flooding incidents before they occur.



**£180m**  
**Additional investment to reduce wastewater discharges**

by 2025, with a further £1.46bn by 2030.

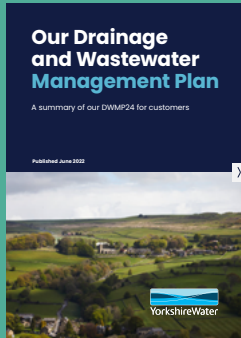


**20%** of our programme to reduce storm overflow discharges delivered

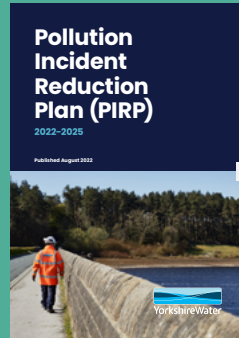
using blue- green infrastructure between 2025 and 2030.



As well as increasing capacity in our sewer network, we're also upgrading our wastewater treatment works to cope with the larger volumes of rain we expect to see in future. Where possible, we're using nature-based solutions such as constructed wetlands, which are better suited to more variable flows than conventional 'grey' solutions. These help to build climate resilience while also providing wider benefits for biodiversity and local communities.



Read more about how we'll keep our drainage and wastewater system strong and resilient in our latest **Drainage and Wastewater Management Plan**.



Find further details on how we're reducing pollution incidents to protect the environment in our **Pollution Incident Reduction Plan**.

## Nature-based solutions for stormwater management

Most of our wastewater network carries two kinds of waste: rainwater from roofs and roads, and sewage and grey water from homes and businesses. If sewers become inundated during periods of extremely wet weather, they can discharge excess wastewater into the environment to prevent sewers flooding into properties. These discharges could occur more often given the more frequent, heavier storms we expect to see in future – highlighting the need to adapt our wastewater network to ensure we can continue to protect the water environment.

To reduce the number of storm discharges during periods of prolonged or heavy rain, we're making greater use of sustainable drainage systems to store, filter, and slow down water to relieve pressure on our wastewater network. We're also increasing storage capacity across our wastewater network and treatment works. Our plans include using constructed wetlands to provide a natural, sustainable, and low-carbon way to

store and treat wastewater before returning it to the environment.

For example, in Pudsey we're repurposing a disused site to create over 25,000m<sup>3</sup> of extra storage for stormwater, which will help reduce the number of discharges into Pudsey Beck and improve water quality. And at our wastewater treatment works in South Elmsall, we're investing £14m to create a wetland spanning over three hectares (or five football pitches) to improve water quality in Frickley Beck – a tributary of the River Don.

As well as these projects, we're investing £180m to reduce discharges at 130 priority sites by 2025, with a further £1.46bn of investment planned for over 480 sites by 2030. Through our increasing use of nature-based solutions, we aim to build climate resilience to more extreme rainfall events expected in future while also supporting local wildlife and improving the health of Yorkshire's rivers, seas, and coasts that are valued by our customers and communities.



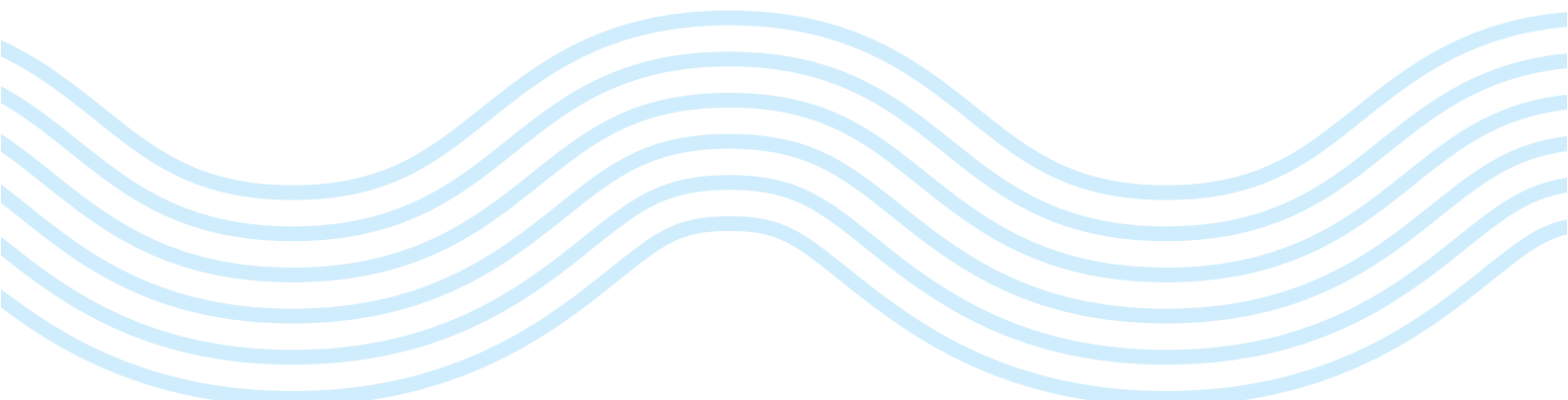
## Sustainable drainage systems in South Yorkshire

Across South Yorkshire there are many properties at risk of flooding from surface water and from the public sewer network. During the November 2019 floods, over 800 residential homes and 100 businesses suffered internal property flooding in Doncaster.

We're working with the City of Doncaster Council, North East Lincolnshire Council, and Anglian Water, with funding from the Department for Environment Food and Rural Affairs (DEFRA), on a project which aims to use innovative Sustainable Drainage Systems – known as SuDS – to increase flood resilience and bring communities closer to nature across South Yorkshire.

SuDS offer a way to mimic natural drainage by slowing and capturing water flow and holding excess water during a heavy rainfall event. This helps relieve pressure on our sewers during periods of heavy rainfall and reduces the likelihood of flooding from surface water and sewers.

As part of the wider project to retrofit large SuDS around Doncaster, we've supported the delivery of SuDS planters within a local primary school. Not only do these planters help alleviate local flood risk, but they can also be used as a teaching aid to raise awareness among pupils, teachers and parents about the risks of surface water flooding. This is an example of how we're helping local communities adapt to climate change while also maintaining our ability to deliver our essential services in future.



# Increasing the resilience of our infrastructure and communities to flooding

**The nature of our business means that many of our treatment works and pumping stations are located in areas vulnerable to flooding from rivers, seas, or surface water, particularly those located at the bottom of catchments near watercourses. Our climate risk assessment indicates some of these assets are likely to become more at risk of flooding in future given forecasted increases in extreme rainfall events, peak river flows, and sea levels.**

To help us manage flood risks to our infrastructure, we've invested proactively to improve flood resilience at our highest priority assets. For example, we've raised electrical panels and placed kiosks on concrete plinths to protect them from high water levels. We also carry out flood risk assessments for all new assets to help us understand where we need to build additional flood resilience measures into our designs.

To ensure we can effectively respond to potential flooding events, we've created plans for our vulnerable assets located in flood risk zones. Our plans include protocols for the shutdown or isolation of critical equipment and deployment of temporary flood defences. They also include information on the recovery procedures to be followed after a flood event has passed.

We've also developed flood response plans for areas across the region that are particularly prone to flooding such as York, Tadcaster, and Hull. These provide information on how we will work with our partners, including the Environment Agency and local councils, to manage potential flooding incidents in each area by protecting our operational assets and reducing flood risk for local communities.

At a landscape scale, we're using natural flood management techniques to slow the flow of water and reduce the risk of flooding to our infrastructure and local communities. For example, through our Landscapes for Water partnership programme with the National Trust, we're installing leaky dams, planting native trees, and restoring peatlands to slow and store water in upland areas across South Yorkshire.



## Working in partnership to build climate resilience in Hull

Due to its location and complex drainage system, Hull in the east of Yorkshire is at risk from extreme flood events and its communities are among the most vulnerable to climate risks in the UK.

We're working to address these risks through the Living with Water Partnership in collaboration with Hull City Council, East Riding of Yorkshire Council, the Environment Agency and the University of Hull – all of which play a role in managing water in the region. Together, we seek to build flood resilience and develop innovative water management systems for communities in Hull and the East Riding.

In January 2023, a pioneering Living with Water scheme began at Rosmead Street in Hull with the installation of an entirely permeable residential street at risk of flooding. The permeable paving is made of non-porous blocks with spaces between them to allow water to flow through. Surface water is collected underneath and the flow of water into our sewers is then controlled to reduce the likelihood of flooding.

The scheme, delivered with the support of partners including the local council, is a demonstration of how the water sector can help deliver wider benefits for customers, including increased resilience from extreme weather events and opportunities for community engagement.

Building on the successes of Living with Water, we're now expanding our partnerships approach to help improve climate resilience in other areas of the region. For example, we're part of the Connected by Water partnership in South Yorkshire and have plans to set up further community-based partnerships in other parts of Yorkshire in future.



# Preparing for and responding to extreme weather events

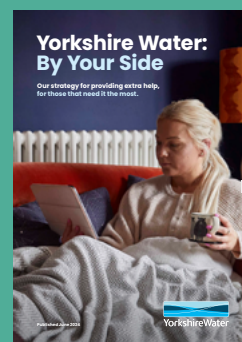
**We work hard to ensure our infrastructure and operations are resilient to extreme weather and that we provide the right support to our customers when dealing with a loss of supply or other service impact.**

At a strategic level, we manage all incidents, including climate-related incidents, in line with our Company Incident Management Plan. This provides a framework to allow us to effectively respond to, recover from, and learn from any incident across all areas of our business. For extreme weather events such as rain, ice, snow and wind, our Severe Weather Plan sets out the tactical arrangements we'll put in place to coordinate an effective response and resolution, supplemented by more detailed operational-level plans where appropriate.

We engage with other water companies through participation in National and Platinum Incident Management Groups. These provide an opportunity to share knowledge and learnings from past incidents, as well as to notify the wider industry of any challenges we are currently facing. We also participate in Water UK's Mutual Aid scheme, through which water companies can act during incidents to support each other by sharing equipment such as water pumps and portable treatment facilities. This scheme helps to enhance the resilience of the industry as a whole.

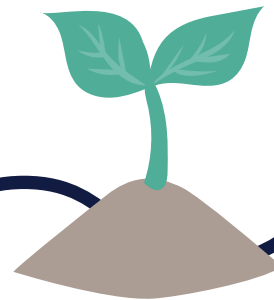
As a Category 2 responder, we attend Local Resilience Forums across Yorkshire together with other organisations including the emergency services, local authorities, the Environment Agency, and others. We work together to plan and prepare for incidents and emergencies that may occur in the region. We also take part in multi-agency exercises to test our emergency preparedness capabilities and identify areas for future development. More recently, we've been collaborating with DEFRA to develop guidance to improve information-sharing and mutual support between the water industry and Local Resilience Forums during incidents. This guidance, which is currently under review, will offer clearer direction from central government on how Category 1 and Category 2 responders can work together to enhance cross-sector resilience.

During all incidents, the health and wellbeing of our customers and colleagues is our primary concern. We hold emergency equipment to deploy where necessary during incidents. This includes temporary flood defences and bulk water supplies placed strategically across the region for a fast response. We also have access to over four million litres of bottled water to provide to customers in the event of a loss of supply, along with a dedicated team to support this activity. For customers that are unable to collect water and have registered to receive priority services, we provide doorstep deliveries to make sure everyone is able to access our essential services in a way that meets their needs.



Learn more about how we're providing extra help and support to our customers who need it most in our **By Your Side** customer strategy.

# Transitioning to a low-carbon economy



**We have a big role to play in addressing climate change and we're working to reduce our carbon emissions as we aim for a net-zero future by 2050 in line with the goals of the 2015 Paris Agreement.**

Adapting to a low-carbon global economy presents both risks and opportunities for how we manage our business in future. These include potential shifts in government policy, new environmental protection regulations, the introduction of carbon taxes, and changes in customer attitudes.

We know that taking early action to reduce our carbon emissions will help to reduce the potential impact of these transition risks in the future. That's why we're working hard to drive down carbon emissions in our operations, the products we buy, and across our wider value chain.

We've set out investment plans to reduce carbon emissions across our business between now and 2030. These include £23m to tackle emissions at wastewater treatment plans, £5m to transition our fleet to electric vehicles and install heat pumps at our sites, and further investment into energy efficiency measures and renewable generation technologies.

We're also looking at opportunities to consider how we can address physical and transition climate risks in tandem. For example, we're making greater use of nature-based sustainable drainage systems to slow the flow of rainfall entering our sewer network, helping us reduce our dependence on energy- and carbon-intensive pumping equipment while also building resilience to more extreme storms expected in future.



Read about our future investment plans, including how we intend to drive down carbon emissions to reach net zero, in our **Business Plan for 2025-2030**



Discover how we're using nature-based solutions as our preferred way to deliver our services in our **Nature First** commitment.

# Managing interdependencies with other sectors

**Adapting successfully to climate change is not something we can achieve by ourselves. We rely on many different sectors to ensure the smooth running of our business, and in many cases those sectors are equally dependent on the essential water and wastewater services we provide to them.**

Identifying upstream and downstream relationships between different sectors is critical to understanding how climate-related risks in one sector could lead to impacts in another. For example, storm events can cause physical damage to power network infrastructure, resulting in temporary outages that lead to operational failures at our treatment works and pumping stations. Similarly, extreme weather events elsewhere in the world can disrupt lower tiers of our international supply chain, impacting the availability of goods and commodities on which we depend. Understanding these risks in more detail helps us develop response plans to reduce cross-sector vulnerabilities and enhance our resilience to climate change.

Where possible, we look to collaborate with others to develop joint responses to climate-related risks. This includes, for example, our ongoing work with Local Resilience Forums, community-based partnerships, regional water resource planning groups, strategic suppliers, and other water companies. These activities help to safeguard our ability to provide safe, reliable and affordable services to our customers in future, while also supporting other sectors to adapt to climate change across the Yorkshire region and beyond.






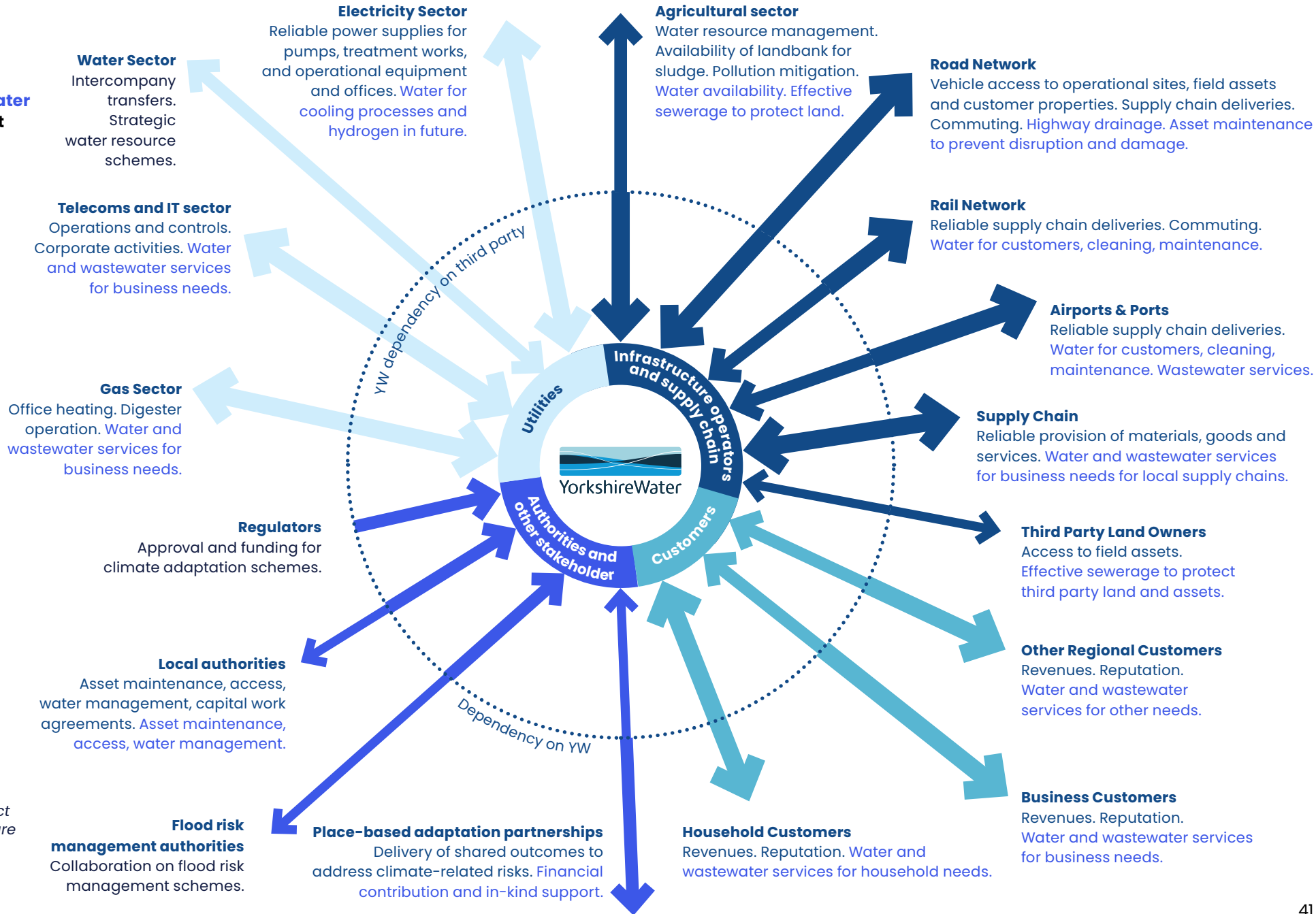


**Key**

**Shared dependencies**  
**Dependent on Yorkshire Water**  
**Yorkshire Water dependent on third party**

**Dependency ranking**

-  Major
-  Moderate
-  Minor



*Yorkshire Water's climate interdependencies with other sectors. Interdependencies are ranked according on the impact that a service reduction or failure by a third party would have on Yorkshire Water's functional delivery (and vice versa).*



## Building power resilience to climate change

Reliable power supplies are critical to keep our pumps and treatment works operating and ensure we can deliver reliable, high-quality services to our customers around the clock.

Extreme weather events such as snow, rain, wind and lightning can cause physical damage to power supply infrastructure, creating the potential for temporary power outages and highlighting the need for investment in power resilience measures. Also, the transition of the national power grid away from fossil fuels towards renewables, coupled with increased electricity demand for transportation and heating, could increase the frequency and number of short-term power outages. Not only does this pose a risk to customer water supplies, but it may also cause infrastructure damage, environmental pollution, and extra work for our colleagues.

To mitigate the risks of temporary power outages, we're investing in new equipment at our treatment works and across our clean and wastewater networks. For example, we're planning to introduce new standby power generators and uninterruptable power supply systems, as well as voltage regulators and electrical control systems that can automatically reset themselves in the event of an outage. We're also engaging with our electricity network provider to ensure our power requirements are reflected in their future plans.

More broadly, we're collaborating with the wider water industry, through Water UK, to develop power resilience plans to reduce the impacts of regional and national power outages. This work has significantly advanced our understanding of the potential impacts on customers should critical assets fail due to power issues, including the speed and scale of those impacts, and we've stress-tested our response plans by carrying out incident management exercises up to Executive level.

We're also exploring innovative solutions to enhance power resilience, such as improving communication links and investigating the use of new technologies like satellite internet. Through this work we aim to strengthen our ability to maintain critical services and communication capabilities during power-related incidents and ensure continued support for our customers.

Finally, we're investing in renewable technologies such as solar, wind and hydropower across our operational sites, with a self-generation target of 40% by 2030. These support our emissions reduction journey to net zero and also reduce our exposure to future volatility in energy markets, helping to keep customer bills affordable while contributing to the UK's long-term energy security.



# Monitoring and evaluation

**We use a range of metrics and targets to help us track our performance and ensure we are making progress in adapting to the challenges of climate change.**

These performance measures are monitored by our Executive team and Board committees, and many are reported each year in publications such as our Annual Performance Report and Annual Report and Financial Statements.

Performance measures are incorporated into our risk management process and used to inform strategic decision making and future investment planning. Appendix 1 provides further details on how we use metrics to monitor the effectiveness of actions we are taking to address climate-related risks. We'll continue to review and refine our approach to adaptation monitoring and evaluation to ensure it remains fit for purpose in future.



For more information about how we're performing, see our latest **[Annual Performance Report](#)**

# Climate adaptation policy requests

**Our ability to successfully adapt to climate change depends on ambitious and robust legislation and policy at a national level, as well as a multi-organisational approach that considers the diverse range of stakeholders involved in water and wastewater management. Therefore, we need support from the government and other stakeholders to accelerate progress on climate adaptation across the whole water cycle and beyond.**

## Building Regulations

As climate change and a growing population place increasing pressure on our water resources, we support changes to Building Regulations to improve water efficiency measures for new homes to help customers reduce their household consumption. These measures include more efficient fixtures and fittings, as well as using rainwater or grey water systems for some activities (e.g. toilet flushing) to reduce demand for drinking water. Whilst changes to Building Regulations would require a step change in the way that developers build new homes, they would play a key role in protecting our precious water resources, as well as saving customers money on their water and energy bills and avoiding the need for costly retrofits in future.

## Water efficiency labelling

In 2025 the Government is due to mandate a new water labelling standard for household goods that use water, such as dishwashers, toilets, and showerheads. This is similar to the UK energy labelling standard and will help customers to choose more water efficient products. The new labelling standard is expected to reduce usage by 20% per person by 2038 and we have included these forecasted benefits in our latest Water Resources Management Plan.

Following the change of government in 2024, we encourage the new government to continue with plans to mandate water labelling from 2025. We suggest these plans could be strengthened further by setting water efficiency mandates for goods manufacturers, with suitable penalties in place to incentivise compliance. This will help ensure we can continue to reduce customer water use, meet future supply pressures, and safeguard our water resources for the long term.

## Sustainable drainage systems

Well-designed SuDS help to build climate resilience by reducing local flood risk, as well as improving water quality, supporting biodiversity, and contributing to peoples' health and wellbeing. Whilst the design principles of SuDS are well-understood, their use as core drainage infrastructure has been hindered because there is currently no designated means of approving, adopting, and managing them once built.

In January 2023 the Government published plans to implement Schedule 3 of the Flood and Water Management Act 2010. This would provide a framework for the approval and adoption of SuDS, as well as making SuDs mandatory for all new developments in England to ensure new builds are flood resilient and help alleviate pressures on drainage and sewerage networks.

Following the change in government in 2024, we urge the new government to proceed with implementing Schedule 3 to help reduce flood risk for local communities, protect the environment, and support our climate adaptation plans.

## Regulatory investment for climate adaptation

Adapting to climate change will require significant investment to build long-term resilience and ensure we can continue to deliver high-quality, reliable services for our customers and protect the environment. However, over the past 20 years, regulatory funding allowances have fallen short of the investment needed to maintain a sustainable level of asset health across the water sector. While we are mindful of ongoing affordability challenges, we believe our customers will benefit most from a proactive approach to investment that allows us to prepare for climate change while keeping bills fair for current and future generations of customers.

## Nature-based solutions

Nature-based solutions can play an important role in mitigating climate-related risks, including catchment interventions to safeguard water resources and constructed wetlands to treat wastewater flows. We're excited about the potential of nature-based solutions and plan to deploy these more widely in future to support our climate adaptation strategy and deliver wider benefits for our customers and the environment.

To help us scale up our use of nature-based solutions across the region and adapt to climate change, we need to address some of the current regulatory barriers that can disincentivise nature-based solutions over traditional engineering approaches. An example of this is the current regulatory stance regarding the use of nature-based solutions to deliver secondary treatment at wastewater treatment works.

In collaboration with others across the water industry, we're now assembling a robust evidence base to demonstrate the efficacy of nature-based solutions for wastewater treatment. We hope that this will lead to a clearer regulatory position in the near future and support the wider use of nature-based solutions in our future investment plans.

As the Government's Independent Commission into the water sector and its regulation commences, there is now a pressing need for a more effective regulatory framework that supports climate change adaptation measures and enables the scale of future investment required to deliver long-term resilience outcomes for our customers and the environment.



# Conclusion

**Climate change has the potential to affect almost every aspect of our business, which is why it's so important that we take action to adapt and prepare for the challenges we're likely to face in future.**

We've made significant progress to adapt to climate change since our last report. As the climate continues to change, we know more work is needed to ensure we can keep delivering reliable, high-quality, and affordable services for our customers in future.

As part of our £8.3bn investment in Yorkshire between 2025 and 2030, we'll be taking further action to enhance our resilience to climate change. This includes safeguarding regional water supplies, reducing the risk of flooding during heavy rainfall events, embracing new technologies for smarter infrastructure management, and helping our customers to use water more efficiently.

We're mindful of the additional pressures this will place on customer bills. Our plans have been designed with fairness and affordability in mind, and we're making extra support available for our customers who need it.

Partnership working is at the heart of our climate adaptation plans. We'll continue to look for opportunities to collaborate with others, helping us to adapt to climate change while delivering wider benefits for nature and local communities. We also need support from government and our other stakeholders to overcome some of our current barriers to adaptation.

**Working together,  
we're confident  
we can secure a  
climate-resilient  
future for Yorkshire.**

# Appendix 1

**Here we provide further details of the steps we've taken and future actions we'll be taking to manage our priority climate-related risks and opportunities.**










Our risk assessment process has matured since our previous report in 2021. The key changes we've made are to:

- move from a qualitative to a quantitative risk assessment process.
- consider climate risks associated with both physical changes and the transition to a low-carbon global economy in our assessment process.
- stress-test the resilience of our long-term strategic plans under different future climate scenarios.







Our risk assessment shows how risks are likely to evolve over time if we took no further action beyond the existing control measures we've already put in place. This underscores the need for further investment to manage and adapt to climate risks across our business operations and infrastructure, as set out in our strategic investment plans.










Because the future is uncertain, we'll keep our risk assessment and future actions under review and update our plans as necessary to ensure we manage our risks appropriately.

































Risk	CCRA3 risk area	Potential impact	Risk score (central scenario)			Recently implemented	Actions			Metrics and reporting
			Short-term	Medium-term	Long-term		To be implemented by 2030	Required beyond 2030		
<b>Acute physical risks</b>										
More frequent and/or severe cold snaps.	n/a	Burst pipes and increased customer contacts, service disruption and pressure on emergency response.				<ul style="list-style-type: none"> <li>Strengthened our emergency response plans in collaboration with Local Resilience Forums.</li> <li>Invested in our calm networks programme to optimise pressure management across our clean water network.</li> </ul>	<ul style="list-style-type: none"> <li>Deploy new technology to improve clean water network visibility and respond to bursts promptly.</li> <li>Develop our proactive forecasting and intervention capacity to find and fix leaks before they occur.</li> </ul>	<ul style="list-style-type: none"> <li>Continued investment in active leakage reduction and network visibility initiatives.</li> </ul>	Leakage; Supply interruptions.	
More frequent and/or severe heatwaves.	I8, H1, H10	Increase in short-term water demand leading to temporary outages. Reservoir misuse by members of the public, creating public health and safety-related incidents.				<ul style="list-style-type: none"> <li>Developed and published our latest Drought Plan.</li> <li>Created a new team of countryside rangers to promote public safety, access and conservation.</li> <li>Delivered ongoing safety and behavioural campaigns.</li> <li>Commenced work on a new service reservoir in Harton, between Malton and York, to boost the resilience of our drinking water network in the area.</li> </ul>	<ul style="list-style-type: none"> <li>Targeted interventions to reduce risk of supply interruptions in areas served by a single source of supply through transfer schemes and linking networks.</li> <li>Development of next Drought Plan covering the period 2027-2032.</li> </ul>	<ul style="list-style-type: none"> <li>Exploration of new strategic water resource options.</li> <li>Continued investment in demand management, active leakage reduction, and network resilience schemes.</li> </ul>	Per capita consumption; Supply interruptions; Risk of severe restrictions in a drought.	
More frequent and/or severe rainfall events.	I2, N4, B1, H3	Flooding of above ground assets, wastewater network inundation, poor quality biosolids and saturated agricultural soils, resulting in service disruption, asset write-offs, pressure on emergency response, sewer flooding, pollution events, and restrictions on ability to recycle biosolids to land.				<ul style="list-style-type: none"> <li>Increased capacity on our wastewater network to reduce sewer flooding and storm discharges Developed emergency flood plans for our vulnerable assets.</li> <li>Updated our design specifications to ensure all new assets are resilient to at least a 1 in 200-year flood event.</li> <li>Delivered one of the largest sewer network monitoring programmes in the sector with the installation of 40,000 customer sewer alarms Increased the scale of our proactive sewer maintenance programme.</li> <li>Begun smart wastewater network trials.</li> <li>Delivered natural flood management programmes to slow the flow of water from upland landscapes.</li> </ul>	<ul style="list-style-type: none"> <li>Enhance targeting of our Sewer Maintenance Plan activity Expansion of close-to-watercourse sewer monitoring Deliver schemes to separate and attenuate surface water and enhance network and treatment work capacity Continue to proactively inspect and maintain our wastewater network Continue to install sewer alarms and sensors to improve visibility of wastewater network performance.</li> <li>Deliver natural flood management programmes to attenuate flows from upland landscapes.</li> <li>Deliver targeted behaviour campaigns Develop our next Drainage and Wastewater Management Plan Expand our flood resilience capabilities within our Partnerships team.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to identify risks and solutions for our wastewater network and treatment works to build resilience to climate change, population growth, urbanisation, and other pressures.</li> <li>Ongoing work to relocate assets and invest in flood resilience measures.</li> <li>Stakeholder collaboration to address shared risks (e.g. flood resilience partnerships).</li> </ul>	Internal sewer flooding; External sewer flooding; Pollution incidents; Biosolids quality, Storm overflows.	












Risk	CCRA3 risk area	Potential impact	Risk score (central scenario)			Actions			Metrics and reporting
			Short-term	Medium-term	Long-term	Recently implemented	To be implemented by 2030	Required beyond 2030	
More frequent and /or severe storm events and coastal storm surge events.	I3, B1	Damage to physical infrastructure and inundation of coastal assets, resulting in service disruption and pressure on emergency response.				<ul style="list-style-type: none"> <li>Delivery of coastal resilience activities through our Living with Water partnership in Hull.</li> </ul>	<ul style="list-style-type: none"> <li>Commence delivery of the Storm Overflow Discharge Reduction Programme for coastal assets.</li> <li>Continue to build strategic partnerships with local authorities, regulators and other stakeholders to address coastal risks.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to identify risks and solutions for our wastewater network and treatment works to build resilience to climate change, population growth, urbanisation, and other pressures.</li> <li>Finalise delivery of the Storm Overflow Discharge Reduction Programme for coastal assets.</li> </ul>	Emergency response costs; insurance premiums.
<b>Chronic physical risks</b>									
Increased winter rainfall.	N4, H10, I2	Increased soil erosion and runoff of pollutants from uplands, fields and roads and high groundwater levels, resulting in raw water quality deterioration due to contamination of water sources and groundwater infiltration of the sewer network.				<ul style="list-style-type: none"> <li>Brought over 10,000ha Yorkshire Water land under Beyond Nature management, providing multiple benefits for water supplies, people and nature.</li> <li>Delivered catchment management activities in upland areas (e.g. peatland restoration, leaky dam installation, tree planting) and engaged with farmers and landowners across the region.</li> <li>Invested in treatment works to address changes in raw water quality. Carried out intensive CCTV surveys to identify blockages and inform sewer maintenance and lining programmes.</li> </ul>	<ul style="list-style-type: none"> <li>Install new treatment processes at water treatment works to address forecasted raw water deterioration risks.</li> <li>Continue to deliver catchment management activities and engage with catchment landowners and farmers.</li> <li>Conduct investigations to inform future catchment permitting schemes. Strengthen our approach to catchment management partnerships (e.g. Moors for the Future, Landscapes for Water).</li> <li>Undertake a sewer lining programme to reduce groundwater infiltration.</li> </ul>	<ul style="list-style-type: none"> <li>Enhance our support for regenerative agricultural partnerships.</li> <li>Continued investment in catchment management activities and at clean water treatment works to address risks to water quality.</li> </ul>	Water quality contacts.

Risk	CCRA3 risk area	Potential impact	Risk score (central scenario)			Actions			Metrics and reporting
			Short-term	Medium-term	Long-term	Recently implemented	To be implemented by 2030	Required beyond 2030	
Hotter, drier summers.	I8, H3, H10, N4, N11, N12	Pressure on water resources, wildfires and potential degradation of raw water catchments, surface runoff from parched soils, algae growth and cyanobacterial blooms in reservoirs, network blockages, the introduction and spread of invasive non-native species, resulting in temporary use bans, raw water quality deterioration, taste and odour issues, sewer flooding, pollution events, damage to assets and the environment.				<ul style="list-style-type: none"> <li>Delivered catchment management activities in upland areas (e.g. peatland restoration, leaky dam installation, tree planting).</li> <li>Delivered our invasive non-native species programme Installed real-time water quality monitors for dynamic source control.</li> <li>Reduced water demand through leakage reduction and other demand-side initiatives Increased the scale of our proactive sewer maintenance programme.</li> </ul>	<ul style="list-style-type: none"> <li>Investment in active leakage reduction activities.</li> <li>Rollout of 1.3m smart meters to household and non-household customers across the region.</li> <li>Behavioural change campaigns to promote responsible water and wastewater management Development of new river and groundwater abstraction sites.</li> <li>Development of next Water Resources Management Plan.</li> <li>Catchment management activities to tackle risks to water quality at source.</li> <li>Ongoing investment at wastewater treatment works.</li> </ul>	<ul style="list-style-type: none"> <li>Exploration of new strategic water resource options. Continued investment in demand management and active leakage reduction.</li> <li>Upgrade all remaining meters to smart meter technology.</li> <li>Continued investment in catchment management activities and at clean water and wastewater treatment works.</li> </ul>	Water supply interruptions; Water quality contacts; Supply-demand balance; Internal sewer flooding; External sewer flooding; Pollution incidents.
Sea level rise.	B1, B2, I3	Coastal erosion, flooding, and restricted outfalls, resulting in damage to assets and service disruption.				<ul style="list-style-type: none"> <li>Relocated our wastewater treatment works at Withernsea further inland to mitigate risks of coastal erosion.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to monitor assets at risk of sea level rise and develop appropriate response plans as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Consider sea level rise and risks to coastal assets in future asset planning decisions.</li> </ul>	Number of assets at risk from sea level rise.
<b>Transition risks</b>									
Lack of supply chain capacity or readiness to decarbonise at the pace required	n/a	Continued reliance on a carbon-intensive supply chain, resulting in increased capital and operating costs and a reputational impact.				<ul style="list-style-type: none"> <li>Developed our Net Zero strategy. Published our Sustainable Procurement Code for suppliers.</li> <li>Collaborated with the Supply Chain Sustainability School to provide free training and support to our suppliers.</li> <li>Required consideration of capital carbon in procurement decisions.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to increase our supplier net zero skills and knowledge (e.g. through access to Sustainability Supply Chain School resources).</li> <li>Encourage suppliers to set science based emission reduction targets. Improve supplier carbon data collation to support decision making that aligns to our net zero goals.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing engagement and collaboration to ensure supplier decarbonisation plans align with Yorkshire Water's net zero pathway.</li> </ul>	Greenhouse gas emissions.

Risk	CCRA3 risk area	Potential impact	Risk score (central scenario)			Actions			Metrics and reporting
			Short-term	Medium-term	Long-term	Recently implemented	To be implemented by 2030	Required beyond 2030	
Temporary power outages linked to decarbonisation of the electricity grid.	I1	Unexpected shutdowns of electrical equipment, resulting in asset damage and disruption to service provision.				<ul style="list-style-type: none"> <li>Collaborated with the wider water industry, through Water UK, to develop power resilience plans to reduce the impacts of regional and national power outages.</li> </ul>	<ul style="list-style-type: none"> <li>Investment in power supply resilience equipment (e.g. backup generators, voltage regulators) at higher-risk sites.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to invest in power resilience solutions and develop appropriate resilience plans in collaboration with external stakeholders.</li> </ul>	Site shutdowns attributed to power outages.
Introduction of new environmental protection requirements.	B4	Increased carbon and energy footprint associated with new capital works or changes in operating processes, resulting in increased costs and slowing of progress to net-zero.				<ul style="list-style-type: none"> <li>Integration of whole life carbon assessments and carbon price into our programme and project decision making and optioneering approaches.</li> <li>Use of nature based solutions to deliver our services where practicable in line with our Nature First commitment.</li> </ul>	<ul style="list-style-type: none"> <li>Continued application of whole life carbon assessments within our capital programme and targeted capital and operation carbon reductions.</li> <li>Increase deployment of renewable energy Increase use of nature based solutions in line with our Nature First commitment.</li> <li>Continue working in partnership with our supply chain to test and pilot emerging low/zero carbon technologies and approaches.</li> </ul>	<ul style="list-style-type: none"> <li>Wider deployment of solutions to mitigate wastewater process emissions including nitrous oxide and methane emissions.</li> <li>Reductions in the embedded emissions associated with the purchased goods and services that are aligned to our net zero pathway.</li> </ul>	Greenhouse gas emissions.
Increased societal expectations to transition to a low-carbon economy.	B4	Demand for further progress from investors, resulting in an increased cost of capital if not achieved.				<ul style="list-style-type: none"> <li>Development of net zero strategy. Delivery of operational and capital greenhouse gas reduction targets.</li> <li>Integration of net zero into Yorkshire Water's business plan for the 2025-2030 period and Long-term Delivery Strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Establish of a science aligned net zero target and pathway.</li> <li>Continue to reduce emissions in line with our net zero plan.</li> <li>Ongoing engagement with stakeholders to drive down emissions across our value chain.</li> </ul>	<ul style="list-style-type: none"> <li>Continued investment in science aligned emissions reductions pathways across all emission scopes.</li> </ul>	Cost of capital.
Pace of regulatory change misaligned to the climate transition timeline.	B4	Insufficient regulatory funding for climate-related investments, leading to lack of resilience and stranded assets.				<ul style="list-style-type: none"> <li>Developed and submitted investment proposals for resilience and net zero activities in our business plan for the 2025-2030 period.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a robust business plan for the 2030-35 period informed by latest climate science and customer research to secure investment to address climate-related risks.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to engage with government, regulators, investors and other stakeholders to make the case for funding to address climate-related risks.</li> </ul>	Regulatory funding allocated for climate adaptation activities.
National emergency water transfer to other regions.	I8, H10	Increased demand for water resources, resulting in supply interruptions and temporary use bans.				<ul style="list-style-type: none"> <li>Worked in partnership with Water Resources North to develop an integrated approach to regional water resource planning.</li> </ul>	<ul style="list-style-type: none"> <li>Development of our next Water Resources Management Plan in collaboration with Water Resources North and other relevant stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>Potential development of new strategic resource options to safeguard future water supplies.</li> </ul>	n/a

Risk	CCRA3 risk area	Potential impact	Risk score (central scenario)			Recently implemented	Actions			Metrics and reporting
			Short-term	Medium-term	Long-term		To be implemented by 2030	Required beyond 2030		
Expansion of low-carbon hydrogen production in the Yorkshire region	18, 19	Increased demand for water resources, resulting in supply interruptions and temporary use bans.				<ul style="list-style-type: none"> <li>Worked in partnership with Water Resources North to develop an integrated approach to regional water resource planning.</li> </ul>	<ul style="list-style-type: none"> <li>Development of our next Water Resources Management Plan in collaboration with Water Resources North and other relevant stakeholders, including the hydrogen sector.</li> </ul>	<ul style="list-style-type: none"> <li>Potential development of new strategic water resource options to safeguard future water supplies and hydrogen generation capacity.</li> </ul>	Water supply interruptions; Supply-demand balance.	
<b>Chronic physical opportunities</b>										
Hotter, drier summers.	n/a	Reduced heating demand for wastewater treatment processes, resulting in cost efficiencies.				<ul style="list-style-type: none"> <li>No action required.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>	Wastewater operational expenditure.	
<b>Transition opportunities</b>										
Emergence of low-energy or nature-based treatment technologies.	n/a	Reduced energy and chemical consumption, resulting in cost efficiencies and reduced emissions				<ul style="list-style-type: none"> <li>Trialled the use of nature-based solutions, such as our integrated constructed wetland at Clifton.</li> <li>Launched our Nature First commitment.</li> </ul>	<ul style="list-style-type: none"> <li>Increase the use of nature-based solutions to manage and treat wastewater.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to use nature-based solutions as our preferred way of delivering our services where practicable.</li> </ul>	Greenhouse gas emissions; operational expenditure.	
Roll-out of smart household water meters.	n/a	More effective water demand management, resulting in reduced pressure on water resources.				<ul style="list-style-type: none"> <li>Piloted trials of smart meters to better understand their risks and opportunities to our business and customers.</li> </ul>	<ul style="list-style-type: none"> <li>Replace up to 1.4 million customer meters that have reached their end of life with smart meters.</li> </ul>	<ul style="list-style-type: none"> <li>Upgrade all remaining household and non-household meters to smart meter technology (with relevant infrastructure) by 2040.</li> </ul>	Smart meter penetration; Per capita consumption.	
Introduction of water efficiency labelling and increased public awareness of water consumption	n/a	Reduction in per capita consumption, resulting in reduced pressure on water resources.				<ul style="list-style-type: none"> <li>Reached over 135,000 people through our public education programme to raise awareness of the need the water efficiency and encourage behavioural change.</li> <li>Delivered targeted customer communication campaigns. Engaged with key regional and national stakeholders to make the case for policy change to support water efficiencies.</li> </ul>	<ul style="list-style-type: none"> <li>Expand our Education programme to deliver more targeted messages to influence water use behaviours.</li> <li>Continue to press for policy changes, including through engagement with the governments review of the wider water sector.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing customer and wider stakeholder engagement activities.</li> </ul>	Per capita consumption.	

Risk	CCRA3 risk area	Potential impact	Risk score (central scenario)			Recently implemented	Actions			Metrics and reporting
			Short-term	Medium-term	Long-term		To be implemented by 2030	Required beyond 2030		
Lower costs of renewable energy solutions.	n/a	Increased renewables deployment on operational sites, resulting in greater security of energy supply.				<ul style="list-style-type: none"> <li>Deployed renewable technologies such as solar, wind and hydropower across our operational sites.</li> </ul>	<ul style="list-style-type: none"> <li>Expand renewable energy technology deployment to reach 40% self-generation by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to build self-generation capacity across our estate.</li> </ul>	Renewable energy generation.	
Increased demand for low-carbon materials.	B7	Emergence of resource recovery markets, for example, biosolids, resulting in new revenue streams.				<ul style="list-style-type: none"> <li>Trialled resource recovery pilot schemes such as nutrient recovery from sludge and gas-to-grid schemes.</li> </ul>	<ul style="list-style-type: none"> <li>Continued exploration of resource recovery initiatives through our Bioresources strategy and Innovation programme.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing review of market opportunities.</li> </ul>	n/a	
Increased societal expectations to transition to low-carbon economy.	n/a	Greater customer support for climate-related activities, resulting in increased likelihood of regulatory approval for climate-related investment.				<ul style="list-style-type: none"> <li>Customer engagement activities to shape our business plan for the 2025-2030 period.</li> </ul>	<ul style="list-style-type: none"> <li>Customer engagement activities to ensure their needs and expectations are reflected in our next business plan.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing customer engagement activities to shape our long-term strategic plans.</li> </ul>	Customer sentiment.	

# Appendix 2

**In this section we provide an update on the actions we set out in our previous climate adaptation report in 2021. Where actions have not yet been fully completed, we've incorporated these into our new action plan as set out in Appendix 1.**

Risk	CCRA3 risk area	In our previous report, we said we would...	Since then, we have...
Risks to public water supply from droughts and low river flows.	18	<ul style="list-style-type: none"> <li>Invest to reduce leakage across our clean water network.</li> <li>Engage with our customers to reduce demand for water.</li> <li>Improve the resilience of our clean water network infrastructure to drought.</li> </ul>	<ul style="list-style-type: none"> <li>Trialled smart metering to reduce customer water demand, putting the foundations in place for a wider rollout of 1.3m smart meters by 2030.</li> <li>Reduced leakage by 12.7% from a 2020 baseline, placing us on track for a 15% reduction this year.</li> <li>Reached over 135,000 people through our public education programme to raise awareness of the need the water efficiency and encourage behavioural change.</li> <li>Commenced work on a new service reservoir in Harton, between Malton and York, to boost the resilience of our drinking water network in the area.</li> <li>Developed and published our latest Drought Plan.</li> <li>Developed and published our latest Water Resources Management Plan.</li> </ul>
Risks to infrastructure from river, surface, and ground water flooding.	12	<ul style="list-style-type: none"> <li>Strengthen our emergency planning and response capabilities.</li> <li>Deliver natural flood management schemes in upland areas.</li> <li>Invest in our reservoir assets to ensure they remain resilient to flood events.</li> <li>Create an asset flood risk database.</li> <li>Take a more holistic approach to management flood risk by working in partnership with others.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthened our emergency planning and response capabilities through training, planning, and exercises including participation in Local Resilience Forums.</li> <li>Mapped our assets against flood risk zones and used this information to create a flood resilience screening tool to inform future investment.</li> <li>Updated our design specifications to ensure all new assets are resilient to at least a 1 in 200-year flood event.</li> <li>Developed emergency flood plans for our vulnerable assets.</li> <li>Carried out capital improvements to our reservoirs focusing on spillways and upgrading outlet facilities for emergency draw downs.</li> <li>Delivered landscape-scale natural flood management activities, such as our Landscapes for Water partnership with the National Trust.</li> </ul>

Risk	CCRA3 risk area	In our previous report, we said we would...	Since then, we have...
Risks to infrastructure services from coastal flooding and erosion.	13	<ul style="list-style-type: none"> <li>• Monitor coastal erosion rates and to proactively relocate our at-risk assets.</li> <li>• Continue to explore opportunities to work in partnership to manage our coastal risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Completed the relocation our wastewater treatment works at Withernsea further inland to mitigate risks of coastal erosion.</li> <li>• Continued to deliver coastal resilience activities through our Living with Water partnership in Hull.</li> </ul>
Risks to bridges and pipelines from high river flows, bank erosion or subsidence.	14	<ul style="list-style-type: none"> <li>• Install sensors and monitoring equipment to improve clean and wastewater network visibility.</li> <li>• Note: our assessment indicates this risk is relatively low, hence there are fewer mitigating actions compared to other risks in this report.</li> </ul>	<ul style="list-style-type: none"> <li>• Installed sensors and monitoring equipment across our clean and wastewater networks to monitor performance and resolve issues promptly.</li> </ul>
Risks to natural capital.	n/a	<ul style="list-style-type: none"> <li>• Reduce environmental impacts from our wastewater treatment works.</li> <li>• Improve visibility of our storm overflow operations.</li> <li>• Tackle the spread of invasive species.</li> <li>• Invest to improve freshwater and terrestrial biodiversity across the region.</li> </ul>	<ul style="list-style-type: none"> <li>• Invested over £500m to reduce environmental impacts from wastewater treatment works, including reducing phosphorus loads, increasing flow treatment capacity, and tightening contaminant removal processes.</li> <li>• Installed monitors on 100% of our storm overflows.</li> <li>• Invested over £20m on biodiversity and conservation schemes to reduce invasive species risks and enhance nature across the region.</li> </ul>
Risks from cascade impacts.	11	<ul style="list-style-type: none"> <li>• Maintain our business continuity capabilities.</li> <li>• Strengthen our emergency planning and response capabilities.</li> <li>• Play an active part in local, regional, and national emergency planning exercises.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensured our business continuity plans remain fit for purpose and under continual review.</li> <li>• Enhanced our emergency planning and response capabilities through investment in equipment, training, and supply chain partners.</li> <li>• Continued to support our Local Resilience Forums across Yorkshire to understand shared risks, plan for emergencies, and run joint training exercises.</li> </ul>

# Thank you for reading



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